PARC NATIONAL ALBERT. — MISSION G. F. DE WITTE (1933-1935)

Fascicule 98

CALLIPHORIDAE [1]

(DIPTERA CYCLORRHAPHA)

Part. III: **MILTOGRAMMINAE**

BY

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PREFACE

The first two parts of my revision of the *Calliphoridae* of the Ethiopian region, published in 1956 as part 87 and in 1958 as part 92 of the « Exploration du Parc National Albert, Mission G. F. DE WITTE (1933-1935) », dealt with the *Calliphorinae*. I am now presenting the *Miltogramminae* according to my key given on page 6 of the first book. This subfamily does not include the *Rhinophorinae* which I now regard, following W. L. DOWNES (1955), as being more closely related to the *Tachinidae* than to the *Calliphoridae*. I have also omitted the *Agriini* which DOWNES assigned as a tribe to the *Miltogramminae*, and I shall deal with them, as originally proposed, in the forthcoming section on the *Sarcophaginae*. The *Miltogramminae* in this book therefore comprise only the tribe *Miltogrammini* sensu DOWNES. In the last part of my revision, dealing with the *Sarcophaginae*, I shall refer in more detail to the higher classification proposed by this author.

Subfamily MILTOGRAMMINAE.

The higher classification of the miltogrammid flies has been discussed by several recent authors, including ROHDENDORF, 1930 and 1937, SÉGUY, 1941, ZUMPT, 1952, and DOWNES, 1955. For characterizing the *Miltogramminae*, ZUMPT used the structure of the male postabdomen which is composed of 3 free segments. This has been accepted by DOWNES. ROHDENDORF (1930), followed by SÉGUY (1941), attributed great importance to the second tibia

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having only one or several antero-dorsal bristles, and he separated the *Paramacronychiinae* from the *Miltogramminae* mainly on account of this feature. In 1937 he distinguished the *Metopiinae* (a new name for the *Miltogramminae*) from the *Macronychiinae* (= *Paramacronychiinae* 1930, = *Brachycomini* SÉGUY, 1941) by some other features which are still less convincing. The number of antero-dorsal bristles of the 2nd tibia can be used as a generic feature, but it certainly does not represent a feature of higher phylogenetic value.

Apart from the structure of the postabdomen, an important characteristic of the *Miltogramminae* seems to be the extremely broad thoracic squama. This feature separates the *Miltogramminae* from the *Rhinophorinae* which show in addition a more or less distinctly developed postscutellum. The arista is composed of three segments, the two basal ones usually being very short. Furthermore, the arista is bare or beset with only relatively short setae. The frons is broad in both sexes and the head chaetotaxy therefore commonly fully developed also in the male. The number of fronto-orbital bristles may be greatly increased. The chaetotaxy of the thorax may be almost complete or more or less reduced. The legs sometimes show characteristic additional hairs and bristles.

The most important and very often the only reliable feature for recognizing the different species is the hypopygium. The so-called outer features are of extreme variability in many species; this applies even to those features which have been used by former authors for separating generic units. It is furthermore often very difficult, as in the *Sarcophaginae*, to assign female specimens caught in the field to a certain species characterized by the male terminalia. On the one hand, the female sex may be so different from the male that only a careful biological observation can confirm their specific identity. On the other hand, females of related species may be morphologically so similar that a correct assignment to one or other species is not possible.

Miltogramminae are rarely found by collectors not especially interested in this group. Most species have a close association with termites and *Hymenoptera*, in the nests of which the larvae live as predators, parasites, or even as true guests, as for instance *Termitometopia skaifei* ZUMPT. In order to collect *Miltogramminae* it is therefore necessary to be acquainted with the bionomics of their hosts.

For this reason, the number of genera and species listed for the Ethiopian region most probably represents only a small percentage of the fauna really in existence. I myself have in my collection a fair number of species, and even genera, which I have not yet described because they are represented only by single, often not very well preserved specimens, or by females only. When more material becomes available for study, the generic and higher classification of the *Miltogramminae*, which is not in a very satisfactory state at present, will have to be discussed again.

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

Scientific name	Recorded from	
	Belgian Congo	P.N.A.
1. *Hoplacephala tessellata* MACQUART	—	—
2. *Hoplacephala retroseta* VILLENEUVE	—	—
3. *Hoplacephala inermis* VILLENEUVE	—	—
4. *Hoplacephala nigriventris* VILLENEUVE	+	—
5. *Hoplacephala lateralis* CURRAN	—	—
6. *Hoplacephala tristis* (SÉGUY)	—	—
7. *Hoplocephalopsis schistacea* VILLENEUVE	+	—
8. *Hoplocephalopsis maculosa* (VILLENEUVE)	—	—
9. *Curranitopia irvingi* (CURRAN)	—	—
10. *Curranitopia stannusi* (CURRAN)	—	—
11. *Termitometopia skaifei* ZUMPT	—	—
12. *Sankisius excisus* VILLENEUVE	+	—
13. *Hoplatainia pilosa* n. sp.	—	—
14. *Senotainia caffra* (MACQUART)	—	—
15. *Senotainia cuthbertsoni* ZUMPT	—	—
16. *Senotainia pollenia* (CURRAN)	—	—
17. *Senotainia grisea* (VILLENEUVE)	—	—
18. *Senotainia smithersi* n. sp.	—	—
19. *Senotainia transvaalensis* n. sp.	—	—
20. *Senotainia dubiosa* n. sp.	—	—
21. *Senotainia nuda* ZUMPT	—	—
22. *Senotainia ravilla* n. sp.	—	—
23. *Senotainia pretoria* (CURRAN)	—	—
24. *Senotainia wilkini* n. sp.	—	—
25. *Senotainia albifrons* (RONDANI)	+	—
26. *Senotainia patersoni* n. sp.	—	—

Scientific name	Recorded from	
	Belgian Congo	P.N.A.
27. *Noditermitomyia currani* n. sp.	—	—
28. *Noditermitomyia arabops* SÉGUY	—	—
29. *Paraphylloteles hessei* ZUMPT	—	—
30. *Paraphylloteles degener* n. sp.	—	—
31. *Senotainiella pelopei* (RONDANI)	—	—
32. *Pachyophthalmus signatus* (MEIGEN)	—	—
33. *Metopia deficiens* VILLENEUVE	—	—
34. *Metopia benoiti* n. sp.	+	+
35. *Metopia brincki* ZUMPT	—	—
36. *Metopodiella eos* n. sp.	—	—
37. *Metopodiella rhodesiense* n. sp.	—	—
38. *Hilarella aethiopica* n. sp.	—	—
39. *Hilarella helva* VILLENEUVE	—	—
40. *Taxigramma biseta* (VILLENEUVE)	—	—
41. *Araba natalensis* n. sp.	—	—
42. *Craticulina fimbriata* BEZZI	+	—
43. *Craticulina transvaalensis* n. sp.	—	—
44. *Pterella rubriventris* (VILLENEUVE)	—	—
45. *Pterella liberiensis* n. sp.	—	—
46. *Pterella triseriata* CURRAN	—	—
47. *Pterella africana* CURRAN	—	—
48. *Pterella santos-diasis* n. sp.	—	—
49. *Pterella obscurior* (VILLENEUVE)	—	—
50. *Pterella angustifrons* (VILLENEUVE)	—	—
51. *Miltogramma helvum* VILLENEUVE	—	—
52. *Miltogramma seriatum* SPEISER	—	—
53. *Miltogramma cuthbertsoni* CURRAN	+	—
54. *Miltogramma hirtimanum* BEZZI	+	—
55. *Miltogramma munroi* CURRAN	+	—

Scientific name	Recorded from	
	Belgian Congo	P.N.A.
56. *Miltogramma maculigerum* SPEISER	—	—
57. *Apodacra dispar* VILLENEUVE	—	—
58. *Apodacra stevensoni* n. sp.	—	—
59. *Apodacra natalensis* VILLENEUVE	—	—
60. *Dolichotachina cuthbertsoni* ROHDENDORF	—	—
61. *Dolichotachina bechuanae* n. sp..	—	—
62. *Dolichotachina nigeriensis* n. sp.	—	—
63. *Dolichotachina caudata* VILLENEUVE	—	—

KEY TO THE GENERA OF THE ETHIOPIAN REGION.

1 (18) Eyes hairy in both sexes, but in many species, the setae are sparse and short, or the pilosity is less developed in the female sex than in the male 2

2 (3) Arista in the male sex leaf-like. (Females of this genus are not yet known, but may have a bristle-like arista and would then run down to *Senotainia*) ..... 9. *Paraphylloteles* ZUMPT (p. 59).

3 (2) Arista in both sexes bristle-like 4

4 (13) Mid-tibia with 2 or 3 antero-dorsal bristles 5

5 (6) Arista with long hairs, the longest about 3 times as long as the width of the base of the arista ..... 5. *Sankisius* VILLENEUVE (p. 29).

6 (5) Arista bare or short-pilose 7

7 (8) Vibrissa not distinguishable; row of parafrontal bristles irregular, partly doubled, parafrontalia and -facialia with long dense hairs ... 4. *Termitometopia* ZUMPT (p. 29).

8 (7) Vibrissa well distinguished 9

9 (12) Propleuron bare 10

10 (11) Parafacialia without a row of strong, demarcated bristles near the inner edge, but densely beset with normal or bristly hairs. Ocellar bristles weak or indistinct in the male, but well developed in the female ..... 1. *Hoplacephala* MACQUART (p. 9).

11 (10) Parafacialia at the inner edge with a row of strong bristles which, by their length and thickness, are easily distinguishable from the remaining parafacial hairs and setae. If these features are not distinct in the male sex, the ocellar bristles are long and thick ..... 2. *Hoplocephalopsis* VILLENEUVE (p. 19).

12 (9) Propleuron with setae in the upper part. Otherwise similar to *Hoplacephala* ..... 3. *Curranitopia* gen. nov. (p. 25).

13 (4) Mid-tibia with only one antero-dorsal bristle 14

14 (17) R_5 open 15

15 (16) Parafacialia densely beset with black bristles and bristly hairs ..... 6. *Hoplatainia* gen. nov. (p. 32).

16 (15) Parafacialia with short and thin hairs only, or nearly bare ..... 7. *Senotainia* MACQUART (p. 34).

17 (14) R_5 closed. Otherwise like *Senotainia* ..... 8. *Noditermitomyia* SÉGUY (p. 56).

18 (1) Eyes bare 19

19 (20) R_5 distinctly petiolate ..... 20. *Apodacra* MACQUART (p. 116).

20 (19) R_5 closed only at the margin or distinctly open 21

21 (22) Fore-coxa very slender, ½-⅔ as long as the fore-femur; fore-tarsus extremely long, the whole first leg at least as long as the body. Only males are known in the Ethiopian region ..... 21. *Dolichotachina* VILLENEUVE (p. 121).

22 (21) First leg of usual length 23

23 (26) Facial ridge with a row of strong bristles reaching or surpassing the middle 24

24 (25) Arista shorter than the 3rd antennal segment, not surpassing the vibrissa ..... 17. *Craticulina* BEZZI (p. 85).

25 (24) Arista longer than the 3rd antennal segment, surpassing the vibrissa ..... 16. *Araba* ROB.-DESVOIDY (p. 82).

26 (23) Facial ridge bare or with only a few bristles near the vibrissa ... 27

27 (30) R_5 closed at the margin 28

28 (29) Arista long, pubescent. Last part of *cu* shorter than the foregoing one. (Between upper and lower cross-veins) ..... 14. *Hilarella* RONDANI (p. 76).

29 (28) Arista short, pubescent. Last part of *cu* as long or longer than the foregoing one ..... 15. *Taxigramma* MACQUART (p. 78).

30 (27) R_5 open at the margin 31

31 (34) Parafacialia with one row of long and thick bristles 32

32 (33) Third antennal segment very slender, 4-6 times as long as the second. Row of parafacial bristles dense and complete, covering the whole length of the inner edge of the parafacialium ..... 12. *Metopia* MEIGEN (p. 66).

33 (32) Third antennal segment short, not more than twice as long as the second. Row of parafrontal bristles irregular and incomplete, more or less shortened towards the profrons ..... 13. *Metopodiella* gen. nov. (p. 70).

34 (31) Parafacialia without a row of thick bristles 35

35 (38) Arista relatively short, not or hardly reaching beyond the vibrissa, thickened in the basal half or more 36

36 (37) Vibrissa distinct, longer and thicker than the neighbouring peristomal bristles. Mid-tibia normally with only one antero-dorsal submedian bristle ..... 18. *Pterella* ROB.-DESVOIDY (p. 93).

37 (36) Vibrissa not distinguishable from the peristomal bristles. Mid-tibia with two or more antero-dorsal bristles ..... 19. *Miltogramma* MEIGEN (p. 106).

38 (35) Arista long and thin, distinctly reaching beyond the vibrissa, less than the basal half thickened 39

39 (40) Row of parafrontal bristles accompanied in its total length by a row of weaker fronto-orbitals which may be taken for a second row of *paf.* 11. *Pachyophthalmus* BRAUER and BERGENSTAMM (p. 63).

40 (39) Not more than 5 pairs of fronto-orbital bristles present, or they are not developed at all 41

41 (42) Fronto-orbital bristles not developed, but parafrontalia densely beset with long black hairs ..... 10. *Senotainiella* ZUMPT (p. 62).

42 (41) Fronto-orbital bristles clearly developed, parafrontalia with short hairs or setae respectively, or practically bare ..... 7. *Senotainia* MACQUART (p. 34).

Genus **HOPLACEPHALA** MACQUART.

Hoplacephala MACQUART, Mém. Soc. R. Sci. Lille, 1844 (1845), p. 283; VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 107 (*Hoplocephala* err.); CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 418; TOWNSEND, Man. Myiol., VI, 1938, p. 117; ZUMPT, Proc. R. Ent. Soc. Lond., (B), XXI, 1952, p. 6.

Type species : *Hoplacephala tessellata* MACQUART from S. Africa. *Dichaetometopia* MACQUART, Dipt. exot., V, 1855, p. 126; TOWSEND, Man. Myiol., VI, 1938, p. 117.

Type species : *Dichaetometopia rufiventris* MACQUART (= *tessellata* MACQUART) from Natal.

CURRAN (1928) has revised the genus *Hoplacephala* s. lat. in which he included *Hoplocephalonea* VILLENEUVE, *Sankisius* VILLENEUVE, *Hoplocephalella* VILLENEUVE, *Hoplocephalopsis* VILLENEUVE and *Hoplocephalina* VILLENEUVE as subgenera. According to TOWNSEND (1938), the type species of *Hoplocephalella*, namely *H. signata* VILLENEUVE from Durban, is a synonym of *Lamprometopia caffra* MACQUART, and *Lamprometopia* itself has been synonymized by ZUMPT (1952) with *Senotainia* MACQUART. VILLENEUVE's genus *Hoplocephalonea* from Egypt (Palaearctic region) has remained unknown to me, but is regarded at present as a distinct genus. In this paper *Hoplacephala* s. str. is restricted to the *tessellata*-group, where as those species with a row of strong parafacial bristles are assigned to the genus *Hoplocephalopsis*, of which *Hoplocephalina* is regarded a synonym. *Hoplacephala irvingi* CURRAN is made the type species of a new genus named in honour of Dr. C. H. CURRAN, New York.

Recently SÉGUY described a *Dichaetometopia tristis* n. sp. » from the environs of Chemba, Mozambique. According to the description, it should be related to *Hoplacephala retroseta* VILLENEUVE, but the author mentions that the ocellar bristles are distinct and the parafacialia provided with a row of strong bristles. These features would count for *Hoplocephalopsis* and not for *Hoplacephala*. The original description is quoted on page 18.

The genus *Hoplacephala* contains at present 5 or 6 species, of which 4 are before me. They are well characterized in the male sex, but the females are not identifiable down to the species. There are female specimens at my disposal which undoubtedly belong to *Hoplacephala*, but they may be referred to either *H. tessellata* (the most common species), *H. retroseta* or *H. inermis*. It is also possible that among these females all three species are represented, and that they are not separable by the commonly used outer features. The females of the remaining species should be distinguishable from the *tessellata*-complex, but they have not yet been described and I have none before me which could be referred to any of these 3 species.

The three species of the *tessellata*-complex are characterized by a still greater sexual dimorphism than *Hoplocephalopsis schistacea* VILLENEUVE, the female of which is very similar to those of the *tessellata*-complex; however, the row of parafacial bristles is wanting in *Hoplacephala* and present in *Hoplocephalopsis*. The males of the three species in the *tessellata*-complex are well distinguished by the head chaetotaxy, but curiously enough, not by the terminalia.

Nothing is known about the biology of the *Hoplacephala* species, but it should be similar to that of *Hoplocephalopsis schistacea*, as described by CUTHBERTSON.

KEY TO THE SPECIES.

1 (2) The posterior pair of parafrontal bristles in the male sex about as long as the head is high and isolated from one another, the anterior 4-6 pairs cruciate and of normal length.

Head and thorax in the male sex black, tip of scutellum reddish; abdomen reddish, with a black pattern consisting of broad median vittae. Female completely black, with a thick greyish-white pollinosity forming longitudinal dark stripes on the mesonotum and spots on the abdomen. 10-13 mm. — South Africa, Kenya ..... 1. *H. tessellata* MACQUART.

2 (1) No pair of parafrontal bristles of unusual length 3

3 (4) Frons of male in the anterior half with 3-5 pairs of cruciate *paf* and in the middle with one pair of reclinate parafrontal bristles.

Otherwise very similar to the foregoing species, and probably not separable at all in the female sex. 10-13 mm. — South Africa ..... 2. *H. retroseta* VILLENEUVE.

4 (3) Frons of male with 4-6 pairs of cruciate parafrontal bristles in the anterior half, reclinate ones are not present 5

5 (6) Male abdomen ventrally predominantly reddish, only with a narrow median stripe covering the sternites and the tergal edges. Parafacialia with long and dense, but very fine hairs.

Colouring of male similar to that of *H. tessellata*. The female is not known and may be not separable from the foregoing species. 10-13 mm. — South Africa, Kenya ..... 3. *H. inermis* VILLENEUVE.

6 (5) Male abdomen ventrally almost completely black or there are at least lateral black spots 7

7 (8) Outer vertical bristle in male as long and strong as the inner one; abdomen ventrally almost completely black.

Also separable from the foregoing species by the thicker parafacial hairs. The female sex is not known. 9 mm. — Congo ..... 4. *H. nigriventris* VILLENEUVE.

8 (7) Outer vertical bristle in male indistinct, abdomen more broadly reddish, ventrally with a well demarcated median vitta and with lateral spots, dorsally with median black vittae.

I have not seen this species which is known only from a single specimen. 10 mm. — Kenya ... 5. *H. lateralis* CURRAN.

1. — **Hoplacephala tessellata** MACQUART.

Hoplacephala tessellata MACQUART, Dipt. exot., suppl. I, 1846, p. 155; VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 108; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420.

Dichaetometopia rufiventris MACQUART, Dipt. exot., suppl. V, 1855, p. 126; VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 156; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420; TOWNSEND, Man. Myiol., VI, 1938, p. 117.

The males of this species are easily recognizable by the presence of a pair of exceedingly long, wavy parafrontal bristles.

Male. — Eyes with small facets on their entire extent, densely beset with long pale hairs. Frons at its narrowest point (near vertex) measuring about 5/8 of eye-length, strongly widened towards the antennal groove; profrons almost half as broad as the eye is long. Parafrontalia as well as parafacialia glossy black; frontal stripe with a dull pollinosity, black-brown or reddish, slightly widened towards the lunula. Parafrontalia and -facialia only weakly brownish dusted and densely covered with black hairs, amongst which 4-7 pairs of thick parafrontals are recognizable; the last pair are wavy and their length exceeds the height of the head. Ocellar triangle densely covered with long erect hairs, but no distinct bristles are developed; *iv* long and thick, *ev* short and only a little stronger than the adjoining post-ocular bristles. Frontal bristles absent, but 3-5 strong proclinate fronto-orbitals are present. Vibrissarium with a black margin, otherwise reddish like the facialia. Vibrissa long and thick, facial ridge with several black bristles on its lower third; peristome with long bristles and bristly hairs which gradually pass into the long hairs of the post-bucca. Bucca glossy black, with dense hairs; its height is about 5/8 of the eye-length. Antennal groove black, antennae close together, basal segments brown, covered with thick bristles, of which one on the second segment is much larger than the remaining ones; third segment black, only one third longer than the second; arista with only a microscopic pilosity. Palpi black, with the tips narrowly reddish, thin and slightly curved, with long bristly hairs; proboscis predominantly black.

Thorax dull black, tip of scutellum broadly reddish, pruinosity weak and only visible at a certain incidence of light. Hairs black, long and erect; bristles long and thick; the following are developed : *ac*=0+1, *dc*=2+3, *ia*=0+2, *prs* and one inner *ph* developed, *h*=2-3, *n*=2, *sa*=2, scutellum with 3 pairs of long marginal and one pair of discal bristles, sometimes an additional pair of weaker marginals and also of discals are developed. Pro- and poststigma dark-brown. Propleuron bare, *pp* and *pst* developed and surrounded by a great number of long hairs, mesopleuron densely beset with erect black hairs and provided with a complete row of bristles at the posterior margin, sternopleuron usually with 2 : 1 : 1 bristles, but

number and position in some specimens are variable. Hypopleuron with a dense irregular row of bristles and bristly hairs. Prosternum and alar-declivity bare. Wing hyaline, veins yellow to light-brown; epaulet black, but basicosta yellow. Costal spine short, base of R_{4+5} dorsally with a few setae, *m* with a right angle, R_5 closed. Thoracic squama white with a yellow margin, dorsally bare; it is triangular in shape and reaches the basal half of the scutellum. Halter yellow. Legs totally black; fore-tibia with a row of relatively widely placed *ad* and a second row of densely placed *pd*; furthermore with 2 long *pv*; mid-tibia with 3-4 *ad*, which gradually increase in size towards the tibial tip, 2-3 *pd* and a long submedian ventral bristle present; hind-tibia with unequally long bristles arranged in rows on the antero-dorsal and postero-dorsal edges, one submedian *av* bristle developed. Tarsi and pulvilli normal.

Abdomen a little longer than broad, predominantly reddish and yellow-brown, and with a yellow pollinosity forming a patchy pattern which changes with the incidence of light. The black pattern forms a median uninterrupted vitta which is very broad on tergite I+II; it gradually gets narrower towards the tip of the abdomen; ventrally the sternites are totally black, the adjoining parts of the tergites are narrowly black; furthermore the post-abdomen is blackened. Hairs and bristles black, tergite III with a pair of short median marginals, tergite IV with a complete row of marginal bristles, tergite V with long bristly hairs, especially at the posterior margin and laterally. Hypopygium (fig. 1) with pointed cerci and broad paralobi, not clearly separable from those of *H. retroseta* and *H. inermis*.

Length : 10-13 mm.

Collection S. African Museum, Cape Town : Natal : Durban (12 ♂♂, two of them identified by VILLENEUVE).

Collection Dept. of Agriculture, Pretoria : Natal : Durban, VI.1941 (5 ♂♂, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Tzaneen, IV.1954 (4 ♂♂, leg. H. PATERSON).

Collection British Museum (Nat. History), London : Transvaal : Lousi Trichardt, IV.1932 (1 ♂, leg. J. OGILVIE).

Collection Dept. of Agriculture, Salisbury : Natal : Durban, X.1941 (19 ♂♂, leg. A. CUTHBERTSON). S. Rhodesia : Mazoë, 4.IX.1927 (1 ♂, leg. W. J. HALL).

This species is also recorded from several places in Kenya.

2. — **Hoplacephala retroseta** VILLENEUVE.

(Fig. 1.)

? *Nemoraea arachnoidea* JAENNICKE, Neue Exot. Dipt., 1867, p. 77, pl. II, fig. 7; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 427.

Hoplacephala retroseta VILLENEUVE, Rev. Zool. Afr., III, 1914, p. 108; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420.

As in *H. tessellata* MACQUART, only the male sex is distinguishable, and it proves to be closely related to this species. The general appearance of the two species is very similar, but the last pair of parafrontals is not long and wavy in *H. retroseta*, but thick, reclinate and only a little longer than the anterior cruciate ones. Other differences are of minor importance.

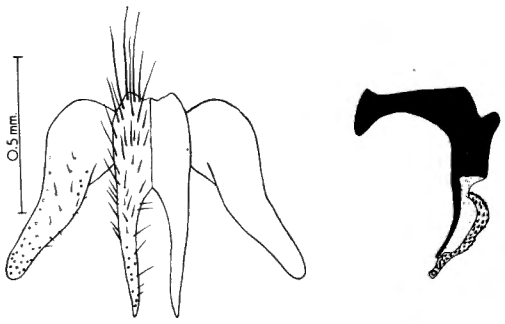


FIG. 1. — *Hoplacephala retroseta* VILLENEUVE.
Cerci with paralobi and phallosome.
(Specimen from Johannesburg, Transvaal.)

The width of the profrons in *H. retroseta* measures about ⅜ of eye-length, the pair of ocellar bristles is weakly developed; the palpi are narrowly reddish terminally and the median marginals of tergite IV may be weak or indistinct. The hypopygium (fig. 1) is probably not separable from those of *H. tessellata* and *H. inermis*.

Length : 10-13 mm.

Collection S. African Museum, Cape Town : Transvaal : Pretoria, 17.X.1915 and 22.IV.1917 (3 ♂♂, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Pretoria, 30.I.1949 and 19.VIII.1951 (3 ♂♂, leg. F. ZUMPT); Johannesburg, 23.I.1949, 24.XII.1950 and 27.XII.1952 (4 ♂♂, leg. F. ZUMPT).

Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, V.1913 (1 ♂, leg. H. K. MUNRO); Pretoria, VIII-III, 1914-1917 (6 ♂♂, leg. H. K. MUNRO). Cape Province : Vryburg, 8.IX.1920 (1 ♂).

Collection Naturhist. Museum Wien : Orange Free State : Reddersburg (1 ♂, leg. BRAUNS, paratype).

This species has also been recorded from Natal.

3. — **Hoplacephala inermis** VILLENEUVE.

Hoplacephala inermis VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 108; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420.

The male of this species, like that of *H. retroseta*, is similar to *H. tessellata*. The last pair of parafrontals, however, is not developed, so that only 4-5 pairs of cruciate *paf* are recognizable in the anterior half of the frons. The ocellar bristles are indistinct or very weakly developed, *iv* long and strong, *fo* 4-5. Hypopygium evidently not separable from those of the two related species (fig. 1).

The female has not been described and is possibly not separable from *H. tessellata* and *H. retroseta*.

Collection S. African Museum, Cape Town : S. Rhodesia : Salisbury (1 ♂, leg. MELLE, det. VILLENEUVE).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Brits, 13.VII.1957 (1 ♂, leg. H. PATERSON); Rustenburg, 25.III.1951 (1 ♂, leg. F. ZUMPT). S. Rhodesia : 1 ♂, without further locality.

Collection American Museum of Nat. History, New York : Congo : Stanleyville, III.1915 (1 ♂ taken from *Bembex*, leg. LANG and CHAPIN). Kenya : Kabete, 23.XII.1918 (1 ♂, leg. T. J. ANDERSON).

Collection British Museum (Nat. History), London : S. Rhodesia : Umtali, Vumba Mts., V.1932 (1 ♂, leg. L. OGILVIE); Matopo Hills, IV.1932 (1 ♂, leg. L. OGILVIE).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Bulawayo, 16.III.1927 (1 ♂, leg. R. H. R. STEVENSON); Vumba Mts., III.1935 and 1942 (2 ♂♂, leg. A. CUTHBERTSON); Marandellas, 5.V.1935 (1 ♂, leg. W. L. WILLIAMS).

4. — **Hoplacephala nigriventris** VILLENEUVE.

Hoplocephala nigriventris VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 108; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420.

Through the kindness of Dr. P. BASILEWSKY, I was able to examine the holotype of this species, the only specimen recorded up to now. It represents a well characterized species.

Male. — Eyes with the usual small facets and dense pale hairs. Frons at its narrowest point (near vertex) measuring nearly half of eye-length, profrons about 3/7 as broad as the eye is long. Parafrontalia as well as parafacialia glossy black, with a greyish and yellow pruinosity; frontal stripe red-brown, slightly narrowed in the middle. Ocellar triangle with a number of bristly hairs, but a pair of *oc* are not distinctly demarcated. Frons in the anterior half with 6 pairs of cruciate *paf*, no reclinate ones; *iv* and *ev* well developed and also *f* is present; 5 pairs of strong proclinate *fo*. Parafrontalia and -facialia furthermore beset with dense black hairs which are becoming bristly towards the inner margins of the parafacialia, but there is no single, demarcated row of bristles as in *Hoplocephalopsis*. Vibrissarium reddish, bucca glossy black and whitish pollinose, hairs and bristles black. Vibrissa distinct, peristomal bristles forming a dense row. Height of bucca about 1/3 of eye-length. Antennal groove black, basal segments reddish, the third dark brown and about 1/3 longer than the second antennal segment; arista short pilose. Palpi red-brown.

Thorax dull black, tip of scutellum broadly reddish; bristles and hairs black. Acrostichals 0+1, *dc*=2+3, *ia*=0+2 *prs* and two inner *ph* developed, *h*=2, *n*=2, *sa*=3, scutellum with 3 pairs of long marginal and one pair of discal bristles. Pro- and poststigma black-brown. Propleuron bare, two long and thick *pp* and *pst*, *st*=2 : 1 : 1. Wing hyaline, veins dark yellow; epaulet black, but basicosta yellow. Costal spine short, base of R_{4+5} dorsally with a few setae, *m* with an obtuse angle, R_5 closed. Legs black, fore-tibia with a row of unequal *ad* and one submedian *pv*; mid-tibia with 3 long *ad*, 2 *pd* and 2 ventral bristles; hind legs are missing.

Abdomen longer than broad, predominantly blackish, lateral portions of tergites III and IV with an ill-defined reddish shine and the hind margins of the tergites are narrowly reddish. Pollinosity greyish white, forming large spots depending on the incidence of light. Tergite III with a pair of short median marginals and lateral ones, tergite IV with a complete row of marginal bristles. The hypopygium could not be dissected.

Length : 9 mm.

Collection Musée Royal de l'Afrique Centrale : Congo : Kibimbi, 2.II.1911 (1 ♂, holotype, leg. J. BEQUAERT).

5. — **Hoplacephala lateralis** CURRAN.

Hoplacephala lateralis CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 422.

This species, based on a single male, has remained unknown to me. CURRAN gives the following description :

« Black, the scutellum and abdomen partly reddish. Length 10 mm.

» Male. — Head with rather dense yellowish-grey pollen, that on the parafacials partly pale brownish, the upper part of the parafrontals more than half shining, with thin brown pollen. Hair fairly long, fine and abundant. Frons with four pairs of bristles on the lowest third; four pairs of long orbitals on median third; ocellars absent; a pair of long verticals. Cheeks barely half as wide as eye-height. Palpi black. Antennae black, the second segment largely reddish brown, the third segment but little longer than the second and hardly as wide; arista short, pubescent. Eyes cinerous yellow, pilose.

» Mesonotum dull black, from frontal view moderately brown-pollinose, with the anterior border broadly pale, subshining from posterior view; notopleura and pleura greyish pollinose. Hair black, fairly long, moderately abundant. Acrostichals 0-1; marginal scutellars, the apical pair cruciate, and a pair of long fine discals. Free border of scutellum broadly reddish and thickly whitish pollinose.

» Legs black; pulvilli short; middle tibiae with three anterodorsal bristles on basal half.

» Wings cinereous hyaline; ultimate section of fifth vein more than half as long as preceding section; posterior cross-vein oblique, curved; third vein with three or four setae basally. Squamae tinged with brownish yellow. Halteres reddish.

» Abdomen reddish, the first segment, except the posterior border laterally and ventrally, dull black, the second and third segments with a very broad, tapering, median, opaque black vitta which is narrowly interrupted between the two segments, the black on the second segment occupying more than half the dorsum; fourth segment with a slender median black vitta. Venter with a broad median and broad black lateral vittae, the latter interrupted at the sutures and shining. Red portions of the abdomen rather thickly yellowish-cinereous pollinose. Hair coarse, appressed, erect on the fourth segment; third segment with a row of marginals, the fourth with a row of much finer ones. Genitalia dull black.

» Type, male, s. Masai Reserve, Kenya, 10.V.1912 (T. J. ANDERSON), in British Museum. »

SPECIES *INCERTAE SEDIS.*

6. — **Hoplacephala tristis** (SÉGUY).

Dichaetometopia tristis SÉGUY, Bull. Inst. Franç. Afr. Noire, (A), XX, 1958, p. 191.

This species has remained unknown to me. I cannot take from the description whether it actually belongs to *Hoplacephala* MACQUART or perhaps to *Hoplocephalopsis* VILLENEUVE. The original description is as follows :

« Mâle. — Yeux à facettes petites, subégales partout, couverts d'une pilosité brillante, courte et serrée. Espace interoculaire égal aux trois-quarts de la largeur de l'œil vu de face; bande médiane frontale brune, moins large que l'orbite. Joues, orbites et péristome d'un noir luisant. Quatre paires de soies frontales croisées, une paire postérieure dressée en arrière; quatre orbitales robustes, courbées en antéversion, une postérieure en rétroversion. Verticales internes et externes faibles. Ocellaires dressées, très divergentes. Joues et péristome couverts de soies ciliformes, une rangée génale oblique de cils plus robustes, dégagés de la pilosité du fond. Vibrisses médiocres. Trompe mince; palpes en baguettes fines, longuement ciliées sur l'arête inférieure. Antennes brunes. Thorax noir à reflets bronzés. Mésonotum couvert d'une pruinosité grise. Une paire d'acrostichales préscutellaires; 2+3 dorsocentrales; pilosité du fond noire, longue, fine et serrée. Préalaire forte. Quatre sternopleurales, trois disposées en ligne contre la suture mésopleurale, la quatrième plantée un peu en dessous des deux premières. Pattes noires. Balanciers brunis. Ailes opalines à nervures rousses. Alule et cuillerons blancs. Abdomen brun, couvert d'une pruinosité d'un gris blanchâtre. Tergite I largement d'un noir velouté; tergites II et III avec une grande tache centrale divisée longitudinalement par une ligne jaune; taches latérales apicales petites et diffuses; dernier tergite noirâtre. Hypopyge petit, noir.

» Long. du corps : 11 mm; long. de l'aile : 8 mm.

» Zambèze : Nova Choupanga, près Chemba (type); Bas Sangadzé, Pindiriri a Chemba, 7 avril (P. LESNE, 1928) (cotype). »

Genus **HOPLOCEPHALOPSIS** VILLENEUVE.

Hoplocephalopsis VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 110; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 418; TOWNSEND, Man. Myiol., VI, 1938, p. 119.
Type species : *Hoplocephalopsis schistacea* VILLENEUVE from Lake Nyasa and the Congo.

Hoplocephala (*Hoplocephalina*) VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 510; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 419; TOWNSEND, Man. Myiol., VI, 1928, p. 118 (syn. nov.).
Type species : *Hoplocephala* (*Hoplocephalina*) *maculosa* VILLENEUVE from Durban, Natal.

I am listing two of VILLENEUVE's species under this genus. But there are more species in existence in the Ethiopian region. I have three specimens before me, each of which represents another *Hoplocephalopsis* species. However, I do not want to describe them until more material is available.

H. schistacea and *H. maculosa*, of which a fair number of specimens are before me, are similar to the *Hoplacephala* species, especially in the female sex, but are distinguished by a row of strong bristles at the lower interior margin of the parafacialia. The ocellar bristles may or may not be developed in the male sex, but are always present in the female. The hind pair of acrostichals is distinct or more or less reduced. Sexual dimorphism in respect of the colouring and chaetotaxy of the head is not as strongly developed as in the true *Hoplacephala* species, but the males are more or less similar to the females. The terminalia are strikingly similar to those of *Hoplacephala*, and the general life-habits are probably also the same.

KEY TO THE SPECIES.

1 (2) Bigger species of 10-13 mm body-length. Prescutellar pair of acrostichal bristles fully developed in both sexes. Male with distinct ocellar bristles and a partly reddish abdomen.
Female with the abdomen almost totally black and densely grey pollinose, red patches of the abdomen ill-defined and small, or quite indistinct. — South and Central Africa .....
1. *H. schistacea* VILLENEUVE.

2 (1) Smaller species of 8-10 mm body length. Prescutellar pair of acrostichal bristles wanting or only weakly developed. Male without ocellar bristles; in both sexes without reddish patches on the abdomen.
Female with fully developed ocellar bristles. — South Africa ..... 2. *H. maculosa* (VILLENEUVE).

1. — **Hoplocephalopsis schistacea** VILLENEUVE.

(Fig. 2.)

Hoplocephalopsis schistacea VILLENEUVE, Rev. Zool. Bot. Afr., III, 1913, p. 111; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420.

