

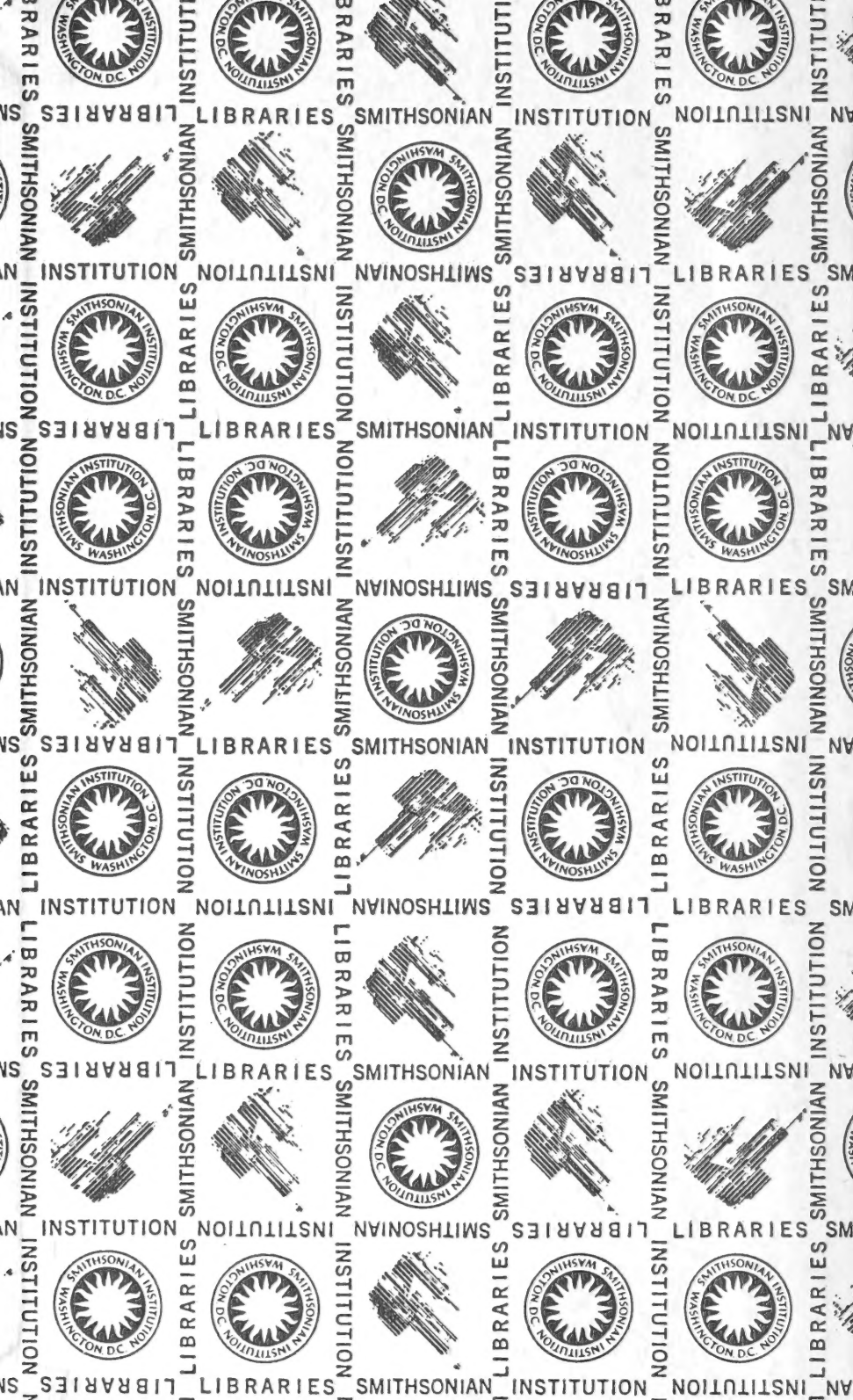
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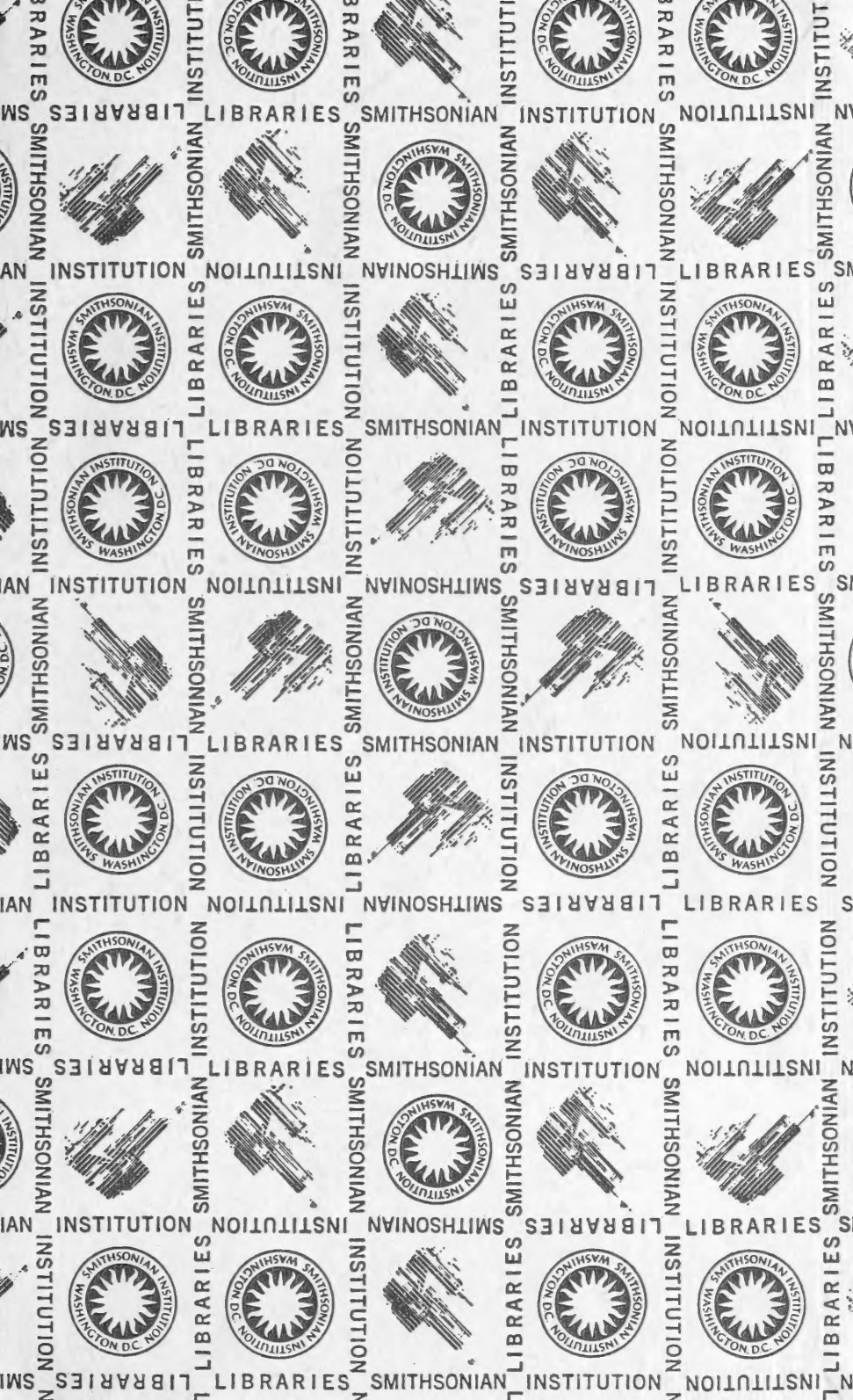
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British Museum (Natural
History). Dept. of Entomology.

THE

SYRPHIDÆ OF THE ETHIOPIAN REGION

BASED ON

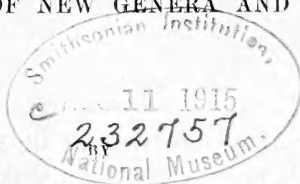
MATERIAL IN THE COLLECTION

OF THE

BRITISH MUSEUM (NATURAL HISTORY),

WITH

DESCRIPTIONS OF NEW GENERA AND SPECIES.



PROFESSOR MARIO BEZZI.

LONDON:

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PREFACE.

THE present work by Prof. Mario Bezzi, which gives an account of the African Diptera of the family Syrphidæ, and which greatly advances our knowledge of those insects, has only been made possible by the richness and completeness of the collections submitted to him for examination, by the Imperial Bureau of Entomology. These collections are now in the British Museum (Natural History), to which they have been presented by the Imperial Bureau, and have added very considerably to the importance and value of the collection of Syrphidæ already there.

The thanks of the Trustees are due to Mr. Guy A. K. Marshall, Director of the Imperial Bureau, for the care with which he had revised the greater part of the MS. for the press. Mr. E. E. Austen and Mr. F. W. Edwards have also rendered assistance in correcting proofs and in other ways in which their special knowledge of the Diptera has been of great advantage.

CHARLES J. GAHAN.

BRITISH MUSEUM (NATURAL HISTORY),
March 1915.

The Syrphidæ of the Ethiopian Region.

INTRODUCTION.

THE extensive collection of Ethiopian Syrphidæ, sent me for study from the Imperial Bureau of Entomology, enables us to obtain a better idea than has hitherto been possible of the Syrphid fauna of this Region.

The Syrphidæ form a very large family, numbering about 2300 described species*, which are to be found in all parts of the world; from the Ethiopian Region, however, comparatively few species are known. The number hitherto recorded from this Region is only 189, to which, in the present contribution, are added 60 new forms, thus bringing the whole number of the species at present known up to 249. A catalogue of these is appended (pp. 3-5).