Hoplocephalopsis testacea VILLENEUVE, Rev. Zool. Bot. Afr., III, 1913, p. 116; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 422; CUTHBERTSON, Proc. Rhod. Sci. Ass., XXXII, 1937, p. 107 (syn. nov.).

VILLENEUVE described both these species in the same paper, and stated that *H. testacea* might be a mere colour variation of *H. schistacea*. From the South African Museum in Cape Town, I have received a number of specimens of both forms identified by VILLENEUVE himself. All the specimens which he identified as « *schistacea* var. *testacea* » are males, whereas those assigned to the nominate form are females. The diagnoses of both forms, however, refer expressly to males which, with hardly any doubt, are conspecific.

H. schistacea is frequently represented in the collections, and in the male sex is easily separable from the related *H. maculosa* and, by the well developed ocellar-bristles, from the superficially similar true *Hoplacephala* species. The females are separable from those of the genus *Hoplacephala* by their parafacial bristles, from *H. maculosa* by their bigger size and the always fully developed prescutellar pair of acrostichal bristles.

Male. — Eyes with small facets, densely haired. Frons at its narrowest point (near vertex) measuring about half the eye-length. Profrons about ⅓ as broad as the eye is long. Parafrontalia and -facialia glossy black, with a dense greyish pruinosity; frontal stripe subparallel, reddish to dark brown. Bristles long and thick, *oc* divaricate, *ev* only slightly shorter than *iv*, *f* reclinate and close to the proclinate fronto-orbitals (3-5 pairs), row of *pad* nearly complete, the last 2-3 pairs more or less reclinate, the others cruciate; remaining part of parafrontalia and -facialia with long black hairs which become thinner and more or less brownish towards the vertex. Inner margin of parafacialia with a row of bristles which are clearly distinguished by their thickness from the normal hairs, and which become longer and stronger towards the bucca. Antennal groove predominantly black, with a white pruinosity; basal segments reddish, the third black-brown and about ⅓-½ longer than the second; arista with a microscopic pilosity, thickened in the basal fourth. Vibrissarium red-brown, vibrissa strong, facial ridge above it with a few bristles, row of peristomal bristles complete, bucca about one third as high as the eye is long, densely grey pollinose, with black hairs. Palpi reddish or partly dark-brown, slender, slightly bent.

Thorax black, with a weak cupreous shine, pruinosity grey, on the presutural area with two narrow longitudinal black lines; scutellum almost

totally dark, only the posterior margin narrowly brown. Bristles long, *ac*=0+1, *dc*=2+3, *ia*=0+2, *prs* and 2-3 *ph* present, *h*=3, *n*=2, *sa*=2. Scutellum with 3 pairs of long marginal and 1-2 pairs of discal bristles. Pro- and poststigma dark brown. Propleuron bare, *pp* and *pst* accompanied by several bristly hairs; mesopleuron with long erect hairs and a complete row of marginal bristles; sternopleuron with 2 : 1 : 1 bristles; prosternum and alar-declivity bare. Wing hyaline, basicosta yellow. Basal half of epaulet black. Costal spine distinct. R_5 closed, *m* with a right angle. Thoracic squama broad, white with a narrow yellow margin. Legs totally black; fore-tibia with a row of *ad* bristles and a submedian *pv*;

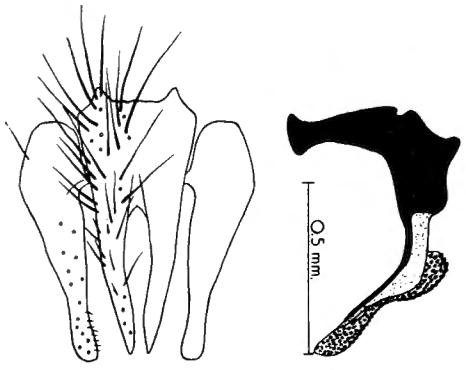


FIG. 2. — *Hoplocephalopsis schistacea* VILLENEUVE.
Cerci with paralobi and phallosome.
(Specimen from Mkuzi, Zululand.)

mid-tibia with 4-6 *ad*, which gradually increase in size towards the tarsus; furthermore 2 *pd*, 1 *av* and 1 *pv* are present; hind-tibia with a row of *ad* arranged as in a comb, with 2-3 *pd* and a submedian *av*. Tarsi and pulvilli normal.

Abdomen longer than broad, reddish with a black pattern which covers nearly the whole dorsum of tergite I+II and the median parts of tergites III and IV; tergite V and hypopygium totally black or dark brown. Ventrally, the sternites and the adjoining parts of the tergites are blackish and a pair of ill-defined dark spots is present laterally on each of tergites III and IV. Hind margins of tergites IV and V with a row of erect thick bristles. Hypopygium as shown in figure 2.

Female. — Thorax and abdomen are almost totally black, with a dense grey pollinosity, only a few indistinct and ill-defined red patches are left on the lateral parts of the abdomen. The frons is broader than in the male,

measuring 7/8-7/9 of the eye-length. The bucca is nearly 1/2 as high as the eye is long. Third antennal segment is about twice as long as the second. Chaetotaxy of head, thorax and legs as in the male, but normally only one posterior pair of *paf* is more or less reclinate.

Length : 10-13 mm.

Biology. — The larvae were found feeding on termites in the fungus-garden. The adults are found on flowers, often near the nests of ants and termites.

Collection S. African Museum, Cape Town : S. Rhodesia : Empandeni, 1911 (2 ♂♂, leg. J. O'NEIL, « *schistacea* var. *testacea* », det. VILLENEUVE).

There are, in addition, 2 ♂♂ and 5 ♀♀ before me with illegible locality notes. They were all identified by VILLENEUVE.

Transvaal : Barberton, V and VIII.1913 (3 ♂♂, leg. H. K. MUNRO); Waterberg, 1898-1899 (1 ♂, leg. v. JUTRZENSKA). Natal : Mfongosi, XII.1913 (1 ♂, leg. W. E. JONES). S. W. Africa : Warmbad, II.1925 (1 ♂); Nuragas (1 ♀, det. VILLENEUVE).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Tzaneen, III.1953 (3 ♀♀, leg. H. PATERSON). Mozambique : Nalaje, Gaza distr., 12.VII.1953 (1 ♂); Sabie, Gaza distr., 8.IX.1953 (1 ♂). Natal : Mkuzi, I.1947 (2 ♂♂, 1 ♀, leg. H. K. MUNRO).

Collection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, I, VII, XII.1913-1918 (1 ♂, 3 ♀♀ leg. H. K. MUNRO); Barberton, V-VIII.1918 (2 ♂♂, 2 ♀♀, leg. H. K. MUNRO); Warmbaths, 6.XII.1929 (1 ♂, leg. H. K. MUNRO); Kaapmuiden, 27.VIII.1924 (1 ♀, leg. H. K. MUNRO). Natal : Mkuzi, 31.I.1947 (2 ♂♂, 2 ♀♀, leg. H. K. MUNRO); Port Shepstone, 4.VIII.1920 (1 ♂, leg. H. K. MUNRO).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Balla-Balla, I, III, IV, XII.1931-1933 (6 ♂♂, leg. A. CUTHBERTSON); Hartley, I.1931 (1 ♂, leg. A. CUTHBERTSON); Salisbury, VIII.1932 and XII.1938 (2 ♂♂, leg. A. CUTHBERTSON); Victoria, VI.1933 (1 ♂, leg. A. CUTHBERTSON).

Collection American Museum of Nat. History, New York : S. Rhodesia : Balla-Balla, 20.XII.1932 (2 ♂♂, leg. A. CUTHBERTSON); Salisbury, III-V.1928 (3 ♂♂, leg. H. S. LEESON). Transvaal : Pretoria, 29.VI.1931 (1 ♀, leg. H. K. MUNRO).

Collection British Museum (Nat. History), London : Transvaal : Pretoria, X.1931 (1 ♂, leg. W. R. COCKERELL). Natal : Weenen, X.1924 (1 ♂). Bechuanaland : Sheerwood Rand, IV.1951 (1 ♂). S. Rhodesia : nr. Bulawayo, X.1931 (1 ♀, leg. A. MACKIE). Nyasaland : Lingadzi, 1.VIII.1915 (1 ♀, leg. W. A. LAMBORN).

Collection Musée Royal de l'Afrique Centrale : Congo : Élisabethville, 5.IV.1912 (1 ♂, leg. J. BEQUAERT).

H. schistacea is also recorded from the Tanganyika Territory.

2. — **Hoplocephalopsis maculosa** (VILLENEUVE).

(Fig. 3.)

Hoplocephala (*Hoplocephalina*) *maculosa* VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 510; CURRAN, Ann. Mus. Nat. Hist., (10), II, 1928, p. 426.

H. maculosa is closely related to *H. schistacea*, but smaller in the average body-size. The males of both species are readily separable by the differences in the development of the ocellar bristles and the prescutellar acrostichals, furthermore by the colouring and pattern of the abdomen. The females are, however, apart from the body-size, very similar to one another. The ocellar bristles are fully developed in both species, and also the prescutellar pair of acrostichals may be distinct (but weaker) as in *H. schistacea*. Apart from these two species, there may be other *Hoplocephalopsis* species in existence, the females of which are not clearly separable, so that the assignment of female specimens to *H. maculosa* remains always doubtful.

In the same paper (p. 511), VILLENEUVE described a variation of *maculosa*, which he called *pubera* and which is mainly characterized by bare eyes. His description is absolutely inadequate. Most probably he is referring to one of the numerous *Senotainia* species. The single type specimen has come from Entebbe, Uganda, but I have not received it from the South African Museum, where it should be located.

Male. — Eyes with small facets, densely haired. Frons at its narrowest point (near vertex) measuring about half of eye length. Profrons ⅓ as broad as the eye is long. Parafrontalia and -facialia black, with a dense greyish pruinosity, frontal stripe subparallel, reddish to dark brown. Bristles long and thick, *iv*, *ev* and *f* present, but *oc* are wanting, the triangle being densely covered with thin hairs only. Parafrontalia with 5-6 pairs of strong, proclinate *fo*; 7 pairs of *paf*, the last one reclinate; remaining part of parafrontalia with long and erect black hairs. Parafacialia at the inner margin with a row of strong bristles, otherwise haired like the parafrontalia. Third antennal segment black-brown, almost twice as long as the second; arista thickened in the basal third, with a microscopic pilosity. Vibrissarium red-brown, vibrissa strong, row of peristomal bristles complete, bucca almost one third as high as the eye is long, grey pollinose, with dense black hairs. Palpi slender, slightly bent, blackish towards the tip.

Thorax black, with a grey pollinosity and with dark, longitudinal stripes. Acrostichal bristles not developed or the prescutellar pair is very weak, *dc*=2+3, *ia*=0+2, *prs* present, one or two interior *ph* present, *h*=2-3, *n*=2, *sa*=2-3. Scutellum with 3 pairs of long marginal and 1-2 pairs of weaker discal bristles. Pro- and poststigma dark brown. Propleuron bare, *pp* and *pst* accompanied by a few bristly hairs, *st*=2 : 2 : 1 or 2 : 1 : 1; prosternum and alar-declivity bare. Wing hyaline, basicosta

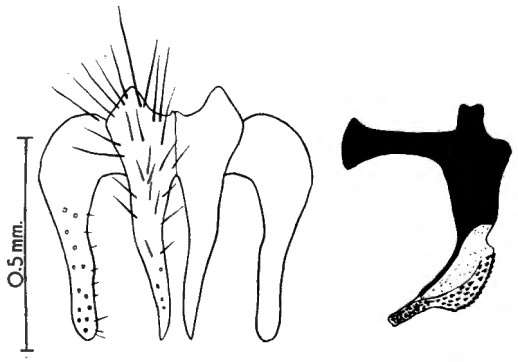


FIG. 3. — *Hoplocephalopsis maculosa* VILLENEUVE.
Cerci with paralobi and phallosome.
(Specimen from Mamathes, Basutoland.)

yellow, costal spine distinct, R_5 closed or almost so, *m* with a right angle. Legs black; fore-tibia with a row of *ad* bristles and 2 *pv*; mid-tibia with 2-4 *ad*, 1 *av* and 2 *pd*; hind-tibia with a row of *ad* bristles, 2 *pd* and a submedian *av*.

Abdomen longer than broad, totally glossy black, with a grey pollinosity and a dark pattern which changes with the incidence of light. Regarded from above, tergite I+II shows in the middle a broad, triangular, dark spot; tergite III has longitudinal dark spots which cover the whole length of the tergite, and tergite IV has 3 similar spots which are, however, abbreviated anteriorly; hind tergite more or less blackened at the tip. Hind margins of tergite IV and V with a row of bristles. Hypopygium (fig. 3) similar to that of *H. schistacea*.

Female. — Frons at vertex about ¾ as broad as the eye is long, *oc* well developed, long and thick, 3-5 pairs of proclinate *fo*, 5-6 pairs of *paf*. Profrons and bucca almost half as broad as the eye is long. Thorax and abdomen as in the male, but the abdominal spots seem to be more variable in size.

Length : 8-10 mm.

Collection S. African Museum, Cape Town : Natal : Durban, IV.1915 (2 ♂♂, 1 ♀, lecto- and paratypes, leg. H. W. BELL-MARLEY).

Collection S. African Institute for Med. Research, Johannesburg : Basutoland : Mamathes, 19.XI.1950 and 25.X.1952 (1 ♂♀, leg. C. JACOT-GUILLARMOD); Johannesburg, 29.X.1950 (1 ♀, leg. F. ZUMPT).

Collection American Museum of Nat. History, New York : Natal : Durban, X.1941 (1 ♂, leg. A. CUTHBERTSON); New Hanover, 1.X.1913 (1 ♀, leg. C. B. HARDENBERG). Cape Province : Uitenhage, 11.II.1919 (1 ♀, leg. H. K. MUNRO).

Collection British Museum (Nat. History), London : Natal : Greytown, 20.X.1931 (1 ♂, leg. J. OGILVIE).

Genus **CURRANITOPIA** nov.

This genus is erected for *Hoplacephala irvingi* CURRAN, which shows, in contrast to the other species listed by CURRAN (1928) under *Hoplacephala* s. lat., a propleuron provided with several dark setae. In the hypopygial structure as well as the outer features, *C. irvingi* is closely related to *Hoplacephala* s. str. as well as to *Hoplocephalopsis* VILLENEUVE.

CURRAN placed his *Hoplacephala stannusi* near *irvingi*, but because he did not pay attention to the propleuron, it remains uncertain whether this species really belongs to *Curranitopia*. In his key, he separates the two species with the following words :

« Mesonotum subopaque, black ..... *stannusi* sp. n.

» Mesonotum grey, black vittate ..... *irvingi* sp. n.

Type species : *Hoplacephala irvingi* CURRAN from South Africa.

1. — **Curranitopia irvingi** (CURRAN).

(Fig. 4.)

Hoplacephala irvingi CURRAN, Ann. Mag. Nat. Hist., (10), II. 1928, p. 425.

This species resembles *Hoplocephalina maculosa* in the structure of the hypopygium. It is quite distinct from all other *Hoplacephala* species known to me in having a haired propleuron.

Male. — Eyes with small facets on their entire extent, densely beset with long pale hairs. Frons at its narrowest point (near vertex) measuring about 3/5 of eye-length, strongly widened towards the antennal groove;

profrons 2/5 as broad as the eye is long. Frontal stripe reddish or dark brown, slightly widened towards the lunula, parafrontalia and -facialia black and provided with a grey pollinosity. Ocellar triangle densely haired, but without ocellar bristles, *iv* and *f* well developed, but *ev* wanting; the row of *paf* (7-8 pairs) is nearly complete, reaching distinctly beyond the middle of the frons; there are 4-5 pairs of strong, proclinate *fo*; remaining parts of parafrontalia and -facialia densely beset with long and erect black hairs; parafacialia without marginal bristles. Antennal groove deep, with a slight whitish pruinosity, third antennal segment black, about as long

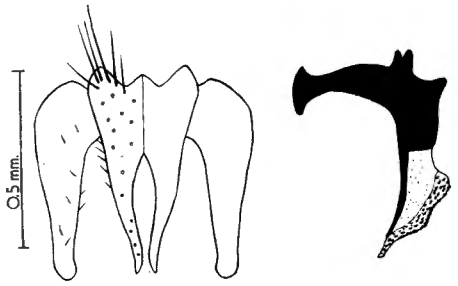


FIG. 4. — *Curranitopia irvingi* (CURRAN).
Cerci with paralobi and phallosome.
(Specimen from Maputo, Mozambique.)

as the second, which is reddish in the holotype before me, and predominantly black-brown in the second specimen. Arista thickened in the basal third, with only a microscopic pilosity. Vibrissarium reddish, vibrissa long and thick, facial ridge above it with several bristly hairs, row of peristomal bristles complete. Bucca about half as high as the eye is long, grey pollinose and densely beset with black hairs. Palpi dark brown, slender and slightly bent.

Thorax black, tip of scutellum ill-defined reddish. Pollinosity dense, greyish white. Four longitudinal black stripes are well defined on the anterior half of the mesonotum, whereas on the posterior part, a single vitta, which extends almost to the apex of the scutellum, appears at a certain incidence of light. Bristles long, *ac*=0+1, *dc*=2+3, *ia*=0+2, *prs* and one single inner *ph* developed, *h*=3, *n*=2, *sa*=2, scutellum with 3 pairs of long marginal and one pair of weak discal bristles. Pro- and poststigma dark-brown. Propleuron with several strong hairs, *pp* and *pst* developed and accompanied by a great number of hairs, posterior margin with a complete row of thick bristles, sternopleuron with 2+1+1 bristles. Hypopleuron with an irregular row of bristles and bristly hairs. Prosternum and alar-declivity bare. Wing hyaline, veins yellow-brown, epaulet black,

basicosta yellow. Costal spine indistinct, R_{4+5} half-way or more to *r-m* with black setae, *m* with a right angle, R_5 closed. Thoracic squama broad, white with a narrow yellow margin, halter yellow-brown. Legs black, partly with a brownish shine; fore-tibia with a row of unequal *ad* bristles, postero-dorsal edge with 2 *pv*; mid-tibia with 3-4 strong *ad*, which gradually increase in size towards the tarsus, furthermore 3 *pd* and a long submedian ventral bristle are present; hind-tibia with unequally long bristles arranged in rows on the antero-dorsal and postero-dorsal edges, one submedian *av* bristle is present. Tarsi and pulvilli normal.

Abdomen a little longer than broad, with a black and reddish pattern. The black colour covers almost the whole dorsum of tergite I+II and tergite V. On each of tergites III and IV it forms a large quadrangular median spot and a pair of small round ones laterally. On the ventral side, tergites I+II and V as well as the hypopygium are black, as also are the sternites and the adjoining parts of tergites III and IV. Each of these tergites also shows a pair of large lateral spots. Hind margins of tergites IV and V dorsally with a row of erect bristles. Hypopygium (fig. 4) similar to that of *Hoplocephalina maculosa.*

Female. — CURRAN has referred a female specimen from Pretoria to this species. It has been kindly entrusted to me and I have no reason to doubt that CURRAN was right in making it the « allotype » of *C. irvingi.* Furthermore, I have received two specimens from Durban which coincide with the allotype. These specimens differ from the male in the following features :

Frons at vertex 7/8 of eye-length; profrons 1/2 as broad as the eye is long. Ocellar bristles as well as *ev* well developed, 5-6 pairs of strong proclinate *fo* present. Parafacialia without distinct bristles, but some of the hairs near the inner edge may be a little thicker than the remaining ones. The third antennal segment is a little longer than the second. Bucca about 5/8 as high as the eye is long. Palpi black, with the tip reddish.

Thorax with pollinosity and pattern as in the male. In one female, 4 postsutural *dc* are developed, the second posterior to the suture being weaker and therefore indicating that we are dealing with an abnormality. Abdomen totally black, pollinose like the thorax and with a pattern of large black spots which change with the incidence of light.

Length : 10-12 mm.

Collection Dept. of Agriculture, Pretoria : Cape Province : Vryburg, 4.IX.1920 (1 ♂, leg. H. E. IRVING, holotype).

Collection S. African Institute for Med. Research, Johannesburg : Mozambique : Maputo, IV.1949 (1 ♂).

Collection American Museum of Nat. History, New York : Transvaal : Pretoria, 15.II.1913 (1 ♀, allotype, leg. H. K. MUNRO).

Collection Dept. of Agriculture, Salisbury : Natal : Durban, X.1941 (2 ♀♀, leg. A. CUTHBERTSON).

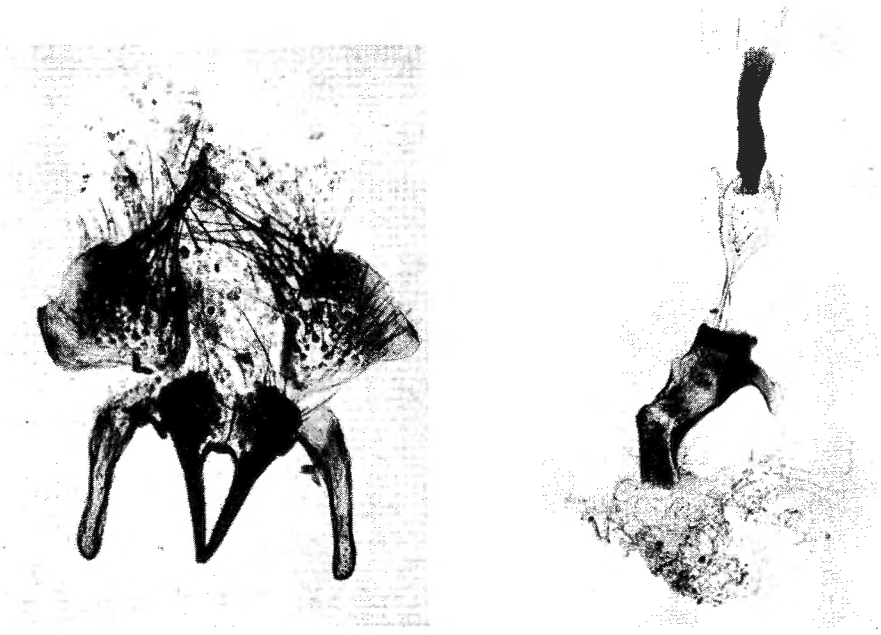


FIG. 5. — *Termitometopia skaifei* ZUMPT.
Microphotograph of cerci with paralobi and of phallosome.
(Paratype from Cape Town.)

2. — **Curranitopia (?) stannusi** (CURRAN).

Hoplacephala stannusi CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 424.

This species has remained unknown to me, being based on a single male which is now located in the British Museum. It was collected by H. S. STANNUS at Zomba, Nyasaland.

In his key to the genus *Hoplacephalus*, CURRAN placed it near *H. irvingi* CURRAN and separated it by having a « subopaque, black » mesonotum, whereas that of *H. irvingi* is given as « grey, black vittate ». It should also

be distinguishable from this species in having « one or two pairs of strong marginals » on tergite III. The abdominal pattern also seems to be quite different from that of *H. irvingi*. The black spot of tergite III « forms a transverse oval spot, and on the following segments the vitta is less than half as wide as long. Ventrally there is a broad median black vitta and a black spot on either side » of the last segment. As CURRAN has not mentioned the propleuron, it remains uncertain whether this species really belongs to *Curranitopia*.

Length : 11-12 mm.

Genus **TERMITOMETOPIA** ZUMPT.

Termitometopia ZUMPT, Proc. R. Ent. Soc. Lond., (B), XXI, 1952, p. 4.

This genus was based on a species (*T. skaifei* ZUMPT) which lives in the larval stage as a true guest of the termite *Amitermes atlanticus* FULLER. The maggots are fed and cared for by the termites which seem to get from them a fatty exudation of which they are very fond. *T. skaifei* is up to now known only from the type locality, Hout Bay near Cape Town.

1. — **Termitometopia skaifei** ZUMPT.

(Figs. 5, 6.)

Termitometopia skaifei ZUMPT, Proc. R. Ent. Soc. Lond., (B), XXI, 1952, p. 4, fig. 1; SKAIFE, Trans. R. Soc. S. Afr., XXXIV, 1954, p. 267, fig. 6.

The only species of this genus, and known up to now only from the type series, consisting of 9 ♂♂ and 3 ♀♀ which were reared by Dr. S. H. SKAIFE from a nest of *Amitermes atlanticus* FULLER at Hout Bay near Cape Town.

Nothing is to be added to the original description which includes a line-drawing of the male terminalia. A photomicrograph of the terminalia and the male antenna is given in figures 5 and 6.

Genus **SANKISIUS** VILLENEUVE.

Sankisius VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 113; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 419; TOWNSEND, Man. Myiol., VI, 1938, p. 142. Type species : *Sankisius excisus* VILLENEUVE from the Congo.

Through the kindness of Dr. P. BASILEWSKY, « Musée Royal de l'Afrique Centrale », I received the holotype of *S. excisus* VILLENEUVE for examination. It is the only species recorded up to now in the genus. Unfortunately, this specimen is not in a good enough condition for the genitalia to be dissected;

therefore it can not be stated whether the postabdomen is composed of 3 or of 2 free segments. This would have been important because a quite outstanding feature of *S. excisus* is the long-haired arista, as is commonly found in the *Sarcophagini*. In other respects however, this species is reminiscent of the *Miltogramminae* with haired eyes, into which relationship *Sankisius* was placed by VILLENEUVE. CURRAN had not seen specimens which he could refer to *Sankisius*, but on the ground of the diagnosis he

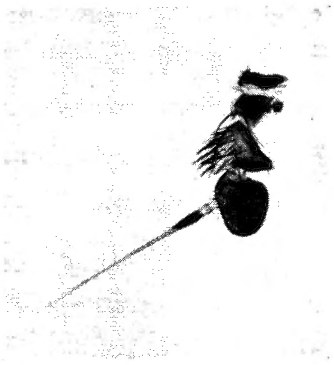


FIG. 6. — *Termitometopia skaifei* ZUMPT.
Male antenna. (Paratype from Cape Town.)

regarded it as a subgenus of *Hoplacephala* s. lat. and distinguished it from the other subgenera by a pair of reclinate fronto-orbitals above the proclinate ones, following VILLENEUVE's interpretation. These reclinate orbitals are in my opinion the normal frontal bristles (*f*) which are always more or less reclinate. TOWNSEND (1935), in his key to the *Miltogrammini*, separated *Sankisius* from *Hoplacephala* and related genera by the lateral shape of the head, but I have to state that this shape is not outstanding in any way and certainly not a useful feature. Finally another feature used by VILLENEUVE to distinguish *Sankisius* is the length of the 3rd antennal segment which is said to be almost 3 times as long as the second. According to my measurements it is only about double the length of the second segment. The examination of the male abdomen would be decisive in the classification. Until new material becomes available and this can be done, I am listing *Sankisius* under the *Miltogramminae*.

1. — **Sankisius excisus** VILLENEUVE.

Sankisius excisus VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 113; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420.

Male. — Eyes with small facets on their entire extent, densely beset with long pale hairs. Frons at its narrowest point (near vertex) measuring almost half the length of one eye; profrons $^3/_{14}$ of eye-length. Parafrontalia and -facialia with a dense, whitish pollinosity which completely covers the underground; frontal stripe parallel, red-brown, at the frontal bristle about $^2/_3$ as broad as one parafrontalium. Ocellar bristles very short and weak, *iv*, *ev* and *f* long *and* thick, 4 pairs of *paf* and 4 pairs of proclinate *fo* present; in addition to these bristles, the parafrontalia are provided with erect, thin hairs which are denser in the posterior than in the anterior half of the frons. These hairs continue onto the parafacialia which furthermore show on the left side two, on the right three, bristles at the lower inner margin. Vibrissa long and thick, row of peristomal bristles complete, but the facial ridge above the vibrissa is completely bare. Bucca black and densely white pollinose like the parafacialia, its height amounting to $^1/_4$ of eye-length. Antennal groove black and with a white pollinosity, vibrissarium and edges of the antennal groove are reddish. Antennal segments red-brown, the third about twice as long as the second, arista long, surpassing the vibrissa, hairs long. Palpi narrow, almost parallel, black-brown.

Thorax predominantly black. The pollinosity which is grey and dense according to VILLENEUVE, has for the greater part been rubbed off in the specimen before me. Mesonotal bristles well developed. There are two pairs of presutural *ac*, of the posterior ones, at least the prescutellar pair is present, whereas the others are not detectable due to the needle which destroyed that part of the mesonotum. Dorso-central bristles 2+3, *ia*=1+2, *prs* and inner *ph* present, *h*=2, *n*=2, *sa*=3, scutellum with 3 pairs of long marginal bristles, but no discal ones. Pro- and poststigma brown. Propleuron bare, one long *pp* and 2 *pst* developed and accompanied by several hairs, *st*=2 : 1 : 1, mesopleural and hypopleural bristles normally developed. Wing hyaline, veins yellow-brown, basicosta light yellow. Costal spine very weak, base of R_{4+5} dorsally with a few black setae, *m* with a right angle and a long appendix R_5 closed at margin. Thoracic squama white, with a yellow margin, of broad shape as in typical *Miltogramminae*. Halter light brown. Legs black, fore-tibia with a dense row of long *ad* and 2 long *pv* which are shifted towards the upper edge; mid-tibia with 2 *ad*, 2 *pd* and a long submedian ventral bristle; hind-tibia with a row of unequal *ad*, 2 *pd* and a submedian *av*. Tarsi and pulvilli normal.

Abdomen longer than broad, with a white and brown pollinosity forming ill-defined, large patches which change with the incidence of light. The

ground colour is black and, especially laterally, brown. Tergite III with a pair of short and not very strong median marginals, tergite IV with a row of marginals.

Length : 8 mm.

VILLENEUVE also mentions a female specimen, but he gives no features differing from those of the male.

Collection Musée Royal de l'Afrique Centrale : Congo : Sankisia, 25.VIII.1911 (1 ♂, holotype, leg. M. BEQUAERT).

Genus **HOPLATAINIA** nov.

The only species of this genus so far known is reminiscent of a small *Hoplocephalopsis*, but the mid-tibia is provided with only one submedian antero-dorsal bristle. It is differentiated from *Senotainia* by the dense and long bristly hairs on the parafacialia.

Type species : *Hoplatainia pilosa* n. sp. from the Transvaal.

1. — **Hoplatainia pilosa** n. sp.

(Fig. 7.)

Male. — Eyes with small facets on the entire extent, densely beset with long pale hairs. Frons at its narrowest point (at vertex) about 3/7 as broad as the eye is long, strongly widened towards the antennal groove; profrons 2/7 of eye-length. Parafrontalia and -facialia glossy black, with a thin whitish pruinosity; frontal stripe red-brown, subparallel, at the tip of the ocellar-triangle as broad as one parafrontalium. Ocellar triangle with a pair of *oc* and a number of bristly hairs; *iv*, *ev* and *oc* long and thick; 5 pairs of long proclinate *fo*, 12 pairs of *paf* present, the last five reclinate. Furthermore, the whole extent of the parafrontalia and -facialia is densely covered by long hairs which become bristly towards the inner margins of the parafacialia. Bucca glossy black, with dense black hairs and a whitish pruinosity, height about 2/7 of eye-length. Vibrissarium red-brown, vibrissa distinct, but only a little longer and thicker than the neighbouring peristomal bristles; facial ridge with irregularly placed bristles and hairs almost up to the middle. Antennal groove black; antennae short, black, except the terminal edge of the second segment; third segment 1 ½-2 times as long as the second; arista long, reaching the vibrissa, the basal part thickened, pilosity very short. Palpi and proboscis brown, the former slightly bent, with long black bristles.

Thorax black, with a grey pollinosity forming ill-defined longitudinal vittae (perhaps more distinct in better preserved specimens); *ac*=2+1, *dc*=2+3, *ia*=1+3, *prs* and two inner *ph* developed, *h*=2, *n*=2, *sa*=2,

scutellum with 3 pairs of long marginal bristles and a number of bristly discal hairs. Pro- and poststigma brown. Propleuron and prosternum bare, *pp* and *pst* accompanied by dense bristles and hairs. Upper pair of mesopleuron with long black bristles and hairs, posterior margin with long and dense, slightly irregularly arranged bristles; sternopleuron with 1 : 1 long bristles and additional long bristly hairs, row of hypopleurals well developed. Wing hyaline, veins including basicosta yellow-brown, epaulet black. Costal spine short, base of R_{4+5} dorsally with a few black setae, *m* with a right angle and a short appendix, R_5 open. Thoracic squama broad, whitish with a yellow margin; halter yellow-brown. Legs black;

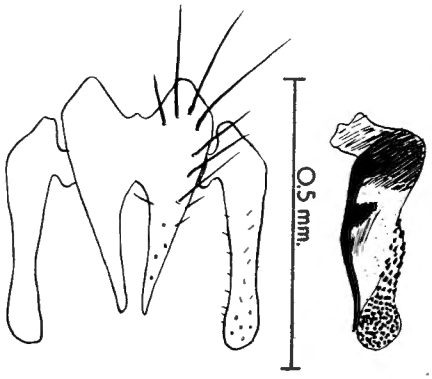


FIG. 7. — *Hoplatainia pilosa* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Pretoria, Transvaal.)

fore-tibia with a row of relatively short *ad* bristles, but with two long *pv*; mid-tibia with one long submedian *ad*, 3 *pd* and one *av* and *pv*; hind-tibia with a row each of long *ad* and *pd* and one submedian *av*. Tarsi and pulvilli normal.

Abdomen longer than broad, black and reddish, the latter colour predominates. The pattern formed is quite ill-defined. Dorsally tergite I+II is black for the greater part, on the following two tergites, the median and hind parts are darkened, tergite V is almost totally reddish. Ventrally the sternites are darkened and the neighbouring parts of the tergites more or less so. Hind margins of all tergites provided with semi-erect bristles. Hypopygium (fig. 7) with pointed cerci and club-shaped paralobi.

Length : 8 mm.

Collection American Museum of Nat. History, New York : Transvaal : Pretoria, 9.IX.1917 (1 ♂, holotype, leg. H. K. MUNRO).

Genus **SENOTAINIA** MACQUART.

Senotainia MACQUART, Mém. Soc. R. Sci. Lille, 1844 (1846), p .295; ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 79; TOWNSEND, Man. Myiol., VI, 1938, p. 144; SÉGUY, Encycl. Ent., (A) XXI, 1941, p. 277; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 8.
Type species : *Senotainia rubriventris* MACQUART from Texas.

Lamprometopia MACQUART, Mem. Soc. R. Sci. Lille, 1844 (1846), p. 287; CURRAN, Amer. Mus. Nov., 836, 1936, p. 1; TOWNSEND, Man. Myiol., VI, 1938, p. 120; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 10.
Type species : *Lamprometopia caffra* MACQUART from S. Africa.

Sphixapata RONDANI, Dipt. Ital. Prodr., III. 1859, p. 221; CURRAN, Amer. Mus. Nov., 836, 1936, p. 3; TOWNSEND, Man. Myiol., VI, 1938, p. 147; SÉGUY, Encycl. Ent., (A) XXI, 1941, p. 277.
Type species : *Sphixapata albifrons* RONDANI from Italy.

Sphecapata BEZZI, Z. Hym. Dipt., VI, 1906, p. 51 (nov. nom. pro *Sphixapata* RONDANI).

Euselenomyia TOWNSEND, Proc. U. S. Nat. Mus., XLIII, n° 1935, 1912, p. 364; et Man. Myiol., VI, 1938, p. 113; SÉGUY, Encycl. Ent., (A) XXI, 1942, p. 277.
Type species : *Euselenomyia peruviensis* TOWNSEND from Peru.

Hoplocephalella VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 111; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 418; TOWNSEND, Ann. Mag. Nat. Hist., (10), VIII, 1931, p. 380; et Man. Myiol., VI, 1938, p. 120.
Type species : *Hoplocephalella signata* VILLENEUVE from Natal.

Microsenotainia TOWNSEND, Proc. U. S. Nat. Mus., XLIX, n° 2128, 1916, p. 618; et Man. Myiol., VI, 1938, p. 123; SÉGUY, Encycl. Ent., (A) XXI, 1942, p. 277.
Type species : *Senotainia nana* COQUILLETT from New Mexico.

Pariogymnia ENDERLEIN, S. B. Ges. naturf. Fr. Berlin, 1934, p. 189; SÉGUY, Encycl. Ent., (A) XXI, 1942, p. 277.
Type species : *Miltogramma tricuspis* MEIGEN from Germany.

Lamprometopia actually has page-priority over *Senotainia*. ZUMPT (1952) had united these two genera, because the setulosity of the eyes proved to be an absolutely unreliable feature, showing in the different species all kinds of intermediate stages from a long and dense setulosity to a complete bareness, and even a different grade of development in both sexes of the same species.

Certainly only a low percentage of the *Senotainia* species occurring in the Ethiopian region are known up to now. When more material is available, and more new species have come to light, it may perhaps be possible to split up the genus and to restore *Lamprometopia* as a distinct unit on the basis of other, more constant, and not yet used features. For the time being, I think it is more convenient to keep this genus in a broad sense, which includes many Holarctic species, and to retain the name

Senotainia which is at present widely used, in contrast to *Lamprometopia*, the latter being founded on a relatively rare South African species.