A striking characteristic of the Ethiopian Syrphid fauna is the complete absence of *Pipiza* and allied genera, and also of *Platy-chirus* and *Chilosia*, two genera which are abundantly represented in the Palearctic Region. The Mediterranean genus *Merodon* is scarcely to be found, while *Xylota*, *Milesia*, *Chrysotoxum*, and their allies are also very poorly represented or entirely wanting. Very notable is the almost complete absence of the genus *Volucella*, which has only a single little-known species, although a second one has been introduced from Tropical America.

* In Kertész's 'Catalogus Dipteriorum,' vol. vii. (1910), 123 genera and 2162 species are recorded as known at the end of the year 1907.

A special feature of the Region is the richness and variety of the genera *Asarcina*, *Graptomyza*, *Syritta*, and *Eumerus*; there are also many peculiar forms of *Microdon*. But the most prominent character is to be found in the great development of the forms of the *Eristalis*-group. The genus *Protylocera* is exclusively Ethiopian*, and the genera *Phytomia* (*Megaspis*), *Simoides*, *Lathyrrophthalmus*, and *Eristalodes* are very rich in characteristic species. The genus *Helophilus* is almost entirely restricted to the subgenera *Mesembrius* and *Prionotomyia*.

In the following pages descriptions of the new genera and new species are given, together with tables of all the genera and species represented in the collection and remarks on the previously described forms.

I have to thank Mr. Guy A. K. Marshall, the Director of the Imperial Bureau of Entomology, for having placed at my disposal such an important collection of Ethiopian Syrphidæ, which is without any doubt the most extensive yet brought together.

* The South-American *Eristalis nigripennis*, Macquart, which, according to Dr. Speiser (Jahrbüch. d. Nassauisch. Ver. f. Naturk. i. Wiesbaden, lxvi. 1913, p. 122), belongs to *Protylocera*, is really a true *Eristalis*.

LIST OF THE KNOWN ETHIOPIAN
SYRPHIDÆ.

SYRPHINÆ.

- | | |
|--|--|
| 1. <i>Paragus longiventris</i> , <i>Loew.</i> | 29. <i>Syrphus adligatus</i> , <i>Wied.</i> |
| 2. " <i>serratus</i> , <i>Fabr.</i> | <i>var. tricolor</i> , <i>Walk.</i> |
| 3. " <i>borbonicus</i> , <i>Macq.</i> | <i>var. melas</i> , <i>var. n.</i> |
| <i>antimenes</i> , <i>Walk.</i> | 30. " <i>intersectus</i> , <i>Wied.</i> |
| <i>latecinctus</i> , <i>Big.</i> | 31. " <i>claripennis</i> , <i>Loew.</i> |
| <i>latus</i> , <i>Walk.</i> | 32. " <i>hirticeps</i> , <i>Loew.</i> |
| <i>nudipennis</i> , <i>Loew.</i> | 33. " <i>cognatus</i> , <i>Loew.</i> |
| 4. " <i>marshalli</i> , <i>sp. n.</i> | 34. " <i>trisetus</i> , <i>Loew.</i> |
| 5. " <i>dolichocerus</i> , <i>sp. n.</i> | 35. " <i>redivivus</i> , <i>sp. n.</i> |
| 6. " <i>tibialis</i> , <i>Fall.</i> | 36. " <i>schultzi</i> , <i>Bezzi.</i> |
| <i>var. substitutus</i> , <i>Loew.</i> | 37. " <i>fea</i> , <i>Bezzi.</i> |
| <i>var. hæmorrhous</i> , <i>Meig.</i> | 38. " <i>cinctifacies</i> , <i>Speis.</i> |
| <i>var. trianguliferus</i> , <i>Zett.</i> | 39. <i>Sphærophoria rüppellii</i> , <i>Wied.</i> |
| 7. <i>Chrysogaster (Orthoneura) pœcilops</i> , | 40. " <i>quadrituberculata</i> , <i>sp. n.</i> |
| <i>sp. n.</i> | 41. <i>Xanthogramma ægyptium</i> , <i>Wied.</i> |
| 8. " " <i>pœcilophthalma</i> , | <i>brachypterum</i> , <i>Thoms.</i> |
| <i>Bezzi.</i> | <i>felix</i> , <i>Walk.</i> |
| 9. " " <i>spiloptera</i> , <i>sp. n.</i> | <i>fuscotibiale</i> , <i>Macq.</i> |
| 10. " " <i>lævigata</i> , <i>sp. n.</i> | <i>longicornis</i> , <i>Macq.</i> |
| 11. <i>Melanostoma bituberculatum</i> , <i>Loew.</i> | <i>natalense</i> , <i>Macq.</i> |
| <i>bituberculatum</i> , <i>Ad.</i> | 42. " <i>senegalense</i> , <i>Guér.</i> |
| 12. " <i>foripeta</i> , <i>Speis.</i> | 43. " <i>pyrrhurum</i> , <i>Big.</i> |
| 13. " <i>scalare</i> , <i>Fabr.</i> | 44. " <i>incertum</i> , <i>Wied.</i> |
| 14. " <i>annulipes</i> , <i>Macq.</i> | 45. " <i>bifasciatum</i> , <i>Macq.</i> |
| <i>var. automenes</i> , <i>Walk.</i> | 46. " <i>borbonicum</i> , <i>Big.</i> |
| <i>var. annulatum</i> , <i>Big.</i> | 47. " <i>rotundicorne</i> , <i>Loew.</i> |
| <i>var. pyrophæanoides</i> , | 48. " <i>dentatum</i> , <i>Walk.</i> |
| <i>Speis.</i> | 49. " <i>pfeifferi</i> , <i>Big.</i> |
| <i>var. mauritanium</i> , <i>Big.</i> | 50. " <i>calopus</i> , <i>Loew.</i> |
| <i>var. gymnocerum</i> , <i>Big.</i> | 51. " <i>notogramma</i> , <i>Bezzi.</i> |
| 15. " <i>infuscatum</i> , <i>Beck.</i> | 52. <i>Ocyrtanus rotundiceps</i> , <i>Loew.</i> |
| 16. " <i>alticola</i> , <i>Speis.</i> | 53. " <i>pedunculatus</i> , <i>Big.</i> |
| 17. <i>Asarcina ericetorum</i> , <i>Fabr.</i> | 54. <i>Baccha conifrons</i> , <i>sp. n.</i> |
| <i>salviæ</i> , <i>Fabr.</i> | 55. " <i>ichneumonea</i> , <i>sp. n.</i> |
| <i>var. gemmata</i> , <i>var. n.</i> | 56. " <i>picta</i> , <i>Wied.</i> |
| <i>var. usambarensis</i> , <i>Bezzi.</i> | <i>vittata</i> , <i>Wied.</i> |
| <i>var. punctifrons</i> , <i>Aust.</i> | <i>var. superpicta</i> , <i>var. n.</i> |
| <i>var. albifacies</i> , <i>var. n.</i> | 57. " <i>euryptera</i> , <i>Bezzi.</i> |
| <i>var. africana</i> , <i>Bezzi.</i> | 58. " <i>grahami</i> , <i>sp. n.</i> |
| 18. " <i>minor</i> , <i>sp. n.</i> | 59. " <i>helva</i> , <i>sp. n.</i> |
| 19. " <i>amœna</i> , <i>Aust.</i> | 60. " <i>neavei</i> , <i>sp. n.</i> |
| 20. " <i>forii</i> , <i>Bezzi.</i> | 61. " <i>extranea</i> , <i>sp. n.</i> |
| 21. " <i>eremophila</i> , <i>Loew.</i> | 62. " <i>marginata</i> , <i>sp. n.</i> |
| 22. " <i>rostrata</i> , <i>Wied.</i> | 63. " <i>sapphirina</i> , <i>Wied.</i> |
| 23. " <i>hirsuticeps</i> , <i>sp. n.</i> | <i>flavicornis</i> , <i>Loew.</i> |
| 24. " <i>angustata</i> , <i>Beck.</i> | <i>punctum</i> , <i>Big.</i> |
| 25. <i>Lasiopticus pyrastræ</i> , <i>L.</i> | 64. " <i>præusta</i> , <i>sp. n.</i> |
| 26. <i>Syrphus capensis</i> , <i>Wied.</i> | 65. " <i>claripennis</i> , <i>Loew.</i> |
| 27. " <i>cutæniatus</i> , <i>sp. n.</i> | 66. " <i>brevis</i> , <i>Karsch.</i> |
| 28. " <i>inflaticornis</i> , <i>sp. n.</i> | 67. <i>Rhingia lutea</i> , <i>sp. n.</i> |
| | 68. " <i>meeyana</i> , <i>Speis.</i> |