The female sex in most species is not known, because there are not enough external features which would allow a proper assignment of females collected in the field to the one or other type of male.

Senotainia species so far known from the Ethiopian region show the following generic features :

Eyes densely pilose to bare, with all kinds of transitional stages, the females always have less densely haired eyes than the corresponding males. Inner facets in the male not, or only slightly, larger than the outer ones. Frons of males broad, at the narrowest point measuring from ⅓ to slightly more than ½ of eye-length; in the female sex, the frons is only slightly larger than in the male. Frontal stripe well developed. Profrons measuring ⅕ to ⅓ of eye-length. Vibrissa situated above the peristome. Head chaetotaxy complete, with 2-5 fronto-orbitals; ocellar bristles sometimes indistinct. Parafacialia more or less densely setulose; sometimes the setae are pale and readily detectable. Facial ridge at most with a few setae at the base near the vibrissa. Third antennal segment measuring 1 ¼-2 ½ times the second.

Thorax with distinct bristles, but sometimes they are not clearly distinguishable from the hairs. The chaetotaxy in all species is subject to some variation. The generic pattern of the known Ethiopian species is as follows : *ac*=1-6+1-3, *dc*=2-3+3, *ia*=0-1+2-3, *prs*=1, *ph*=1-3, *h*=2, *n*=2, *sa*=2-3, *pa*=2, *sc*=3+1-2, *st*=1 : 1 or 1 : 1 : 1. Wings hyaline or with a slight tinge, R_5 open to a varying degree, costal spine distinct or hardly separable from the neighbouring spines. Propleuron bare, *pp* and *pst* always present and accompanied by a varying number of more or less bristly hairs. Legs predominantly black; fore-tibia always with a *pv*; mid-tibia with 1-2 *pd*, 1 *ad* and 1-2 ventral bristles; hind-tibia with 1-3 *pd*, a varying number of *ad* and one ventral bristle.

Abdomen longer than broad, with a dense pollinosity and a more or less well-defined pattern of triangular and rectangular spots. Hypopygia highly specific and in many species the only reliable feature. Cerci always separated, paralobi well developed. Phallosome with spinus, otherwise of simple structure.

The genus *Senotainia* is distributed over the Old and New World. The larvae develop in the nests of *Hymenoptera*.

KEY TO THE SPECIES.

(♂♂ only.)

1 (22) Parafrontalia with 3 or more pairs of fronto-orbital bristles 2

2 (3) Frontal stripe narrow, but gradually widened towards the lunula and here 2-4 times as broad as at the tip of the ocellar triangle.

Eyes densely haired. Parafrontalia with 4-5 pairs of *fo*. Abdomen black, laterally more or less reddish. Hypopygium with slender cerci, paralobi and phallosome. 6-8 mm. — Natal ..... 1. *S. caffra* (MACQUART).

3 (2) Frontal stripe not strikingly widened towards the lunula, but more or less subparallel 4

4 (5) Presutural area of mesonotum with 6 *ac* and 3 *dc*.

Eyes distinctly setulose. Parafrontalia with 3 pairs of *fo*. Abdomen densely grey and olive pollinose, with ill-defined pattern; laterally not reddish. Hypopygium with short cerci and paralobi. 9 mm. — Transvaal ... 3. *S. pollenia* (CURRAN).

5 (4) Presutural area of mesonotum with 1 or 2, rarely 3 distinct *ac* and with only 2 distinct *dc* 6

6 (7) Paralobi terminally hook-shaped.

Eyes almost bare. Parafrontalia with 3 pairs of *fo*. Abdomen dark, with relatively broad, ill-defined, more or less triangular spots. 4-6 mm. — Southern Africa ..... 4. *S. grisea* (VILLENEUVE).

7 (6) Paralobi not hook-shaped 8

8 (9) Paralobi relatively broad and a little longer than the cerci. Phallosome short and stout.

Eyes distinctly haired. Parafrontalia with 3-4 pairs of *fo*. Abdomen laterally more or less brownish, triangular dark spots ill-defined. 7-8 mm. — S. Rhodesia ..... 5. *smithersi* n. sp.

9 (8) Paralobi slender and not reaching beyond the tips of the cerci ... 10

10 (13) Phallosome very slender and paralobi provided with a number of denticles on the inner terminal part 11

11 (12) Cerci more slender with the tips slightly bent inwards; paralobi with only a few denticles.

Eyes with sparse and short setae. Parafrontalia with 3 pairs of *fo*. Abdomen dark, with ill-defined broad spots. 5-6 mm. — Transvaal ..... 6. *S. transvaalensis* n. sp.

12 (11) Cerci broader and with straight tips, paralobi with a great number of denticles.
Outer features as in the foregoing species. 4,5-5,5 mm. — S. Africa ..... 7. *S. dubiosa* n. sp.

13 (10) Phallosome shorter, paralobi without denticles 14

14 (15) Cerci strong, paralobi strikingly shorter than the cerci and relatively narrow.
Eyes almost bare. Parafrontalia with 3 pairs of *fo*. Abdomen laterally and ventrally more or less brown or reddish. 5-7 mm. — S. Africa ..... 8. *S. nuda* ZUMPT.

15 (14) Cerci weaker, paralobi only a little shorter than the cerci 16

16 (17) Phallosome strongly broadened terminally, like a horse-shoe; paralobi club-shaped.
Eyes densely haired. Parafrontalia with 4-5 *fo*, rarely with 3 only on one side. Abdomen dark, rarely slightly brownish laterally. 4-8 mm. — Natal .....
2. *S. cuthbertsoni* ZUMPT.

17 (16) Phallosome not horse-shoe shaped 18

18 (21) Hypopygium relatively large, with slender cerci and paralobi ... 19

19 (20) Paralobi basally thin, terminally club-shaped.
Eyes practically bare. Parafrontalia with 3 pairs of *fo*. Abdomen laterally more or less brownish, pattern ill-defined. 6 mm. — S. Rhodesia ..... 9. *S. ravilla* n. sp.

20 (19) Paralobi basally broad, terminally not club-shaped.
Eyes with short and relatively sparse setae. Parafrontalia with 3-4 pairs of *fo*. Abdomen laterally more or less brownish, pattern well defined. 5-6 mm. — S. Africa .....
10. *S. pretoria* (CURRAN).

21 (18) Hypopygium small, with short cerci and paralobi.
Eyes completely bare. Parafrontalia with 3 pairs of *fo*. Abdomen laterally and ventrally more or less brownish. 3,5-5 mm. — Transvaal, Bechuanaland ... 11. *S. wilkini* n. sp.

22 (1) Parafrontalia with 2 pairs of fronto-orbital bristles 23

23 (24) Longitudinal black vittae on tergite III and IV broad, not reaching the anterior margin.
Eyes bare. Cerci broad, but strongly pointed terminally; paralobi club-shaped. 4-8 mm. — Ethiopian and Palearctic regions ..... 12. *S. albifrons* (RONDANI).

24 (23) Longitudinal black vittae on tergites III and IV narrow, reaching the anterior margins.

Eyes bare. Cerci less strongly narrowed towards the tips and these relatively blunt; paralobi not club-shaped. 4,5 mm. — Transvaal ..... 13. *S .patersoni* n. sp.

1. — **Senotainia caffra** (MACQUART).

(Fig. 8.)

Lamprometopia caffra MACQUART, Dipt. exot., suppl. I, 1846, p. 158, pl. 14, fig. 3; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 419; et Amer. Mus. Nov., 836, 1936, p. 1.

Hoplocephalella signata VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 112; TOWNSEND, Ann. Mag. Nat. Hist., (10), VIII, 1931, p. 380.

This species is fairly easily recognizable according to the key, and it is also well characterized by the male genitalia. The female sex is not yet described and I have also not seen specimens which could be referred to the males before me.

Male. — Eyes densely beset with long yellow hairs, facets small. Frons at the narrowest point (at vertex) measuring ⅓-⅔ of eye-length. Frontal stripe red-brown, narrow, but gradually widened towards the lunula and here 2-4 times as broad as at the tip of the ocellar-triangle. Parafrontalia very broad, densely silvery-white pollinose. Ocellar triangle with well developed, divaricated *oc* and a number of long black hairs; *iv*, *ev* and *f* present, 4-5 pairs of proclinate *fo* and 10-11 pairs of *paf* developed. The parafrontalia as well as the parafacialia are furthermore provided with dense, thin and long black hairs. Profrons measuring about one third of eye-length. Vibrissarium and facial ridge red-brown, vibrissa long, inserted above the epistome, base of facial ridge with a few black bristles. Bucca with a dense silvery-grey pollinosity on a red-brown to blackish underground, with black hairs and a complete row of peristomal bristles; buccal height approximately ⅓ of eye-length. Antennal groove red brown to blackish, pollinose, antennae black-brown, margin of the second segment more or less broadly reddish, 3rd segment about ⅔ as long as the second; arista long, with a dense pilosity, longest setae reaching the width of the aristal base. Palpi black-brown.

Thorax black, with a dark-olive and whitish pollinosity; the latter forms two broad, ill-defined longitudinal vittae which are visible when the fly is regarded from behind, and which reach from the suture to the tip of the scutellum. Bristles long, *ac*=2+1-3 (partly irregular), *dc*=2+3, *ia*=0+2, *prs* present, 1-2 *ph*, *h*=2, *n*=2, *sa*=2, *pa*=2, *sc*=3+1-2. Propleuron bare, *pp* and *pst* present, mesopleuron with long black hairs and bristles, *st*=1-2 : 1, row of hypopleural bristles long and dense. Pro- and poststigma

black-brown, postalar declivity bare. Wings hyaline, veins including basicosta brown, costal spine developed, R_{4+5} dorsally with a few setae at the base, *m* with right angle and with appendix, R_5 open; thoracic squama broad, with yellow margin; halter yellow. Legs black, fore-tibia with a short submedian *pv* bristle; mid-tibia with 2*pd*, one long submedian *ad*, and a long ventral bristle; hind-tibia with a long submedion *pd*, a row of unequally long *ad* and a submedian *av*. Claws and pulvilli normal.

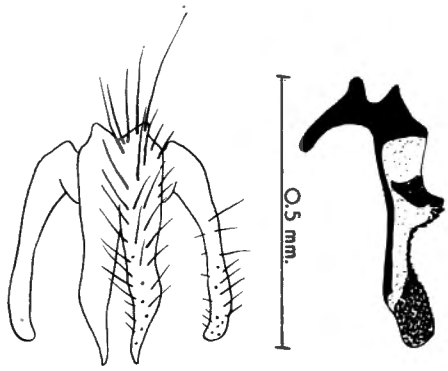


FIG. 8. — *Senotainia caffra* (MACQUART).
Cerci with paralobi, phallosome.
(Specimen from Durban, Natal.)

Abdomen about 1 ½ times as long as broad, black, laterally more or less reddish, with a dense greyish-white and olive pollinosity forming an irregular pattern. When regarded from behind, there are dorsally on each segment three, more or less triangular, black vittae which cover the entire length of the segments. Hind margins of tergites III to V with a row of bristles. Hypopygium (fig. 8) with long and slender cerci and paralobi.

Length : 6-8 mm.

Collection American Museum of Nat. History, New York : Natal : Pt. Shepstone, 21.VIII.1920 (1 ♂, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Natal : Durban, 2.V.1915 (1 ♂, *signata* det. VILLENEUVE); Durban, X.1941 (2 ♂♂, leg. A. CUTHBERTSON).

Collection Dept. of Agriculture, Salisbury : Natal : Durban, X.1941 (5 ♂♂, leg. A. CUTHBERTSON).

Collection Dept. of Agriculture, Pretoria : Natal : Durban, VI.1941 (1 ♂, leg. H. K. MUNRO).

2. — **Senotainia cuthbertsoni** ZUMPT.

(Fig. 9.)

Senotainia cuthbertsoni ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 12, fig. 6.

I have described this species in full and also drawn attention to the pronounced intraspecific variability. The number of fronto-orbital bristles may vary from 3-5 and may sometimes even be asymmetrically arranged. A constant and well-characterized feature is again the hypopygium (fig. 9).

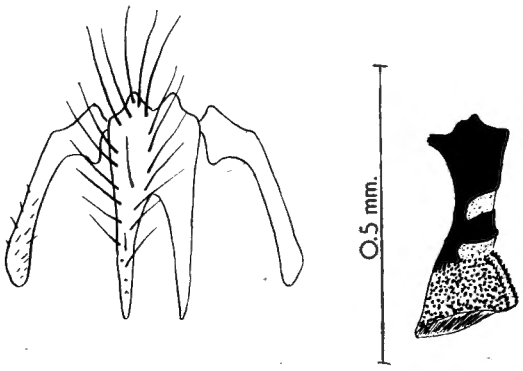


FIG. 9. — *Senotainia cuthbertsoni* ZUMPT.
Cerci with paralobi, phallosome.
(Specimen from Mtubatuba, Zululand.)

Length : 4-8 mm.

Collection Dept. of Agriculture, Salisbury : Natal : Durban, X.1941 (8 ♂♂, 10 ♀♀, holotype and paratypes, leg. A. CUTHBERTSON. Holotype now located in the British Museum).

Collection Dept. of Agriculture, Pretoria : Natal : Pt. Shepstone, 12.VIII.1920 (1 ♀, leg. H. K. MUNRO); Mtubatuba, V.1941 (1 ♂, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Natal : Durban, X.1941 (3 ♂♂, 3 ♀♀, paratypes, leg. A. CUTHBERTSON); Illovo Beach, 27.XI.1954 (1 ♀, leg. H. PATERSON).

3. — **Senotainia pollenia** (CURRAN).

(Fig. 10.)

Lamprometopia pollenia CURRAN, Amer. Mus. Nov., 836, 1936, p. 1.

There is only one specimen before me, namely the holotype (♂). The other specimens listed as paratypes by the author belong to *S. nuda* ZUMPT, the females remaining doubtful. I have also not received any other specimen belonging to this species. Whether the short note by CUTHBERTSON (1936) on *L. pollenia* actually refers to it, is more than doubtful.

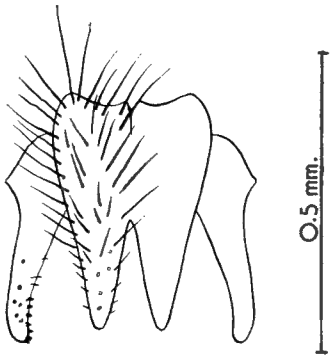


FIG. 10. — *Senotainia pollenia* (CURRAN).
Cerci with paralobi.
(Holotype from Pretoria, Transvaal.)

Male. — Eyes distinctly setulose. Frons broad, in the posterior part subparallel and a little broader than half the eye-length. Frontal stripe parallel, black and becoming brownish towards the lunula, at the tip of the ocellar triangle about 1½ times as broad as one parafrontalium. Parafrontalia and -facialia with a silvery-white pollinosity. Chaetotaxy as usual, *oc* distinct, 3 *fo*, setulosity relatively long and present in full extent. Profrons measuring ⅓rd of eye-length. Antennae black, tip of the second segment reddish, the third about twice as long as the second, arista short pilose. Palpi brown, tips yellowish.

Thorax black, the pollinosity is rubbed off for the greater part and nothing can be said about a pattern. There are 6 slightly irregularly placed presutural *ac*, and one pair of prescutellar ones; *dc*=3+3, *ia*=0+3, *prs* and 3 *ph* developed, *h*=2 (outer very long), *n*=2, *sa*=3, *sc*=3+1. Propleuron bare, *pp* and *pst* present and accompanied by several weaker bristles. Mesopleuron in the upper part with long bristly hairs, bristles at the

posterior edge long and dense, *st*=1 : 1 : 1. Pro- and poststigma black-brown. Wing hyaline, veins incl. basicosta yellow-brown, costal spine distinct, R_{4+5} dorsally with 2-3 black setae at the base, *m* with a right angle, no appendix, R_5 broadly open. Legs black; fore-tibia with a submedian *pv*; mid-tibia with a submedian *ad*, 2 *pd* and a long ventral bristle; hind-tibia with 2 *pd*, 3 longer and several short *ad* and a submedian *av*. Claws and pulvilli long.

Abdomen with a dense grey and olive pollinosity, the latter forming an ill-defined pattern which is clearly visible only when the fly is regarded from behind. In this position, one broad median spot and a pair of slender lateral ones are found on tergite I+II; the two next tergites show a median, linear, uninterrupted vitta and laterally a pair of triangular spots which cover only about the posterior half of each tergite. Hypopygium (fig. 10) with short cerci and paralobi, the latter provided with a number of denticles at the inner terminal part. The phallosome could not be dissected for technical reasons.

This species has quite a few outstanding morphological features which, should they prove to be constant, will probably make the identification relatively easy.

Length : 9 mm.

Collection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, 8.III.1928 (1 ♂, holotype, leg. H. K. MUNRO).

4. — **Senotainia grisea** (VILLENEUVE).

(Fig. 11.)

Hoplocephalella grisea VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 509; CURRAN, Ann. Mag. Nat. Hist., (10), II, 1928, p. 420; et Amer. Mus. Nov., 836, 1936, p. 2.

I have not seen any specimens of *S. grisea* identified by VILLENEUVE, and his description is quite inadequate. From Dr. CURRAN, New York, I have received two males identified as this species. They are well characterized by the hypopygium and agree in this respect with two further males which were collected in the Transvaal more recently. On these four specimens, the following redescription has been based.

Male. — Eyes almost bare, microscopic setae are present, but very sparse. Facets small. Frons measuring about ⅓ of eye-length at the tip of the ocellar triangle. Frontal stripe red-brown to black, subparallel, about 1½ times as broad as the neighbouring parafrontalium at the tip of the ocellar triangle. Parafrontalia and -facialia densely silvery-white pollinose and with black setae in full extent. Ocellar bristles distinct, 3 pairs of *fo*. Profrons about ¼ of eye-length. Vibrissarium and bucca pollinose like the parafacialia. Antennae black-brown to black, margin

of the second segment more or less reddish; 3rd segment ¼ longer than the second; arista relatively long pilose, longest setae as long as the aristal diameter. Palpi black.

Thorax black, with a grey and olive pollinosity and the usual, ill-defined pattern of longitudinal stripes and vittae. Bristles long, *ac*=2+1, *dc*=2+3, *ia*=1+2, *prs* and inner *ph* present, *h*=2, *n*=2, *sa*=3, *sc*=3+1. Propleuron bare, *pp* and *pst* present, *st*=1 : 1 and several bristly hairs between them. Pro- and poststigma black-brown. Wing hyaline, veins including basicosta yellow-brown, costal spine distinct, R_{4+5} dorsally at the base with a few

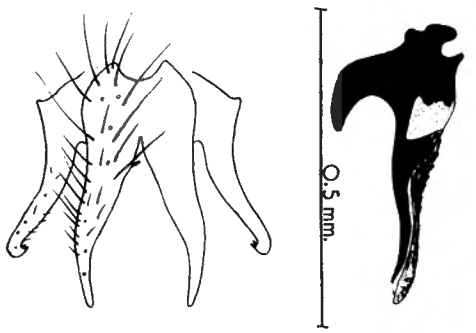


FIG. 11. — *Senotainia grisea* (VILLENEUVE).
Cerci with paralobi, phallosome.
(Specimen from Johannesburg, Transvaal.)

setae, *m* with a right angle and with or without appendix, R_5 narrowly to broadly open. Thoracic squama broad. Legs black; fore-tibia with a submedian *pv*; mid-tibia with a submedian *ad*, 2 *pd* and a ventral bristle; hind tibia with 3-5 long *ad*, 2 *pd* and a submedian *av*. Claws and pulvilli long.

Abdomen with relatively broad, ill-defined, more or less triangular spots. Hypopygium (fig. 11) very characteristic with its slender, terminally hook-shaped paralobi.

Length : 4-6 mm.

Collection American Museum of Nat. History, New York : S. Rhodesia : Salisbury, 13.XI.1936 (1 ♂, leg. A. CUTHBERTSON from nest of sphegide). Transvaal : Barberton, 22.V.1913 (1 ♂, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 13.IV.1952 (1 ♂, leg. H. PATERSON); Pretoriuskop, Kruger Park, I.1952 (1 ♂, leg. F. ZUMPT).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, 10.XII.1938 (1 ♂, leg. A. CUTHBERTSON).

5. — **Senotainia smithersi** n. sp.

(Fig. 12.)

Another species which is very well characterized by the hypopygial structures. It is so far known only from the S. Rhodesian Mountains and is named in honour of Mr. C. N. SMITH, formerly Salisbury, now at the Australian Museum, Sydney.

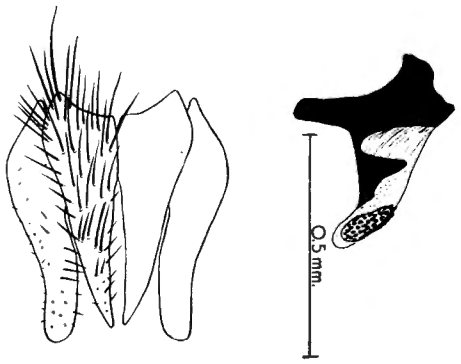


FIG. 12. — *Senotainia smithersi* n. sp.
Cerci with paralobi and phallosome.
(Paratype from Vumba mts., S. Rhodesia.)

Male. — Eyes provided with long yellow setae, but they are not quite as dense as in *S. caffra* and *S. cuthbertsoni*. Facets small. Frons at the tip of the ocellar triangle measuring about ⅖-½ of eye-length. Frontal stripe black, subparallel, at the tip of the ocellar triangle almost twice as broad as the neighbouring parafrontalium. Parafrontalia and -facialia densely greyish-white pollinose and beset in full extent with long black setae. Ocellar triangle with several bristly hairs, but a single pair of *oc* is not clearly distinguished; *iv*, *ev* and *f* well developed. There are 4 pairs of strong proclinate *fo* in the holotype, and 3 pairs in the paratypes; 10-13 pairs of *paf*. Profrons about ⅓ of eye-length. Vibrissarium black, vibrissa long, inserted above the epistome, base of facial ridge bare or with 1-3 short bristles. Bucca not quite half as high as the eye is long, grey pollinose, with black hairs and bristles. Antennal groove black and densely whitish pollinose, antennae black-brown, third segment not more than 1½ times as long as the second, arista densely short pilose. Palpi black.

Thorax black, with a dense greyish and olive pollinosity and a dark, ill-defined pattern, forming 3 narrow median stripes and on each side a broad lateral vitta which is more or less interrupted at the suture. Bristles long, *ac*=2+1 (partly irregular), *dc*=2+3, *ia*=0-1+2, *prs* present, *ph*=1-2, *h*=2-3, *n*=2, *sa*=2, *pa*=2, *sc*=3+1. Propleuron bare, *pp* and *pst* present, *st*=1 : 1 : 1. Pro- and poststigma black-brown, postalar-declivity bare. Wing with a brownish tinge, veins including basicosta yellow-brown, costal spine present, R_{4+5} dorsally with a few black setae, *m* with a right angle and without appendix, R_5 open. Thoracic squama with a yellowish tinge, halter yellow-brown. Legs black, fore-tibia with a relatively long *pv* bristle and several short *ad*; mid-tibia with 2 *pd* and a long submedian *ad* and a ventral bristle; hind-tibia with 2 *pd*, a row of *ad* and a submedian *av*. Claws and pulvilli long and slender.

Abdomen longer than broad, underground predominantly black, but hind margins of tergites and the lateral sides a more or less ill-defined brownish colour. Pollinosity grey and olive; a dark pattern consists of ill-defined, roughly triangular spots, three on each segment. Hind margins of tergites III to V with a row of thicker bristles. Hypopygium (fig. 12) with relatively stout cerci and paralobi and a very characteristic short and broad phallosome.

Length : 7-8 mm.

Female not known.

Collection American Museum of Nat. History, New York : S. Rhodesia : Inyanga, 31.I.1939 (1 ♂, holotype, leg. A. CUTHBERTSON); Vumba Mts., III.1935 (1 ♂, paratype, leg. A. CUTHBERTSON).

Collection British Museum (Nat. History), London : S. Rhodesia : II and III.1938 (2 ♂♂, paratypes, leg. A. CUTHBERTSON).

Collection S. African Institute for Med. Research, Johannesburg : S. Rhodesia : Vumba Mts., III.1938 (1 ♂, paratype, leg. A. CUTHBERTSON).

6. — **Senotainia transvaalensis** n. sp.

(Fig. 13.)

This species is in its hypopygial structure somewhat similar to *S. dubiosa*, but cerci and paralobi are distinctly more slender (fig. 13).

Male. — Eyes with sparse and short setae, inner facets slightly enlarged. Frons at the tip of the ocellar triangle measuring about ⅜ of eye-length, subparallel in the posterior part. Frontal stripe black, slightly narrowed towards the lunula; at the tip of the ocellar triangle about twice

as broad as one parafrontalium. Parafrontalia and -facialia densely silvery-white pollinose; in full extent, but relatively sparsely, beset with black setae. A pair of ocellar bristles well-distinguished from the other bristly hairs; 3 *fo*, *iv*, *ev* and *paf* normally developed. Profrons ¼-⅕ of eye-length. Vibrissium and buccae densely pollinose like the parafrontalia, vibrissa and peristomal bristles normal. Antennae black, third segment 2 ½ times as long as the second, arista short pilose. Palpi black-brown.

Thorax black, with a grey and olive pollinosity. Pattern consists of the usual longitudinal stripes and vittae. Chaetotaxy as in *S. pretoria*. Wing hyaline, R_5 only narrowly open, *m* with a right angle and a minute

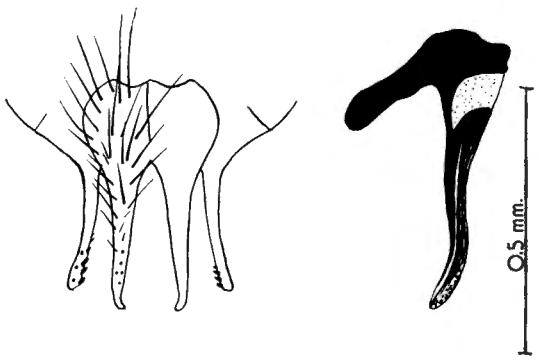


FIG. 13. — *Senotainia transvaalensis* n. sp.
Cerci with paralobi, phallosome.
(Paratype from Brits, Transvaal.)

appendix. Thoracic squama broad, with a narrow yellow margin. Legs as in *S. pretoria*, but claws and pulvilli a little shorter. Abdomen with broad, ill-defined, more or less triangular spots.

Length : 5-6 mm.

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 5.I.1953 (1 ♂, holotype, leg. F. ZUMPT); Brits, 25.X.1952 (1 ♂, paratype, leg. H. PATERSON).

7. — **Senotainia dubiosa** n. sp.

(Fig. 14.)

Cerci and paralobi of this species are somewhat similar to those of *S. pretoria*, but the latter have a number of teeth on the inner side of the terminal part. The phallosome is much more slender (fig. 14). Comparing

the outer features, the eyes are more sparsely haired, the 3rd antennal segment is longer, reaching twice the length of the second, and the abdominal spots appear a little broader.

Length : 4 ½-5 ½ mm.

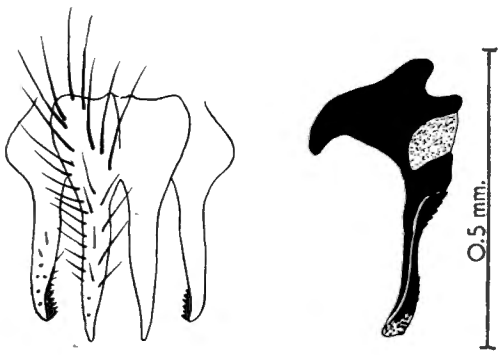


FIG. 14. — *Senotainia dubiosa* n. sp.
Cerci with paralobi, phallosome.
(Holotype from Mamathes, Basutoland.)

Collection S. African Institute for Med. Research, Johannesburg : Basutoland : Mamathes, 25.X.1952 (1 ♂, holotype, leg. C. JACOT-GUILLARMOD). Natal : Ladysmith, XII.1951 (1 ♂, paratype, leg. F. ZUMPT).

Collection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, 8.IX.1914 (1 ♂, paratype of *pretoria*, leg. H. K. MUNRO).

8. — **Senotainia nuda** ZUMPT.

(Fig. 15.)

Senotainia nuda ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 10, fig. 5.

This species has been described by me in detail and was based on 2 ♂♂ and 1 ♀ from Pretoria and Johannesburg. In the meantime, I have received several more specimens from other localities too. *S. nuda* is easily recognizable by the hypopygium (fig. 15), but the outer features are variable to a certain degree as in other *Senotainia* species and overlap more or less with those of related forms.

In my original description I said that the eyes were bare. The specimens before me show that there is actually a short and sparse pilosity present, which may however be quite indistinct in some of them. The female sex, which will have completely bare eyes, is not yet identifiable.

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Pretoria, 30.I.1949 (1 ♂, holotype, leg. F. ZUMPT); Johannesburg, 2.I.1950 (1 ♂, paratype) and 25.I.1953 (1 ♂, leg. F. ZUMPT); Pretoriuskop, Kruger Park, I.1952 (1 ♂, leg. F. ZUMPT). Cape Province : Matatiele, XI.1954 (2 ♂♂).

Collection Dept. of Agriculture, Pretoria : Natal : Drakensberg, Cathkin area, VII.1942 (6 ♂♂, leg. W. R. MARRIOTT). Swaziland : Ranches, 25.II.1947 (1 ♂, leg. H. K. MUNRO).

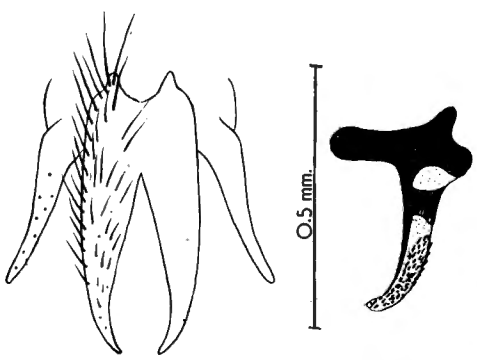


FIG. 15. — *Senotainia nuda* ZUMPT.
Cerci with paralobi, phallosome.
(Specimen from Drakensberg, Natal.)

Collection American Museum of Nat. History, New York : Transvaal : Pretoria, 8.III.1928 (1 ♂, paratype of *pollenia*, leg. H. K. MUNRO).

9. — **Senotainia ravilla** n. sp.

(Fig. 16.)

There is only one specimen before me which is, nevertheless, described on account of its very characteristic hypopygial structure.

Male. — Eyes practically bare, only very few microscopic setae are detectable. Facets small. Frons subparallel, at the tip of the ocellar triangle measuring half the eye-length. Frontal stripe black, subparallel, at the anterior ocellus about as broad as one parafrontalium. Parafrontalia and -facialia densely silvery-white pollinose, with black setae in full extent. Ocellar bristles distinct, 3 pairs of *fo*. Profrons nearly ⅓ of eye-length. Vibrissarium and bucca pollinose like the parafacialia. Antennae black-brown, tip of the second segment broadly reddish, 3rd segment ⅔ longer than the second, arista short pilose. Palpi yellow-brown.

Thorax black, with a greyish-white pollinosity; a pattern is hardly developed. Bristles long, *ac*=1+1, *dc*=2+3, *ia*=1+3, *prs* and 2 inner *ph* present, *h*=2, *n*=2, *sa*=3, *sc*=3+1. Propleuron bare, *pp* and *pst* present, *st*=1 : 1. Pro- and poststigma brown. Wing hyaline, veins incl. basicosta yellow to yellow-brown, costal spine distinct, R_{4+5} dorsally bare, *m* with a right angle, no appendix, R_5 open. Legs black; fore-tibia with a submedian *pv*; mid-tibia with a submedian *ad*, 2 *pd* and a ventral bristle; hind-tibia with 2 *pd*, several *ad* and a submedian *av*. Claws and pulvilli relatively long.

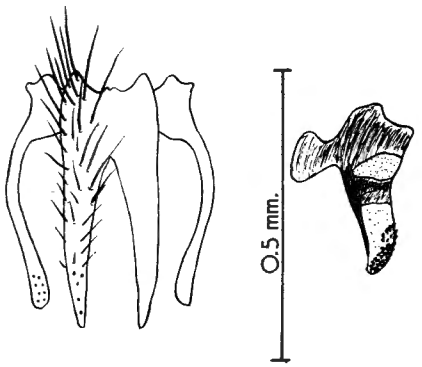


FIG. 16. — *Senotainia ravilla* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Salisbury, S. Rhodesia.)

Abdomen with an ill-defined pattern of narrow, triangular spots; laterally more or less brownish. Hypopygium (fig. 16) with long and slender cerci and paralobi, the latter club-shaped terminally. Phallosome short and stout.

Length : 6 mm.

Collection S. African Institute for Med. Research, Johannesburg : S. Rhodesia : Salisbury, XII.1938 (1 ♂, leg. A. CUTHBERTSON).

10. — **Senotainia pretoria** (CURRAN).

(Fig. 17.)

Lamprometopia pretoria CURRAN, Amer. Mus. Nov., 836, 1936, p. 3.

I was able to examine some specimens of the typical material located in New York and in Pretoria. The holotype and one paratype in New York are identical, whereas a second male in the collection of Pretoria represents a new species which is described below as *S. dubiosa*. I also received the allotype and another female paratype, the identification of

which remains doubtful. The only reliable diagnostic feature is probably the hypopygium. I am giving a new description of *S. pretoria* based on 13 males before me.

Male. — Eyes distinctly haired, but the setae are short and relatively sparse, facets small. Frons broad, subparallel in the posterior part, measuring at the tip of the ocellar triangle nearly half the eye-length. Frontal stripe red-brown to deep black, subparallel, at the tip of the ocellar triangle a little broader than the neighbouring parafrontalium. Para-

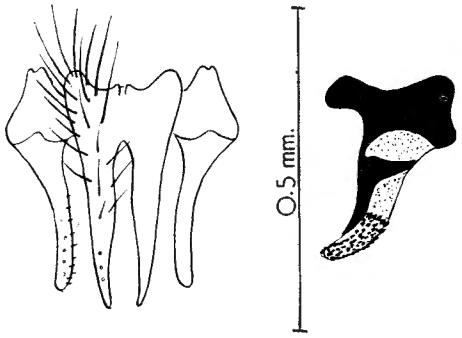


FIG. 17. — *Senotainia pretoria* (CURRAN).
Cerci with paralobi, phallosome.
(Specimen from Martin's Drift, Bechuanaland.)

frontalia and -facialia greyish-white pollinose and beset in full extent with black, but not very dense setae. Ocellar triangle with several bristly hairs, of which one pair is to a variable degree a little longer and thicker than the others; *iv*, *ev* and *f* well developed. Normally 3 pairs of proclinate *fo*, but there are also specimens with 4 pairs; 8-10 pairs of *paf*. Profrons a little less than ⅓ of eye-length. Vibrissarium and bucca densely pollinose like the parafacialia. Vibrissa and peristomal bristles normal. Antennae red-brown to black, in which case only the hind margin of the 2nd segment remains reddish, 3rd segment ⅕-⅖ longer than the second; arista short pilose. Palpi yellow- to dark brown.

Thorax black, with a greyish and partly olive pollinosity, black pattern similar to that in *S. smithersi*. Bristles long, *ac*=2-3+1 (partly irregular), *dc*=2+3, *ia*=1+2, *prs* present, *ph*=1, *h*=2, *n*=2, *sa*=3, *sc*=3+1. Propleuron bare, *pp* and *pst* present, *st*=1 : 1-2 : 1. Pro- and poststigma dark-brown, postalar declivity bare. Wing hyaline, veins including basicosta yellow to yellow-brown, costal spine present, R_{4-5} dorsally at the base with a few setae, *m* with a right or slightly obtuse angle and with or without an appendix of varying length, R_5 open. Thoracic squama broad. Legs

dark brown to black; fore-tibia with a submedian *pv*; other bristles short; mid-tibia with a submedian *ad*, 2 *pd* and a ventral bristle; hind-tibia with a row of unequal *ad*, 2-3 *pd* and a submedian *av*. Claws and pulvilli long and slender.

Abdomen more than 1½ times as long as broad, underground predominantly black, but lateral and ventral sides sometimes more or less brownish. Pollinosity as on the thorax, the dorsal black pattern consists of slender, well-defined, more or less triangular spots, of which 3 are found on the tergites III to V and which cover almost the whole length on the tergites. The usual marginal bristles are developed. Hypopygium (fig. 17) with long and slender cerci and paralobi, but phallosome relatively stout.

Length : 5-6 mm.

Female allotype described, but it is uncertain whether this specimen actually represents the other sex of *S. pretoria*.