69. *Rhingia semicærulea*, *Aust.*
 70. " *pellucens*, sp. n.
 71. " *cærulescens*, *Loew.*
 var. fuscipes, var. n.
 72. " *cærulea*, *Bezzi.*
 73. " *pynosoma*, sp. n.
 74. " *cyanoprorra*, *Speis.*
 75. " *pulcherrima*, *Bezzi.*
 76. " *orthoneurina*, *Speis.*
- VOLUCELLINÆ.
77. *Volucella capensis*, *Schin.*
 ? " *obesa*, *F.*
 78. *Graptomyza suavissima*, *Karsch.*
 79. " *vittigera*, *Big.*
 80. " *triangulifera*, *Big.*
 melanura, *Bezzi.*
 pentaspila, *Bezzi.*
 81. " *xanthopoda*, sp. n.
 82. " *aurea*, sp. n.
 83. " *nigra*, sp. n.
 84. " *signata*, *Walk.*
 85. " *varia*, *Walk.*
- MERODONTINÆ.
86. *Protylocera aperta*, *Bezzi.*
 87. " *dibaphus*, *Walk.*
 gypsisquama, *Speis.*
 rufonasuta, *Big.*
 sulfurata, *Speis.*
 88. " *elliotii*, *Aust.*
 var. claricella, *Speis.*
 89. " *melanthyra*, *Speis.*
 90. " *flaviceps*, *Macq.*
 91. " *æsaacus*, *Walk.*
 latevittata, *Big.*
 maculipennis, *Loew.*
 var. livida, *Bezzi.*
 92. " *umbrifera*, *Walk.*
 93. " ? *notata*, *Big.*
 94. " *xanthorrhœa*, *Bezzi.*
 95. " *hæmorrhœa*, *Gerst.*
 96. " *griseifacies*, *Bezzi.*
 97. " *nigrita*, *Big.*
 98. " *apophysata*, sp. n.
 99. " *cuprea*, *Macq.*
 100. *Phytomia bullata*, *Loew.*
 101. " *aurigera*, sp. n.
 102. " *kroeberi*, *Bezzi.*
 103. " *neavei*, sp. n.
 104. " *bulligera*, *Aust.*
 105. " *pubipennis*, sp. n.
 106. " *erratica*, *Bezzi.*
 107. " *curta*, *Loew.*
 108. " *natalensis*, *Macq.*
 109. " *fucoides*, sp. n.
 110. " *fronto*, *Loew.*
 var. melas, var. n.
111. *Phytomia ephippium*, *Bezzi.*
 112. " *villipes*, *Loew.*
 var. femoralis, var. n.
 113. " *pœnsis*, *Bezzi.*
 114. " *incisa*, *Wied.*
 assimilis, *Walk.*
 capito, *Loew.*
 115. *Simoides crassipes*, *Fabr.*
 pachymera, *Wied.*
 116. " *expleta*, *Loew.*
 117. " *descendens*, *Beck.*
 118. *Lathrophthalmus modestus*, *Wied.*
 analis, *Macq.*
 119. " *myiatropinus*, *Speis.*
 120. " *gymniops*, sp. n.
 121. " *euzonus*, *Loew.*
 var. andersoni,
 var. n.
 122. " *longicornis*, *Ad.*
 123. " *melanops*, *Karsch.*
 decolor, *Karsch.*
 124. " *nigricans*, *Wied.*
 nigricornis, *Loew.*
 125. " *amœnus*, *Macq.*
 126. " *metallescens*, *Loew.*
 127. " *nitidiventris*, *Macq.*
 128. " *viridulus*, *Macq.*
 129. " *sexvittatus*, *Big.*
 130. " *quinquelineatus*, *Fabr.*
 punctifer, *Walk.*
 var. tabanoides,
 Joenn.
 131. " *trizonatus*, *Big.*
 132. " *flaveolus*, *Big.*
 133. " *xanthopus*, sp. n.
 134. " *vicarians*, sp. n.
 135. " *dulcis*, *Karsch.*
 136. " *dissimilis*, *Ad.*
 137. " *smaragdinus*, *Macq.*
 138. *Eristalodes plurivittatus*, *Macq.*
 æqualis, *Ad.*
 139. " *barclayi*, sp. n.
 140. " *macrops*, *Karsch.*
 141. " *teniops*, *Wied.*
 ægyptius, *Walk.*
 communis, *Ad.*
 torridus, *Walk.*
 142. " *fuscicornis*, *Karsch.*
 143. " *seychellarum*, sp. n.
 144. *Eristalis tenax*, *L.*
 145. " *dasypops*, *Wied.*
 146. " *plunipes*, *Bezzi.*
 147. " *haplops*, *Wied.*
 148. " *trichops*, *Big.*
 149. " *pallidibasis*, *Big.*
 150. " *meromacriiformis*, sp. n.
 151. " *convexifacies*, *Macq.*
 152. *Helophilus (Mesembrius)*
 capensis, *Macq.*
 caffer, *Loew.*

153. *Helophilus* (*Meseubrius*) *lagopus*,
Loew.
154. „ „ *strigilatus*, *Bezzi*.
155. „ „ *minor*, sp. n.
156. „ „ *africanus*, *Verr.*
157. „ „ *senegalensis*,
Macq.
158. „ „ *cyanipennis*, sp. n.
159. „ „ *morio*, sp. n.
160. „ „ *longus*, *Walk.*
161. „ „ *sejunctus*, *Walk.*
162. „ „ *ingratus*, *Loew.*
163. „ „ *tarsatus*, *Big.*
164. „ „ *perforatus*, *Speis.*
165. *Mallota extrema*, *Loew.*
166. „ *ænigma*, *Bezzi.*
167. „ *pachymera*, sp. n.
168. *Merodon planifacies*, sp. n.
169. „ *melanocerus*, sp. n.
170. „ *nasicus*, *Bezzi.*
funeris, olim.
171. „ *edentulus*, *Macq.*

XYLOTINÆ.

172. *Tropidia dicentria*, *Speis.*
173. *Chasmomma femoratum*, sp. n.
174. *Syritta spinigera*, *Loew.*
armipes, *Thoms.*
? flaviventris, *Macq.*
? nigricornis, *Macq.*
spinigerella, *Thoms.*
vitripennis, *Big.*
175. „ *aculeipes*, *Schin.*
176. „ *latitarsata*, *Macq.*
177. „ *bulbus*, *Walk.*
178. „ *bulbulus*, *Speis.*
179. „ *fasciata*, *Wied.*
abyssinica, *Rond.*
180. „ *albifacies*, *Big.*
181. „ *flavopicta*, *Big.*
182. „ *leucopleura*, *Big.*
183. „ *stigmatica*, *Loew.*
184. „ *pleuritica*, *Speis.*
185. „ *decora*, *Walk.*
186. „ *nigrifemorata*, *Macq.*
187. „ *austeni*, sp. n.
188. *Megatrigon sexfasciatus*, *Johns.*
189. *Eumerus rubiginosus*, *H.-B.*
190. „ *argenteus*, *Walk.*
191. „ *atrovarius*, *Speis.*
192. „ *lugens*, *Wied.*
193. „ *jacobi*, *H.-B.*
194. „ *argyropsis*, *Bezzi.*
195. „ *paulæ*, *H.-B.*
196. „ *serratus*, sp. n.
197. „ *maculipennis*, sp. n.
198. „ *armipes*, sp. n.
199. „ *scaber*, sp. n.
200. „ *feæ*, *Bezzi.*

201. *Eumerus lunatus*, *Fabr.*
202. „ *axinecerus*, *Speis.*
203. „ *rufipes*, *H.-B.*
204. „ *quadrinaculatus*, *Macq.*
205. „ *bequaerti*, *H.-B.*
206. „ *erythrocerus*, *Loew.*
207. „ *triangularis*, *H.-B.*
208. „ *villeneuvei*, *H.-B.*
209. „ *unicolor*, *Loew.*
210. „ *vestitus*, *Bezzi.*
211. „ *obliquus*, *Fabr.*
cilitarsis, *Loew.*
212. *Amphoterus cribratus*, sp. n.
213. „ *Milesia* „ *canusium*, *Walk.*
214. *Phalacromyia nigriceps*, *Schin.*

CHRYSTOXINÆ.

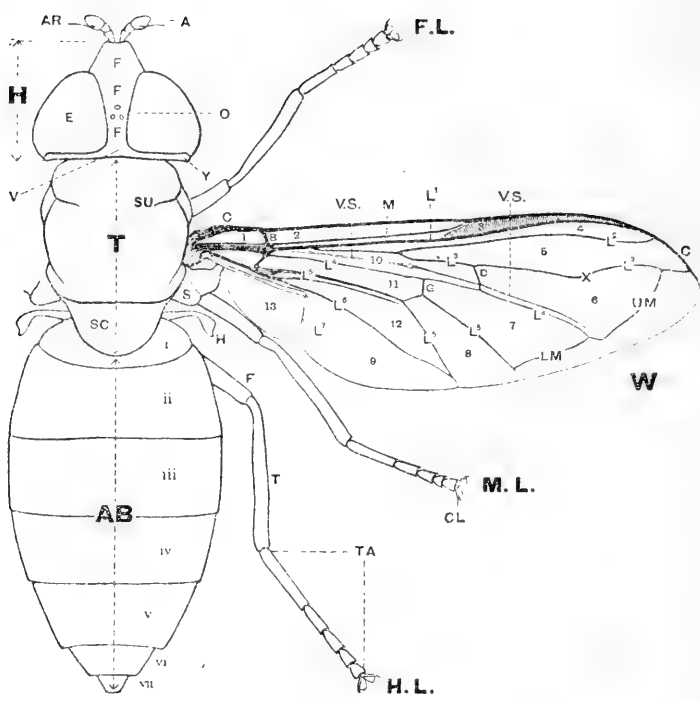
215. *Chrysotoxum continuum*, sp. n.
intermedium, olim.

MICRODONTINÆ.

216. *Microdon illucens*, sp. n.
217. „ *acantholepidis*, *Speis.*
218. „ *brevicornis*, *Loew.*
219. „ *testaceus*, *Walk.*
220. „ *tarsalis*, *H.-B.*
221. „ *obesus*, *H.-B.*
222. „ *punctulatus*, *Wied.*
223. „ *rugosus*, sp. n.
224. „ *cremastogastri*, *Speis.*
225. „ *apis*, *Speis.*
226. „ *captus*, *Speis.*
227. „ *mydas*, sp. n.
228. „ *erythrocephalus*, sp. n.
229. „ *luteiventris*, sp. n.
230. „ *erythros*, *Bezzi.*
231. „ *æthiopicus*, *Rond.*
232. „ *inermis*, *Loew.*
233. „ *pallidus*, sp. n.
234. „ *villosus*, sp. n.
235. *Ptilobactrum neavei*, sp. n.

CERIOIDINÆ.

236. *Cerioides afra*, *Wied.*
237. „ *hopei*, *Saund.*
238. „ *pulchra*, *H.-B.*
239. „ *speiseri*, *H.-B.*
240. „ *neavei*, sp. n.
241. „ *brunnipennis*, *Loew.*
242. „ *congolensis*, *Bezzi.*
243. „ *ammophilina*, *Speis.*
244. „ *caffra*, *Loew.*
245. „ *gambiana*, *Saund.*
246. „ *frenata*, *Loew.*
247. „ *maculipennis*, *H.-B.*
248. „ *divisa*, *Walk.*
249. „ *bezzii*, *H.-B.*
car. marginalis, var. n.



EXPLANATORY DIAGRAM.

H, Head.
 F, Frons. V, Vertex.
 Y, Occiput. O, Ocelli.
 E, Eye. A, Antenna. AR, Arista.
 T, Thorax. SU, Suture.
 Sc, Scutellum (part of mesothorax).
 AB, Abdomen.
 i-vii, 1st to 7th Abdominal Segments.
 S, Squama (the author's *squamula*).
 H, Haltere.
 W, Wing.
 F.L., M.L., H.L., the front, middle and hind legs.
 F, Femur. T, Tibia.
 TA, Tarsus (5-jointed).
 CL, Claw.

Veins.

C., C. Costa.
 M, Mediastinal (Auxiliary) vein.
 I-I₆, First to Sixth Longitudinal veins.
 X, kink in 2nd longitudinal vein.
 L₁, Axillary vein.

UM, Upper Marginal or Subapical Cross-vein (bent-up portion of 4th long. vein).
 LM, Lower Marginal or Postical Cross-vein (bent-up portion of upper branch of 5th long. vein).
 B, Humeral Cross-vein.
 D, Anterior or middle Cross-vein.
 G, Lower or small Cross-vein.
 V.S., Vena Spuria.

Cells.

- 1, 2, First and Second Costal Cells.
- 3, Subcostal or Third Costal Cell.
- 4, Marginal Cell.
- 5, Submarginal Cell.
- 6, First Posterior or Subapical Cell.
- 7, Discal or 2nd Posterior Cell.
- 8, Third Posterior Cell.
- 9, Axillary Cell.
- 10, First Basal Cell.
- 11, Second Basal Cell.
- 12, Anal Cell.
- 13, Alula.

Family SYRPHIDÆ.

The genera in the collection can be distinguished as follows:—

- 1 (46) Antennæ short or of moderate length, not porrect, and not longer than the head; if they are elongate, there are distinct macrochætæ on thorax and scutellum.
- 2 (21) Small cross-vein before the middle of the discal cell; marginal cell always open.
- 3 (20) Third antennal joint usually short, never linear, nor much longer than the two preceding joints together; vena spuria well developed; thorax and scutellum without macrochætæ; eyes of male usually touching.
- 4 (19) Face not or but little produced below, without a snout-like projection; third longitudinal vein not curved backwards but depressed, ending at the tip of wing or before it; if this vein is curved backwards, the abdomen is stalked; first and second longitudinal veins of usual length.
- 5 (18) Abdomen of normal shape, neither tubular nor stalked; if it is a little constricted towards the base, the discal cell is much shorter than the subapical one.
- 6 (9) Discal cell much shorter than the subapical cell; face without a distinct tubercle and abdomen without yellow markings.
- 7 (8) Fourth longitudinal vein prolonged to the hind border beyond the upper marginal cross-vein; face of a yellow colour, not hollowed above and without a prominent edge below PARAGUS, p. 11.
- 8 (7) Fourth longitudinal vein at most forming a short stump beyond the upper marginal cross-vein; face of a black colour, hollowed above and with a prominent edge below CHRYSOGASTER, p. 15
- 9 (6) Discal cell as long as the subapical, or if a little shorter, then the face provided with a distinct tubercle or the abdomen adorned with yellow spots or bands.

- 10 (11) Face and scutellum entirely black; thorax provided on the sides above the notopleural depression and before the transverse suture with a rather prominent tubercle; discal cell shorter than the subapical one. . . . MELANOSTOMA, p. 18.
- 11 (10) Face and scutellum yellow; thorax without such a prominent tubercle on the sides; discal cell as long as or only a little shorter than the subapical one.
- 12 (15) Thorax without a sharply defined yellow stripe on the sides, or with a very short one, which does not pass the suture; abdomen usually broad and oval in shape.
- 13 (14) Thorax provided in front with a distinct collar of hairs; opening of buccal cavity narrow and linear; ocelli at some distance from the vertex . . . ASARCINA, p. 21.
- 14 (13) Thorax without a distinct collar; opening of buccal cavity short and oval; ocelli placed near the vertex. . . SYRPHUS, p. 29.
- 15 (12) Thorax with a sharply defined yellow notopleural stripe, which passes the suture and usually reaches the scutellum; abdomen narrow and with parallel sides.
- 16 (17) Abdomen narrower than the thorax, not flattened, usually longer than the wings; male genitalia very large and orbicular. . . . SPHEROPHORIA, p. 35.
- 17 (16) Abdomen as broad as or a little broader than the thorax, flattened, shorter than the wings; male genitalia of smaller size XANTHOGRAMMA, p. 36.
- 18 (5) Abdomen stalked, often tubular; discal cell a little shorter than the subapical one; face tuberculate BACCHA, p. 38.
- 19 (4) Face with a very prominent snout-like projection below; third vein curved backwards and ending beyond tip of wing; first and second veins very long RHINGIA, p. 50.
- 20 (3) Third antennal joint linear, very elongate, many times longer than the first two joints together; subapical and posterior cross-veins recurrent; vena spuria wanting; thorax and scutellum provided with macrochaetae; eyes of male separated . . . GRAPTOMYZA, p. 55.
- 21 (2) Small cross-vein near or beyond the middle of the discal cell.
- 22 (39) Third vein with a deep sudden downwardly directed kink about middle of the subapical cell.

- 23 (34) Marginal cell closed and usually provided with a long stalk; if it is shortly stalked or even narrowly open, then the kink in the third vein is angular and appendiculated.
- 24 (29) Eyes bare; kink in third vein deep and usually appendiculated; scutellum of larger size, margined.
- 25 (26) Subcostal and marginal cells at end about of equal length, the stalk of the latter cell being very short; eyes adorned with pale spots and touching in the male, the vertical triangle being in the same sex long and narrow; frons of female narrow; antennal tubercle very prominent; wings pubescent all over their surface PROTYLOCERA, p. 61.
- 26 (25) Marginal cell much shorter at end than the subcostal one, the former having a long stalk; eyes without pale spots, often adorned with horizontal dark bands; vertical triangle of the male short; antennal tubercle not prominent; wings entirely bare, or pubescent only on limited areas near the middle or towards the tip.
- 27 (28) Eyes of male touching and provided with larger facets above; head very swollen, the frons with a denudate callose area above the antennæ and also very broad in the female; hind femora not thickened; wings bare, very rarely pubescent towards the middle PHYTOMIA, p. 65.
- 28 (27) Eyes of male widely separated and with small facets above; head not swollen, without a supra-antennal callosity; frons of female narrow; hind femora strongly thickened; wings pubescent towards tip SIMOIDES, p. 76.
- 29 (24) Eyes hairy, at least above; if bare, they have brown spots; kink in the third vein broad and rounded, never appendiculated; scutellum of ordinary size, not margined.
- 30 (33) Eyes hairy only above or rarely wholly bare, adorned with dark spots or with dark stripes.
- 31 (32) Eyes with brown spots, sometimes bare and sometimes separated in the male [p. 77.
LATHYROPHTHALMUS,
- 32 (31) Eyes adorned with brown perpendicular stripes; eyes of male always united and always hairy ERISTALODES, p. 87.

- 33 (30) Eyes equally hairy above and below (never spotted or banded), or with dark bands, which are formed by hair alone ERISTALIS, p. 92.
- 34 (23) Marginal cell broadly open.
- 35 (38) Hind femora simple, without a tooth-like process beneath at end; subapical cross-vein not recurrent.
- 36 (37) Eyes bare HELOPHILUS, p. 94.
- 37 (36) Eyes hairy MALLOTA, p. 98.
- 38 (35) Hind femora with a distinct tooth-like process; subapical cross-vein recurrent. MERODON, p. 100.
- 39 (22) Third vein not kinked, or rarely with a slight undulation; marginal cell open.
- 40 (45) Second antennal joint short, as usual.
- 41 (42) Face with a distinct tubercle; third vein with a deep kink; eyes of male widely separated; hind femora thickened and spinose beneath . . . CHASMONMA, p. 102.
- 42 (41) Face carinate or flat, without tubercle; third vein straight or rarely undulating but not loop-like; eyes of male usually touching.
- 43 (44) Face carinate; subapical cross-vein not recurrent and without appendiculated angles; scutellum of ordinary size and not indented SYRITTA, p. 104.
- 44 (43) Face flat; subapical cross-vein recurrent and usually with appendiculated angles; scutellum of greater size and often indented EUMERUS, p. 108.
- 45 (40) Second antennal joint enormously elongate, being the longest of all . . . AMPHOTERUS, p. 116.
- 46 (1) Antennæ long and porrect, very often longer than the head; if rarely they are short and pendulous, there is a stump on the third longitudinal vein down the middle of the subapical cell; there are never macrochætæ on thorax and scutellum.
- 47 (52) Antennæ with a dorsal arista and usually not placed on a long petiole; small cross-vein before the middle of the discal cell.
- 48 (49) Third vein without a stump; subapical cross-vein not recurrent; thorax and abdomen always adorned with yellow markings CHRYSOTOXUM, p. 118.
- 49 (48) Third vein with a stump; subapical cross-vein recurrent or at least perpendicular; abdomen usually without yellow markings; scutellum often spinose.