Collection American Museum of Nat. History, New York : Transvaal : Pretoria, 2.I.1914 (1 ♂, holotype, leg. H. K. MUNRO); 10.I.1914 (1 ♂, paratype, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Brits, 25.X.1952 (1 ♂, leg. H. PATERSON); Johannesburg, 24.XII.1950 (1 ♂, leg. F. ZUMPT); Rooiberg, 26.XII.1958 (1 ♂, leg. F. ZUMPT). Bechuanaland : Martin's Drift, II.1953 (7 ♂♂, leg. H. PATERSON). Basutoland : Mamathes, 25.X.1952 (1 ♂, leg. C. JACOT-GUILLARMOD).

11. — **Senotainia wilkini** n. sp.

(Fig. 18.)

This species is named in honour of Dr. B. WILKIN, Medical Officer of Health in the Bechuanaland Protectorate. It is again well characterized by the hypopygial structure and also by the absence of dark setae on the parafacialia.

Male. — Eyes completely bare, inner facets distinctly enlarged. Frons at its narrowest point (near the middle) measuring about ⅓ of eye-length, slightly widened towards the vertex, to a greater extent towards the lunula. Frontal stripe and parafrontalia densely covered with a pollinosity which is yellow or silvery-white according to the incidence of light. Frontal stripe at the tip of the ocellar triangle about twice as broad as the neighbouring parafrontalium. Ocellar triangle black, *oc* well developed; *iv*, *ev*, *f* and 3 *fo* present. Parafacialia as densely pollinose as the parafrontalia, but black setae are completely wanting and only a few white and very short and sparse ones are detectable. Bucca beset with longer pale hairs, its

height a little more than 1/5 of eye-length. Vibrissa and peristomal bristles black. Profrons 1/5-1/4 of eye-length. Antennae yellow to brown, 3rd segment nearly twice as long as the second, arista very short pilose.

Thorax black, with a dense greyish olive pollinosity and ill-defined pattern. Bristles and hairs are long and not clearly distinguishable from one another. A pair each of presutural and of prescutellar bristles are distinct; *dc*=2+3, *prs* and a long inner *ph*, *h*=2, *n*=2, *sa*=3, *sc*=3+1. Propleuron bare, *pp* and *pst* present, *st*=1 : 1. Pro- and poststigma black-brown. Wing hyaline, with slight brownish tinge, veins incl. basicosta yellow, costal spine indistinct, R_{4+5} dorsally bare, media with a slightly obtuse angle, without appendix, R_5 narrowly open. Legs black; fore-tibia ventrally with a number of adpressed bristles arranged as in a comb; mid-

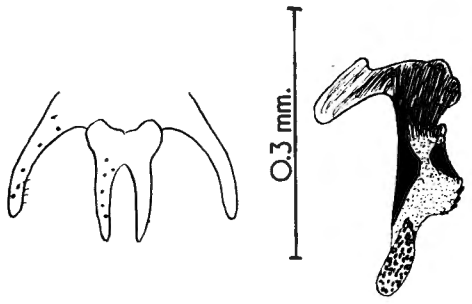


FIG. 18. — *Senotainia wilkini* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Martin's Drift, Bechuanaland.)

tibia with a submedian *ad*, *pd*, *av* and *pv*; hind-tibia with a full row of unequally long *ad* and a submedian *av*. Claws and pulvilli short.

Abdomen dorsally predominantly black, laterally and ventrally more or less brownish. Pollinosity as on the thorax. When regarded from behind, tergite I+II is dark, tergites III and IV are each provided with three large spots, the outer ones being triangular. Hypopygium (fig. 18) with slender and relatively small cerci and paralobi. Phallosome short.

Length of holotype 3,5 mm, of paratype 5 mm.

Collection S. African Institute for Med. Research, Johannesburg : Bechuanaland : Martin's Drift, II.1953 (1 ♂, holotype, leg. H. PATERSON). Transvaal : Pretoria, 30.I.1949 (1 ♂, paratype, leg. F. ZUMPT).

12. — **Senotainia albifrons** (RONDANI).

(Fig. 19.)

Sphecapata albifrons RONDANI, Prodr. Dipt. ital., III, 1859, p. 225; ROHDENDORF, Fliegen pal. Region, 64,, h, 1935, p. 80, fig. 68; SÉGUY, Encycl. Ent., (A) XXI, 1941, p. 280; VENTURI, Redia, XXXII, 1947, p. 122, fig. 3; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 10, fig. 4; VENTURI, Boll. Inst. Ent. Univ. Bologna, XXII, 1957, p. 177, figs.

This species is widespread in the Palaearctic region and seems to be quite common also in several parts of the African continent. I have compared specimens from South Africa with an Italian one identified by

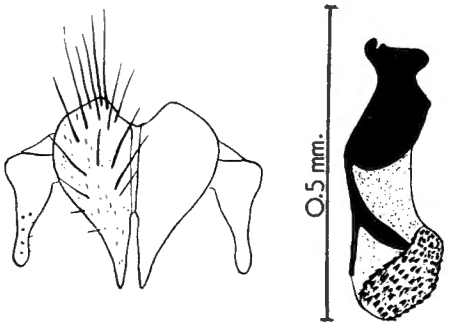


FIG. 19. — *Senotainia albifrons* (RONDANI).
Cerci with paralobi, phallosome.
(Specimen from Mamathes, Basutoland.)

Professor VENTURI, and found them identical with respect to the external features as well as to the hypopygium. Among the Ethiopian species of *Senotainia* described so far, *S. albifrons* is easily recognizable in both sexes by the presence of only two proclinate *fo*. The only species in Africa south of the Sahara with the same feature is *S. patersoni* m., described below, which shows, however, a different abdominal pattern and also a quite different structure of the cerci and paralobi (fig. 19).

As *S. albifrons* has been fully described by ROHDENDORF and by VENTURI, it is not necessary to give another description. The specimens before me vary in length from 4 to 8 mm.

Collection Musée Royal de l'Afrique Centrale : Congo : Dula, Ubangi, 17-19.I.1932 (1 ♂, leg. H. J. BRÉDO).

Collection S. African Institute for Med. Research, Johannesburg : Basutoland : Mamathes, 19-25.X.1952 (13 ♂♂, 6 ♀♀, leg. C. JACOT-GUILLARMOD). Transvaal : Johannesburg, 25.I.1953 (1 ♀, leg. F. ZUMPT); Tzaneen, VII.1951 (1 ♂, leg. H. PATERSON); Waterval Onder, 24.II.1952 (2 ♂♂, leg. H. PATERSON).

Collection S. African Museum, Cape Town : Orange Free State : Smithfield (1 ♂, leg. KANNEMEYER, det. by VILLENEUVE as « *albifrons* ROND. »). Cape Province : nr. Clanwilliam, III.1925 (1 ♀).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Gatooma, I.1928 (1 ♂, leg. A. CUTHBERTSON); Urongwe 11.II.1938 (1 ♀, leg. W. L. WILLIAMS).

Collection British Museum (Nat. History), London : S. Rhodesia : Salisbury, 22.V.1938 (2 ♂♂, leg. A. CUTHBERTSON). N. Nigeria : Ilorin, 1.V.1912 (1 ♂, leg. J. W. SCOTT-MACFIE).

13. — **Senotainia patersoni** n. sp.

(Fig. 20.)

This species, named in honour of its collector, is related to *S. albifrons*, but is separable by the shape of the hypopygium and also by the abdominal pattern.

Male. — Eyes bare, inner facets slightly larger than the outer ones. Frons at the narrowest point (near the tip of the ocellar triangle) measuring about 2/5 of eye-length, slightly widened towards the vertex, more strongly towards the lunula. Frontal stripe black, sometimes partly reddish, at the tip of the ocellar triangle about as broad as one parafrontalium. Parafrontalia and -facialia densely silvery-white pollinose; ocellar bristles, *iv*, *ev*, *f* and 2 pairs of *fo* well developed, 7-8 pairs of *paf*, parafacial setae relatively long, especially near the inner margin. Bucca and profrons about 1/4 as broad as the eye is long. Vibrissa long, with one short bristle above it, row of peristomal bristles complete, buccal hairs black. Antennae with the basal segments more or less reddish brown, the third blackish and twice as long as the second, arista short pilose. Palpi brown.

Thorax black, pollinosity grey and dark yellowish, pattern ill-defined. Bristles and hairs long, one pair each of presutural and prescutellar *ac* evidently variable, $dc=2+3$, *prs* and 2 inner *ph* present, $h=2$, $n=2$, $sa=3$, $sc=3+1$. Propleuron bare, *pp* and *pst* developed, $st=1:1$. Pro- and poststigma dark brown. Wing hyaline, veins incl. basicosta yellow to light-brown, costal spine present, R_{4+5} dorsally with or without a basal seta, *m* with a right or slightly obtuse angle which shows a short appendix in the holotype but not in the paratype, R_5 narrowly open. Legs black;

fore-tibia with a submedian *pv*; mid-tibia with a submedian *av*, *pv*, *ad* and *pd*; hind-tibia with 2 *pd*, 3-4 *ad* and a submedian *av*. Claws and pulvilli long.

Abdomen pollinose like the thorax; the pattern consists of distinct, more or less triangular spots of which 3 are present on tergite I+II, III and IV, and which cover the whole segmental length. Hind tergal margins with

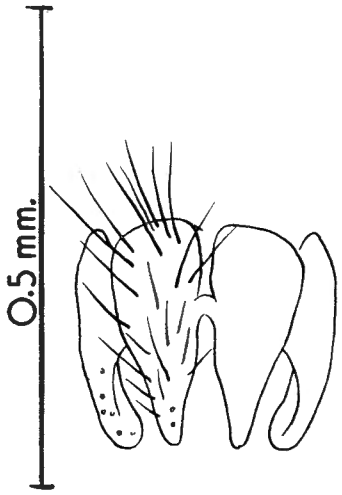


FIG. 20. — *Senotainia patersoni* n. sp.
Cerci with paralobi.
(Holotype from Brits, Transvaal.)

the usual bristles. Hypopygium (fig. 20) with relatively short cerci and paralobi; the phallosome of the two specimens before me could not be properly dissected.

Length : 4,5 mm.

Female not known.

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Brits, 25.X.1952 (2 ♂♂, holo- and paratype, leg. H. PATERSON).

Genus **NODITERMITOMYIA** SÉGUY.

Noditermitomyia SÉGUY, Bull. Int. Et. Ins. Soc., I, 1953, p. 25.
Type species : *Noditermitomyia arabops* SÉGUY from the Ivory Coast.

I have not seen the type species of this genus. According to the description, it is related to *Senotainia* and the main distinguishing feature is the closed R_5. This feature is especially mentioned by the author as a generic one, but the drawing of the wing of *N. arabops* which he gives in his paper shows an open R_5. I presume that this is a drawing-error, and that the diagnosis is correct.

I have a male specimen of *Miltogramma* before me which completely fits the generic diagnosis of *Noditermitomyia*. It was originally identified by CURRAN as « *Lamprometopia pollenia* ». It is superficially similar to this species, but apart from the closed R_5, the hypopygium shows a quite different, very characteristic structure.

The larva of *N. arabops* develops in the nests of *Noditermes curvatus*.

KEY TO THE SPECIES.

1 (2) Parafacialia with relatively sparse setae. Mesonotum with 3 *sa* and *st*=1 : 1 : 1. Costal spine present.
Abdomen with triangular spots. 5,5 mm. — S. Rhodesia ..... 1. *N. currani* n. sp.

2 (1) Parafacialia with dense setae. Mesonotum with 2 *sa* and *st*=1 : 1. Costal spine wanting.
This species is not known to me. 4,5 mm. — Ivory Coast ..... 2. *N. arabops* SÉGUY.

1. — **Noditermitomyia currani** n. sp.

(Fig. 21.)

The hypopygium of this species is very characteristic and it should not be difficult to recognise it by this feature.

Male. — Eyes with distinct but sparse setae, inner facets slightly enlarged. Frons at the narrowest point (near the middle) measuring 2/5 of eye-length, slightly widened towards the vertex, more strongly towards the lunula. Frontal stripe black, almost subparallel, slightly narrowed in the middle, at the tip of the ocellar triangle, it is 1 ½ times as broad as one neighbouring parafrontalium. Parafrontalia and -facialia densely silvery-white pollinose and in full extent beset with long and black, but relatively sparse, setae. Chaetotaxy of head complete, *oc* well developed, 3 long

proclinate *fo*. Profrons measuring about ⅓ of eye-length. Antennae black except the edge of the second segment, which is broadly reddish; third segment a ltitle more than twice as long as the second, arista surpassing the vibrissa, the basal ⅙-⅕ thickened, pilosity distinct and of medium length. Vibrissa of medium strength, inserted above the epistome. Only one peristomal bristle on the anterior part of the peristome fully developed,

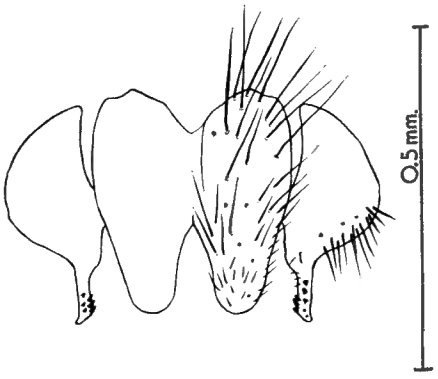


FIG. 21. — *Noditermitomyia currani* n. sp.
Cerci with paralobi.
(Holotype from Salisbury, S. Rhodesia.)

bucca otherwise with short black hairs. Buccal height about ⅓ of eye-length. Buccae as densely silvery-white pollinose as the parafacialia. Palpi black.

Thorax greyish white and olive pollinose; a pattern usual in *Senotainia* is developed, but not well-preserved in the specimen before me. Bristles long, *ac*=2+1, *dc*=2+3, *ia*=0+2, *ph*=1, *prs*=1, *h*=1-2 (asymmetrical), *n*=2, *sa*=3, *pa*=2, *sc*=3+1. Pleura densely pollinose, *st*=1 : 1 : 1, but the medium one is weak. Wing hyaline, veins including basicosta yellow, costal spine short, but distinct, R_{4+5} dorsally with 3 basal setae, R_5 closed, *m* with a right angle, but without appendix. Thoracic squama broad. Legs dark reddish-brown; fore-tibia with a submedian *pv*; mid-tibia with 1 *ad*, 1 *pd*, 1 *av*, 1 *pv*; hind-tibia with 6-8 unequally long *ad*, 2 *pd* and 1 submedian ventral bristle.

Abdomen pollinose like the thorax, about 1½ times as long as broad. The pattern consists of ill-defined spots which are broadly triangular on tergite I+II, whereas they form a narrow median line and two short triangular spots on tergites III and IV. Hind margins of tergites IV and V with long marginal bristles, whereas they are short and thin on tergite III.

Hypopygium (fig. 21) with broad, terminally rounded cerci and outstandingly shaped, terminally denticulated, paralobi. The phallosome could not be dissected.

Length : 5,5 mm.

Female not known.

Collection American Museum of Nat. History, New York : S. Rhodesia : Salisbury, 13.XI.1936 (1 ♂, holotype, ex nest of « *Dasyproctus bipunctatus* », leg. A. CUTHBERTSON).

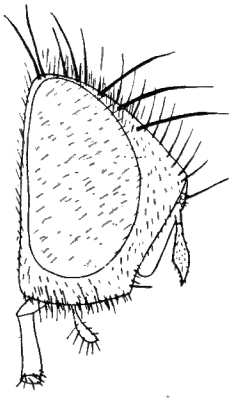


FIG. 22. — *Paraphylloteles hessei* ZUMPT.
Head in lateral view (after ZUMPT).
(Holotype from Spitzkop, Cape Province.)

2. — **Noditermitomyia arabops** SÉGUY.

Noditermitomyia arabops SÉGUY, Bull. Int. Et. Ins. Soc., I, 1953, p. 27, fig. 3.

According to the description, this fly should be similar to *N. currani* m., but it has a number of densely placed setae on the frontal stripe around the ocellar triangle, whereas there are only very few in *N. currani*. Furthermore, the parafacialia appear to be more densely setulose, and the thorax of *N. arabops* shows only 2 *sa* and *st*=1 : 1.

Length : 4,5 mm.

The type locality is Adiopodoumé, Ivory Coast.

Genus **PARAPHYLLOTELES** ZUMPT.

Paraphylloteles ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 7.
Type species : *Paraphylloteles hessei* ZUMPT from the Cape Province.

Two species are known so far, both from Southern Africa. It is the only genus of *Miltogramminae* in the Ethiopian region in which the male has a leaf-like flattened arista (the female sex has not yet been detected). The eyes are hairy. Parafrontalia show a complete row of *paf* and a

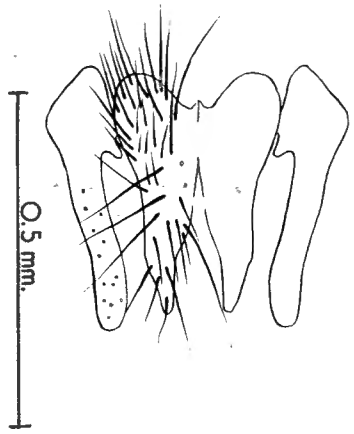


FIG. 23. — *Paraphylloteles hessei* ZUMPT.
Cerci with paralobi.
(Holotype from Spitzkop, Cape Province.)

number of proclinate *fo*. Parafrontalia and -facialia are densely pollinose and beset with setae in whole extent (fig. 22). Sternopleurals 2 : 1 or 1 : 1. Mid-tibia with one submedian antero-dorsal bristle.

KEY TO THE SPECIES.

1 (2) Eyes densely beset with setae. Abdominal tergite III with a pair of short, erect, median bristles at the hind margin.
Cerci broader, paralobi a little longer than the cerci. 6 mm. — Cape Province ..... 1. *P. hessei* ZUMPT.

2 (1) Eyes sparsely beset with setae. Abdominal tergite III without median bristles.
Cerci more slender, paralobi shorter than the cerci. 6,5 mm. — S. Rhodesia ..... 2. *P. degener* n. sp.

1. — **Paraphylloteles hessei** ZUMPT.

(Figs. 22, 23.)

Paraphylloteles hessei ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 7, fig. 2.

This species was based on a single male from the Cape Province. No further specimens have come to my knowledge since then. It is closely related to the following species, but separated from it by the features given in the key and by the shape of the hypopygium (fig. 23).

Collection S. African Institute for Med. Research, Johannesburg : Cape Province : Spitzkop, Meiringspoort, I.1935 (1 ♂, holotype, leg. M. HESSE).

2. — **Paraphylloteles degener** n. sp.

(Fig. 24.)

This species is very similar to *P. hessei*, but distinctly separated from it by the shape of the male terminalia. Furthermore, the eyes are not as densely haired and abdominal tergite III lacks the median pair of bristles at the hind margin.

Male. — Eyes with distinct setae which are sparsely distributed over the surface; facets small. Frons at its narrowest point measuring about one third of eye-length, slightly widened posteriorly. Parafrontalia and -facialia densely silvery-white pollinose, frontal stripe black, but the hind part is also covered with a dense pollinosity of yellowish colour. The frontal stripe is slightly and gradually widened towards the vertex; at the tip of the ocellar triangle, its width is about 3 times that of the neighbouring parafrontalium. Chaetotaxy well developed; *iv*, *ev*, *oc* and *f* long and thick, three pairs of long proclinate *fo* present, eleven pairs of *paf* form a complete row. Upper part of parafrontalia and the frontal stripe with dark hairs, lower part of parafrontalia and the parafacialia in full extent with light hairs. First three antennal segments black-brown, third segment about twice as long as the second, arista shaped as in *P. hessei*, consisting of 2 short basal and a third leaf-like segment, which becomes lighter brown towards the tip; the whole leaf-like segment is densely pilose. Vibrissa well developed, a few short bristles above it on the base of the facial ridge, peristomal bristles restricted to a few on the anterior part of the peristome. Height of bucca about ¼ of eye-length, pollinosity as on the parafacialia, hairs thin and short, predominantly pale. Post-bucca and vertex with dark hairs. Palpi brown.

Thorax black, with a grey and olive-brown pollinosity forming longitudinal dark stripes : one narrow median stripe in the posterior half of the

mesonotum, two lateral ones in the anterior part and two further lateral ones which are broader and extend over the whole length of the mesonotum. Acrostichals=2+2, *dc*=2+3, *ia*=0+2 (anterior weak), *ph*=1 (outer wanting), *h*=2, *prs*=1, *n*=2, *sa*=3, scutellum with 3 pairs of long marginal bristles and two pairs of weaker discals. Pleura also with a dense white pollinosity, hairs black, row of posterior mesopleural bristles complete, *st*=1 : 1, *pp* and *pst* present, accompanied by a number of weaker bristles. Pro- and poststigma brown. Propleuron and prosternum bare. Wings

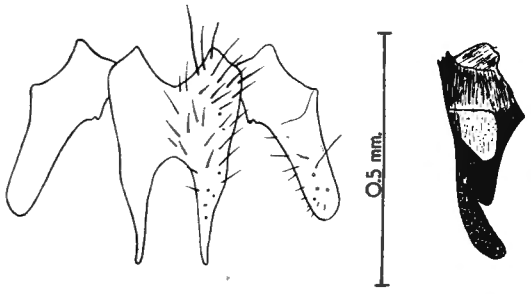


FIG. 24. — *Paraphylloteles degener* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Victoria, S. Rhodesia.)

hyaline, basicosta and veins yellow, R_5 open, *m* with an obtuse angle, no appendix, costal spine small. Thoracic squama broad, halter yellow-brown. Legs dark reddish-brown; fore-tibia with a submedian *pv* bristle; mid-tibia with one submedian *ad*, *av*, *pv* and two shorter *pd*; hind-tibia with a dense row of *ad*, 3 *pd* and a submedian *av* bristle.

Abdomen longer than broad, black in ground colour, but with a dense yellowish pollinosity which forms a pattern varying to a certain degree with the incidence of light. If regarded vertically from above, tergites I+II are black, tergites III and IV have approximately the posterior third to half and a narrow median vitta darkened, whereas tergite V is darkened in the posterior half. No median pair of bristles at the hind margin of tergite III, but hind margins of the following segments with a row of bristles as in *P. hessei*. Hypopygium with broad paralobi and strongly pointed cerci (fig. 24).

Length : 6,5 mm.

Female. — Not known.

Collection American Museum of Nat. History, New York : S. Rhodesia : Victoria, X.1932 (1 ♂, holotype, leg. A. CUTHBERTSON).

Genus **SENOTAINIELLA** ZUMPT.

Senotainiella ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 13.
Type species : *Senotainiella decolor* ZUMPT from Natal.

This genus was erected by me for a species from Natal which I thought to be new. I have since been able to compare this species with *Pachyophthalmus pelopei* (RONDANI) from Austria and have to state that these two species are conspecific. However, on account of the outstanding chaetotaxy of the head, I think it justifiable to retain the genus *Senotainiella*.

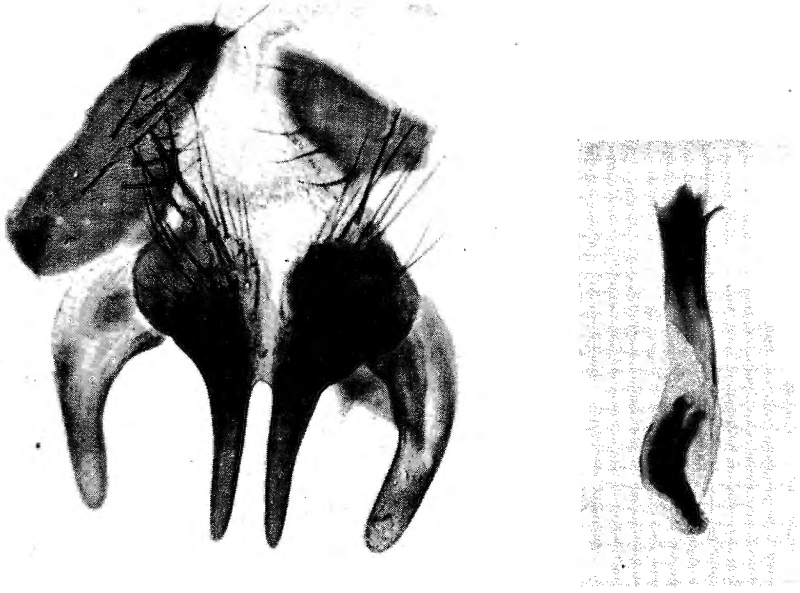


FIG. 25. — *Senotainiella pelopei* (RONDANI).
Cerci with paralobi and phallosome.
(Specimen from Natal.)

1. — **Senotainiella pelopei** (RONDANI).

(Fig. 25.)

Sphixapata pelopei RONDANI, Dipt. ital. Prodr., III, 1859, p. 228; VILLENEUVE, Wien. Ent. Z., XXVIII, 1908, p. 283, ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 95, fig. 77; SÉGUY, Encycl. Ent., (A) XXI, 1941, p. 287.

Senotainiella decolor ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 14, fig. 7 (syn. nov.).

A full description of this species, including a figure of the male genitalia, has been given under *S. decolor* ZUMPT. For comparison see figure 25.

Collection S. African Museum, Cape Town : Natal : Kloof nr. Durban, XI.1904 (1 ♂, holotype of *decolor*).

Collection S. African Institute for Med. Research, Johannesburg : Natal : Kloof nr. Durban, XI.1904 (1 ♂, paratype of *decolor*); no exact locality (1 ♂).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Mazoe, X.1929 (2 ♂♂, bred from *Chloridea* by A. CUTHBERTSON).

Collection British Museum (Nat. History), London : Nyasaland : Zomba, 16.III.1929 [1 ♂♀, bred from *Sceliphron spirifex* (L.) by C. SMEE].

Genus **PACHYOPHTHALMUS** BRAUER & BERGENSTAMM.

Pachyophthalmus BRAUER-BERGENSTAMM, Denkschr. Akad. Wiss. Wien, LVI, Abt. I, p. 117; ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 92; SÉGUY, Encycl. Ent., (A) XXI, 1941, p. 285; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 9.
Type species : *Tachina signata* MEIGEN from Germany.
Amobia CURRAN (nec ROB.-DESVOIDY), Amer. Mus. Nov., 836, 1936, p. 5; TOWNSEND, Man. Myiol., VI, 1938, p. 98.

ROHDENDORF (1935), in his paper on the Palaearctic *Miltogramminae*, recognizes 3 species, namely *P. pelopei* (ROND.), *P. distortus* ALLEN and *P. signatus* (MEIGEN). The first has been transferred in this paper to *Senotainiella*; the second species, described from N. America, has remained unknown to me, whereas *P. signatus* is a fairly common and widespread species, which has been recorded from many places in the Holarctic region and which has been described by CURRAN as *Amobia africa* and *A. capensis* from Southern Africa. It occurs probably throughout the Ethiopian region. Its biology has recently been studied by CHAPMAN (1959) in the Rukwa Valley in Tanganyika where this fly parasitizes the Mason Wasp, *Eumenes maxillosus* DE GEER. CUTHBERTSON (1935) says that *P. signatus* develops in the nests of mud-wasps (*Sceliphron* and *Synagris*).

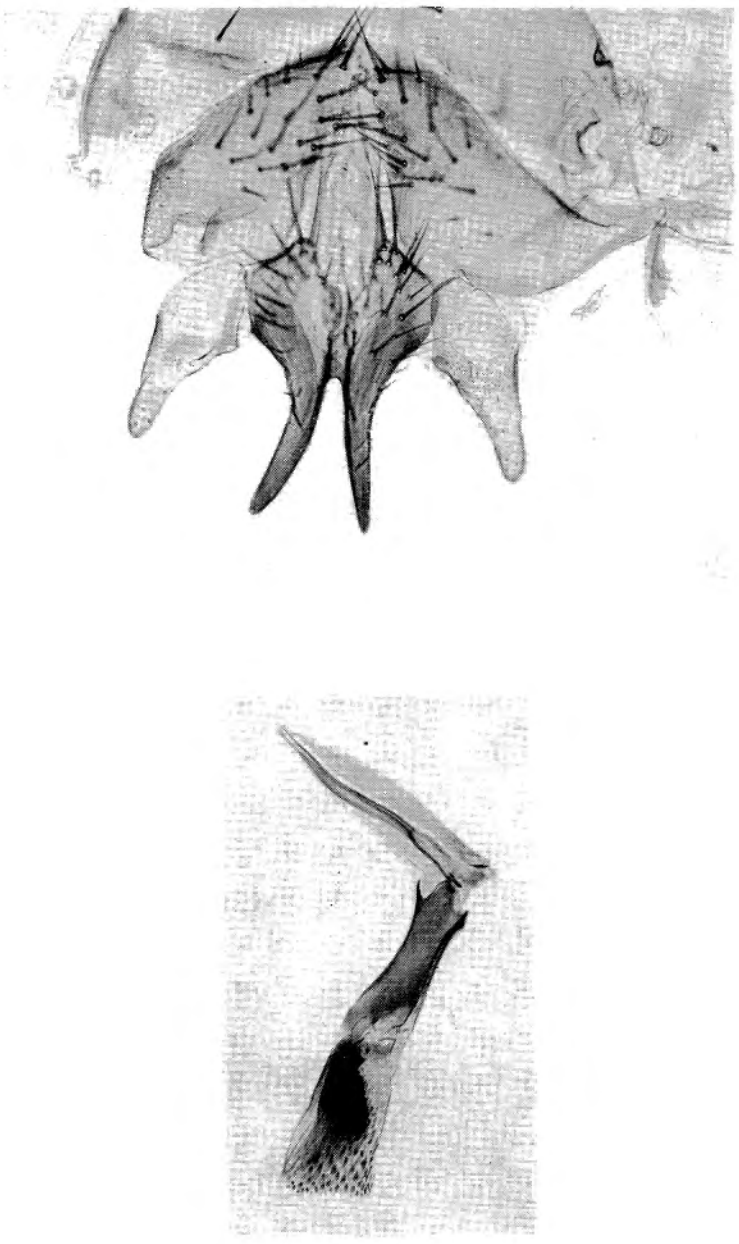


FIG. 26. — *Pachyophthalmus signatus* (MEIGEN).
Cerci with paralobi and phallosome of the holotype of *Amobia africa* CURRAN from Hartley, S. Rhodesia. (Microphotograph.)

1. — **Pachyophthalmus signatus** (MEIGEN).

(Fig. 26.)

Tachina signata MEIGEN, Syst. Beschr., IV, 1824, p. 303; PANDELLÉ, Rev. Ent., XIV, 1895, p. 298; ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 94, fig. 78; CUTHBERTSON, Occ. Pap. Rhod. Mus., n° 4, 1935, p. 21, figs.; SÉGUY, Encycl. Ent., (A) XXI, 1941, p. 288, figs.; VAN EMDEN, Handb. Brit. Ins., X, pt. 4, (*a*), 1954, p. 101, figs. 33 and 34.

Amobia africa CURRAN, Amer. Mus. Nov., 836, 1936, p. 5; CUTHBERTSON, Proc. Rhod. Sci. Ass., XXXV, 1937, p. 28; CHAPMAN, Proc. R. Ent. Soc. Lond., (A) XXXIV, 1959, p. 1, figs. 1-3.

Amobia capensis CURRAN, Amer. Mus. Nov., 836, 1936, p. 6; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 91.

This species is fairly variable and was described twice by CURRAN from South Africa. The author was kind enough to send me the types, which enabled me to confirm the conspecificity of his two species with *P. signatus*. The hypopygium (fig. 26) is, however, quite characteristic and is, in both CURRAN's species, absolutely identical with those which I have dissected from European specimens.

Length : 4-8 mm.

Collection American Museum of Nat. History, New York : S. Rhodesia : Hartley, XII.1930 (1 ♂, holotype of *africa*); Gatooma, I.1928 (1 ♀, paratype of *africa*, leg. A. CUTHBERTSON from nests of *Sceliphron eckloni* DAHLB.); Mazoe, X.1929 (1 ♂). Nyasaland : Ft. Johnston, 24.IX.1923 (3 ♂♂, leg. W. A. LAMBORN). Natal : Durban, 1912 (1 ♂, holotype of *capensis*, leg. H. K. MUNRO from nest of *Sceliphron spirifex*).

Collection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, 17.X.1926 (1 ♀, allotype of *capensis*, leg. H. K. MUNRO).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Hartley, XII.1930 (2 ♂♂, leg. A. CUTHBERTSON); Bulawayo, 15.II.1941 (1 ♀, leg. A. CUTHBERTSON).

Collection S. African Institute for Med. Research, Johannesburg : Cape Province : Pt. St. Johns (1 ♂, leg. H. PATERSON).

Collection British Museum (Nat. History), London : Nyasaland : Cholo (2 ♂♂, leg. R. C. WOOD). Sierra Leone : Njala, I-IV, VI, VIII, XII, 1930-1935 (20 ♂♂, 15 ♀♀, leg. E. HARGREAVES from nests of *Sceliphron spirifex*).

Genus **METOPIA** MEIGEN.

Metopia MEIGEN, Mag. f. Insektenk., II, 1830, p. 280; TOWNSEND, Man. Myiol., VI, 1938, p. 156; SÉGUY, Encycl. Ent., A XXI, 1941, p. 306; ROHDENDORF, Ent. Obs., XXXIV, 1955, p. 361.
Type species : *Musca leucocephala* ROSSI from Italy.

Ophelia ROB.-DESVOIDY, Mém. présentés Acad. roy. Sci. Inst. France, II, 1830, p. 120 (praeocc.).

Metopia (*Opheliella*) ROHDENDORF, Ent. Obs., XXXIV, 1955, p. 363.
Type species : *Tachina campestris* FALLÉN from Europe.

Eyes bare and with small facets. Frons broad in both sexes, frontal stripe subparallel or narrowed towards the lunula, well developed in the Ethiopian species. Chaetotaxy of head fully developed, 2 *fo* long and thick. Parafacial bristles form one complete row and number from 8-15. Parafrontalia and -facialia with additional setae, the latter at least in the upper third. Facial ridge bare except at the base near the vibrissa. Profrons protruded, measuring in width ⅓-⅕ of eye-length. Third antennal segment very slender, 4-6 times as long as the second; arista long and thin, practically bare.

Thorax with a pollinosity forming longitudinal vittae. Chaetotaxy only slightly reduced : *ac*=1-2+0-1, *dc*=2+3, *ia*=0-1+1-3, *sc*=3+1, as far as the Ethiopian species are concerned. Wing hyaline, first longitudinal vein (r_1) bare or dorsally with setae, R_5 open. Legs black, mid-tibia with one ad which may be totally reduced.

Abdomen longer than broad, pollinose like the thorax. Hypopygia very characteristic for each of the three species known at present from the Ethiopian region.

KEY TO THE SPECIES.

1 (2) First longitudinal vein (r_1) bristled dorsally in full extent.
Frontal stripe of male at the tip of the ocellar triangle about twice as wide as one parafrontalium. Narrowed towards the lunula. 5-8 mm. — South Africa ..... 3. *M. brincki* ZUMPT.

2 (1) First longitudinal vein (r_1) bare 3

3 (4) Frontal stripe of male distinctly narrowed towards the lunula. Parafacialia bare in the lower two thirds.
Hypopygium with broad paralobi. 5-6 mm. — South Africa ..... 1. *M. deficiens* VILLENEUVE.

4 (3) Frontal stripe of male subparallel, broader than in the foregoing species. Parafacialia with setae also in the lower two thirds.
Hypopygium with slender paralobi. 6-8 mm. — South Africa, Congo ..... 2. *M. benoiti* n. sp.

1. — **Metopia deficiens** VILLENEUVE.

(Fig. 27.)

Metopia deficiens VILLENEUVE, Bull. Mus. roy. Hist. nat. Belg., XII, n° 4, 1936, p. 5; ZUMPT, S. Afr. Anmial Life, VI, 1959, p. 434, fig. 4.

This species was based on two « sud africain » specimens, but it is not known where they are located or whether they are still in existence. While studying the results of the Lund University Expedition 1950-1951, I came across several specimens of *Metopia* collected by Dr. P. BRINCK at Cape Town, and other specimens of the same species from the Transvaal.

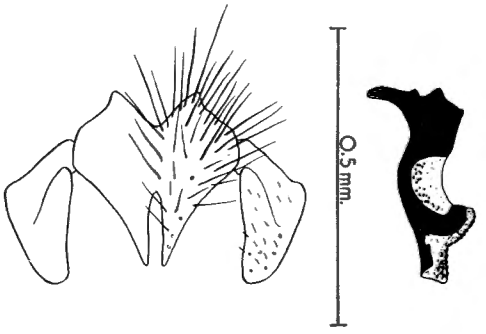


FIG. 27. — *Metopia deficiens* VILLENEUVE.
Cerci with paralobi and phallosome.
(Specimen from Hout Bay, Cape Peninsula.)

I have referred these to VILLENEUVE's species, of which a redescription is given in « South African Animal Life ». The hypopygium (fig. 27) is very characteristic and makes it easy to separate this species from the two others known from the Ethiopian region.