- 50 (51) Third antennal joint bare, as usual, more or less elongate; arista well developed, of ordinary size; face without oblique furrows MICRODON, p. 119.
- 51 (50) Third antennal joint many times as long as the first, with a fringe of long hair on its whole length; arista rudimentary, represented only by a short stump; face with oblique furrows PTILOBACTRUM, p. 136.
- 52 (47) Antennæ with a terminal style, and very often placed on a long petiole; small cross-vein beyond middle of the discal cell CERIOIDES, p. 138.

Subfamily I. SYRPHINÆ.

Genus 1. PARAGUS, *Latreille* (1804).

The species of this genus are widely distributed throughout the Ethiopian region, and the present collection includes representatives of practically all the known species, as well as two new to science.

Paragus signatus, Walker (1860), from Natal, seems to be a *Graptomyza*, as Dr. Speiser has recently pointed out.

The species before me may be tabulated as follows:—

- 1 (4) Abdomen with the middle segments fused together, the sutures being sometimes distinguishable in the female only; shape of body broadly ovate; wings without pubescence in the middle; eyes with very long pubescence, which forms distinct stripes.
- 2 (3) Scutellum with the apical half yellow, and with the hind border deeply serrulate; face in both sexes with a black stripe; thorax with two distinct whitish dorsal stripes *serratus*, Fabr.
- 3 (2) Scutellum wholly black and not serrulate behind; face of the male without a black stripe; thorax without distinct stripes *borbonicus*, Macq.
- 4 (1) Middle segments of the abdomen well separated, only the first and second fused together; shape of body narrowly elongate; wings with distinct pubescence towards the middle; eyes with very short, sometimes hardly distinguishable pubescence, which is not arranged in stripes; scutellum always black.
- 5 (10) Face of the male without a black stripe; wings with distinct pubescence in the middle; species usually of larger size, with less produced face and a narrow vertical triangle in the male.

- 6 (7) A slender species, with distinctly petiolate abdomen, which is clothed with rather long and soft white hair; body lightly punctate; pterostigma subhyaline *longiventris*, Loew.
- 7 (6) Species more robust, with the abdomen only slightly constricted near the base or not constricted at all, and with very short hair; body very strongly punctate; pterostigma black or much infuscated.
- 8 (9) Third antennal joint grey, dark yellowish beneath, only twice as long as the first two joints together; abdomen with less distinct basal bands of white hair *marshalli*, sp. n.
- 9 (8) Third antennal joint black, very long, almost four times as long as the first two joints together; abdomen with very distinct bands of white hair at the base of each segment *dolichocerus*, sp. n.
- 10 (5) Face in both sexes with a black stripe; wings pubescent at the tip and towards the hind border alone; species of smaller size, with the face much produced below and the vertical triangle of the male broad *tibialis*, Fall.

1. *Paragus serratus*, Fabricius (1805).

An easily recognised species, very distinct from any other (except the Chinese *crenulatus*, Thomson) owing to its serrated scutellum and carinate abdomen. Very widely distributed in Africa south of the Sahara and common in British India. I have compared the African specimens with others from Calcutta and Trichinopoly in my collection. Verrall (1898), Brunetti (1908), de Meijere (1908), and I myself (1912) have mentioned the variability of coloration in the abdomen and the legs of this species.

A male from Mozambique, and one from Durban, both collected by E. Muir; another male specimen from Sierra Leone (*Dr. J. J. Simpson*) and one from Nyasaland (*Dr. J. E. S. Old*).

2. *Paragus borbonicus*, Macquart (1842).

A species obviously allied to the preceding one on account of the fused abdominal segments, but easily distinguished by the black, not serrated scutellum, and by the wholly yellow face of the male. The male, which was unknown to Loew, has a broad band of golden hairs in front of the thorax.

This species also occurs throughout the Ethiopian Region. There are in the collection several specimens of both sexes from Zungeru, N. Nigeria, 27. xi. 1910 (*Dr. J. W. S. Macfie*), a male from Durban (*E. Muir*), and a female from Mozambique (*E. Muir*).

3. *Paragus longiventris*, Loew (1847).

A slender black species, very distinct in both sexes from any other on account of its pedunculate abdomen, resembling that of *Baccha*, for which it might be mistaken.

Known previously from Aden, Erythraea, Kilimandjaro, and Caffraria; but L. Fea on his last trip obtained it on the West Coast and in St. Thomé. In the present collection there are a number of specimens of both sexes from Obuasi, Ashanti, iv.-ix. 1907 (*Dr. W. M. Graham*), and from Zungeru, N. Nigeria, 27. xi. 1910 (*Dr. J. W. S. Macfie*); a male from Durban, 1902 (*E. Muir*), and a female from the Nile Province, Uganda.

4. *Paragus marshalli*, sp. n.

♂ ♀. Length 6 mm.

A black species near the preceding one, but larger and more robust, with the body coarsely punctate, the abdomen only a little constricted near the base in the male and the pterostigma black.

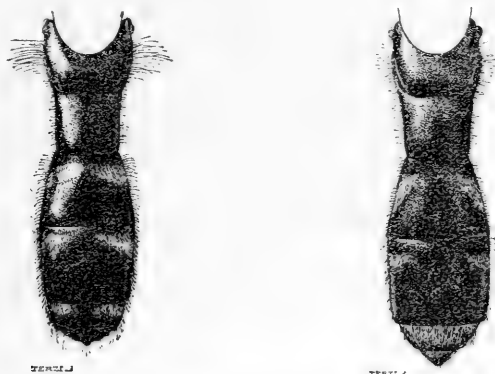


Fig. 1.—*Paragus longiventris*, Lw. Fig. 2.—*Paragus marshalli*, sp. n.
Abdomen of ♀. × 10. Abdomen of ♂. × 10.

From Loew's description of *longiventris*, it seems that he has mixed up the present species with the preceding one.

Eyes of the male touching for a very short distance, in both sexes with short sparse white pubescence not disposed in stripes; ocellar triangle narrow and elongate, shining black, with short dark hair; frontal triangle and face yellow, not striped, clothed with white hair; jowls and edges of mouth black; frons of the female narrow, shining black, the lateral white spots very small; face yellow, narrow, very sparsely pilose, with a small black stripe; posterior orbits towards the middle with silvery hair; antennae black, the third joint greyish, dark yellowish beneath, scarcely

longer than twice the first two joints taken together. Thorax black, coarsely punctate, with short pale pubescence on the back and a tuft of white hairs on the mesopleuræ; scutellum wholly black. Squamulæ small, white; halteres white or yellowish. Abdomen wholly black, all the segments distinct, coarsely punctate and with short white hair, which forms more or less indistinct bands on the fore borders; in the male the second segment is a little narrower than the others, but not in the female; male genitalia small, black. Legs reddish yellow, with black coxæ; femora black at the base, the hind pair more broadly; hind tibiæ with a black ring. Wings hyaline, with a black stigma; the microscopic pubescence extends over all the surface, except on the basal cells.

This species seems to vary, like its allies, in the colour of the abdomen and legs.

Type ♂, from Salisbury, S. Rhodesia, collected by *Mr. G. A. K. Marshall*, in whose honour the species is named; another very small specimen (4 mm.) from Chirinda Forest, Melssetter District, S. Rhodesia, v. 1905 (*G. A. K. Marshall*), seems to belong to the same species; a male from the latter locality, vi. 1911 (*C. F. M. Swynnerton*), has the last segment of the abdomen with the genitalia red, and the black parts of the legs are red.

Type ♀, from Obuasi, Ashanti, W. Africa, 4. vii. 1907 (*Dr. W. M. Graham*); another specimen from same locality and collector, 8. ix. 1907, has the sides of the 3rd and 4th abdominal segments reddish; a third specimen from the same locality and collector, 9. vii. 1907, is smaller and shows a clear pterostigma.

5. *Paragus dolichocerus*, sp. n.

♀. *Length* 7 mm.

A very robust species, distinguished from the preceding one by its very elongate third antennal joint and by the distinct bands of white hair on the abdomen.

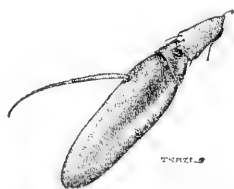


Fig. 3.—*Paragus dolichocerus*, sp. n.
Antenna of ♀ (greatly enlarged).

Frons shining black, almost without white spots on the sides; face yellow with a broad black stripe and the sides of the mouth black; hair on the face very sparse and short; pubescence on the eyes pale, short, not disposed in stripes; antennæ black, the third

joint only dark brownish at the base beneath, very elongate, longer than the arista, which is black. Thorax, scutellum, and halteres as in the preceding species; the abdomen also, but with longer hair, which forms distinct bands at the base of each segment. Legs reddish, with the tips of the femora and the bases of the tibiae yellow; hind femora darkened at the base, but not black. Wings hyaline, with black veins and black stigma; pubescence as in *P. marshalli*.

Type ♀, a single specimen, from Marsabit, Brit. East Africa, 21. ix. 1911 (*R. J. Stordy*).

6. *Paragus tibialis*, *Fallén*, var. *substitutus*, *Loew* (1858).

A single male specimen from Durban (*F. Muir*) belonging to this variety of the little European species, which is, however, hardly distinguishable from the other forms of this variable insect.

Genus 2. *CHRYSOGASTER*, *Meigen* (1800).

It seems very remarkable that of this genus there are no described species from the Ethiopian Region, with the exception of the very aberrant *Chrysogaster (Orthoneura) pæcilophthalma*, described by me in 1908 from Erythræa, which, on account of its hairy eyes, seems to be in a very isolated position. The genus, however, is probably fairly well represented in Tropical Africa; perhaps the species have been neglected on account of their small size.