Collection University Lund : Cape Province : Hout Bay, Cape Peninsula, 15-26.XII.1950 (5 ♂♂, leg. P. BRINCK).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 28.XI.1948 (1 ♂, leg. F. ZUMPT); Pretoria, 20.I.1949 (1 ♂, leg. F. ZUMPT).

2. — **Metopia benoiti** n. sp.

(Fig. 28.)

This species is named in honour of the well known entomologist, Dr. P. L. G. BENOIT of the « Musée Royal de l'Afrique Centrale Tervuren ». It is closely related to *M. deficiens* VILLENEUVE, but the frontal stripe is broader, the parafacialia have setae also in the lower part, and the hypopygium shows a different structure with respect to the cerci and paralobi as well as the phallosome.

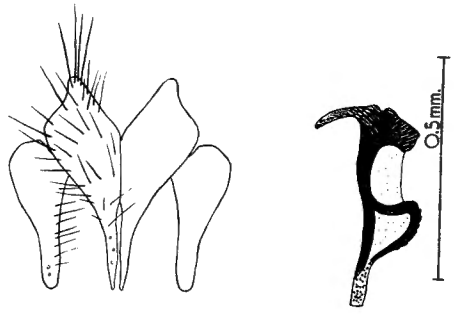


FIG. 28. — *Metopia benoiti* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Pietermaritzburg, Natal.)

Male. — Eyes bare, with small facets. Width of frons at vertex measuring about ⅔ of eye-length. Frontal stripe very broad, black, but silvery-white at a certain light incidence, subparallel, at the tip of the ocellar triangle 3-4 times as wide as one parafrontalium. Parafrontalia and the face are densely silvery pollinose, underground black, partly reddish. Ocellar triangle with a pair of long and thick *oc* and several bristly hairs, *iv* and *ev* strongly developed; *paf* consist of thick bristles and bristly hairs forming a complete row from the profrons to the vertex. Parafrontalium near the outer margin with two long proclinate *fo*; between these *fo* and the *paf* are a number of irregularly placed bristles and hairs, of which 3 reclinate ones are outstanding on account of their length and thickness; the lower strong bristles are bent towards the frontal stripe and the whole arrangement is very similar to that in *M. deficiens*. Parafacialium at the inner edge with a row of 8-10 black bristles, which increase in size towards the bucca. In contrast to *M. deficiens*, the entire parafacialium is beset with odd black hairs, some of them being of considerable length. Profrons strongly protruded, measuring ⅓-¼ of eye-length, profile of head as in *M. deficiens*. Antennae black, 3rd segment about 4 times as long as the second, arista practically bare. Palpi black.

Thorax glossy black, with a greyish and olive pollinosity. When regarded from behind, two broad lateral vittae can be seen which run over the entire mesonotum, and a broad median band in the postsutural area, which is split into 3 narrow dark stripes in front of the suture. Chaetotaxy as in *M. deficiens*. Wing hyaline, basicosta yellow, epaulet blackish, veins yellow-brown, costal spine indistinct, r_1 bare, R_{4+5} dorsally with a row of 4-6 setae which do not reach *r-m*, media with right angle, R_5 open. Thoracic squama yellowish, halter yellow to brown. Legs black, foretibia with a row of short *ad* and a submedian *pv* bristle; mid-tibia with one submedian *ad*, one *av* and one *pv*, the last situated close to 4-5 *pd*; hind-tibia with a row of unequally long *ad* and *pd*, and with one submedian *av* bristle; claws of all legs short.

Abdomen 1½ times as long as broad, pollinose like the thorax; chaetotaxy as in *M. deficiens*. Hypopygium (fig. 28) with more slender cerci and paralobi than in *M. deficiens*, phallosome of different shape.

Length : 6-8 mm.

Mission H. Damas : Kalondo (Kivu), 6-9.VIII.1935 (1 ♂, paratype).

Collection S. African Institute for Med. Research, Johannesburg : Natal : Pietermaritzburg, 9.III.1954 (1 ♂, holotype, leg. H. Paterson); Majuba (1 ♂, paratype, leg. H. Paterson). Transvaal : Sabie, I.1952 (1 ♂, paratype, leg. F. Zumpt); Waterval Onder, 28.II.1952 (1 ♂, paratype, leg. H. Paterson).

3. — **Metopia brincki** Zumpt.

(Fig. 29.)

Metopia brincki Zumpt, S. Afr. Animal Life, VI, 1959, p. 437, fig. 5.

This species is superficially similar to *M. deficiens*, but readily separable from it by the bristled first longitudinal vein and by a characteristically shaped hypopygium (fig. 29). It was described by me only recently in « South African Animal Life ».

Collection University Lund : Cape Province : Hout Bay, Cape Peninsula, XII.1950-II.1951 (14 ♂♂, 2 ♀♀, leg. P. Brinck, holo- and paratypes). Natal : Tugela Valley, National Park, 5.II.1951 (1 ♂, paratype, leg. P. Brinck).

Collection S. African Institute for Med. Research, Johannesburg : Cape Province : Hout Bay, Cape Peninsula, XII.1950-II.1951 (5 ♂♂ ,1 ♀, paratypes, leg. P. Brinck).

Collection British Museum (Nat. History), London : Nigeria : Azare (1 ♀, leg. L. Lloyd).

Genus **METOPODIELLA** nov.

Type species : *Metopodiella eos* nov. gen. nov. spec. from S. Rhodesia.

Eyes bare and with small facets. Frons broad in both sexes, frontal stripe subparallel or widened towards the lunula. Chaetotaxy of head fully developed, up to 4 pairs of *fo* present. Parafacialia bristles developed, but fewer in number and less strong than in *Metopia*. Parafrontalia and -facialia with additional setae in full extent. Facial ridge bare except at the base near the vibrissa. Profrons protruded, measuring in width 1/5-2/5 of eye-length. Third antennal segment not longer than twice the second; arista long and thin, with a short pilosity.

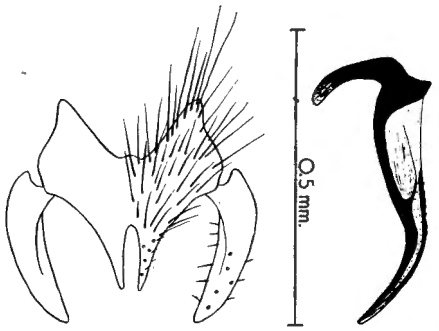


FIG. 29. — *Metopia brincki* ZUMPT.
Cerci with paralobi and phallosome.
(Holotype from Hout Bay, Cape Peninsula.)

Thorax wtih a dense pollinosity, mesonotum with or without a dark pattern. Chaetotaxy only slightly reduced as in *Metopia*. Wing hyaline, r_1 bare, R_5 open. Legs dark, mid-tibia with one submedian *ad*. Abdomen longer than broad, thickly pollinose.

This genus is related to *Metopia* in respect of the presence of parafacial bristles, but these are weaker and fewer in number. Another feature which separates this new genus from *Metopia* is the short 3rd antennal segment, which is more than twice as long as the second. If there were no parafacial bristles, the *Metopiella* species would run down to *Senotainia*. I am including two new species, but more occur in the Ethiopian region judging from the material before me. This material, however, consists of female specimens or single male specimens which are in too bad a state of preservation for description.

KEY TO THE SPECIES.

1 (2) Mesonotum densely white pollinose, without a pattern; abdomen with dark spots. Frons of male at its narrowest point measuring ⅓ of eye-length. Parafrontalium with 4 pairs of proclinate fronto-orbital bristles.

Mesonotum with *dc*=2+3, *ia*=2 : 1. Hypopygium with pointed cerci. 7 mm. — S. Rhodesia ..... 1. *M. eos* n. sp.

2 (1) Mesonotum densely greyish yellow and olive pollinose, with dark longitudinal stripes; abdomen with dark spots. Frons of male at its narrowest point measuring ½ of eye-length. Parafrontalium with 2-3 pairs of proclinate fronto-orbital bristles.

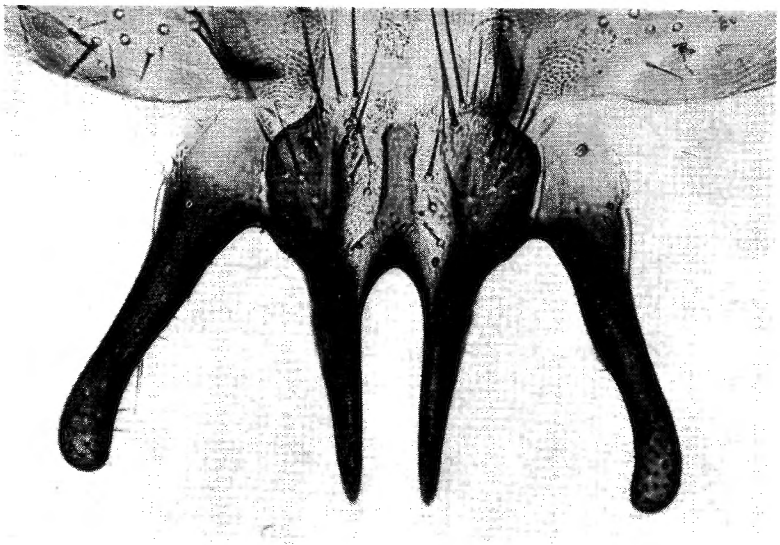
Mesonotum with *dc*=2+3, *ia*=1+3, *st*=2 : 1. Hypopygium with stout, short cerci which are hook-shaped at the tip. 5-6 mm. — S. Rhodesia ..... 2. *M. rhodesiense* n. sp.

1. — **Metopodiella eos** n. sp.

(Fig. 30.)

This species is well characterized by a densely white pollinose thorax, which has no mesonotal pattern, and by a similarly pollinose abdomen which, however, shows several dark-brown spots.

Male. — Eyes bare, facets small. Frons at its narrowest point measuring ⅓ of eye-length, slightly widened towards the vertex, more strongly towards the lunula. Frontal stripe red-brown, at the narrowest point of the frons about as broad as one parafrontalium, distinctly widened towards the antennal groove. Parafrontalia and -facialia densely white pollinose, but at a certain light-incidence they appear partly black. Chaetotaxy well developed; ocellar-triangle with a pair of divaricated *oc* and several bristly hairs; *iv*, *ev* and *f* as well as 4 pairs of proclinate *fo* present; 12 pairs of *paf*, the upper three reclinate, the others cruciate. Furthermore, parafrontalia and -facialia are relatively densely beset with black setae of various length, and the lower part of the parafacialia shows a row of 6-7 thick bristles close to the inner margin. Profrons measures about ⅕ of eye-length. Facial ridge bare, only at the base near the vibrissa with a few bristles; the vibrissa itself is hardly longer than the neighbouring peristomal bristle, but the row of peristomal bristles become shorter towards the bucca. Antennal groove with a black underground and a white pollinosity; 3rd antennal segment blackish, 1½ times as long as the second, basal segments brown; arista long, surpassing the vibrissa, the two basal



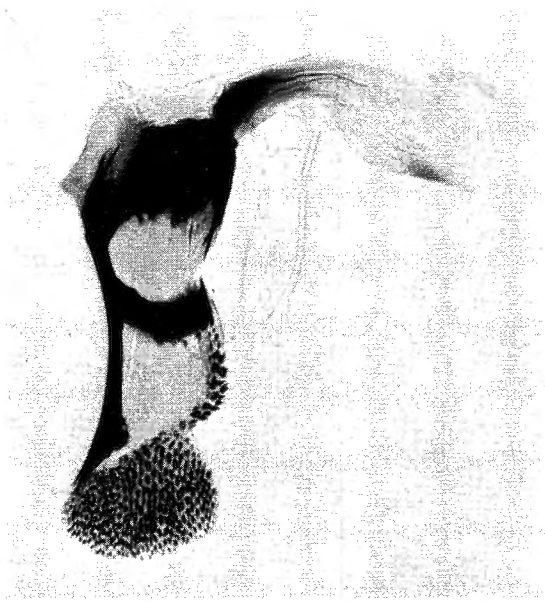


FIG. 30. — *Metopodiella eos* n. sp.
Cerci with paralobi and phallosome.
(Paratype from Victoria, S. Rhodesia.)

segments short, 3rd segment thickened at base, pilosity short, but distinct under a higher magnification. Height of bucca about 2/7 of eye-length, ground colour black, but covered by a thick white pollinosity, bristles black; vibrissarium red-brown. Occiput also covered with a thick white pollinosity. Palpi dark-brown, short like the proboscis.

Thorax deep black; the dense pollinosity is white and does not show any pattern. One pair each of long prescutellar and postsutural *ac* developed, the other *ac* irregular and not well distinguished from the normal hairs; *dc*=2+3, *ia*=0+2, *prs* and inner *ph* present, *h*=3, *n*=2, *sa*=2, *sc*=3+1. Pleura as densely white pollinose as the mesonotum, *pp* and *pst* present, accompanied by a few bristly hairs, *st*=2 : 1. Wing hyaline, epaulet black, basicosta and veins yellow, base of R_{4+5} dorsally with a few setae, media with an obtuse angle, R_5 open; thoracic squama broad, white; halter yellow. Legs predominantly black-brown; fore-tibia with a row of short *ad* bristles, antero-ventral edge in the middle with about 6 comb-like bristles which overlie the body wall; mid-tibia with a long submedian *ad* and *av*, and with 2-3 *pd* (or *pv* ?); hind-tibia with 3-4 *ad* and *pd*, and with *a* submedian *av*.

Abdomen longer than broad, with a dense yellowish white pollinosity and a dark brown pattern consisting of two lateral, triangular or rounded spots on tergite I+II, a median longitudinal and 2 short and broad, rounded lateral spots on tergite III, and similar spots on tergite IV. Hairs black and relatively long and thick, especially those situated laterally, hind margin of tergite IV with a row of semi-erect bristles. Hypopygium (fig. 30) with pointed cerci and club-shaped paralobi, phallosome stout.

Length : 7 mm.

Female not known.

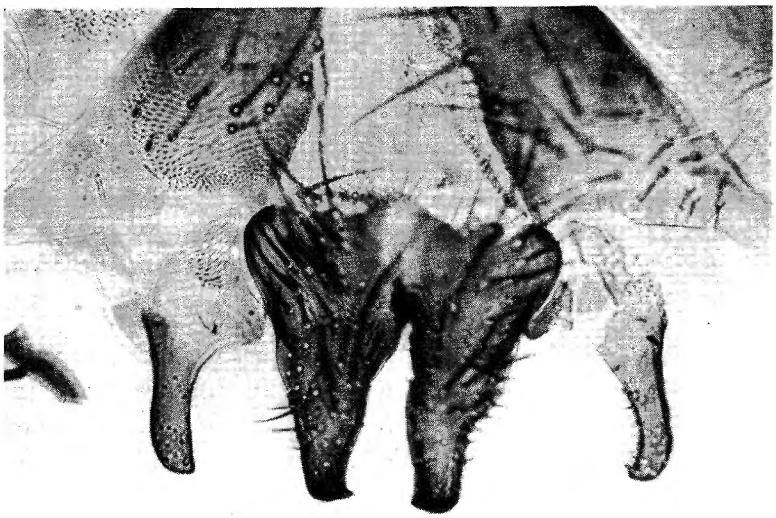
Collection British Museum (Nat. History), London : S. Rhodesia : Victoria, X.1932 (2 ♂♂, holo- and paratype, leg. A. CUTHBERTSON).

Collection S. African Institute for Med. Research, Johannesburg : S. Rhodesia : Victoria, X.1932 (1 ♂, paratype, leg. A. CUTHBERTSON).

2. — **Metopodiella rhodesiense** n. sp.

(Fig. 31.)

Thorax and abdomen with a dense greyish yellow and olive pollinosity and with a dark pattern on the mesonotum as well as the abdomen. The shape of the hypopygium is very characteristic.



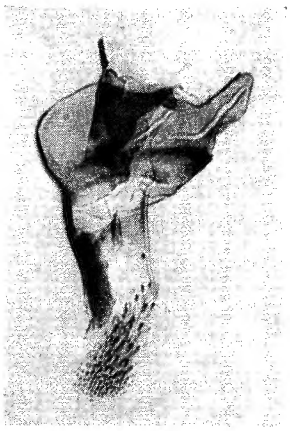


FIG. 31. — *Metopodiella rhodesiense* n. sp.
Cerci with paralobi and phallosome.
(Paratype from Salisbury, S. Rhodesia.)

Male. — Eyes bare, facets small. Frons at its narrowest point measuring ½ of eye-length, almost parallel in the area of the ocellar triangle, then widened towards the lunula. Frontal stripe red-brown in the holotype, black in the paratype, subparallel, but partly ill-defined, at the tip of the ocellar-triangle about as broad as one parafrontalium. Parafrontalia and -facialia densely silvery-white pollinose. Chaetotaxy as in *M. eos*, but in the holotype with 3 pairs of *fo*, whereas the paratype shows 2 *fo* on the right side, 3 *fo* on the left side; setae long, para-facial bristles near the inner margin slightly irregular and not very thick, but they are nevertheless distinguished from the normal setae. Profrons measuring about 2/7 of eye-length. Facial ridge above the vibrissa with one seta, otherwise bare. Antennal groove densely white pollinose, 3rd antennal segment black-brown, about 1 ½ times as long as the second, basal segments predominantly reddish; arista long, short pilose. Height of bucca about ⅓ of eye-length, thickly white pollinose like the face, hairs black. Occiput white pollinose too. Palpi yellow.

Thorax black, but densely covered with a greyish yellow and olive pollinosity, mesonotum with ill-defined, longitudinal stripes. Prescutellar pair of *ac* long, the remaining postsutural ones indistinct, in front of the suture with 2-3 pairs of irregularly arranged and unequally long *ac*; *dc*=2+3, *ia*=1+3 in the holotype, 1+2 in the paratype, *prs* and inner *ph* present, *h*=2, *sa*=2, *n*=2, *sc*=3+1. Pleura densely grey pollinose, *pp* and *pst* present, *st*=2 : 1. Wing hyaline, epaulet black, basicosta yellow, veins light brown, base of R_{4+5} dorsally with 1-3 setae, media with a right angle which shows a short appendix in the holotype, but none in the paratype; R_5 open. Thoracic squama very broad, halter yellow. Legs black-brown; fore-tibia with comb-like *av* bristles similar to those in *M. eos*; mid-tibia with a long sub-median *ad* and *av*, a short *pd* and 3 *pv*; hind-tibia with 2 *pd*, several unequally long *ad* and a submedian *av*.

Abdomen longer than broad, with a dense pollinosity like the thorax and with 3 triangular dark spots on each segment, the median ones reaching the anterior margins. Hypopygium (fig. 31) with short and broad cerci which are hook-shaped at the tips, phallosome also broad and short.

Length : 5-6 mm.

Female not known.

Collection American Museum of Nat. History, New York : S. Rhodesia : Salisbury, 10.XII.1938 (1 ♂, holotype, leg. A. CUTHBERTSON).

Collection S. African Institute for Med. Research, Johannesburg : S. Rhodesia : Salisbury, XII.1938 (1 ♂, paratype).

Genus **HILARELLA** RONDANI.

Megaera ROB.-DESVOIDY, Mém. présentés Acad. roy. Sci. Inst. France, II, 1830, p. 94 (praeocc.).

Hilarella RONDANI, Dipt. Ital. Prodr., I, 1856, p. 70; ROHENDORF, Fliegen pal. Region, 64, h, 1935, p. 113; TOWNSEND, Man. Myiol., VI.1938, p. 116; SÉGUY, Encycl. Ent., A XXI, 1941, p. 300.

Misellia ROB.-DESVOIDY, Hist. nat. Dipt., II, 1863, p. 146; TOWNSEND, Man. Myiol., VI, 1938, p. 146.

Type species : *Miltogramma hilarella* ZETTERSTEDT from Sweden.

According to ROHDENDORF (1935), this genus is represented in the Palaearctic region by 4 species. - VILLENEUVE described the first *Hilarella* species from the Ethiopian region, but his description is so inadequate that the only certainty is that it is not identical with a species which I received from the Transvaal. I was able to compare this new species with specimens of *H. hilarella* (ZETT.) from Europe and to convince myself that the assignment to the genus is correct.

The unique specimen on which VILLENEUVE based his species must be checked and redescribed. He does not even give the sex. Most probably the type is preserved in the British Museum (Nat. History), London. The original description is quoted on p. 78.

1. — **Hilarella aethiopica** n. sp.

(Fig. 32.)

H. aethiopica is the first species of this genus known to me from the Ethiopion region. In SÉGUY's key to the European species (1941), it would be placed near *H. hilarella* (ZETTERSTEDT), but it is easily separable from it by the abdominal pattern.

M a l e. — Eyes bare, facets small. Width of frons at its narrowest point (tip of ocellar triangle) measures about 3/7 of eye-length. Frontal stripe black, at vertex with a silvery-white pollinosity like the parafrontalia and -facialia. Taking this pollinose part into consideration, the frontal stripe is subparallel and measures at the tip of the ocellar triangle a little more than the width of one neighbouring parafrontalium. The chaetotaxy of the head is well developed, *iv*, *ev*, *f* and *oc* as well as 3 proclinate *fo* are present; *paf* form a complete row and consist of 8 pairs, the last three being reclinate. Furthermore, parafrontalia as well as parafacialia are beset with relatively long setae in full extent. Profrons protruding, measuring a little less than 1/4 of eye-length. Antennal groove deep black like the parafacialia and with the same kind of pollinosity; epistomal edge broadly yellow. Antennae dark-brown, 3rd segment nearly twice as long

as the second; arista long, surpassing the vibrissa, basal third thickened, pilosity long, some of the hairs reaching the width of the antennal base. Bucca black, silvery-white pollinose, with black bristles and hairs; its height equals ⅓ of eye-length. Vibrissa long and inserted above the epistome, facial ridge with 2 bristles at the base. Palpi dark brown, slightly curved.

Thorax black, with a grey and partly olive pollinosity forming three narrow black lines in the median part and a broader ill-defined vitta on the lateral part of the mesonotum. Bristles long, 3 pairs of presutural *ac*

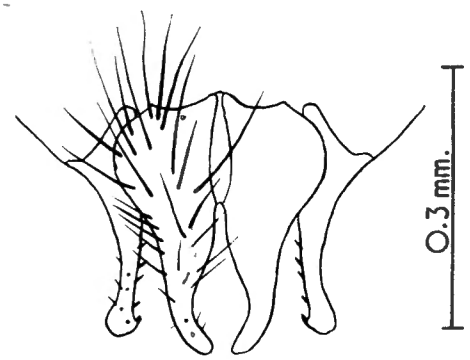


FIG. 32. — *Hilarella aethiopica* n. sp.
Cerci with paralobi.
(Holotype from Pretoriuskop, Transvaal.)

and 2 pairs of post-sutural near the scutellum, *dc*=2+3, *ia*=1+3 (first postsutural one weak), *prs* and inner *ph* distinct, *h*=2, *n*=2, *sa*=2, (a third posterior one is weak), *pa*=2, *sc*=3+1. Propleuron bare, *pp* and *pst* present, accompanied by a few bristles; mesopleuron with bristles and bristly hairs in the upper anterior part and with a row of 5 bristles at the posterior margin, *st*=1 : 1. Wing hyaline, veins including basicosta yellow to yellow-brown, epaulet black, costal spine distinct, R_{4+5} dorsally at the base with 2-3 black setae, *m* with a right angle and a short appendix, R_5 closed. Thoracic squama broad, halter yellow-brown. Legs black, fore-tibia in the middle of the anterior-ventral edge with 3-4 bristles which lie close to the ground, furthermore 1 postero-dorsal submedian bristle present; mid-tibia with 1 submedian *ad*, 2 *pd*, 1 *pv* and 1 *av*; hind tibia with 1 submedian *av*, a row of *ad* and several *pd* of unequal length. Tarsi and pulvilli normal.

Abdomen longer than broad, black with a greyish-white pollinosity, hind margins of tergites narrowly yellow. The pattern consists of three ill-defined, more or less triangular broad dark spots of tergites III and IV, the

spots reach or almost reach the anterior border of the tergites; the pattern of tergites I+II and V is quite indistinct and greatly dependent on the incidence of light. Hind margins of the first two tergites with a complete row of relatively weak and low-lying bristles, those on the last two tergites are thicker and half-erect. Hypopygium (fig. 32) with hook-shaped paralobi and strong cerci.

Length : 5 mm.

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Kruger National Park (Pretoriuskop), 7.III.1953 (1 ♂, holotype, leg. H. PATERSON).

2. — **Hilarella helva** VILLENEUVE.

Hilarella helva VILLENEUVE, Trans. Ent. Soc. Lond., 1921 (1922), p. 518.

The original description of this species which has remained unknown to me, is as follows :

« Port et taille de *H. stictica* MEIG., mais d'un jaune chamois clair sur l'abdomen qui ne présente ni taches noires latéro-dorsales ni taches latérales, seulement une bande grisâtre médio-dorsale sur laquelle tranchent les pores largement auréolés de noir profond des 2 macrochètes médians; thorax et scutellum d'un gris jaunissant uniforme, de même sur les gènes, tandis que le front est un peu doré. Palpes jaunes. Cuillerons ocracés. Pattes brunes, à tibias testacés. »

The only specimen was bred from a Noctuid larva, the prey of *Ammophila beniniensis*, near Ibadan, Nigeria.

Genus **TAXIGRAMMA** MACQUART.

Taxigramma MACQUART, Ann. Soc. Ent. France, (2), VII, 1849, p. 359; PERRIS, Ann. Soc. Linn. Lyons, 1850, p. 209; ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 116; TOWNSEND, Man. Myiol., VI, 1938, p. 149; SÉGUY, Encycl. Ent., A XXI, 1941, p. 294; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 6.
Type species : *Taxigramma pipiens* PERRIS (= *heteroneura* MEIGEN) from France.

Heteropterina MACQUART, Ann. Soc. Ent. France, 1854, p. 426; TOWNSEND, Man. Myiol., VI, 1938, p. 150.
Type species : *Miltogramma heteroneura* MEIGEN from Germany.

Metopilla RONDANI, Dipt. Ital., III, 1859, p. 210; TOWNSEND, id., ibid.
Type species : *Heteropterina multipunctata* RONDANI from Italy.

Paragusia SCHINER, Wien. Ent. Monatschr., V, 1861, p. 143; ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 124; TOWNSEND, Man. Myiol., VI, 1938, p. 133; SÉGUY, Encycl. Ent., A XXI, 1941, p. 298.
Type species : *Paragusia frivaldszkii* (= *elegantula* ZETTERSTEDT) from Hungary.

Elpigia ROB.-DESVOIDY, Hist. nat. Dipt., II, 1863, p. 149; TOWNSEND, Man. Myiol., VI, 1938, p. 150.
Type species : *Miltogramma heteroneura* MEIGEN from Germany.

Epolia BRAUER and BERGENSTAMM, Denkschr. Akad. Wiss. Wien, LV, 1890, p. 113; TOWNSEND, Man. Myiol., VI, 1938, p. 133.
Type species : *Epolia velox* BRAUER and BERGENSTAMM (= *elegantula* ZETTERSTEDT) from Arabia.

Nasonimyia TOWNSEND, Proc. U. S. Nat. Mus., XLIX, 1916, p. 619; et Man. Myiol., VI, 1938, p. 128; ALDRICH, Trans. Amer. Ent. Soc., LII, 1926, p. 14.
Type species : *Heteropterina nasoni* COQUILLETT from N. America.

Taxigramma (*Hilarelliscum*) ROHDENDORF; Fliegen pal. Region, 64, h, 1935, p. 119.
Type species : *Taxigramma popovi* ROHDENDORF from Transcaspia.

Taxigramma (*Paragusiallum*) ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 119.
Type species : *Taxigramma karakumicum* ROHDENDORF from Transcaspia.

Taxigramma (*Parataxigramma*) ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 120.
Type species : *Taxigramma gussakovskyi* ROHDENDORF from Turkestan.

Taxigramma (*Eutaxigramma*) ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 121.
Type species : *Taxigramma pluriseta* PANDELLÉ from France.

One species has been recorded from the Ethiopian region, namely *T. biseta* (VILLEN.), originally described from Madagascar. CURRAN compared a male from Uitenhage, Cape Province, with the type and found it to be identical. I have this specimen before me as well as a few more from various localities in Southern Africa, which all agree with it.

VILLENEUVE found his specimens to be similar to *T. multipunctate* (RONDANI) from the Palaearctic region, and in ROHDENDORF's work on the Palaearctic *Sarcophaginae* (1935), it clearly runs down to this species. I have a specimen of *T. multipunctata* from Berlin, Germany, identified by OLDENBURG, before me. This specimen superficially resembles the S. African specimens, but the parafacial bristles are much stronger on the latter and the hypopygia of both forms are quite different. In *T. multipunctata* the cerci are fused, except the utmost tips; in *T. biseta* they are completely free.

The row of strong parafacial bristles in *T. biseta* is reminiscent of the genera *Metopia* and *Metopodiella*, but R_5 is closed and the wing-venation is quite similar to that figured by SÉGUY (1941) for *T. multipunctata*. I was not able to study any other Palaearctic *Taxigramma* species in order to see how strongly the parafacial bristles may be developed within the genus

as restricted by ROHDENDORF. For this reason I am leaving the South African species in the genus *Taxigramma*, but future research may prove that they would be better generically separated from the Palearctic species.

1. — **Taxigramma biseta** (VILLENEUVE).

(Fig. 33.)

Heteropterina biseta VILLENEUVE, Rev. Zool. Afr., IV, 1916, p. 199.
Taxigramma bisetosa CUTHBERTSON (errore), Trans. Rhod. Sci. Ass., XXXV, 1937, p. 30; ZUMPT, Proc. R. Ent. Soc. Lond., (B) XXI, 1952, p. 6.

CUTHBERTSON mentioned in a brief note that this species « may be parasitic in the nests of *Hymenoptera*, like many other species of *Miltogramminae* ». Unfortunately, he misspelled the name and wrote *T. bisetosa*, instead of *T. biseta*.

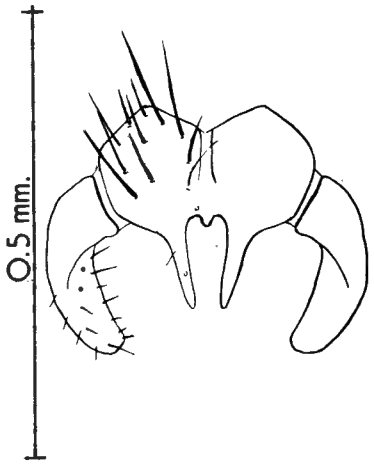


FIG. 33. — *Taxigramma biseta* (VILLENEUVE).
Cerci with paralobi.
(Specimen from Mamathes, Basutoland.)

M a l e. — Eyes bare, inner facets small. Width of frons at its narrowest point (level of frontal bristles) measuring nearly half the eye-length, then slightly widened towards the antennal groove. Frontal stripe broad, underground brown, but like the parafrontalia and -facialia densely covered with a white pollinosity. Chaetotaxy of head well developed, *oc* divaricated, accompanied by several bristly hairs, *iv*, *ev*, *f* and 2 proclinate *fo* present. There are 5-7 pairs of *paf*, the last four being reclinate. Lateral to the anterior pair, and situated already on the parafacialia, there is another pair of bristles, which may be taken for misplaced *paf*. Profrons measuring

about ¼ of eye-length. Parafacialium at the inner margin with a row of strong black bristles and a few thinner and shorter setae on the profrontal area. Bucca narrow, its height about ⅙ of eye-length, densely white pollinose like the parafacialium. Hairs and peristomal bristles black, vibrissa long, located above the epistomal margin. Antennae close together, basal segments yellow, the third black or dark-brown, not quite twice as long as the second. Arista black, surpassing the vibrissa, pilosity microscopic. Palpi yellow.

Thorax black, with a dense whitish-grey and olive pollinosity, which does not form a distinct pattern. Prescutellar pair of *ac* distinct, the presutural bristles irregularly and often asymmetrically developed, *dc*=2+3, *ia*=0+2, *prs* and inner *ph* present, *h*=2-3, *n*=2, *sa*=2, *sc*=3+1. Pro- and poststigma yellow. Propleuron bare, *pp* and *pst* developed, row of mesopleural bristles complete, *st*=1 : 1. Wing hyaline, veins including epaulet and basicosta yellow-brown, costal spine distinct, base of R_{4+5} dorsally with a few setae, R_5 closed, angle of *m* obtuse, *ta* slightly sinuous, shorter than *m* between the angle and *r-m*, meeting this part of *m* in about its middle. Terminal part of *cu* developed as a fold. Thoracic squama broad, halter yellow. Legs black or dark-brown, tips of femora reddish; fore-tibia with a row of very short *ad* bristles and a long submedian *pv*; mid-tibia with one submedian *ad*, a row of *pd* and a long and a short ventral bristle; hind-tibia with a row each of *ad* and *pd* bristles and with 3-4 *av*; claws and pulvilli of normal size.

Abdomen longer than broad, with a dense greyish and dark-brown pollinosity, the latter forming 5 rounded spots on the first three segments, whereas on the last tergite the median three are fused. Tergites III and IV with a median pair of erect, long and thick bristles at the hind margins, last tergite with a complete row of 6 long bristles. Hypopygium (fig. 33) with thin cerci which are shorter than the paralobi.

Female. — Frons a little broader than in the male, otherwise quite similar to it.

Length : 4-5 mm.

Collection American Museum of Nat. History, New York : Cape Province : Uitenhage, 11.III.1919 (1 ♂, metatype, leg. H. K. MUNRO).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Yumba Mts., Umtali distr., 6.XI.1940 (1 ♂, leg. A. CUTHBERTSON).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 7.XII.1952 (1 ♂, leg. F. ZUMPT); Potchefstroom, 14.II.1953 (1 ♀, leg. F. ZUMPT); Kaapmuiden, IX.1952 (1 ♂, leg. H. PATERSON). Basutoland : Mamathes, 19.X.1952 (1 ♂, leg. C. J. GUILLARMOD).

Genus **ARABA** Robineau-Desvoidy.

Araba Rob.-Desvoidy, Ess. Myod., 1830, p. 127; Séguy, Encycl. Ent., A XXI, 1941, p. 313.
Type species : *Tachina fastuosa* Meigen from Europe.

Eumetopia Brauer and Bergenstamm (nec Westwood), Denkschr. Akad. Wiss. Wien, LVI, 1890 (sep. 1889), p. 114.
Type species : *Tachina fastuosa* Meigen from Europe.

Parosticha Enderlein, S. B. Ges. naturf. Fr. Berlin, 1934, p. 188.
Type species : *Araba stelviana* Brauer and Bergenstamm from the European Alps.

Eremoparia Enderlein, S. B. Ges. naturf. Fr. Berlin, 1934, p. 189.
Type species : *Baumhaueria leucocephala* Jaennicke from Egypt.

Sphenometopia Townsend, Smith. Misc. Coll., LI, (2), n° 1803, 1908, p. 64; et Man. Myiol., VI, 1938, p. 62.
Type species : *Araba nebulosa* Coquillett from N. America.

Eumetopiops Townsend, J. N. York Ent. Soc., XL, 1932, p. 445 (syn. nov.).
Type species : *Tachina fastuosa* Meigen from Europe.

So far, only one species is known from the Ethiopian region, although the genus is fairly well represented in the Holarctic region. In respect of the bristled facial ridge, the *Araba* species show some relationship to the genus *Craticulina*; the aristal structure is however quite different and of a primitive type.

Villeneuve (1933) described two *Araba* species from Egypt, namely *A. claripennis* and *A. efflatouni*, which have remained unknown to me. The descriptions are poor, but it can be taken from them that these species are certainly not similar to the Ethiopian one described below.

1. — **Araba natalensis** n. sp.

(Fig. 34.)

According to Séguy's key (1941), this species in respect of the chaetotaxy of the male fore tarsus, is related to *A. stelviana* Brauer and Bergenstamm from the Alps. However, it can easily be separated from *A. stelviana*, as well as from *A. koulingiana* Séguy from China, by the colouring and the pattern of the body. The hypopygium should also be quite distinct, but the terminalia of the species listed by Séguy have not been figured.

Male. — Eyes bare, facets small. Frons at vertex measuring a little more than half of eye-length, gradually widened towards the face. Frontal stripe, parafrontalia and -facialia densely and uniformly covered by a silvery-white pollinosity. The former is broadest at the second posterior pair of *paf* and measures here about 3 times the width of the neighbouring parafrontalium; it is slightly narrowed towards the vertex and more

strongly towards the lunula, where it is only one third as broad as in its widest part. Upper part of frontal stripe as well as parafrontalia and -facialia densely beset with relatively long hairs. Parafrontal bristles well developed, 10 pairs in the holotype, 8 pairs in the paratype; *iv* long and strong, *ev* and *f* distinct, but shorter and thinner than *iv*; *oc* of the same strength as *f*, divaricate; lower half of parafrontalium with two long proclinate *fo*. Profrons about ⅓ as broad as the eye is long. Antennal groove with a white pollinosity like the remaining part of the face, antennae predominantly black-brown, but base of the 3rd segment reddish. Length of latter about 3 times that of the second segment. Arista long and thin, surpassing the vibrissa, basal ⅙ slightly thickened; pilosity microscopic. Vibrissa and peristomal bristles well developed. Facial ridge with 5-6 pairs of strong bristles which surpass the middle. Bucca white pollinose, with black hairs. Palpi yellow-brown.