The collection before me contains examples of three very interesting species, which belong to the subgenus *Orthoneura* and have bare eyes; they may be tabulated as follows:—

- | | | |
|-------|---|---------------------------|
| 1 (2) | Wings without any dark pattern; eyes marked with confluent brown spots; third antennal joint rather short; body elongate, metallic green, but not very shining, the abdomen dull black in the middle . . | <i>pæcilops</i> , sp. n. |
| 2 (1) | Wings with definite dark pattern; eyes unicolorous or banded; body broadly ovate, very strongly shining. | |
| 3 (4) | Third antennal joint rather short; abdomen adorned with a broad velvety black band on the middle of each segment; legs entirely black; wings with many black spots towards the apex; eyes unicolorous. | <i>piloptera</i> , sp. n. |
| 4 (3) | Third antennal joint very long, linear; abdomen in the middle as strongly shining as the rest of the body, with a black band on the second segment alone; legs in great part yellow; wings with only a perpendicular brown band before the tip; eyes with two perpendicular brown bands | <i>levigata</i> , sp. n. |

7. *Chrysogaster* (*Orthonera*) *pæcilops*, sp. n.

♂. *Length* 6.5 mm.

Nearly allied to the European *nobilis*, Fall., but at once distinguished by the spotted eyes, shorter rectangular third antennal joint, and hyaline wings. It is also allied to my *pæcilophthalma*, and belongs to the same group, but may be distinguished at once by the bare eyes and by the thorax being without black pattern.

Head shining æneous, clothed with whitish hair, which is longer on the broad frontal triangle and wanting towards the middle of the face; anterior edge of buccal cavity very prominent; vertical triangle blackish, much smaller than in *nobilis*, while the eyes are in contact for a greater distance; eyes bare, with many confluent brown spots, which are very different from those of *nitida*, Wied., and like those of *pæcilophthalma*; antennæ dark yellowish brown, the third joint only twice the length of the first two together, rectangular, but rounded at the end; arista blackish, quite bare. Thorax shining æneous, but lightly punctate and rather dullish, with short white hair, longer on the pleuræ; with two approximated longitudinal dorsal white stripes in front. Scutellum large, margined, coloured, and punctate like the thorax. Squamulae rather large, white, the inferior with a very long white fringe; halteres pale yellowish; plumulae white. Abdomen not margined, shining æneous, with white pubescence, which is longer on the belly; the whole disc dull black; the last segment simple; genitalia large, highly polished, twisted to the right. Legs strong, wholly blackish æneous, with very short pubescence; the basal joints of fore and middle tarsi a little thickened. Wings wholly hyaline, without any distinct pattern; stigma and veins yellowish, the latter darkened towards the end; subapical cross-vein perpendicular, not recurrent; vena spuria distinct, but not chitinised.

Type ♂, a single specimen from Durban, Natal (*E. Muir*).

8. *Chrysogaster* (*Orthonera*) *spiloptera*, sp. n.

♀. *Length* 5 mm.

An elegant blackish-æneous species, with unspotted eyes and black legs, velvety black bands on abdomen, and a wing-pattern recalling that of the North-American species *nitida*, Wied.

The present and the following species, known only in the female sex, are evidently related and unite the characters of *Orthonera* with those of *Lioaster*, to which they should be referred if the eyes of the male prove to be separated; in neither species, however, has the frons of the female any transverse furrows. They both live in swamps, like our European species.

Head very large, hemispherical, shining black with faint bluish reflexions; frons broad, very long, smooth, gently convex in the middle, almost bare, more shining and æneous above the antennæ, with only the beginning of a few oblique furrows near the base; face carinate below and produced towards the mouth-edge, bare, lightly rugulose towards the sides; eyes bare, dark brown, with no

distinct spots; antennæ inserted below the middle of the eyes, moderately short, dark yellowish brown; third joint as long as twice the first two joints together, narrow, rounded at the tip; arista long, quite bare. Thorax practically bare, with only a few short pale hairs on the sides of the back; dull blackish æneous, black on the pleuræ, where is to be seen a little grey tomentum; back without pattern, faintly striped, coarsely punctate. Scutellum large, quadrangular, margined, like the thorax; its exceedingly short hairs are inserted in distinct punctures. Plumulæ and squamulæ white, the thoracic one with a long white fringe; halteres yellowish. Abdomen broad, flattened, and margined, the last segment rounded; almost bare, its exceedingly short pubescence inserted in punctures, which on the sides are very coarse; the sides are shining æneous, with a purple band on posterior margin of second and third segments; on the back the first segment is black,

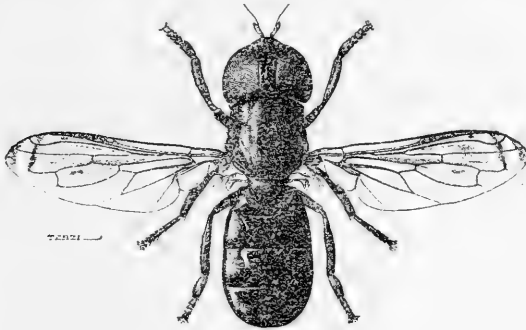


Fig. 4.—*Chrysogaster spiloptera*, sp. n. ♀. × 6.

except at the sides, the second and third show a very broad velvety black band, which does not reach the sides, but is triangularly produced forwards, touching with its apex the hind border of the preceding segment; fourth segment almost entirely shining, with only a small black triangle in middle of fore border, emarginate behind. Venter shining black. Legs entirely black, short and robust, almost bare; basal joints of front and hind tarsi thickened, chiefly those of hind pair. Wings hyaline, yellowish towards the base and with yellowish stigma; the marginal cell contains two rounded brown spots near its end; there are also two apical cross-bands, one beginning in the submarginal cell, just before the end of the marginal cell, and united with the dark border on the subapical cross-vein; the other is less dark, placed just before the tip of the wing, crossing the marginal cell and the outer part of the first posterior cell; besides there are brown elongate cloudy patches in the middle of the submarginal cell, in the subapical cell, and in the discoidal cell. Subapical cross-vein recurrent.

Type ♀, a single specimen from Obuasi, Ashanti, 1. ix. 1907, "caught in swamp" (Dr. W. M. Graham).

9. *Chrysogaster* (? *Orthonoura*) *lævigata*, sp. n.

♀. Length 4.5 to 5 mm.

A glittering metallic species, which recalls our European *Lio-gaster metallina*, but has a very elongate linear third antennal joint, a velvety black transverse band on the second abdominal segment, and a dark cross-band on the wings before the tip.

Head smaller than in the preceding species, with the frons shorter, the antennæ being inserted above the middle of the eyes (not below as in *C. spiloptera*); entirely shining, metallic bluish, æneous on the lunula; frons with an arcuate prominence above the antennæ and with two median longitudinal elevated lines, but without any trace of transverse furrows; it bears dark and sparse, but rather long, hairs; face rounded, less produced below, with sparse hairs; eyes bare, adorned with two perpendicular dark bands, the space between which is equal to that on each side of them; antennæ black, dark yellowish towards the base, widely separated; third joint narrow, linear, three times as long as the first two together; arista bare. Thorax æneous on the sides and on the pleuræ, purplish blue on the disc behind the suture; dorsum clothed with short pale hair. Scutellum æneous, smaller than in the preceding species, margined, clothed with rather long hair, chiefly towards hind border. Squamulæ white, the thoracic pair with a long fringe; plumulæ and halteres pale yellowish. Abdomen entirely shining, with short pubescence; æneous at the base and sides and on the fourth segment, and violaceous in the middle of the disc; the second segment bears besides a velvety black band on the hind border, which does not reach the sides and is rounded anteriorly, attaining the middle of the segment. Venter shining æneous, with coppery reflexions. Legs short and stout, with short pale pubescence; femora black, tibiæ and tarsi reddish yellow. Wings hyaline, with yellowish base and stigma; veins darkened towards the end; the subapical cross-band is pale brown, and runs perpendicularly from the subapical cross-vein to the end of the second longitudinal vein; the posterior cross-vein is also narrowly margined with fuscous; subapical cross-vein but slightly recurrent, almost perpendicular.

Type ♀, and another specimen from Obuasi, Ashanti, 1. ix. 1907, "caught hovering in swamp" (*Dr. W. M. Graham*).

Genus 3. **MELANOSTOMA**, *Schiner* (1860).

A number of ill-defined African forms of this genus have been described, the synonymy of which is given in the List (p. 3).

With the material available I have distinguished the following forms, which perhaps can be reduced to five good species; *M. melinum*, which I recorded in 1908 from Erythræa, is doubtful, as this species does not seem to be represented in the Ethiopian Region:—

- 1 (2) Facial tubercle double, that is, divided by a perpendicular furrow into two small but distinct approximated tubercles; legs and antennæ entirely yellow or sometimes more or less darkened; yellow abdominal markings very extensive, those of male sometimes covering the whole abdomen *bituberculatum*, Loew.
- 2 (1) Facial tubercle simple, or rarely with only a trace of a division.
- 3 (4) Legs entirely yellow, without dark markings; yellow abdominal spots very broad, rectangular; larger species (8-9 mm.) *floripeta*, Speis.
- 4 (3) Legs for the most part not entirely yellow, often with a black pattern, or at least with dark markings; if the legs are entirely yellow, the abdominal spots are not so broad and of triangular shape.
- 5 (12) Legs mainly yellow, that is, the front femora not blackened at the base, the trochanters yellow, the hind femora and tibiæ only with black rings; antennæ almost entirely yellow.
- 6 (7) Arista slightly pubescent; legs more or less darkened or wholly yellow, without any definite black ring before the apex of hind femora; abdomen of male very narrow; yellow abdominal spots of female triangular in shape, and longer than half the segment *scalare*, Fabr.
- 7 (6) Arista bare; legs with sharply defined black rings on hind femora and tibiæ; abdomen of the male broader (*annulipes*, s. l.).
- 8 (11) Second abdominal segment with a pair of yellow spots.
- 9 (10) Yellow spots on the second abdominal segment rectangular in shape and not different from those on the following two segments, which are besides longer than the half of each segment; hind tibiæ with a sharply defined black ring; hind tarsi yellow, darkened apically *annulipes*, Macq.
- 10 (9) Yellow spots on the second abdominal segment rounded, and only half as large as the others, which besides are not longer than the half of the segment; hind tibiæ and hind tarsi sometimes entirely black var. *automeues*, Walk.
- 11 (8) Second abdominal segment wholly

- black, unspotted; hind femora with a black ring, hind tibiæ sometimes entirely black; hind tarsi wholly black or with pale base var. *mauritanum*, Big.
- 12 (5) Legs mainly black, the front femora black at the base, the trochanters black, the hind legs wholly black or only with pale knees; antennæ almost entirely black; second abdominal segment usually unspotted; wings more or less infuscated *infuscatum*, Beck.