Thorax glossy black, with an olive-brown and greyish pollinosity which changes markedly with the incidence of light. If regarded vertically from above, the mesonotum appears blackish and only slightly pollinose, but the scutellum is demarcated greyish white and apparently densely pollinose; if the fly is regarded at an angle from behind, the scutellar pollinosity extends on to the mesonotum more than half-way towards the suture. Prescutellar pair of *ac* only weakly developed, *dc*=2+3, *ia*=0+2, *prs* present, outer *ph* wanting, *n*=2, *sa*=2; scutellum with 3 pairs of long marginal bristles, discal hairs relatively long. Pro- and poststigma light brown. Propleuron and prosternum bare, *pp* and *pst* developed, accompanied by a great number of hairs, mesopleuron with a row of long bristles at the posterior margin and dense bristly hairs in the anterior upper part, *st*=1 : 1. Wing hyaline, without pattern; basicosta and veins yellow-brown, costal spine indistinct, R_{4+5} dorsally at base with 2 black setae, R_5 open, *m* with a right angle, *m* with (holotype) or without (paratype) appendix. Thoracic squama broad, halter yellow. Legs black; fore-tibia with a submedian postero-ventral bristle, fore-tarsus with 2 long and curved hairs in the middle of the exterior ventral edge and with a number of dense bristles on the ventral base; mid-tibia with one long and thick and one short antero-dorsal bristle, two short *pd*, one short *pv* and one long and strong *av*, all of them situated in the terminal half; hind-tibia with a row each of *pd* and *ad* bristles, and five *av* bristles in the lower half which gradually increase in size towards the tarsus.

Abdomen longer than broad, with a dense greyish-white and olive-brown pollinosity, forming a pattern which changes with the incidence of light. When regarded from behind, the first tergite appears almost totally dark; tergite III shows a dark pear-shaped median spot reaching the anterior margin, whereas the remaining anterior half of the tergite is whitish, the posterior brown; tergite IV with a median dark spot in the posterior half, whereas the lateral sides are indistinctly darkened; last tergite with the hind

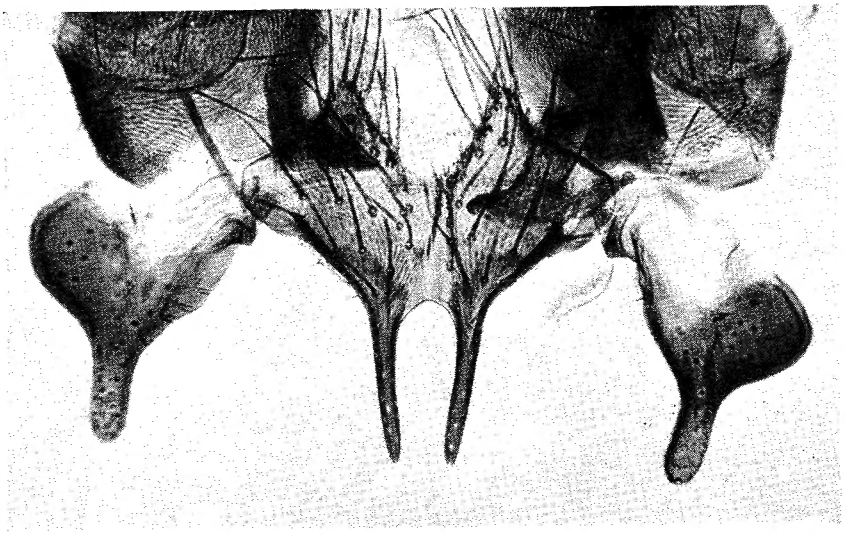


FIG. 34. — *Araba natalensis* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Weenen, Natal.)

margin darkened. Hind edge of tergite V with several long, semi-erect bristles, lateral sides of the other tergites with long hairs and bristles, tergites III and IV with a pair of median bristles at the posterior margins. Hypopygium as shown in figure 34.

Length : 6-7 mm.

Collection S. African Institute for Med. Research, Johannesburg : Natal : Weenen, XII.1926 (1 ♂, holotype, leg. H. P. THOMASSET).

Collection British Museum (Nat. History), London : S. Rhodesia : Salisbury, X.1932 (1 ♂, paratype, leg. A. CUTHBERTSON).

Genus **CRATICULINA** BEZZI.

Craticula PANDELLÉ, Rev. Ent., XIV, 1895, p. 290 (preocc.).
Craticulina BEZZI, Z. Hym. Dipt., VI, 1906, p. 49; ROHDENDORF, Fliegen pal. Region, 64, h, 1930, p. 10; TOWNSEND, Man. Myiol., VI, 1938, p. 105; SÉGUY, Encycl. Ent., A XXI, 1941, p. 257.
Type species : *Musca tabaniformis* FABRICIUS from Morocco.

Eyes bare. Frons broad in both sexes, frontal stripe subparallel or narrowed towards the lunula. Chaetotaxy of head fully developed, two pairs of long and thick proclinate *fo* present. Parafrontalia and -facialia with setae, those on the latter pale and of microscopic size. Facial ridge with a row of strong bristles which reach or surpass the middle. Profrons protruded. Third antennal segment 3-4 times as long as the second; arista short, not reaching the vibrissa.

Thorax with a dense pollinosity. Chaetotaxy partly reduced, *ac*=0-1+1, *dc*=0-1+1-2, *ia*=0+1, *ph* indistinct, *sc*=3+0-1. Wings hyaline or tinged, R_5 open. Mid-tibia with one long submedian *ad*.

Abdomen cylindrical, pollinose like the thorax. Hypopygia with normally shaped cerci, paralobi and phallosomes.

KEY TO THE SPECIES.

1 (2) Body predominantly yellow-brown, abdomen with dark spots. Third antennal segment yellow or brown, arista with short basal segments.

This species is very similar to the Palaearctic *C. tabaniformis* and only separable from it in the male sex by a dense row of thick bristles on hind femur and tibia. 5-10 mm. — Ethiopian region ..... 1. *C. fimbriata* BEZZI.

2 (1) Body predominantly glossy black, abdomen with transverse bands of white pollinosity. Third antennal segment black, arista with the second basal segment relatively long.

Easily recognizable by its colouring and the outstanding structure of the arista. 10 mm. — Transvaal .....
2. *C. transvaalensis* n. sp.

1. — **Craticulina fimbriata** BEZZI.

(Figs. 35-37.)

Craticulina fimbriata BEZZI, Portici Boll. Lab., VI, 1912, p. 66; VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 41.

Craticulina taeniata VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 508 (syn. nov.).

Craticulina tabaniformis CUTHBERTSON (nec FABRICIUS), J. Ent. Soc. S. Afr., I, 1939, p. 1, figs. 1-3 (syn. nov.).

BEZZI based this species on one male specimen from Lourenço Marques and separated it from the very similar *C. tabaniformis* (FABR.) by the following words : « *Affinis tabanifromis* FABR., differt tibiis posticis intus et extus longe fimbriatis, vittisque lateralibus abdominis helvis anguste nigro-marginatis ».

All specimens before me from Central and Southern Africa fit this diagnosis with regard to the chaetotaxy of the hind legs; the abdominal pattern, however, is variable. *C. tabaniformis* was described from Morocco. I have only one male specimen from the Palaearctic region before me, namely from Tatarszentgyörgy in Hungary. It differs from my South African specimens in having the posterior tibiae and femora provided dorsally and ventrally with dense, but normal, bristles and bristly hairs, whereas in *C. fimbriata* the bristles are extremely thick, long and dense (fig. 35). The legs are predominantly black in *C. tabaniformis* normally with yellow femora and tibiae in *C. fimbriata*, but the colour features are probably not useful for separating these two forms. ROHDENDORF (1930) also mentioned that they are variable and that, for instance, the 3rd antennal segment is yellow in specimens from the southern parts of the Palaearctic region, whereas it is dark in the Northern specimens. I have dissected the terminalia of the only male of *C. tabaniformis* before me and found only slight differences (figs. 36 and 37) in comparison with several South African males. They may lie within the intraspecific variability.

The only remaining reliable feature for separating *C. fimbriata* from *C. tabaniformis* is the structure of the hairs on the hind legs, but this can only be used for the separation of the males as the females have a normal chaetotaxy. Furthermore, the thickness and density of these bristles are variable in my males from Southern and Central Africa, which may explain why some authors (e.g. VILLENEUVE, 1913) have assigned some specimens

from Southern Africa to *C. tabaniformis*. It is therefore possible that this feature too tends to approach the condition seen in the typical *C. tabaniformis*, and that *C. fimbriata* is perhaps no more than a subspecific form of this species. However, the material at my disposal is not sufficient to enable me to solve this problem.

FIG. 35. — *Craticulina fimbriata* BEZZI.
Hind leg of male.
(Specimen from S. Africa.)

VILLENEUVE described another *Craticulina* from South Africa : *C. taeniata*. It is based on « one single example, seemingly a ♀ ». I have not received this specimen from the South African Museum where it is said to be located. Presumably it is lost. The description is short, but reveals that we are most probably dealing only with an extremely dark specimen of *C fimbriata*.

CUTHBERTSON described the life-cycle of *C. tabaniformis* in S. Rhodesia, but he had only seen females. I believe there is no doubt that these specimens actually refer to *C. fimbriata*. He found that *C. fimbriata* parasitizes the sand wasps *Bembex melanops* HARTL. and *B. fuscipennis* LEP.

M a l e. — Eyes bare, inner facets moderately larger than the outer ones. Frons at vertex normally about 3/5 of eye length, narrowed towards the lunula. Frontal stripe yellow or orange, at the tip of the ocellar triangle

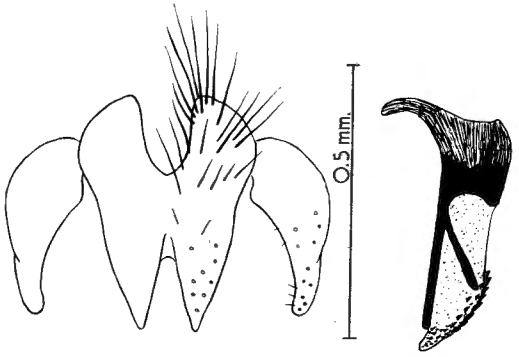


FIG. 36. — *Craticulina fimbriata* BEZZI.
Cerci with paralobi and phallosome.
(Specimen from Zululand.)

approximately twice as wide as at the lunula. Parafrontalia and face also of yellow or orange colouring, but 3rd antennal segment including arista may be more or less darkened. Parafrontalia and -facialia as well as the ocellar triangle covered with a yellow pollinosity, ocellar bristles weak and hardly separable from the other ocellar hairs; *iv* and *ev* well developed, row of *paf* complete, one *f* and 2 *fo* developed, between them several black setae, whereas those beyond the *fo* and on the parafacialia are pale, very short and detectable only under high magnification. Profrons protruding, about 2/7 as broad as the eye is long. Antennal groove with a white pruinosity; 3rd segment yellow or brown, about 4 times as long as the second, the latter bearing a long black bristle and several black setae. Basal segments of arista short. (ROHDENDORF says that in *tabaniforme* the 3rd segment is 6 times as long as the second. In my specimen from Hungary the proportions are the same as in South African specimens). Vibrissa short, but distinct, being inserted a little above the epistome; facial ridge with a row of black bristles which reach or slightly surpass the middle. Bucca narrow, with a row of black peristomal bristles; other hairs pale. Palpi yellow, proboscis partly black-brown.

Thorax predominantly black or dark brown, but the scutellum is yellow almost totally or at least in its terminal half. The humeral calli and parts of the pleura are also light coloured. Pollinosity thick, yellow, white and olive depending on the light incidence. Hairs and bristles black, but some of the latter are hardly thicker than the normal hairs. The pre-scutellar pairs of *ac*, *dc* and *ia* are usually distinct, furthermore the *prs* and 2 humeral bristles are well developed, whereas the *ph* are weak; *n*, *sa* and *pa* present, each of them two in number. Scutellum with 3 pairs of long marginals,

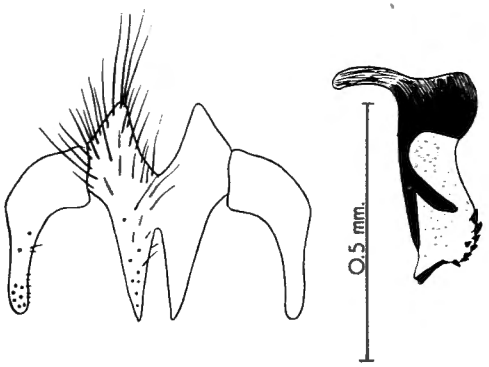


FIG. 37. — *Craticulina tabaniformis* (FABRICIUS).
Cerci with paralobi and phallosome.
(Specimen from Hungary.)

discals are indistinct. Pro- and poststigma yellow, propleuron and prosternum bare, *pp* and *pst* developed, mesopleuron with black hairs and bristles, *st*=1 : 1. Wing hyaline, veins including basicosta and epaulet are yellow to yellow-brown, costal spine indistinct, base of R_{4+5} dorsally with a few black setae, R_5 open, *m* with a right angle and a short appendix. Thoracic squama broad, halter yellow. Legs usually yellow, except the tarsi which are blackened, but in some of my specimens the femora and tibiae are also partly darkened, approaching the condition in the typical *C. tabaniformis*. Fore-tibia with the dorsal spinulation indistinct, but ventrally there is a row of recumbent bristles which decrease in size towards the tarsus; mid-tibia with one *ad*, 3-4 submedian *av* and 2-3 tiny *pd* bristles; hind-femur and tibia dorsally and ventrally with a dense row of thick bristles (comp. fig. 35); claws short.

Abdomen at the hind margin of tergite I+II measuring about 5/8 of its total length, gradually narrowed towards the hypopygium. The ground colour predominantly orange or yellow, the pruinosity whitish yellow. A dark pattern is always present, but variable in its extent. A short median vitta is present at the posterior edges of tergites I+II, III and IV, but in

some specimens tergite V also shows a median vitta. The fifth and the foregoing tergites may have lateral rectangular vittae, which are black or brown. These lateral vittae continue more or less far onto the ventral side. The hind margins of tergites IV and V bear relatively short bristles. Hypopygium (fig. 36) very similar to that of *C. tabaniformis*.

Female. — Frons at vertex 5/6-5/7 as broad as one eye is long, profrons measuring almost 1/3 of eye-length. Frontal stripe yellow, subparallel, at the tip of the ocellar-triangle about as broad as one parafrontalium. Parafrontalia and -facialia with a silvery-white pollinosity. All head-bristles are on the average thinner than in the male; besides the two proclinate *fo*, a row of three long reclinate bristles is sometimes present between the *fo* and *paf*; or the bristles may be weak, or not distinctly developed at all. Hind femur and tibia without the dense row of thick bristles as found in the male, femur ventrally with a few bristles of normal thickness, tibia on the inner side in the median part with 5-6 bristles arranged in a dense row. Pollinosity of thorax and abdomen normally lighter than in the male.

Length : 5-10 mm.

Collection Musée Royal de l'Afrique Centrale : Tanganyika : Mpala, VII-VIII.1953 (1 ♂, leg. H. BOMANS). Congo : Basoko, III.1948 (1 ♀, leg. P. L. G. BENOIT); Kalembelembe-Baraka, VII.1918 (1 ♀, leg. R. MAYNÉ).

Collection S. African Museum, Cape Town : Natal : Mfongosi, Zululand, III.1916 (1 ♂, leg. W. E. JONES, det. as *fimbriata* by VILLENEUVE). Cape Province : Nr. Postmasburg, 1939 (1 ♂); Goodhouse, XI.1936 (1 ♂); George, I.1918 (1 ♀, leg. BRAUNS); between Springbok and Pella, Bushmanland, X.1939 (1 ♀). S. W. Africa : Gt. Karas Mts., XI.1936 (1 ♀). Mozambique : Inhaca, X.1912 (1 ♀, leg. K. H. BARNARD).

Collection Dept. of Agriculture, Pretoria : Natal : Mkuzi, Game Reserve, I.1947 (1 ♂, 2 ♀♀, leg. H. K. MUNRO). Transvaal : Pretoria, I.1939 (1 ♂♀, leg. G. C. ULLYETT); 10.II.1915 (1 ♀, leg. H. K. MUNRO). Cape Province : East London, 27.II.1925 (1 ♀, leg. H. K. MUNRO). Basutoland : Mamathas, 3.II.1952 (1 ♀, leg. JACOT-GUILLARMOD). S. Rhodesia : Salisbury, 1.V.1938 (1 ♀, leg. A. CUTHBERTSON).

Collection S. African Institute for Med. Research, Johannesburg : Mozambique : Porta Torres, 10.X.1957 (1 ♀).

Collection Natal Museum, Pietermaritzburg : Natal : Umkomaas, 9.XII.1954 (1 ♀, leg. B. STUCKENBERG).

Collection American Museum of Nat. History, New York : Liberia : Robertspoort, 14.XI.1942 (1 ♀, leg. F. SNYDER).

Collection British Museum (Nat. History), London : Nyasaland : Cholo (1 ♀, leg. R. C. Wood). Natal : Durban, 15.X.1931 (1 ♀, leg. A. Mackie). Cape Province : Calvinia, 17.XI.1931 (1 ♀, leg. W. P. Cockerell).

2. — **Craticulina transvaalensis** n. sp.

(Fig. 38.)

An easily recognizable species with thorax, legs and abdomen glossy black in ground-colour. Frons and face yellow, but the long third antennal segment and arista dull black. There is only one male before me.

Male. — Head with bare eyes, inner facets larger than the outer ones. Frons at vertex half as wide as the eye is long. Frontal stripe yellow, subparallel, at the tip of the ocellar triangle twice as broad as one of the parafrontalia. Ocellar triangle not dusted, glossy red-brown, with one anterior pair of long divaricate bristles, behind which are two pairs of weaker bristly hairs and a certain number of short and thin hairs. Parafrontalia and -facialia as well as face and buccae densely silvery-white pollinose, but at a certain incidence of light, this pollinosity appears yellow. Postbuccae and occiput with a black ground colour under the pollinosity. Width of profrons 2/7 of eye-length. Parafrontal bristles long, cruciate except the last one or two pairs, which are more or less reclinate, *iv*, *ev* and *f* long and thick; there are two pairs of very long and thick *fo*, which are accompanied by several irregularly distributed bristly hairs; lower half of parafrontalium and parafacialium with short pale setae which are detectable only under high magnification. Antennal groove deep, without carina; the first two basal segments yellow-brown, 3rd segment dull black, 3 ½-4 times as long as the second; arista bare, black-brown, composed of 3 distinct segments, the second of which is relatively long. Vibrissa long, facial ridge with a row of black bristles which surpasses the middle. Epistome not protruded, peristomal bristles and those on the occiput black, those on the bucca pale brown, short and few in number. Palpi yellow, dilated terminally, and here about 1 ½ times as broad as in the middle, bristles mostly black. Proboscis reddish and black brown.

Thorax glossy black, with a white pollinosity which leaves free three narrow dark lines on the mesonotum. Acrostichal bristles indistinct, only one pair in front of the suture and one pair in front of the scutellum are a little longer and thicker than the normal hairs; $dc=1+2$, $ia=0+1$, *prs* developed, *ph* quite indistinct, $h=2$, $n=2$, $sa=2$, $pa=2$, scutellum with 3 pairs of long marginal bristles and a pair of weak and short discals. Pro- and poststigma with white, feathery lids. Propleuron bare, *pp* and *pst* present, the former with several bristly hairs, mesopleuron with black hairs and bristles, $st=1:1$, all pleurae with a white pollinosity. Prosternum and alar-declivity devoid of hairs. Wing with a brown tinge,

basicosta yellow, veins yellow to brown, costal spine minute, base of R_{4+5} dorsally with one, ventrally with 2 setae, angle of *m* and *tap* a little less than 90°, *m* with short appendix, R_5 open. Thoracic squama broad, white; halter yellow. Legs wholly black, but white pollinose like the thorax; fore-tibia with a row of short *ad* spines, one short submedian *pv* bristle developed; mid-tibia with a long submedian *ad*, 2 short *pd*, and a short and a long *av* bristle close together; hind-tibia with a row each of *ad* and *pd* bristles and with two *av;* all tarsi with short spines ventrally.

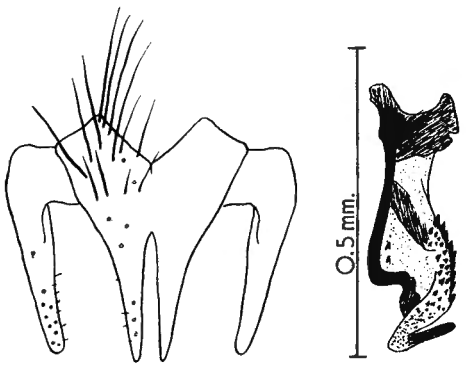


FIG. 38. — *Craticulina transvaalensis* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Potgietersrust, Transvaal.)

Abdomen cylindrical, length 2½ times the width at the hind margin of tergite I+II. Ground colour glossy black as on the thorax, hind margins each with a narrow, white pollinose band, anterior margins of tergites II-V with broader white pollinose bands, especially laterally. Hind margin of tergite III with a pair of erect, but short, median bristles; hind margins of the following tergites each with a complete row of erect black bristles. The white transverse bands continue onto the venter and also cover the posterior sternal margins. Hypopygium (fig. 38) with pointed cerci and slender paralobi, phallosome of characteristic structure.

Length : 10 mm.

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Potgietersrust, 6.XII.1953 (1 ♂, leg. F. ZUMPT).

Genus **PTERELLA** Robineau-Desvoidy.

Pterella Rob.-Desvoidy, Hist. nat. Dipt., II, 1863, p. 121; Curran, Amer. Mus. Nov., 836, 1936, p. 3; Townsend, Man. Myiol., VI, 1938, p. 138.
Type species : *Miltogramma grisea* Meigen from Germany.

Setulia Robineau-Desvoidy, Hist. nat. Dipt., II, 1863, p. 124; Rohdendorf, Fliegen pal. Region, 64, h, 1935, p. 65; Townsend, Man. Myiol., VI, 1938, p. 139; Séguy, Encycl. Ent., (A) XXI, 1941, p. 260; Zumpt, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 8.
Type species : *Setulia cerceridis* Rob.-Desvoidy from France.

Eremasiomyia Rohdendorf, Zool. Anz., LXXI, 1927, p. 158; et Fliegen pal. Region, 64, h, 1935, p. 71; Townsend, Man. Myiol., VI, 1938, p. 108 (syn. nov.).
Type species : *Eremasiomyia erythrogastra* Rohdendorf from Transcaspia.

Thereomyia Rohdendorf, Zool. Anz., LXXI, 1927, p. 158; et Fliegen pal. Region, 64, h, 1935, p. 75; Townsend, Man. Myiol., VI, 1938, p. 151; Zumpt, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 8.
Type species : *Miltogramma fasciata* Meigen from Germany.

Prometheomyia Rohdendorf, Fliegen pal. Region, 64, h, 1935, p. 66.
Type species : *Setulia* (*Prometheomyia*) *dagestanica* Rohdendorf from the Caucasus.

The more commonly used generic name, *Setulia*, is replaced by *Pterella*, following Curran (1936) and Townsend (1938). *Pterella* unfortunately has page priority over *Setulia*.

The genus *Pterella* is closely related to *Miltogramma*, but is separable from it by the presence of a distinct vibrissa and by the fact that, as a rule, there is only one antero-dorsal submedian bristle on the mid-tibia.

Eyes bare and with small facets, frons broad and of almost equal width in both sexes, frontal stripe more or less parallel. Chaetotaxy of head complete, 2-5 (6) *fo* may be present, *paf* fully developed. Profrons moderately protruded (fig. see Rohdendorf, 1935, p. 66). Third antennal segment 1¼ to 3 times as long as the second; arista at most short pilose, thickened in more or less the basal half and its tip may reach the vibrissa. Parafacialia with short setae, buccae narrow.

Thorax pollinose to a varying degree, in some species only very thinly pruinose. Chaetotaxy partly reduced, especially on the median mesonotum, outer *ph* always wanting. Wings hyaline, R_5 open. Legs in the Ethiopian species without unusual features; mid-tibia normally with only one submedian *ad*, but sometimes a short second one is present.

Abdomen longer than broad, more or less densely pollinose like the thorax. Hypopygia very characteristic for the different species, paralobi of outstanding shape in the *obscurior*-complex (or *fasciata*-complex), for which Rohdendorf created the genus *Thereomyia*.

KEY TO THE SPECIES.

1 (2) Abdomen red, with three white transverse bands.
Third antennal segment almost 3 times as long as the second. 8 mm. — Kenya ..... 1. *P. rubriventris* (VILLENEUVE).

2 (1) Abdomen predominantly black, sometimes laterally more or less ill-defined and obscurely reddish 3

3 (4) Parafrontalia with 5-6 pairs of proclinate *fo* bristles.
This species is superficially similar to a small member of the *obscurior*-group, however, easily separable by the increased number of *fo*. 4-5 mm. — Liberia ..... 2. *P. liberiensis* n. sp.

4 (3) Parafrontalia with only 2 pairs of proclinate *fo* bristles 5

5 (6) Abdomen with a distinct pattern of rounded, glossy black spots.
Thorax and abdomen densely yellow-olive pollinose. Third antennal segment almost twice as long as the second, predominantly black-brown. 6 mm. — South Africa .....
3. *P. triseriata* CURRAN.

6 (5) Abdomen without distinct glossy spots 7

7 (8) Thorax and abdomen densely grey to olive pollinose, abdominal pattern ill-defined, changing with the incidence of light.
Third antennal segment fully twice as long as the second, for the greater part black. 5-8 mm. — Southern Africa .....
4. *P. africana* CURRAN.

8 (7) Thorax and abdomen glossy, pollinosity thin and only partly covering the underground, abdominal tergites with white or yellow pollinose, transverse bands. Third antennal segment 2-2½ times as long as the second, and reddish-yellow like the basal segments 9

9 (10) Paralobi each with a bunch of long hairs, deeply incised.
Thorax more densely dusted than in the following species. 8 mm. — Mozambique ..... 5. *P. santos-diasi* n. sp.

10 (9) Paralobi without a bunch of hairs 11

11 (12) Cerci very slender and slightly undulated, paralobi deeply incised. Phallosome with the spinus projecting vertically.
Thorax very thinly pruinose. 7-11 mm. — Southern Africa, but certainly distributed much further North .....
6. *P. obscurior* (VILLENEUVE).

12 (11) Cerci less slender and not distinctly undulated, paralobi less deeply incised. Phallosome with the spinus protruding almost horizontally.

Not separable by outer features from the foregoing species. — South Africa ..... 7. *P. angustifrons* (VILLENEUVE).

1. — **Pterella rubriventris** (VILLENEUVE).

Setulia rubriventris VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 41; CURRAN, Amer. Mus. Nov., 836, 1936, p. 3; ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 8.

I have not seen this species which is based on a single female from Muille, Kenya, and which is located in the British Museum, London. VILLENEUVE gives the following diagnosis :

« Cette espèce se place à côté de notre *Setulia fasciata* MEIG. (= *erythrochaeta* BEZZI).

» Face blanchâtre; front jaune de miel; antennes jaune ainsi que la moitié basale du chète; palpes jaunes également. Mais le front et la face sont 2 fois plus larges que les mêmes parties chez *S. fasciata*; les antennes sont sensiblement raccourcies (3e article = 3 fois à peine le 2e); l'abdomen enfin est d'un rouge carminé, traversé, en dessus et en dessous, par 3 fascies blanches assez larges. Ailes hyalines un peu jaunâtres à leur insertion; cuillerons blancs. Pattes noires.

» Taille : 8 millimètres. »

2. — **Pterella liberiensis** n. sp.

(Fig. 39.)

Dr. H. C. CURRAN, New York, kindly sent me 2 specimens of a *Pterella* species from Liberia, which proved to represent a new species. They are readily distinguishable from other Ethiopian *Pterella* species in having at least 5 pairs of proclinate fronto-orbital bristles. The hypopygium of this species is also quite characteristic, but is, like some outer features, subject to some variability in both specimens. The diagnosis of the holotype is as follows :

Male. — Eyes bare, facets small. Frons at the narrowest point measuring approximately 3/10 of eye-length, slightly widened towards the vertex, more strongly towards the lunula. Frontal stripe red-brown, at the tip of the ocellar-triangle a little broader than one parafrontalium. Ocellar-triangle and hind parts of parafrontalia black, lower parts of parafrontalia and the parafacialia yellow-brown and densely covered by a white pollinosity. Ocellar bristles accompanied by several bristly hairs, *iv*, *ev*

and *f* developed. There are 5 pairs of cruciate *paf* in the lower part of the frons, followed by 3 or 4 pairs of bristles which are more or less reclinate. Fronto-orbital bristles five in number on each side; they are long and proclinate and almost reach the profrons. In addition to these bristles, the parafrontalia and parafacialia are beset with short dark setae in their whole length. Antennae dark yellow, third segment a quarter longer than the second; arista brown, short pilose, thickened in the basal

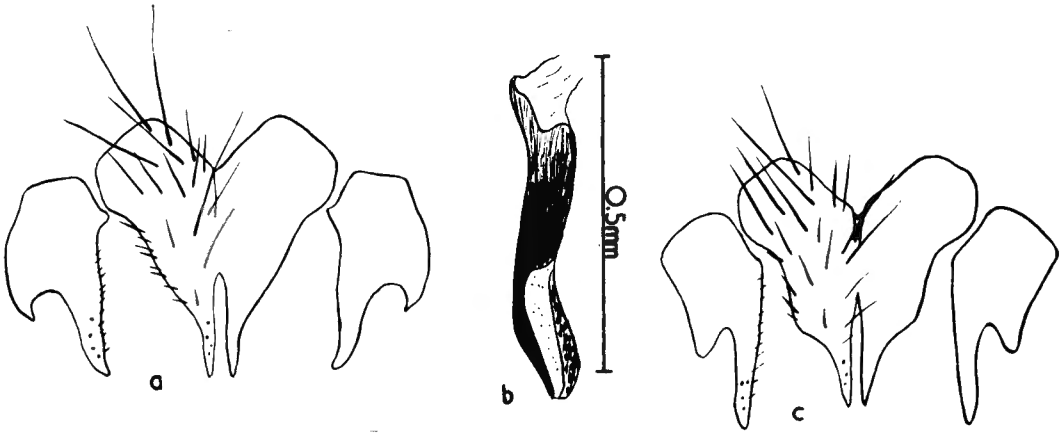


FIG. 39. — *Pterella liberiensis* n. sp.
a + b : Cerci with paralobi and phallosome of the holotype from Lenga Town, Liberia.
c : Cerci with paralobi of the paratype from Du River, Liberia.

half, its tip reaches the vibrissa. Vibrissa and peristomal bristles normally developed. Hind part of bucca and occiput black, anterior buccal part yellow-brown like the face. Bucca narrow, its height about $1/12$ of eye-length. Palpi yellow, with strong black bristles; proboscis black.

Thorax black, mesonotum densely grey pollinose, scutellum dark. A clear pattern is not developed. Prescutellar pair of *ac* well distinguished, a presutural pair less distinct and only slightly longer than the normal hairs, $dc=1+3$, $ia=0+2$ (anterior pair much shorter), *prs* present, $sa=2$, $n=2$, $h=2$, exterior *ph* indistinct, scutellum with 3 long marginal bristles. Pleura black and densely grey pollinose like the mesonotum, *pp* and *pst* present, stigmata dark brown, $st=1:1$. Wing hyaline, epaulet black, basicosta and veins yellow, R_5 broadly open, *m* with a right angle. Thoracic squama broad, white; halter yellow-brown. Legs black to black-brown; fore-tibia with a submedian posterior bristle; mid-tibia with an *ad*, *pd* and ventral bristle; hind-tibia with several *ad* and a submedian *av* bristle.

Abdomen black in ground colour, the anterior parts of segments III to V with broad, greyish-white pollinose, non-interrupted bands. Hypopygium (fig. 39, a and b) with almost gradually pointed cerci and laterally crenated paralobi.

Length : 5 mm.

The second male before me measures only 4 mm in length. The cerci (fig. 39, c) are swollen in the median parts, the shape of the cerci is slightly devious. The frons is a little broader, measuring at its narrowest point 7/19 of eye-length, and the frontal stripe at the tip of the ocellar triangle is about as broad as the parafrontalium. There are 5 *fo* on the left and 6 *fo* on the right side; furthermore the number of cruciate *paf* is increased by one pair.

I do not think that these differences have any specific value, and designate this specimen as paratype.

Collection American Museum of Nat. History, New York : Liberia : Lenga Town, 15.VIII.1926, on human excrements (1 ♂, holotype).

Collection S. African Institute for Med. Research, Johannesburg : Liberia : Du River (1 ♂, paratype).

3. — **Pterella triseriata** CURRAN.

Pterella triseriata CURRAN, Amer. Mus. Nov., 836, 1936, p. 4; ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 9.

Of this species, only one female specimen is known up to now. It is characterized by a distinctly spotted abdomen.

Female. — Eyes bare. Frons at vertex measuring a little more than half the eye-length. Frontal stripe yellow, parallel, at the tip of the ocellar triangle about twice as broad as one parafrontalium. Parafrontalia and -facialia densely white to yellowish pollinose. Ocellars divaricate and behind them are several bristly hairs; *iv* and *ev* long, *f* well developed and accompanied by 4-6 thinner bristles (normal ?), two long proclinate *fo*, 9 pairs of cruciate *paf*; setae on parafrontalia and -facialia pale and very fine, hardly detectable. Antennae with the basal segments reddish-yellow, 3rd segment 1 2/3 times as long as the second and predominantly black-brown like the arista. Occiput and postbucca black, anterior bucca narrow and yellow like the face. Vibrissa well distinguished from the peristomal row of bristles. Palpi yellow; proboscis long and slender, black.

Thorax black, densely covered by a yellow-olive pollinosity, with rather obscure black vittae. Presutural *ac* indistinct, two weak pairs of pre-

scutellar *ac* present; *dc*=2+3, posterior is distinct, *prs* well developed as well as the interior *ph*. Pleura densely pollinose like the mesonotum, *st*=1 : 1. Wing hyaline, epaulet black, basicosta and veins yellow, R_5 broadly open, *m* with a right angle. Legs black-brown, mid-tibia with one long submedian *ad*.

Abdomen with black ground colour, pollinose like the thorax, hind margins of tergites narrowly yellow. Tergites I+II, III and IV dorsally each with 3 rounded black spots which do not reach the anterior margins, last tergite black in the hind part.

Length : 6 mm.

Collection Dept. of Agriculture, Pretoria : Orange Free State : Bloemfontein, 4.XII.1920 (1 ♀, holotype, leg. H. E. IRVING).

4. — **Pterella africana** CURRAN.

(Fig. 40.)

Pterella africana CURRAN, Amer. Mus. Nov., 836, 1936, p. 4; ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 9.

CURRAN based this species on two female specimens from South Africa. I have now caught a male, on which the following description is based :

Male. — Eyes bare, facets small. Frons at vertex measuring ⅜ of eye-length; frontal stripe parallel, orange, at the tip of the ocellar triangle about twice as broad as one parafrontalium. Parafrontalia and -facialia densely yellowish and white pollinose; ocellar triangle black, ocellars accompanied by several bristly hairs; *iv*, *ev* and *f* as well as two long proclinate *fo* developed, 14 pairs of *paf*. Parafrontalia in the upper parts with several black hairs in addition to the bristles, the lower parts and the parafacialia with short pale setae. Antennae with the basal segments yellow, greater part of 3rd segment and arista black, 3rd segment fully twice as long as the second. Vibrissa well distinguished from the adjoining peristomal bristles. Occiput and postbucca black, the narrow anterior bucca yellow like the face. Palpi yellow, proboscis black.

Thorax black, densely grey to olive pollinose, dark longitudinal stripes narrow and ill-defined. Prescutellar pair of *ac* distinct, one pair of presutural *dc* and 2 pairs of prescutellar *dc* easily distinguishable from the normal hairs; furthermore, the hind *ia* and the hind *sa* are long and thick, whereas the anterior *sa* is much shorter and thinner. Presutural bristle and inner *ph* present, humeral callus with 2 thick bristles and a thinner one. Pleura densely grey pollinose, stigmata yellow; *pp* and *pst* accompanied by several black hairs, *st*=1 : 1. Wing hyaline, epaulet black, basicosta and veins yellow, R_5 broadly open, *m* with a right angle.

Thoracic squama broad, white; halter yellow. Legs black, fore-tibia with a number of short *ad* and a longer submedian *pv*; mid-tibia with one long submedian *ad*, 2 *pv* and 1 *av*; hind-tibia with a great number of *ad*, several *pd* and one long and several shorter *av*.