10. *Melanostoma bituberculatum*, Loew (1857).

Allied to *scalare*, but at once distinguished by its double facial tubercle.

It is worthy of note that Adams redescribed the present species as new in 1905, under the name given to it by Loew in 1857; he was misled perhaps by the fact that Loew placed his species under *Syrphus*.

Typical examples have the antennæ almost entirely and the legs entirely yellow; but there are specimens with very dark antennæ and with darkened hind legs, or even with all the femora blackened.

A typical couple from Durban (*F. Muir*); a male from Njaro, Brit. E. Africa (*A. J. Cholmley*), in which the yellow spots on third and fourth abdominal segments are fused together, forming a broad transverse band; the abdomen is therefore wholly yellow, only the base and two narrow transverse lines being black. A male and two females with darkened antennæ and legs from Brit. E. Africa, E. side of the Aberlare Mountains, 7,300 ft., 24. ii. 1911 (*T. J. Anderson*).

11. *Melanostoma floripeta*, Speiser (1910).

A species distinguished by its comparatively large size, entirely yellow legs, very broad rectangular yellow abdominal spots, and infuscated wings.

This species is not closely allied to the following one, but has some resemblance to a *Platycheirus*, as stated by Dr. Speiser. Originally described from Kilimandjaro and Meru; there is a single female specimen from British E. Africa, M'bagori's Village, edge of Kenia Forest, 5,000 ft., 12. ii. 1911 (*T. J. Anderson*).

12. *Melanostoma scalare*, Fabricius (1794).

A well-known European species, characterised by its slightly pubescent arista, the narrow abdomen of the male, the triangular yellow rather long abdominal spots of the female, and the absence of black rings on the legs.

Two females from Mt. Chirinda, S. Rhodesia, vi. 1911 (*C. F. M. Swayne*); Dr. Speiser received the species from Kilimandjaro.

13. *Melanostoma annulipes*, *Macquart* (1842).

A very variable species, but easily recognised by its black-ringed legs and short abdominal spots.

The species varies in the colouring of the legs, the hind pair being sometimes mainly black, and in the shape of the yellow abdominal spots, those on the second segment being often wanting. It is the predominant African species, which seems to replace the Palaearctic *scalare*. The length of the body varies from 7 to 9 mm.; the essential characters are the bare arista, the annulated legs, and the yellow abdominal spots being not longer than half the segment which bears them, and usually much shorter, chiefly in the female.

The collection contains the following forms:—

(a) *annulipes*, *Macq.*—Of this typical form there are specimens from Marsabit, Brit. E. Africa, 21. ix. 1911 (*R. G. Stordy*); Oshogbo, S. Nigeria, xi. 1910 (*Dr. T. F. J. Mayer*); Zungeru, N. Nigeria, 15. xi. 1910 (*Dr. J. W. S. Macfie*); Obuasi, Ashanti, 28. vi. 1907, "caught hovering over stream" (*Dr. W. M. Graham*).

(b) *automenes*, *Walk.* (+ *annulatum*, *Big.*, + *pyrophænoides*, *Speis.*).—Two male specimens from Obuasi, Ashanti, 4. viii. 1907 and 7. xi. 1907 (*Dr. W. M. Graham*).

(c) *mauritanium*, *Big.* (+ *gymnocerum*, *Big.*).—Three females from Obuasi, Ashanti, 15. vii. 1907 and 22. x. 1907 (*Dr. W. M. Graham*), which agree better with *gymnocerum*. A couple from Mahé, Seychelles Islands, ix. 1908 (*Hugh Scott*), are typical *mauritanium*.

14. *Melanostoma infuscatum*, *Becker* (1910).

Easily known on account of its black antennæ and legs and general very dark colouring; perhaps only an extreme form of the preceding species.

Three males and one female from Mt. Chirinda, Southern Rhodesia, vi. 1911 (*C. F. M. Swynnerton*), which have yellow knees on the hind legs, while the female has mainly yellow fore legs; length 7.5 to 8 mm. Two males from Brit. E. Africa, E. side of Aberdare Mountains, 7,300 ft., 24. ii. 1911 (*T. J. Anderson*), are of somewhat larger size (9 mm.) and have entirely black hind legs, while a female from the same locality and collector has entirely black antennæ, but mainly yellow legs.

Genus 4. *ASARCINA*, *Macquart* (1842).

On this interesting genus I have published two papers, in 1903 and 1908*, which have been criticised by *Dr. Speiser* in his work

* "Di una specie inedita di Ditteri italiani appartenente ad un genere nuovo per la Fauna europea," *Bull. Soc. Entom. Ital.* xxxv. pp. 3-19 (1903).

"Secondo contributo alla conoscenza del genere *Asarcina*," *Ann. Mus. Nation. Hungar.* vi. pp. 495-504 (1908).

on Kilimandjaro Diptera (1910); in my recent paper on the Diptera collected by Leonardo Fea in West Africa*, I have given a table of the known African species and forms, and have entirely confirmed my previous conclusions.

The present collection contains 22 specimens belonging to this genus, which also bear out the opinions that I have expressed. All the known African species and forms are represented, with the exception of *angustata*, Becker, which is distinct from any other in having the eyes of the male separated—a very striking character, unique in the genus; besides there are some new species and forms, one of which is unusually interesting on account of its hairy eyes.

The species and forms may be distinguished as follows:—

- 1 (14) Face wholly yellow, without median black stripe and without any black spot upon front edge of buccal cavity; the face not conically produced, being less prominent below, and having the anterior edges of the buccal cavity retreating; facial tubercle cariniform; peristoma narrow, with the hind part black, or at least with a black spot below the inferior corner of the eyes; frons usually with a prominent supra-antennal tubercle; antennæ closely approximate at the base, with the two basal joints of equal length and with the third mainly yellow, darkened only on the superior part; proboscis rather short; sides of the thorax and pleuræ more or less distinctly yellow or yellowish (*ericetorum*-group).
- 2 (13) Frons more or less prominent, usually with a well-developed supra-antennal tubercle; eyes of male touching along a line of about 1 mm. in length; abdomen ovate, broader than the thorax; scutellum wholly black-haired, or at least with black hairs on the hind border; tarsi entirely black or with only a small yellow area near the base; species of greater size (11 to 15 mm.).
- 3 (12) Frons clothed with black hairs in both sexes, rather prominent, with a well-developed and prominent supra-antennal tubercle, which besides usually bears a more or less distinct black spot; wings long.
- 4 (11) Sides of face covered with a dull yellowish tomentum and clothed with dark yellowish hairs.
- 5 (8) First abdominal segment with a very small black spot, which is much smaller than the scutellum; first yellow abdominal

* "Ditteri raccolti da Leonardo Fea durante il suo viaggio nell' Africa occidentale." Ann. Mus. Civ. Stor. Nat. Genova, (3) v. pp. 400-443 (1912).

- band not divided, never constricted towards its middle; wings greyish hyaline; scutellum pale yellow; eyes of the male touching along a line longer than 1 mm.; abdominal segments yellow on the lateral border.
- 6 (7) Black abdominal bands very narrow, linear, in the male usually three in number, that of the last segment being wanting or much reduced; supra-antennal spot wanting or small; scutellum pale-bordered at the base *ericetorum typica*, Bezzi.
- 7 (6) Black abdominal bands twice as broad as in the preceding species, not linear, always four in number, that on the last segment being well developed even in the male; supra-antennal tubercle with a broad, glittering black spot; scutellum wholly black-haired *ericetorum gemmata*, var. n.
- 8 (5) First abdominal segment with a broad black spot, which is triangularly produced behind; first yellow band therefore interrupted in the middle by a black line or strongly constricted.
- 9 (10) Black bands on the abdomen linear as in *typica*; wings yellowish hyaline; scutellum pale, with faint bluish reflexions, clothed with pale hairs except at hind border; eyes of the male touching for 1 mm.; lateral borders of the abdominal segments yellow *ericetorum usambarensis*, Bezzi.
- 10 (9) Black abdominal bands broad, even broader than in *gemmata*; wings strongly infuscated; scutellum much darkened, almost blackish towards the base, clothed with wholly black hairs; third and fourth abdominal segments with a black lateral border *ericetorum punctifrons*, Aust.
- 11 (4) Sides of face with a rich shining white tomentum, with opalescent reflexions, and clothed with white hairs; first yellow band not divided; black bands narrow; scutellum black-haired; wings greyish hyaline *ericetorum albifacies*, var. n.
- 12 (3) Frons clothed with pale hairs, in the female, at least on the anterior half, less prominent, the supra-antennal tubercle less produced and always without a black spot; wings short; black abdominal bands narrow; first yellow band interrupted in the male; scutellum with black hairs on the hind border; sides of face dull yellowish; eyes of the male touching for 1 mm. *ericetorum africana*, Bezzi
- 13 (2) Frons wholly flattened, without prominent tubercle, entirely yellow; scutellum