Abdomen black, hind margins of tergites narrowly yellow. Pollinosity olive and greyish-white forming an irregular, quite ill-defined pattern which changes with the incidence of light; spots are not clearly developed as in *S. triseriata*. Hypopygium with very characteristic and outstandingly shaped cerci and paralobi, the phallosome is reminiscent of the *S. obscurior*-complex (fig. 40).

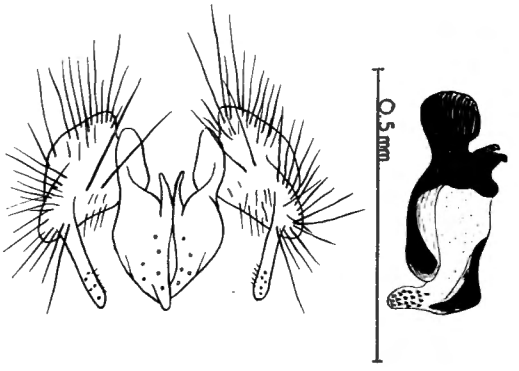


FIG. 40. — *Pterella africana* CURRAN.
Cerci with paralobi and phallosome.
(Specimen from Johannesburg, Transvaal.)

Length : 5-8 mm.

Collection American Museum of Nat. History, New York : Transvaal : Pretoria, 14.II.1928 (1 ♀, holotype, leg. H. K. MUNRO).

Collection Dept. of Agriculture, Pretoria : Cape Province : Uitenhage, 11.III.1919 (1 ♀, paratype, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 26.II.1950 (1 ♂, leg. F. ZUMPT); Brits, 25.X.1952 (1 ♀, leg. H. PATERSON).

Collection British Museum (Nat. History), London : S. Rhodesia : Vumba Mts., Umtali distr., II-III.1938 (2 ♀♀, leg. A. CUTHBERTSON); Salisbury, 17.X.1937, from nest of *Sphex* spec. (1 ♀, leg. A. CUTHBERTSON).

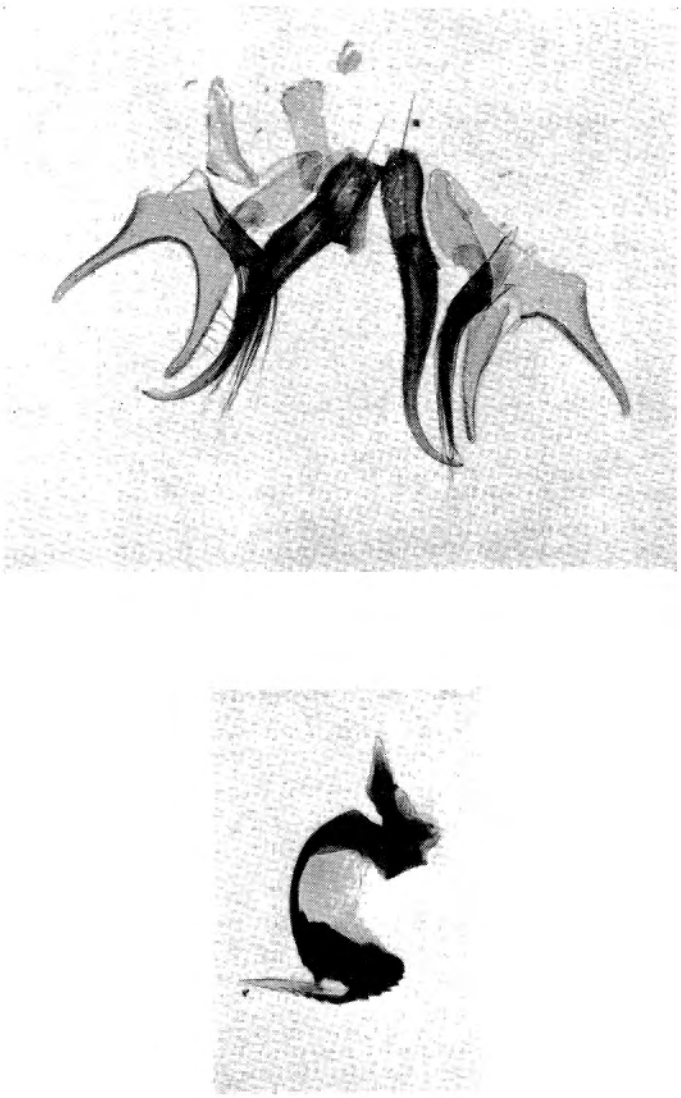


FIG. 41. — *Pterella santos-diasi* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Inhaca, Mozambique.)

5. — **Pterella santos-diasi** n. sp.

(Fig. 41.)

Dr. J. A. TRAVASSOS SANTOS-DIAS, Lourenço Marques, sent me 4 male specimens of *Pterella*, caught on the island of Inhaca, Mozambique coast, which, according to the outer features, belong to the *obscurior*-complex. The dissection of the hypopygia reveals that 3 of them actually represent *P. obscurior*, whereas the fourth shows a hypopygium quite different from that of *P. obscurior* as well as of *P. angustifrons*. This hypopygium has the strange bunches of hairs which ROHDENDORF (1935) figures for his « *Thereomyia fasciata* (MEIGEN) », but the paralobi are much more deeply crenated, so that they each form two long and thin, finger-like processi (fig. 41).

The thorax of this specimen is more densely greyish-olive pollinose and the longitudinal stripes are more distinct than in *P. obscurior*, but in respect of the other outer features, it lies within the range of variability of *P. obscurior*. The frons measures, near the vertex, about ⅓ of the eye-length. The length of the 3rd antennal segment is a little more than twice that of the second, and there are 15 cruciate *paf* present. The body-length is 8 mm.

I think that we are dealing with the representative of a new species, which is named in honour of its collector. The type is preserved in the collection of the Missão de Combate às Tripanosomíases, Lourenço Marques.

6. — **Pterella obscurior** (VILLENEUVE).

Setulia fasciata var. *obscurior* VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 509; ROHDENDORF, Bull. Soc. Ent. Égypte, XVIII, 1934, p. 14; et Fliegen pal. Region, 64, h, 1935, p. 78; ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 9, fig. 3.

VILLENEUVE in 1916 described two varieties of the Palaearctic *P. fasciata* (MEIGEN), which he called *obscurior* and *angustifrons*. He characterizes them as follows :

« The facies of the African representatives of this species is somewhat variable. The red colour of the sides disappears almost totally on the abdomen of the ♂♂; the orbits are golden yellow, as is also the upper part of the genae; the antennal chaeta is so elongate as to project occasionally beyond the antennae; the latter is often short, and the great vibrissae are then a little more raised. These remarks apply also to examples from the coast of Malabar, although in the ♂♂ the abdominal sides remain more or less broadly reddish. These variations do not justify making a new species, but one must see in the African and Asiatic forms a variety which I call « *obscurior* », the more so that on the side of the thorax the tergum

becomes obscure at the back of the suture, and the scutellum wholly black, so that the dark lines so well defined in the palaearctic *S. fasciata* are only visible in the anterior part of the tergum.

» Two other examples, a ♂ from South Africa, and 1 ♀ from the Belgium Congo represent another variety, i.e. *angustifrons*. Here the frons is narrower; the orbits, which are white like the face, are wider than the narrow frontal band, or at most equal in width. The antennae are of normal length. »

I have a number of males and females before me which fit this « *obscurior*-complex », but it is not possible to place them into several distinct units from the outer features, which are variable to a certain degree and which overlap. The hypopygial structure, however, allows one to distinguish 3 species.

There is one male specimen from Inhaca, Mozambique, which is slightly denser pollinose than the others and which shows a hypopygium reminiscent of that figured by ROHDENDORF (1935) for his « *Thereomyia fasciata* (MEIGEN) ». It has the characteristic bunch of hairs on each paralobium, but otherwise it is quite different with respect to the shape of the paralobi, so that I take it for the representative of a new species (see *P. santosdiasi* m.).

The hypopygia of the other two species lack these bunches, and the thorax is less densely pollinose and as dark coloured as described by VILLENEUVE for his two « varieties » of *P. fasciata*. I think that they represent VILLENEUVE's two forms for which he has certainly never labelled type specimens. In order to find a solution, I propose to create lectotypes from the material before me and to refer the one species, the evidently more common one with very slender and undulated cerci, to *P. obscurior*, and the other to *P. angustifrons*. The lectotype of the latter is a specimen from Barberton, Transvaal, which Dr. C. H. CURRAN had previously identified as this species, whereas the lectotype of *P. obscurior* is represented by a specimen from Pretoria, Transvaal, collected by myself.

SÉGUY (1941), like ROHDENDORF (1935), gave a figure of the hypopygium of the Palaearctic *P. fasciata* (MEIGEN), but he omitted the characteristic bunch of hairs on the paralobium. I do not believe that he has overlooked this feature, and the question arises, which of the two authors figured the hypopygium of the true *P. fasciata*. Unfortunately, ROHDENDORF figures only one hypopygium, but describes altogether 5 species and subspecies in the *fasciata*-complex, which are very similar to each other and separated by him by fairly vague features.

It is quite possible that in the Palaearctic as in the Ethiopian region, several species occur which are clearly separable only by the hypopygial structures, and that ROHDENDORF and SÉGUY figured different species.

M a l e. — Eyes bare, with small facets. Frons of the lectotype measures at vertex about one third of eye-length; in the remaining specimens before me it varies from ¼ to ⅓ of eye-length. From the vertex, the frons is slightly widened towards the lunula. In the lectotype, the frontal stripe is reddish-yellow to chrome, subparallel, and at the tip of the ocellar-triangle approximately 1½ times as wide as the neighbouring parafrontalium. The parafrontalia show a dense yellow or yellow-white (depending on the light incidence) pollinosity. In other specimens, the frontal stripe may be almost twice as broad as one parafrontalium, or a little narrower than in the lectotype. Ocellar triangle, besides the normal pair of *oc*, with a number of bristly hairs, some of which are almost as long as the ocellars, *iv* and *ev* well developed as well as *f* and 2 pairs of *fo*, which are accompanied by several black hairs. Lectotype with 17 pairs of parafrontal bristles; in the other 10 males before me, the number of *paf* varies between 16 and 11 pairs. Lower part of parafrontalia and the parafacialia are sparsely beset with microscopic, white setae. Face white pollinose, antennae chrome-yellow, 3rd segment approximately twice as long as the second, arista thickened in the basal half, tip blackened and in some males reaching the vibrissa. Row of peristomal bristles complete, vibrissa distinctly separated from them by length and thickness. Posterior bucca and occiput black, with short hairs, anterior bucca yellow like the parafacialia, with pale setae only. Height of bucca at the black border amounts a fifth of eye-length. Palpi yellow, slender and slightly curved, proboscis predominantly black.

Thorax black, tip of scutellum sometimes narrowly reddish. Pruinosity light grey; narrow, longitudinal, undusted stripes more or less distinct. The chaetotaxy is partly reduced. In the lectotype, the prescutellar pairs of *ac* and *dc* are distinct, furthermore one pair of presutural *dc*. One pair of *ia*, the *prs*, 2 *sa*, 2 *n* and 3 *h* are well developed. Pleura densely white pruinose, pro- and poststigma yellow, *pp* and *pst* long and thick; anterior corner of mesopleuron with several thick bristles, posterior margin with a complete row of bristles. Sternopleuron with one bristle in the anterior corner and normally, as in the lectotype, with two in the posterior corner, but in some specimens three bristles are present. Wing hyaline, epaulet black, basicosta yellow, veins yellow and brown, R_5 broadly open, media with a right angle. Thoracic squama white, very broad; halter yellow. Legs black, at the fore-tibia the submedian posterior bristle is well developed; at the mid-tibia, one long *ad* is present, a second one is often distinctly longer than the remaining short bristles, furthermore, two *pd* and one *pv* are distinct. Hind-tibia normally with one long and thick, submedian *av* bristle, above this 4 thinner and shorter bristles; anterior dorsal edge with a dense row of fairly unequal bristles, posterior dorsal edge with one long submedian bristle.

Abdomen longer than broad, predominantly black, laterally and ventrally

partly reddish-yellow. Anterior margins of tergites broadly white or yellowish pollinose. This pollinosity and the extent of the yellow colour is variable to a certain degree. Hypopygium (fig. 42 right) slender and slightly undulated; paralobi deeply incised, but somewhat variable in shape; phallosome strongly curved, with the spinus protruding vertically.

Length of lectotype 11 mm, the other males vary between 7 and 9 mm in length, but most probably, much smaller specimens occur. Some of the females of my « *obscurior*-complex » only measure 5 mm in length.

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Pretoria, 11.II.1951 (1 ♂, lectotype, leg. F. ZUMPT). Natal : Camperdown, 5.VIII.1908 (1 ♂, leg. G. F. LEIGH). Mozambique : Inhaca, 9.X.1957 (3 ♂♂, leg. T. S. DIAS).

Collection American Museum of Nat. History, New York : Nyasaland : Domina Bay, 17.I.1916 (2 ♂♂, leg. W. A. LAMBORN).

Collection British Museum (Nat. History), London : Orange Free State : Gum Tree, II.1937 (1 ♂, leg. J. OGILVIE). Natal : National Park, III.1932 (2 ♂♂, leg. J. OGILVIE). S. Rhodesia : Salisbury, 23.IV.1938 (1 ♂, leg. A. CUTHBERTSON).

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Inyanga, 31.I.1939 (1 ♂, leg. A. CUTHBERTSON); Wedza, 26.XII.1939 (1 ♂, leg. A. CUTHBERTSON); Matetsi, 7.I.1935 (1 ♂, leg. R. STEVENSON).

Female. — There are a great number of female specimens from various localities in Southern and Central Africa before me, but I am not able to distinguish between *P. obscurior*, *P. angustifrons* and *P. santosdiasi*, and it is even possible that other species exist, the females of which cannot be separated from this complex.

7. — **Pterella angustifrons** (VILLENEUVE).

(Fig. 42.)

Setulia fasciata var. *angustifrons* VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 509; ZUMPT, Proc. Roy. Ent. Soc. Lond., (B) XXI, 1952, p. 9.

The taxonomic status of this species has been discussed under *P. obscurior* (VILL.). There are only 3 males before me, one of which from Barberton, Transvaal, has been selected as lectotype. The comparison of the outer features of these specimens with those of *P. obscurior* does not reveal any constant differences. The width of frons of the lectotype of *P. angustifrons* is $^3/_{10}$ of eye-length, the frontal stripe at the tip of the

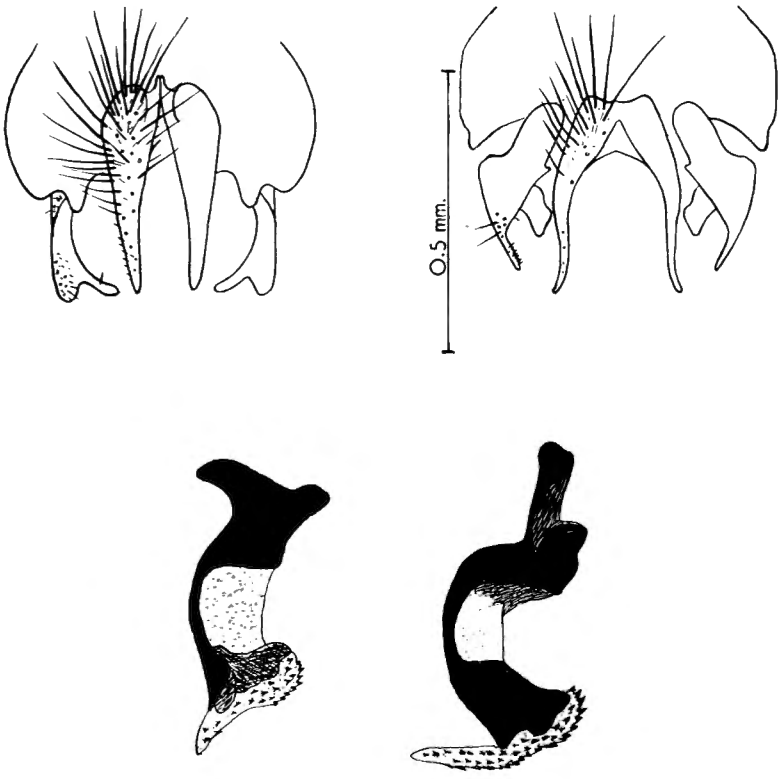


FIG. 42.
Left: *Pterella angustifrons* (VILLENEUVE).
Right: *Pterella obscurior* (VILLENEUVE).
Cerci with paralobi and phallosome.
(Specimens from Natal and from Inhaca, Mozambique.)

ocellar triangle is slightly wider than one parafrontalium, and there are 12 pairs of *paf* present. These data lie within the range of variability of *P. obscurior*. The shape of the hypopygia allows a separation from *P. obscurior*, but this organ also shows a certain variability in both species. An overlapping in the hypopygial features, however, is not present, at least in the specimens before me (fig. 42). I therefore regard both as specifically distinct and restore *P. angustifrons*, which I had previously put into the synonymy of *P. obscurior*.

Collection American Museum of Nat. History, New York : Transvaal : Barberton, 13.XI.1927 (1 ♂, lectotype, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Komatipoort, III.1953 (1 ♂, leg. H. Paterson). Natal : Mkusi, 31.I.1947 (1 ♂, leg. H. K. Munro).

Genus **MILTOGRAMMA** Meigen.

Miltogramma Meigen, Mag. f. Insektenk., II, 1803, p. 280; Rohdendorf, Fliegen pal. Region, 64, h, 1930, p. 32; Curran, Amer. Mus. Nov., 836, 1936, p. 6; Townsend, Man. Myiol., VI, 1938, p. 124; Séguy, Encycl. Ent., (A) XXI, 1941, p. 265.
Type species : *Miltogramma punctulatum* Meigen from Germany.

Hamulia Rob.-Desvoidy, Hist. nat. Dipt., II, 1863, p. 110; Townsend, Man. Myiol., VI, 1938, p. 124.
Type species : *Miltogramma punctulatum* Meigen from Germany.

Miltogramma (*Anacanthothecum*) Rohdendorf, Fliegen pal. Region, 64, h, 1930, p. 32.
Type species : *Miltogramma testaceifrons* v. Roser from Germany.

Miltogramma (*Stephanodactylum*) Rohdendorf, id., ibid., p. 34.
Type species : *Miltogramma punctulatum* Meigen from Germany.

Miltogramma (*Pseudomiltogramma*) Rohdendorf, id., ibid., p. 46.
Type species : *Miltogramma brevipulum* Villeneuve from France.

Miltogramma (*Miltogrammidium*) Rohdendorf, id., ibid., p. 48.
Type species : *Miltogramma taeniatum* Meigen from Germany.

Miltogramma (*Myochromum*) Rohdendorf, Fliegen pal. Region, 64, h, 1935, p. 56.
Type species : *Miltogramma murinum* Meigen from Germany.

Miltogramma (*Achaetocephalon*) Rohdendorf, Bull. Soc. Ent. Égypte, XVIII, 1934, p. 10.
Type species : *Miltogramma nudum* Rohdendorf from Egypt.

Miltogramma (*Capnopteron*) Rohdendorf, Bull. Soc. Ent. Égypte, XVIII, 1934, p. 11.
Type species : *Miltogramma maculigerum* Speiser from Tanganyika.

This genus comprises a great number of species in the Palaearctic region, especially in the eastern parts. Rohdendorf (1930, 1935) has subdivided it into several subgenera, which are treated here as synonyms. From the Ethiopian region, only a few species are known so far, but there is no doubt that many more actually exist.

Miltogramma species are superficially similar to those of *Pterella*, but the vibrissa is not distinguishable from the peristomal bristly hairs and the antero-dorsal bristles are increased in number. In several species, the fore-tarsus of the male is provided with outstanding hairs or bristles.

KEY TO THE SPECIES.

1 (4) Legs totally reddish or yellow-brown 2

2 (3) Third antennal segment 1 ½ times as long as the second. Abdomen densely yellow or yellow-brown pollinose, with glossy black spots at the posterior margins of tergites III-V; no median longitudinal, dark line developed.

Antennal segments bright orange, arista blackish. Thorax densely pollinose like the abdomen, ground colour of mesonotum predominantly black-brown, of scutellum yellow. 8 mm. — Cape Province ..... 1. *M. helvum* VILLENEUVE.

3 (2) Third antennal segment more than 4 times as long as the second. Abdomen reddish with a greyish-golden pollinosity, tergites I-III with a dark longitudinal line and with lateral spots on III and IV, tergite V almost totally reddish.

Known from one female specimen, which I have not seen. It is doubtful whether this species really belongs to *Miltogramma*. 7,5 mm. — Tanganyika ... 2. *M. seriatum* SPEISER.

4 (1) Legs predominantly black or black-brown 5

5 (6) Third antennal segment bright yellow or orange.

Thorax relatively thin pollinose, abdomen with large dark spots. 9-10 mm. — Congo, Cape Province .....
3. *M. cuthbertsoni* CURRAN.

6 (5) Third antennal segment black or black-brown (comp. 6. *M. maculigerum* SPEISER) 7

7 (8) Pollinose bands of abdominal tergites broadly interrupted in the middle.

Cerci narrow and strongly pointed, paralobi shorter than in the following species, not club-shaped terminally. 5-10 mm. — Central, East and Southern Africa ... 5. *M. munroi* CURRAN.

8 (7) Pollinose bands of abdominal tergites not or only narrowly interrupted in the middle.

Cerci broadly triangular, paralobi longer and terminally club-shaped. 8-11 mm. — Congo, Tanganyika, Cameroons .....
4. *M. hirtimanum* BEZZI.

1. — **Miltogramma helvum** VILLENEUVE.

(Fig. 43.)

Miltogramma helvum VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 508.

VILLENEUVE based his description on several males and females in the Museum of Natural History, Vienna. The males had been labelled by WIEDEMANN as « *caffra* » and the females as « *helva* ». I have received one male and one female of this material.

M. helvum is easily recognizable amongst the other Ethiopian *Miltogramma* by its predominantly yellow body, whereas all the other species have a blackish colouration. In the Palaearctic region, however, several species are known which have a light-coloured body.

Male. — Head with bare eyes. Frons at its narrowest point (near vertex) measuring about ⅜ of eye-length, like the face totally yellow and provided with a whitish pruinosity. Frontal stripe subparallel, darker yellow than the parafrontalia, at the tip of the ocellar-triangle a little wider than the adjoining parafrontalium. Ocellar triangle not, or hardly, darker than the frontal stripe, white pollinose, with a number of black hairs, but without distinct ocellar bristles; *paf* relatively thin and short, forming an almost complete row, which becomes irregular (with partly doubled bristles) towards the vertex; *iv* and *ev* well developed, much longer and thicker than the *paf*; a reclinate *f* is present, but hardly separable from a number of irregularly placed and unequal dark *fo* bristles and bristly hairs on the posterior half of the parafrontalium. Short and pale setae are distributed all over the parafrontalium and -facialium, but they are distinctly visible only at a certain incidence of light. Antennal groove deep, antennae orange, 3rd segment about 1½ times as long as the second, arista black-brown, consisting of two basal segments and a long third segment which is provided with a microscopic pilosity. This segment is thickened at the base and its tip surpasses the 3rd antennal segment, but not the corner of the vibrissarium.

Bucca ¼ as high as the eye is long, yellow like the face and provided with pale hairs; only the peristomal bristles are black. A longer and thicker vibrissa is not developed. Palpi yellow.

Thorax dark-brown, with the greater part of the scutellum yellow, but almost completely covered by a thick yellow or yellow-brown pollinosity; four narrow, black, longitudinal stripes can be seen shining through on the mesonotum. Chaetotaxy reduced, a prescutellar pair of *ac* and *dc* are distinguishable and a weak *prs* is developed, but *ph* bristles are not recognizable; $h=3$, but the inner one is weak, $n=2$, $sa=2$, $pa=2$, scutellum with 3 pairs of marginal bristles of medium length. Pro- and poststigma yellow-brown. Propleuron bare, *pp* and *pst* present, accompanied by

several hairs; mesopleuron with black hairs and a complete row of relatively thin bristles at the posterior margin; sternopleuron with the lower part devoid of pollinosity, only one bristle present in the posterior upper corner, or the anterior one is weak. Row of hypopleural bristles well developed. Prosternum and alar-declivity bare. Wing hyaline, veins including epaulet and basicosta yellow or yellow-brown, R_5 open, m with a right angle. Thoracic squama broad, white; halter yellow. Legs yellow to brown, with

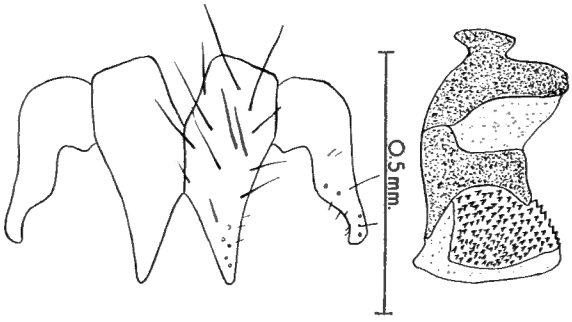


FIG. 43. — *Miltogramma helvum* VILLENEUVE.
Cerci with paralobi and phallosome.
(Specimen from Oudtshoorn, Cape Province.)

a yellow pollinosity as on the body; fore-tibia with a terminal dorsal bristle, tarsal segments I-IV each dorsally with a longer terminal hair; mid-tibia with one thick and relatively long submedian *ad* bristle and, above it, with several bristly hairs which are distinctly longer than the normal tibial hairs; there is furthermore a submedian *av* bristle; hind-tibia on the antero-ventral edge with a number of long bristly hairs, dorsal side also with relatively long hairs. Tarsi II and III without outstanding features.

Abdomen about ⅓ longer than broad, as densely yellow-brown pollinose as the thorax; segments III and IV with 6, segment V with 4 dark spots which are evanescent and ill-defined. A few longer bristles are found only at the hind margins of tergites IV and V. Hypopygium shown in figure 43.

Female. — Very similar to the male, even the frons shows the same measurements. The fore-tarsus has, however, no long dorsal setae on segments I to IV.

Length : 8 mm.

Collection Museum Nat. History, Vienna : Cape Province : Cape (1 ♂♀, leg. WINTHEM, paratypes).

Collection S. African Institute for Med. Research, Johannesburg : Cape Province : Rust en Vrede, Oudtshoorn distr., X.1951 (1 ♂♀); Willowmore, 1.X.1920 (1 ♀, leg. BRAUNS).

2. — **Miltogramma seriatum** SPEISER.

Miltogramma seriatum SPEISER, Kilimandjaro-Meru Exp., II, 1910, p. 149.

It is very doubtful whether this species actually belongs to *Miltogramma*. It has been based on a single female from the foot of Mt. Meru, Tanganyika. I have not been able to get hold of the type.

An outstanding feature of this species is the 3rd antennal segment, which is said to be amply 4 times as long as the two basal segments together. All segments are reddish-yellow. Thorax black; humeral calli, an ill-defined lateral stripe and the scutellum reddish. Pollinosity golden-grey. Wing hyaline. Femora and tibiae brick-red, tarsi black, abdomen red, the first three segments with a narrow, ill-defined, black median line which is enlarged towards the hind margin of tergite IV. Tergites III and IV, furthermore, with lateral infuscations at the hind margins. Last segment almost totally red. Pollinosity as on the thorax. Length : 7,5 mm.

3. — **Miltogramma cuthbertsoni** CURRAN.

(Fig. 44.)

Among the Ethiopian species of *Miltogramma*, *M. cuthbertsoni* is well characterized by the bright yellow 3rd antennal segment and its hypopygial structure.

Male. — Eyes bare, inner facets moderately enlarged. Frons at its narrowest point (at the tip of the ocellar triangle) about one third as broad as the eye is long. Frontal stripe slightly narrowed towards the antennal groove, reddish to yellow; parafrontalia and parafacialia with a dense white or yellowish pollinosity, depending on the incidence of light. Ocellar triangle black, with several bristly hairs, but without distinct *oc*; *iv*, *ev* and *f* well developed; there are 2 to 4 distinct proclinate *fo* bristles (4 in the holotype), accompanied by several bristly black hairs, parafrontalia and parafacialia otherwise only with microscopic, pale setae. Profrons measures ⅕ of eye-length. Antennal groove deep, antennae, except the arista, totally bright orange, third segment about 1 ½ times as long as the second, arista deep black. Bucca yellow, with short pale hairs, black bristles are present only on the anterior peristomal margin. Palpi yellow.

Thorax glossy black, scutellum almost totally red-brown. Pruinosity of the dorsal side thin and easily rubbed off; in fresh specimens, four narrow white stripes are recognizable in the presutural area. Humeral, notopleural and supra-alar areas as well as the upper part of pleura densely

white pollinose, lower part bare and glossy. Chaetotaxy reduced, but prescutellar *ac*, *dc* and *ia* are distinguishable. Presutural bristles represented by a bristly hair, *ph* indistinct, *h*=2-3, *n*=2, *sa*=2, *pa*=2, scutellum with 2 pairs of long marginal bristles, and a pair of shorter anterior ones. Pro- and poststigma yellow. Propleuron bare, several *pp* and 1-2 *pst* present. Row of mesopleural bristles complete, sternopleuron with one (holotype) or two bristles in the posterior upper corner. Prosternum and alar-declivity bare. Wing hyaline, veins yellow or yellow-brown, epaulet

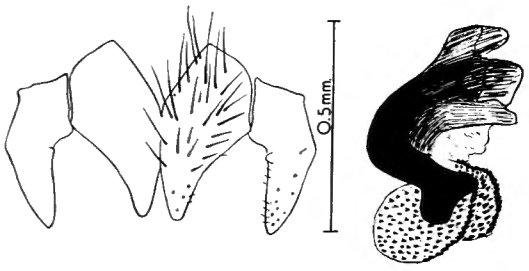


FIG. 44. — *Miltogramma cuthbertsoni* CURRAN.
Cerci with paralobi and phallosome.
(Specimen from Zomba, Nyasaland.)

dark-brown; R_5 open, *m* with a right angle. Thoracic squama white, with a narrow yellow margin; halter yellow. Legs predominantly black, partly reddish brown, with a white pruinosity; fore-tibia without longer bristles, except those at the tip; fore-tarsus with moderately long dorsal hairs; mid-tibia with a row of *ad* bristles, of which the lower one is longer and thicker than the upper ones, and one submedian *av* bristle; hind-tibia with a row of dense, moderately long bristles on the anterior and on the posterior dorsal edge; ventral side with a long submedian bristle and, above this several longer hairs.

Abdomen about 1½ times as long as broad, red-brown, dorsally with large, ill-defined black or dark-brown vittae, pollinosity yellowish. The black vittae form a partly indistinct pattern of 5 spots on segment I+II, III and IV, and 3 on the last segment; the median spots are more or less divided by a pollinose line. Hypopygium (fig. 44) quite characteristic, with broad cerci and short paralobi.

Female. — Abdomen with the spots smaller and well defined, the median ones not split by a pollinose line. Pollinosity generally denser than in the male.

Length : 7-10 mm.

Collection Musée Royal de l'Afrique Centrale : Congo : Élisabethville, XI.1929 (1 ♂, leg. M. BEQUAERT).

Collection American Museum of Nat. History, New York : S. Rhodesia : Salisbury, 20.IX.1932 (1 ♂, holotype, leg. A. CUTHBERTSON). Nyasaland : Zomba (1 ♂, leg. H. S. STANUS).

Collection British Museum (Nat. History), London : N. Rhodesia : Chilanga, 7.X.1913 (1 ♂).

Collection S. African Museum, Cape Town : Cape Province : Murraysburg distr., III.1931 (1 ♀); Letjiesbos, III.1937 (1 ♀).

Collection S. African Institute for Med. Research, Johannesburg : Cape Province : Willowmore, 10.XII.1920 (1 ♀, leg. BRAUNS). Mbawa (country ?), 5.IV.1951 (1 ♂).

4. — **Miltogramma hirtimanum** BEZZI.

(Fig. 45.)

Miltogramma hirtimanum BEZZI, Rev. Zool. Afr., II, 1912, p. 80.

Dr. P. L. G. BENOIT, « Musée Royal de l'Afrique Centrale », was kind enough to send me the typus of this species which is often confused with *M. munroi* in the collections. It is easily recognizable from the hypopygium, but deflorated specimens are sometimes not clearly separable, in respect of the pollinosity from the relatively variable *M. munroi*.

Male. — Eyes bare, inner facets enlarged, but not sharply delimited from the outer ones. Frons at the tip of the ocellar triangle measuring ¼-⅓ of eye-length, sub-parallel in the posterior half, then slightly widened towards the lunula. Ocellar triangle dark-brown, frontal stripe orange, slightly narrowed in the middle. Parafrontalia at vertex glossy dark-brown like the ocellar triangle, then densely yellow-pollinose like the parafacialia. Ocellar triangle with several bristly hairs, from which the ocellars are not, or hardly, distinguishable; *iv*, *ev* and *f* well developed, row of *paf* complete. The number of *fo* varies between 3 and 5 pairs, which may be asymmetrically arranged and which are not stronger than the *paf* and somewhat variable in size. Posterior part of parafacialia relatively densely beset with black hairs, which become shorter and more sparse towards the profrons. The profrons is slightly protruded and measures about ⅕ of eye-length. Parafacialia densely beset with pale setae. Bucca narrow, densely yellow pollinose like the parafacialia, with pale hairs, but peristomal bristles black. Post-bucca, like the occiput, with black hairs. Facial ridge at the base with several bristles forming the continuation of the peristomal bristles. Antennal groove deep, the first two antennal

segments reddish-yellow, third segment except the base black-brown, 1½ times as long as the second; arista black, pilosity microscopic. Palpi yellow.

Thorax glossy black, tip of scutellum broadly yellow-brown. The white to yellowish pollinosity is restricted to the fore-part of the mesonotum where it forms a pair of broad longitudinal vittae in the dorso-central area (bristles are wanting) and a broad lateral vitta which continues into the pleural pollinosity. Mesonotal chaetotaxy greatly reduced, the prescutellar *ac*, 1-2 prescutellar *dc* and the posterior *ia* are distinct; furthermore the *prs* and 3-4 humeral bristles are developed; $n=2$, $sa=2$, $pa=2$, scutellum with

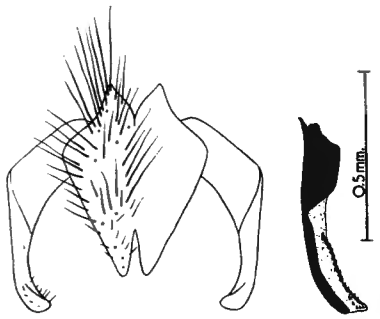


FIG. 45. —*Miltogramma hirtimanum* BEZZI.
Cerci with paralobi and phallosome.
(Specimen from Mayumbe, Congo.)

5-6 pairs of marginal bristles. Pro- and poststigma yellow-brown. Propleuron bare, *pp* and *pst* accompanied by several hairs; rows of mesosternal and hypopleural bristles complete, $st=1:1$ or $1:2$, sternopleuron like the other pleura pollinose in full extent. Prosternum and alar-declivity bare. Wing hyaline sometimes with a slight tinge, veins including basicosta yellow-brown, epaulet black, R_5 broadly open, *m* with a right angle. Thoracic squama broad, white; halter yellow. Legs black or black-brown, with a yellowish pollinosity as on the pleura; fore-tibia with a terminal *pd* and several *ad* bristles, tarsal segments II-IV dorsally with several long and thin hairs; mid-tibia with 4-6 *ad*, 3-4 *pd*, one long submedian *av* with 1-2 short bristles above it; hind tibia with a dense row of *ad* and *pd* bristles, one long and several shorter *av* bristles. Tarsi of legs II and III without special features.

Abdomen about ¼ longer than broad, black-brown, with a yellow pollinosity forming almost uninterrupted, relatively broad, but ill-defined bands at the anterior margins of tergites III to V. Lateral parts of the abdomen and the venter more or less extended yellow or reddish. Posterior

edges of tergites IV and V with several bristles of median size. Hypopygium (fig. 45) with long club-shaped paralobi and relatively broad cerci.

Female. — I have not seen a specimen which I could clearly assign to *M. hirtimanum*. In well preserved specimens, it should be possible to distinguish the females of this species and of *M. munroi* according to the development of the abdominal bands, but in practice, the identification of many specimens has to remain doubtful.

Length : 7-10 mm.

Collection Musée Royal de l'Afrique Centrale : Congo : La Lowa, 13.VI.1909 (1 ♂, holotype); Eala, 17.X.1917 (1 ♂, leg. R. MAYNÉ); Mayumbe, 17.IV.1926 (1 ♂, leg. A. COLLART).

Collection Zoological Museum Berlin : Tanganyika : Shangiro, 29.VII.1911 (1 ♂, leg. H. MEYER); Awakubi, Lake Albert, 20.IV.1908 (1 ♂). Cameroons : Barombi Station (2 ♂♂, leg. PREUSS).

Collection American Museum of Nat. History, New York : Cameroons : Edea (1 ♂, leg. J. A. REIS).

5. — **Miltogramma munroi** CURRAN.

(Fig. 46.)

Miltogramma munroi CURRAN, Amer. Mus. Nov., 836, 1936, p. 7.

This species which seems to be much more common than *M. hirtimanum*, is easily separable from the latter on account of the hypopygial structures (fig. 46). The pollinosity, however, is not only variable to a certain extent, but also so faint that it is quickly rubbed off. I was not able to detect constant outer features which would allow the separation of *M. munroi* from *M. hirtimanum*. The males of these two species should therefore be identified from the hypopygia only, whereas the females have to remain doubtful very often. From the material before me, I got the impression that the pollinosity in *M. hirtimanum* is normally yellow, whereas it is greyish in *M. munroi*, but whether this feature is constant remains to be proved.

Length : 5-10 mm.

Collection Musée Royal de l'Afrique Centrale : Congo : Rutshuru, 19.V.1936 (1 ♂, leg. L. LIPPENS); Élisabethville, X.1926 (1 ♂, leg. M. BEQUAERT).

Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, VIII, 1913 (1 ♂♀, holo- and allotype, leg. H. K. MUNRO).

Collection S. African Institute for Med. Research, Johannesburg : Transvaal : Pretoria, 16.XII.1950 and 7.I.1951 (2 ♂♂, leg. F. ZUMPT); Johannesburg, 25.I.1953 (1 ♂, leg. F. ZUMPT); Pretoriuskop, Kruger Park, I.1952 (1 ♂, leg. F. ZUMPT). Bechuanaland : Tsessebe, I.1956 (1 ♂, leg. F. ZUMPT).

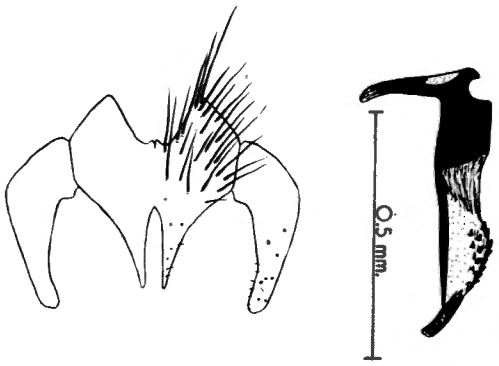


FIG. 46. — *Miltogramma munroi* CURRAN.
Cerci with paralobi and phallosome.
(Paratype from Barberton, Transvaal.)

Collection S. African Museum, Cape Town : Cape Province : Bowesdorp, Namaqualand, IX.1941 (1 ♂); Kamieskroon, Namaqualand, IX.1930 (1 ♀), Putsonderwater, X.1939 (1 ♂); Beaufort West, XI.1939 (1 ♀).

Collection Zoological Museum Berlin : Cameroons : Bosum, Uam distr., IV.1914 (1 ♂, leg. TESSMANN).

Collection Museum Stuttgart : Tanganyika : Ngaruka, I-II.1952 (2 ♂♂, leg. E. LINDNER); Msingi, V.1952 (1 ♂, leg. E. LINDNER).

Collection American Museum of Nat. History, New York : Transvaal : Barberton, 12.VIII.1916 (1 ♂, paratype, leg. H. K. MUNRO). Uganda : no further locality (1 ♂, leg. H. HARGREAVES).

Collection British Museum (Nat. History), London : Nyasaland : Mt. Mlanje, 5.I.1914 (1 ♂♀, leg. S. A. NEAVE). Cape Province : nr. Calvinia, 17.XI.1931 (1 ♂, leg. A. MACKIE).

6. — **Miltogramma maculigerum** SPEISER.

Miltogramma maculigerum SPEISER, Kilimandjaro-Meru Exp., II, 1910, p. 148; ROHDENDORF, Bull. Soc. Ent. Égypte, XVIII, 1934, p. 11.

This species was based on a single male from the foot of the Kilimandjaro. I have not seen it. According to the description and also to ROHDENDORF, who claims to have seen two more male specimens from Egypt, it is related to *M. hirtimanum*.

None of these authors gives a drawing of the genitalia. It is quite possible that *M. maculigerum* is identical with *M. munroi* or even with *M. hirtimanum*, but only the examination of the type can solve this problem.

Genus **APODACRA** MACQUART.

Apodacra MACQUART, Ann. Soc. Ent. France, (3), II, 1854, p. 425; ROHDENDORF, Encycl. Ent., B II, 1925, p. 63; et Fliegen pal. Region, 64, h, 1930, p. 12; TOWNSEND, Man. Myiol., VI, 1938, p. 99; SÉGUY, Encycl. Ent. A XXI, 1941, p. 251.

Type species : *Apodacra seriemaculatus* MACQUART from France.

Apodacra (*Xerophilomyia*) ROHDENDORF, Encycl. Ent., B II, 1925, p. 64; et Fliegen pal. Region, 64, h, 1930, p. 12; TOWNSEND, Man. Myiol., VI, 1938, p. 1953.

Type species : *Apodacra bemicisequax* PANDELLÉ from France.

Apodacra (*Parapodacra*) ROHDENDORF, Encycl. Ent., B II, 1925, p. 68; et Fliegen pal. Region, 64, h, 1930, p. 12; TOWNSEND, id., ibid., p. 134.

Type species : *Apodacra heptopotamica* ROHDENDORF from Turkestan.

Apodacra (*Xeromyia*) ROHDENDORF, Encycl. Ent., B II, 1925, p. 70; et Fliegen pal. Region, 64, h, 1930, p. 12; TOWNSEND, id., ibid., p. 152.

Type species : *Apodacra xanthopoda* ROHDENDORF from Persia.

The genus *Apodacra* contains a great number of species in the Palaearctic region, but only very few are known up to now from Africa south of the Sahara. This is certainly due to inadequate collecting. All species are small or even very small, and therefore easily overlooked. I am listing three species, one of which is new to science. But there are a few more specimens before me, each of which probably represents another new species. I abstain from describing them until more material has become available.

The *Apodacra* species are characterized by the petiolate R_5 and the strongly curved terminal part of the media. The eyes are always bare. The mesonotal bristles are partly indistinctly separated from the remaining hairs. The buccae are extremely narrow. ROHDENDORF (1925 and 1930) has revised the Palaearctic forms and subdivided the genus into 4 subgenera which are not clearly separated from one another and therefore regarded as synonyms in this paper.

Apparently nothing is known about the biology of any species.

KEY TO THE SPECIES.

1 (2) Third antennal segment strikingly broad, almost twice as long as the second.

Thorax black, with a grey pollinosity; pattern indistinct. Abdomen glossy black, with the posterior margins of the segments narrowly yellow; anterior parts with transverse bands of white pollinosity. 5,5 mm. — Cape Province ..... 1. *A. dispar* VILLENEUVE.

2 (1) Third antennal segment slender, almost 3-4 times as long as the second 3

3 (4) Tarsi black except the last segment of each which is brownish.

Third antennal segment nearly 3 times as long as the second. Thorax black, with the tip of the scutellum yellow. Pollinosity thin, not forming a distinct pattern. Abdomen reddish, with a black pattern. 5,5 mm. — S. Rhodesia ..... 2. *A. stevensoni* n. sp.

4 (3) Tarsi reddish except the last segment of each which is infuscate.

Third antennal segment nearly 4 times as long as the second. Thorax ashy flavescent, tip of scutellum pale testaceous. Abdomen reddish, with a black pattern. 5 mm. — Natal ..... 3. *A. natalensis* VILLENEUVE.

1. — **Apodacra dispar** VILLENEUVE.

Apodacra dispar VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 507.

This species was based on a single specimen from Algoa Bay (leg. Dr. BRAUNS), now located in the Museum of Natural History in Vienna. Through the kindness of Dr. M. BEIER, I have been able to study this specimen, which is a female. In ROHDENDORF's key (1930) it runs down to *A. cyprica* ROND., from which it is easily separable by yellow palpi and a relatively short 3rd antennal segment.

Female. — Eyes bare, inner facets slightly larger than the outer ones. Width of frons at vertex nearly half length of eye. Frontal stripe yellow, at the tip of the ocellar triangle about as broad as one parafrontalium, from here to the lunula subparallel. Ocellar triangle black, with one pair of divaricate *oc* several shorter setae, *iv* and *ev* well developed. Parafrontalium densely white pollinose, with one pair of *f* and six pairs of *fo*, row of *paf* complete consisting of 10 pairs of black bristles. Parafacialia yellow, but densely white pollinose like the parafrontalia, beset with very short, white setae which are easily overlooked and only detectable under high mag-

nification. Antennal groove deep, yellow, with a white pollinosity like the parafacialia; antennae yellow too, third segment strikingly broad, almost twice as long as the second (1); arista yellow-brown, distinctly composed of 3 segments, the terminal thin part comprising less than ⅓ of the whole arista. Vibrissa situated above the epistome; row of peristomal bristles reduced, separated from the vibrissa by a broad gap; bucca very narrow, yellow and white pollinose; occiput with a black underground. Palpi totally yellow, terminally dilated and strongly bent upwards. Terminal segment of proboscis black-brown.

Thorax black, with a grey pollinosity, mesonotum without a distinct pattern. Poststigma with feathery, yellow lids. Mesonotum with long black setae from which the bristles are partly difficult to separate. One pair of presutural and one pair of prescutellar *ac* are clearly distinguishable, *dc*=3+5, one prescutellar and one presutural *ia* are distinct, the others not separable from the normal setae, *prs* and 2 *ph* developed, 2 strong *h* present, *n*=2, *sa*=2, *pa*=2, scutellum with 3 long marginal bristles and 2 stouter ones, disc with several bristly hairs, among which one pair is a little longer and thicker. Propleuron bare, *pp* and *pst* present, mesopleuron with 2 bristles near the dorsal edge and 6 on the posterior margin, *st*=1 : 1 : 1. Post-alar declivity and prosternum bare. Wing hyaline, veins yellow including epaulet and basicosta, costal spine indistinct, base of R_{4+5} dorsally with one long seta, R_5 closed and petiolate, *m* forming an angle of less than 90°, *tap* sigmoid. Legs with the median parts of the femora, the tips of the fore-tibiae and all tarsi darkened, otherwise yellow. Fore-tibia without distinct bristles except at the tip; mid-tibia with one long and one short *ad* bristle, one short submedian *pd* and one short and one long ventral bristle; hind-tibia with a row each of short *ad* and *pd* bristles and 3-4 *av*; first segment of hind tarsus relatively thick. Abdomen longer than broad, ratios approximately 4 : 3, glossy black, with the posterior margins of the segments narrowly yellow. Tergites III-V on the anterior parts with transverse bands of white pollinosity, which do not cover more than ⅓ of the segments.

Length : 5,5 mm.

Collection Museum Nat. History, Vienna : Cape Province : Algoa Bay, 9.II.1896 (1 ♀, leg. BRAUNS, holotype).

(1) VILLENEUVE is wrong when he writes « 3rd joint barely reaching the length of the 2nd ».

2. — **Apodacra stevensoni** n. sp.

(Fig. 47.)

This species seems to be closely related to *A. natalensis* VILLENEUVE which was based on a single female specimen from Durban and which is said to be located in the S. African Museum, Cape Town. I have not received it from there and it may be lost. I first wanted to refer the single male before me to VILLENEUVE's species, but the colouring of the legs is different.

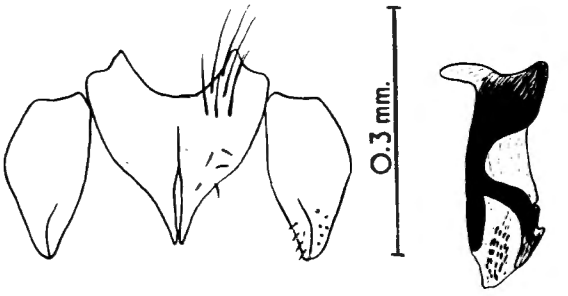


FIG. 47. — *Apodacra stevensoni* n. sp.
Cerci with paralobi and phallosome.
(Specimen from Bulawayo, S. Rhodesia.)

M a l e. — Eyes bare, inner facets distinctly longer than the outer ones. Width of frons at vertex about one third of eye length. Frontal stripe yellow, at the tip of the ocellar triangle almost twice as broad as the neighbouring parafrontalium, slightly narrowed towards the middle and then subparallel in the lower half of the frons; at the lunula, the frontal stripe is approximately as broad as one parafrontalium at the tip of the ocellar triangle. Parafrontalia and -facialia with a dense silvery-white pollinosity. Chaetotaxy of head well developed, *oc* accompanied by several bristly hairs, *iv*, *ev*, *f* and 5 *fo* present, 12 pairs of *paf*. In addition to these bristles, there are very short white setae which are detectable only under high magnification. Antennal groove deep, pale yellow; antennae yellow, slender, the third segment almost 3 times as long as the second; arista infuscated towards the tip, shorter than the 3rd antennal segment, the terminal thin part comprises less than ⅓ of the whole arista. Vibrissa situated above the epistome; row of peristomal bristles reduced, separated from the vibrissa by a broad gap. Bucca very narrow, yellow; occiput with a black underground. Palpi yellow, straight, terminally with a spoon-like dilation; proboscis yellow-brown.

Thorax black, tip of scutellum yellow; pollinosity thin, not forming a distinct pattern. Poststigma with feathery, yellow lids. Mesonotum with black bristles which are partly not clearly separable from the remaining bristly hairs. Prescutellar pairs of *ac* and *dc* as well as the posterior *ia* distinct,$n=2$, $sa=2$, $pa=2$, scutellum with 3 long marginal bristles and one pair of discal ones among several bristly hairs. Propleuron bare, *pp* and *pst* present, mesopleuron with a thick bristle at the median upper part and five bristles at the posterior margin; $st=1:1$, but between and beneath these bristles there are 3 stouter and thinner ones in one row. Postalar declivity and prosternum bare. Wing hyaline, veins including basicosta and epaulet yellow and brown, costal spine indistinct, R_{4+5} bare; R_5 closed and long petiolate, *m* with a rounded corner and a sigmoid *tap*. Legs with the basal parts of femora broadly blackened, otherwise yellow like the tibiae; tarsi black except the last segment which is brown. Fore-tibia without a remarkable chaetotaxy; mid-tibia with one long, and above it a short *ad* bristle, a short submedian *pd* and a short and a long ventral bristle; first tarsal segment slightly thickened and with short and thick bristles underneath which extend to the following segments; hind-tibia with several *ad* and *av* bristles, first tarsal segment more strongly thickened than that of the second leg, short spiny bristles on the soles of all last tarsal segments.

Abdomen longer than broad, dorsally black and reddish yellow, the latter colour forms a large lateral spot covering tergite I+II and III, and a smaller spot on tergite IV; ventral side predominantly reddish. Pollinosity white. Hypopygium (fig. 47) with pointed cerci and broad paralobi.

Length : 5,5 mm.

Collection British Museum (Nat. History), London : S. Rhodesia : Bulawayo, 7.X.1923 (1 ♂, holotype, leg. R. STEVENSON).

3. — **Apodacra natalensis** VILLENEUVE.

Apodacra natalensis VILLENEUVE, Ann. S. Afr. Mus., XV, 1916, p. 507.

This species, which is evidently closely related to *A. stevensoni*, has remained unknown to me. The original diagnosis is as follows :

« Head slightly yellowish, but with a white sheen on the face; frontal band wide, honey colour; orbits narrow; width of vertex equal to 4/5 of that of the eye; antennae yellow, nearly filling the whole cavity, 3rd joint hardly 4 times the length of the 2nd; chaeta yellow, black at tip; palps yellow. Five orbital setae; 1 isolated vibrissa. Thorax ashy flavescent; the free border of the scutellum pale testaceous; abdomen testaceous red, the last 3 segments marked with 3 large black maculae. Legs of the same colour

as the abdomen, base of anterior and intermediate femora blackish; last joints of tarsi infuscate. Wings clear, nervures pale at base; halteres whitish.

» Length 5 mm.

» Natal, 1 ♀, Durban, S. Afric. Museum. »

Genus **DOLICHOTACHINA** VILLENEUVE.

Dolichotachina VILLENEUVE, Feuille Jeune Natural., 511, 1913, p. 112; ROHDENDORF, Fliegen pal. Region, 64, h, 1935, p. 102; TOWNSEND, Man. Myiol., VI, 1938, p. 106; SÉGUY, Encycl. Ent., A XXI, 1941, p. 290.
Type species : *Tachina marginella* WIEDEMANN from Nubia.

Melanometopia SÉGUY, Encycl. Ent. Dipt., B VII, 1934, p. 78.
Type species : *Melanometopia albimana* SÉGUY from Tunisia.

The genus is an absolutely outstanding one and represents a group of species with several features of extreme structure. Only one species is known from the Palaearctic region, but up to now four more from the Ethiopian region. ROHDENDORF created a separate subtribe for this genus.

Outstanding features in the male are the extremely long forelegs, including the coxa which measures ½ to ⅔ of the femur. Furthermore, the fore-tibiae are provided with long hairs on the postero-ventral edge. In some species other bristles of the tibia and those of the femur have also undergone very characteristic modifications. With respect to the chaetotaxy of the thorax and abdomen, we find the curious fact that some of the usual bristles have completely disappeared, whereas others are extremely well developed and sometimes reach an unusual length and thickness. The details must be taken from the descriptions of the species below.

The female sex is not known for any of the Ethiopian species. According to ROHDENDORF, who describes the female of *D. marginella* (WIEDEMANN), great sexual dimorphism exists in the genus. The colouring is different, similar to that in *Hoplacephala* and related genera, the fore-tibia does not show the long postero-ventral hairs, and the tarsus is of normal length. The female is said to be somewhat reminiscent of *Mesomelaena mesomelaena* (LOEW).

KEY TO THE SPECIES.

(♂♂ only.)

1 (4) Mesonotum dull black, with a broad single or double longitudinal vitta of white or silvery-grey pollinosity, tip of scutellum also whitish pollinose 2

2 (3) Abdomen black, grey and brownish pollinose, with well defined, round black spots and a chess-board pattern.
This species has remained unknown to me. 5 mm. — S. Rhodesia ..... 1. *D. cuthbertsoni* VILLENEUVE.

3 (2) Abdomen black, laterally with ill-defined, broad spots of white pollinosity, but no black spots or chess-board pattern developed.
Chaetotaxy of mesonotum very characteristic, with an extremely long anterior *n* and posterior *sa* bristles. 5 mm. — Bechuanaland ..... 2. *D. bechuanae* n. sp.

4 (1) Mesonotum completely dull black, only tip of scutellum whitish pollinose 5

5 (6) Tip of abdomen and legs with normal bristles. Abdominal tergites III and IV each with a median pair of long wavy hairs.
Well differentiated from the following species also in respect of the chaetotaxy of head and mesonotum. 7 mm. — Nigeria ..... 3. *D. nigeriensis* n. sp.

6 (5) Tip of abdomen provided with a bunch of long, bladelike bristles. Abdominal tergites III and IV only with a pair of very stout, normal bristles.
Fore-legs also provided with modified, bladelike bristles. 8-9 mm. — Rhodesias ..... 4. *D. caudata* VILLENEUVE.

1. — **Dolichotachina cuthbertsoni** ROHDENDORF.

(Fig. 48.)

Dolichotachina cuthbertsoni ROHDENDORF, Stylops, IV, 1935, p. 143, fig. 1.

This species was based on a single male from Balla Balla, S. Rhodesia (13.I.1933, leg. A. CUTHBERTSON) which was presented to the British Museum. It is therefore not available to scientists working abroad.

The description by ROHDENDORF is published in German, but evidently contains a few printing errors. The frons, for instance, is said to measure ⅘ of the « Augenborste », but the « Augenbreite », i.e. the width of eye is evidently meant. Furthermore, according to the description there are 7 frontal bristles, 5 of which are bent forwards, the 6th bent backwards and inwards, the last being weak and bent backwards. ROHDENDORF uses the term « frontal » to refer to the « parafrontal bristles », but I cannot believe that the anterior ones should be bent forwards; most probably they are cruciate. There are two *fo* bristles as in *D. bechuanae* which are accompanied by shorter hairs. The outer vertical bristle is said to be relatively short. Frontal stripe almost parallel, but a little narrowed in the middle. Third antennal segment is given as 2¾ times as long as the second.

On the mesonotum the *ac* are wanting, but two distinct presutural and 2 weaker postsutural *dc* are present. The posterior *sa* is very long measuring 1 ½ times the height of the thorax. Intra-alar bristles are not developed. Fore-coxa measures ⅗ the length of the femur. Fore-tibia on the postero-ventral edge with 6-7 long bristles, two of which are distinctly longer than the tarsus (fig. 48). Fore-tarsus without enlarged segments. Abdomen with the usual pair of long hairs on tergites III and IV.

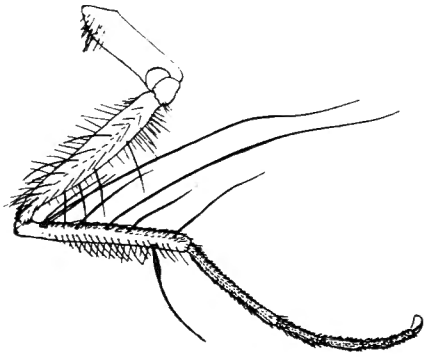


FIG. 48. — *Dolichotachina cuthbertsoni* ROHDENDORF.
Fore-leg of male (after ROHDENDORF).

The colouring of the body is said to be black. Head with silvery-grey pollinosity; middle of the frontal-stripe, antennae, palpi and vibrissaria black. Thorax velvet black, with a broad and double, silvery-grey, longitudinal stripe which lies between the *dc*. Tip of scutellum, meso, ptero- and greatest part of sternopleurum densely silvery-white pollinose. Wing hyaline, veins black, yellow at the base of the wing. Legs black, fore-tibia terminally and the whole fore-tarsus brown. Abdomen black, not very densely grey, partly brownish-grey pollinose, with an indistinct chess-board pattern and well-defined, round, black spots. Tergite I+II almost totally black, tergites III and IV with 3 round spots near the hind margins and a well developed chess-board pattern. Tergite V at its posterior margin with 3 united spots. Ventral side of abdomen dark, genitalia glossy black.

Length : 5 mm.

The only male specimen was caught near the entrance to the nest of the ant *Ponera custodiens*.

2. — **Dolichotachina bechuanae** n. sp.

(Fig. 49.)

A well characterized species which is superficially similar to *D. cuthbertsoni* VILLENEUVE in respect of the mesonotal pattern. But apart from the abdominal pattern, it should also be easily recognizable by the chaetotactic features of the thorax.

Male. — Eyes bare, facets small. Frons at the narrowest point (at the tip of the ocellar triangle) about half as broad as the eye is long, slightly widened towards the vertex as well as the antennal groove. Frontal stripe deep black but with a white pollinosity surrounding the ocellar triangle. At the tip of the ocellar triangle, the frontal stripe is approximately as broad as the neighbouring parafrontalium, then slightly widened towards the lunula. Parafrontalia and -facialia densely white pollinose, only a short and narrow part at the vertex, bordering the eye-margin, is glossy black. Profrons protruding, measuring about ¼ of eye-length. Ocellar triangle with a pair of long, divaricated *oc* and several hairs; *iv* and *ev* well developed, in front of them there are two bristly hairs level with the anterior and posterior ocellus respectively which could be taken for frontal bristles; 2 pairs of *fo* in the median part of the parafrontalium well developed, but behind them a number of irregularly placed, long black hairs. Parafrontalia in the anterior half with about 6 pairs of cruciate *paf* which are, however, of different length and thickness; posterior part with an irregular number of cruciate, bristly hairs and, near the tip of the ocellar triangle, with a long pair of cruciate parafrontal bristles. The 4 specimens before me show that the chaetotaxy of the head is variable with respect to the thickness, length and number of the bristles which are partly not clearly separated from the long accompanying hairs. Inner edge of parafacialium with a row of strong bristles, remaining parafacial area beset with black setae. Bucca white pollinose, its height approximately $^3/_{10}$ of eye-length; peristomal bristles and hairs black, vibrissa long and thick, inserted above the epistome. Facial ridge bare except for one short bristle above the vibrissa. Antennal groove black with a white pollinosity, epistomal margin yellow. Antennae close together, black except the terminal part of the second segment which is yellow-brown; third segment about twice as long as the second. Arista long, basal third (approximately) thickened, pilosity relatively long, some of the hairs a little longer than the aristal base is broad. Palpi black-brown, terminally dilated and spoonlike.

Thorax dorsally deep black with a broad median, longitudinal stripe of white pollinosity; terminal part of scutellum white pollinose too. This white stripe extends from the head to the base of the scutellum and is broadest at the head and narrowed to half its width at the scutellum.

When the fly is held with the head downwards, the stripe appears to be split into two white stripes separated by a black median stripe. Acrostichals totally wanting, of the dorsocentrals only two presutural ones are developed, *ia* wanting, *prs* long, *ph* and *h* wanting, $n=2$ (anterior one extremely long), $sa=2$ (posterior one extremely long), two long *pa*, scutellum with two pairs of long marginal bristles, but no discals. Pleura densely white pollinose on a black underground. Propleuron bare, 2 *pp* and 2 *pst* accompanied by several hairs, mesopleuron like the sternopleuron with long black hairs, meso- and hypopleural bristles well developed, $st=1:1$. Pro- and post-

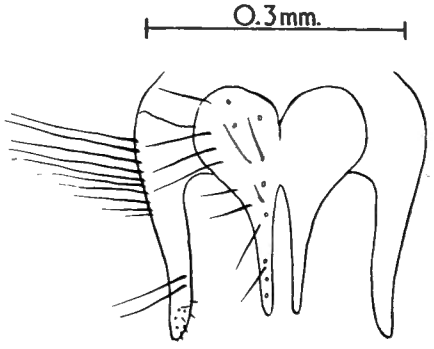


FIG. 49. — *Dolichotachina bechuanae* n. sp.
Cerci with paralobi.
(Paratype from Martin's Drift, Bechuanaland.)

stigma black-brown. Wing hyaline, veins including basicosta yellow to brown, epaulet black, R_{4+5} without dorsal setae, *m* with a right angle and a short variable appendix, R_5 open. Costal spine indistinct. Thoracic squama broad, halter yellow. Legs black except the tibiae and tarsi of the anterior pair which are yellow. Fore-coxa measuring half to 3/5 of femur, tarsus nearly one third longer than the tibia. Fore-femur with long hairs, fore-tibia on the postero-dorsal edge with a long and thick terminal bristle, both dorsal edges otherwise only with long hairs; postero-ventral edge with mostly 6 long hairs, two of which are of outstanding length (longer than tibia). Fore-tarsus with a pair of slender yellow pulvilli and a pair of dark rudimentary claws. Last tarsal segment yellow and slender, not black and enlarged as in *D. nigeriensis*, and without spines. Mid-tibia with one submedian *pd*, 2 *pv*, no *ad* and a submedian *av*. Hind-tibia with a row of *ad*, 2 *pd* and a submedian ventral bristle. Pulvilli and claws of the last two pairs of legs of normal structure.

Abdomen black, laterally with ill-defined broad spots of white pollinosity; under a certain incidence of light, the black median dorsal part

shows a thin brownish pruinosity. Tergites III and IV near the posterior margins each with a median pair of long and erect, wavy hairs. Remaining hairs of the dorsal side relatively short, but longer towards the lateral and ventral parts of the abdomen. Hypopygium (fig. 49) with slender cerci and paralobi.

Length : 5 mm.

Female not known.

Collection S. African Institute for Med. Research, Johannesburg : Bechuanaland : Martin's Drift, II.1953 (4 ♂♂, holo- and paratypes, leg. H. PATERSON).

3. — **Dolichotachina nigeriensis** n. sp.

(Fig. 50.)

This species is superficially similar to the Palaearctic *D. marginella* (WIEDEMANN). The hypopygium, however, is quite different and very characteristic.

Male. — Eyes bare, facets small. Frons at the narrowest point (at the tip of the ocellar triangle) about half as broad as the eye is long, slightly widened towards the vertex as well as towards the antennal groove. Frontal stripe dull black, slightly narrowed towards the lunula, at the tip of the ocellar triangle more than twice as broad as the neighbouring parafrontalium. Hind part of parafrontalium black, anterior part and parafacialium covered by a dense, silvery-white pollinosity. Profrons protruding, measuring about $^3/_{10}$ of eye-length. Chaetotaxy of head well developed; *iv*, *ev* and *f* long, ocellar triangle with a pair of long, divaricated *oc* and several additional bristly hairs, 3 proclinate *fo* and six pairs of long cruciate *pf*, the posterior one being exceptionally long. Parafacialium with a row of bristles at the inner margin. In addition to these bristles, the parafrontalia and -facialia are fairly densely beset with black hairs. Bucca black with a white pollinosity, its height approximately $^3/_{10}$ of eye-length, peristomal bristles and hairs black, vibrissa long and thick, inserted above the epistome. Facial ridge bare except for one short bristle above the vibrissa. Antennal groove black; antennae close together, deep black except the terminal edge of the second segment which is yellow; third segment twice as long as the second. Arista long, surpassing the vibrissa, the basal fourth to third thickened, pilosity relatively long, some hairs are as long as the aristal base is broad. Palpi black, slightly bent.

Thorax dorsally dull black, tip of scutellum broadly whitish pollinose. Bristles long, but the full set is not developed : *ac*=0+0, *dc*=2+3, *ia*=0+0, *prs* and inner *ph* present, 2 long *h*, *n*=2 (anterior longer than posterior

one), *sa*=2, *pa*=2 (posterior one very long), scutellum with two pairs of long marginal bristles, discals are wanting. Pleura black, posterior part of the mesopleuron, the pteropleuron and sternopleuron with a whitish pollinosity. Propleuron bare, 2 *pp* and 2 *pst* which are accompanied by black hairs, mesopleuron with long hairs and a complete row of posterior bristles, *st*=1 : 1. Pro- and poststigma black-brown. Wing hyaline, veins including basicosta yellow to brown, epaulet black, R_{4+5} without dorsal setae, *m* with a right angle and a tiny appendix, R_5 narrowly open. Costal spine indistinct. Thoracic squama broad, halter yellow, legs black-brown

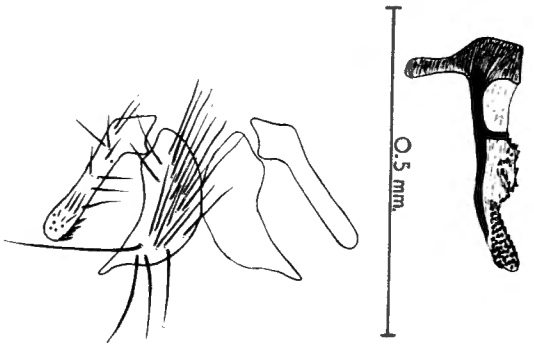


FIG. 50. — *Dolichotachina nigeriensis* n. sp.
Cerci with paralobi and phallosome.
(Holotype from Maiduguri, Nigeria.)

except the fore-tibia and the first four segments of the fore-tarsus which are yellow. Fore-coxa fully two thirds as long as the femur, tarsus about 1 ½ times as long as the tibia. Fore-femur provided with long hairs and bristles as in *D. cuthbertsoni*, fore-tibia on the postero-dorsal edge with a row of long bristles, the terminal one being outstandingly long and thick, the postero-ventral edge with 7-9 very long bristly hairs of different length, two of them being about as long as the tibia; antero-dorsal bristles are wanting. Fore-tarsus with the first four segments yellow and slender, whereas the last is black, short and broad and provided with dense spiny bristles; pulvilli and the leaf-like basal part of the claws yellow. Mid-tibia with 1 *ad*, 2 *pd*, 1 *av* and 1 *pv*. Hind-tibia with 4 *ad*, 2 *pd* and a submedian ventral bristle. Pulvilli and claws of the last two pairs of legs of normal structure.

Abdomen dull black, laterally with a broad longitudinal band of white pollinosity. Tergite III and IV near the posterior margins with a median pair of long wavy hairs. Remaining hairs of the dorsal side relatively short,

but they become longer towards the lateral and ventral parts of the tergites. Hypopygium (fig. 50) very characteristic, with broad and terminally pointed cerci, paralobi wtih a number of spines on the inner side.

Length : 7 mm.

Female sex not known.

Collection American Museum of Nat. History, New York : Nigeria : Maiduguri, 27.VIII.1942 (1 ♂, holotype, leg. F. SNYDER).

4. — **Dolichotachina caudata** VILLENEUVE.

Dolichotachina caudata VILLENEUVE, Bull. Soc. Ent. France, 1914, p. 385.

This interesting fly is characterized by a number of quite outstanding features which make its recognition very easy. It was based on 4 ♂♂ from the Kafue in N. Rhodesia. I have seen 2 ♂♂ from S. Rhodesia.

Male. — Eyes bare, facets small. Frons at the narrowest point (at the tip of the ocellar triangle) measuring ⅔ of eye-length, slightly widened towards the vertex and the antennal groove. Frontal stripe like the parafrontalia deep black, broad, but without a clear limitation which would allow one to measure its width in comparison with that of the neighbouring parafrontalium. Ocellar triangle, vertex and parafrontalia densely beset with long bristles and bristly hairs, which fact makes it difficult to distinguish the usual bristles of the normal head-chaetotaxy. The inner and outer vertical bristles as well as a pair of long, divaricated, ocellar bristles are separable. The parafrontalia are so densely beset with bristles and thick erect hairs, that only the presence of cruciate *paf* and of several proclinate *fo* can be stated, but a proper count is not possible. The same is true for the parafacialia; a row of stronger bristles at the inner margin is developed, but not clearly separable from the remaining, black bristly hairs. Profrons protruding, measuring ⅓ of eye-length. Under a certain incidence of light, the dull black parafrontalia and -facialia show a thin brownish pruinosity. Vibrissarium and bucca dull black too, the latter with yellow-brown pollinosity. Bristles and hairs black, vibrissa long, inserted above the epistome. Facial ridge at the base with 4-6 bristles. Antennal groove black, with a light-brown pollinosity, epistomal margin yellow. Antennae close together, black except the terminal edge of the second segment which is yellow-brown. Third segment fully twice as long as the second which is provided with a long black bristle beside the normal black setae. Thickened part of arista comprising about ¼ of its total length, pilosity long, some of the hairs distinctly surpassing the width of the aristal base. Palpi thin and slightly bent, yellow in the basal part, black-brown terminally.

Thorax dorsally completely dull black except the edge of the scutellum which is white pollinose. Acrostichals wanting, *dc*=2+2, *ia* wanting, *prs* long, inner *ph* and 2 *h* present, *n*=2 (of usual length), *pa*=2 (posterior twice as long as the anterior), *pa*=2 (inner much longer than outer one). Scutellum with 2 pairs of long marginal bristles, discals not developed. Pleura black with a thin, whitish pruinosity and dense black hairs. Propleuron bare. Prostigmatic and propleural bristles not separable from the accompanying bristly hairs. The same is true for the mesopleural bristles. The two sternopleural bristles in the upper corners are clearly separated; hypopleural bristles distinct. Pro- and poststigma brown. Wing hyaline, veins including basicosta yellow, epaulet black-brown, R_{4+5} without dorsal setae, *m* with a right angle and a tiny appendix, R_5 narrowly open. Costal spine indistinct. Thoracic squama very broad, halter yellow. Legs with the coxae and femora black, tibiae yellow, fore-tarsus yellow with the tips of the segments darkened, mid- and hind-tibiae darker brown. Fore-coxa about half as long as the femur, tarsus approximately ⅓ longer than the tibia. Fore-femur on the outer lateral side densely beset with modified hairs having the shape of grass-blades, inner side with very thick, slightly bent bristles of different length, ventral side with normal bristly hairs. Postero-ventral edge of fore-tibia with a dense row of long black bristles which, in the upper half, are flattened and similar to those on the femur; antero-ventral edge in the upper half with short flattened setae which become normal towards the tarsus; furthermore a terminal, antero-dorsal bristle is developed. Segments of fore-tarsus all slender, the last not dilated and provided with a pair of thin, rudimentary claws and short pulvilli. Mid-tibia with one submedian *pd*, *ad*, *av* and 2 *pv*. Hind-tibia with a row of *ad*, 2 *pd* and a submedian *av*. Pulvilli and claws of the last two pairs of legs normal.

Abdomen longer than broad, triangular, at the tip with a bunch of long, flattened, blade-like bristles. Dorsal side of the abdomen dark-brown, laterally with a broad uninterrupted band of white pollinosity. Hairs relatively short, but bristly, at the hind margin of tergites III and IV with a median pair of thicker, but not much longer bristles. Towards the ventral side, the hairs become longer and are partly mixed with typical bristles. The hypopygium has not been dissected.

Length : 8-9 mm.

Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Bulawayo, 14.X.1922 (1 ♂).

Collection British Museum (Nat. History), London : S. Rhodesia : Bulawayo, 14.X.1922 (1 ♂).

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