- wholly pale-haired; sides of face strongly shining; tarsi entirely yellow, the hind pair only a little infuscated at the end; abdomen narrow, not broader than the thorax, with the first yellow band in the male not interrupted; eyes of male touching along $\frac{1}{2}$ mm. only; length about 8 mm. *minor*, sp. n.
- 14 (1) Face with a median black stripe, or at least with a quadrate or semicircular black spot on the upper front edge of the buccal cavity; the face is very strongly and conically produced, being very prominent below and having the anterior edges of the buccal cavity perpendicular or even projecting forwards; peristoma broader, wholly yellow; frons flattened, without prominent tubercle; antennæ more or less distant at the base and often very remote from each other, with the first joint often elongate and the third black, more or less yellowish beneath; proboscis long or very long; sides of thorax and pleuræ not or indistinctly yellow; first yellow abdominal band interrupted in the middle (*rostrata*-group).
- 15 (16) Facial tubercle cariniform as in the preceding group; first antennal joint not elongate; a semicircular black mark on the upper edge of the buccal cavity; scutellum black-haired; wings very long and fuscous; first yellow band interrupted; black bands broad and four in number; lateral borders of the third, fourth, and fifth abdominal segments black; proboscis short *amæna*, Aust.
- 16 (17) Facial tubercle broad and rounded, not cariniform; face with a broad black oral spot or a broad stripe; first antennal joint elongate; proboscis long.
- 17 (18) Face with only a quadrate black spot on oral edge, moderately prominent, whitish on the sides; first antennal joint twice as long as the second; scutellum at the base with yellow hairs; black abdominal bands very narrow, in the male only two or three, in the female three, the lateral borders without a black stripe; species of smaller size and with very short wings *foii*, Bezzi.
- 18 (17) Face with a broad median black stripe, which always covers the median tubercle, reaching sometimes the base of the antennæ, yellowish on the sides, more produced below; black bands broader and four in number; species of greater size and long-winged.

- 19 (22) Eyes bare; face more or less projecting, clothed on the sides with very short pale hairs.
- 20 (21) Median black stripe on the face broad and short, not extending beyond the median tubercle; second and third yellow abdominal bands constricted towards the middle; lateral borders of the abdomen black; species of greater size (15 to 16 mm.), with less produced face and very long proboscis *eremophila*, Loew.
- 21 (20) Facial stripe narrower, but reaching the base of the antennæ; second and third yellow bands not constricted and lateral borders yellow; species of smaller size (11 to 13 mm.) with more projecting face. *rostrata*, Wied.
- 22 (19) Eyes densely hairy; face exceedingly projecting, clothed with long black hairs on the sides; median facial stripe broad, not reaching the base of the antennæ; abdomen with the second and third yellow bands constricted in the middle and the lateral borders black *hirsuticeps*, sp. n.

It is important to note that the forms belonging to the two above-defined groups seem to be in a very different condition. The forms of the *ericetorum*-group are less differentiated, so that I am able to recognise practically a single species, divided into many varieties, which inhabits mainly the centre and the north of the Ethiopian Region, and besides extends throughout the Oriental Region. The forms of the *rostrata*-group are more differentiated, showing often very striking characters, such as hairy eyes, projecting face, &c., so that I can distinguish five species, which are more dominant in the south, with the notable exception of a species (*florii*) which reaches the north of Italy; species of this group are wanting in the Oriental Region.

15. *Asarcina ericetorum*, *Fabricius* (1781).

This species is at once distinguished by the wholly yellow, less projecting face, by the approximate antennæ, and by the cariniform facial tubercle.

A very variable species, which I can at present subdivide into the following six Ethiopian forms, of which *gemmata*, *usambarensis*, and *typica* are apparently very closely related, while the others seem to be all very distinct.

(a) *typica*, *Bezzi* (1908).

Distinguished by its clear wings, mainly pale-haired scutellum, the unconstricted first abdominal yellow band, and the linear black bands.

A couple of specimens from Obuasi, Ashanti, 21. vi. 1907 and 9. vii. 1907 (*Dr. W. M. Graham*).

(b) usambarensis, Bezzi (1908).

Like the preceding form, but the first yellow band strongly constricted or interrupted.

A single female specimen (same locality and collector as the preceding), 25. viii. 1907.

(c) gemmata, var. n.

Like the two preceding forms, but differing in the broader black bands of the abdomen, black-haired scutellum, and very large shining black spot, with bluish reflexions, on the supra-antennal tubercle. Length of body 11 to 14 mm., of wing 10 to 13 mm.

Type ♂ and another specimen from Obuasi, Ashanti, 6-7. viii. 1907 (*Dr. W. M. Graham*). *Type* ♀ and two other specimens, same locality and collector, 5-28. vii. 1907 and 13. viii. 1907.

(d) punctifrons, Austen (1909).

Characterised by its darker coloration, narrow yellow markings on the abdomen, the black bands being very broad, interrupted first yellow band, black lateral borders of abdomen, blackish scutellum, and infuscated wings. Length of body 14 to 15 mm., of wing 12 to 13 mm. This is possibly a good species; Mr. Austen knew only the male. The female has the black supra-antennal spot less distinct or wanting, the frons wholly black-haired and covered with dense yellowish dust with distinct metallic reflexions, and shining black towards vertex.

One female from British E. Africa, in the Kenia Forest, 10. ii. 1911 (*T. J. Anderson*); another female from Marsabit, Brit. E. Africa, 20. ix. 1911 (*R. J. Stordy*); a third female from Durban (*F. Muir*).

(e) albifacies, var. n.

Near *typica*, but differing in the glittering white tomentum and the white hairs on the sides of the face. Length of body 14 mm., of wing 11 mm.

Type ♀ from Uganda, Mpumu, Chagwe, iv. 1910 (*Majors A. E. Hamerton, D.S.O., R.A.M.C.*, and *H. R. Bateman, R.A.M.C.*); a single specimen.

(f) africana, Bezzi (1908).

Very distinct on account of its flattened, wholly yellow frons, which besides is entirely clothed with pale hairs in the male, and at least on the apical half in the female; first yellow band divided in the male and entire in the female. Length of body 12 to 13 mm., of wing 10 to 11 mm.

A male specimen from Durban (*F. Muir*) and a female from British East Africa, 13 miles north of M'bagori's Village, towards Meru, 13. ii. 1911 (*T. J. Anderson*).

This form is probably a good species, chiefly on account of the shape of the frons, which connects it with the *rostrata*-group.

16. *Asarcina minor*, sp. n.

♂. Length of body 8 to 8.5 mm., of wing 6 to 6.5 mm.

Very distinct from *ericetorum typica*, which has the same general coloration, owing to its smaller size, very narrow abdomen, flattened and wholly yellow frons, eyes of the male touching along a much shorter line, entirely yellow-haired scutellum, and yellow tarsi.

Head as in *ericetorum*, but wholly yellow; the sides of the face very shining and with opalescent reflexions; antennæ wholly yellow, the third joint only a little darkened above; eyes touching for a very short distance, not longer than the length of the triangle formed by the ocelli. Thorax and scutellum as in *ericetorum typica*, but the latter without any black hair, the longer hairs on the hind border being also yellow. Coloration and black abdominal bands as in *typica*, the first yellow band entire. Legs entirely yellow; the four front tarsi entirely yellow, the hind tarsi darkened towards the tip. Wings with a faint greyish tinge, a little yellowish in the costal cell and stigma; veins yellowish.

Type ♂, from Bende, S. Nigeria, 23. v. 1910 (*J. J. Simpson*); another male specimen from Kumasi, Ashanti, 27. x. 1907 (*Dr. W. M. Graham*).

17. *Asarcina amœna*, *Austen* (1909).

Closely allied to *ericetorum*, but verging towards the *rostrata*-group on account of the semicircular black mark on superior edge of buccal cavity, non-tuberculate frons, distant antennæ, and differently coloured abdomen.

A male from British East Africa, near Crater Lake, N. of Mount Kenia, 5,700 ft., 15. ii. 1911 (*T. J. Anderson*); Mr. Austen described and figured the species from the Ruwenzori Mountains.

The specimens from Moschi, near Kilimandjaro, German East Africa, which in 1908 I referred with doubt to *fiorii*, and Dr. Speiser in 1910 to *eremophila*, certainly belong to the present species.

18. *Asarcina fiorii*, *Bezzi* (1903).

A small species, very distinct from any other on account of the quadrate black spot at the upper edge of the buccal cavity, the rounded and less distinct facial tubercle, the whitish sides of the face, the reduced black bands on the abdomen, and the very short wings.

The two specimens, a male and a female, are without any doubt conspecific with my type from Italy, which was collected in Emilia by Prof. A. Fiori, the well-known coleopterologist.

The undescribed male has the eyes touching for a very short distance, as short as in *minor*; the frons is wholly yellow, pale-haired, flattened, and without prominent tubercle; the antennæ are distant at the base, and the first joint is elongated as in the female; scutellum black-haired towards hind border; abdomen as in the

female, but with only two black bands, the third and the fourth wholly wanting; genitalia reddish; all the tarsi black.

Type ♂, Johannesburg, Transvaal, 1906 (*A. J. Chalmley*); a female from British East Africa, M'bagori's Village, edge of Kenia Forest, 5,000 ft., 12. ii. 1911 (*T. J. Anderson*).

The singular distribution of this species, ranging from South Africa to Italy, is paralleled by that of some other Diptera, as, for example, *Eristalis tæniops* and *quinquelineata*, *Stomatorrhina lunata*, etc.

19. *Asarcina eremophila*, Loew (1857).

A large species, distinguished by the broad black facial stripe, which, however, does not reach the base of the antennæ, and by the second and third abdominal bands being more or less constricted in the middle.

The face of this species does not project much, the margins of the buccal cavity being perpendicular; the antennæ are widely separated.

A female specimen from British East Africa, near Crater Lake, N. of Mount Kenia, 5,700 ft., 15. ii. 1911 (*T. J. Anderson*).

20. *Asarcina rostrata*, Wiedemann (1824).

This species may be recognised by the very projecting face, the margins of the buccal cavity being produced forwards, and by the facial stripe reaching the base of the antennæ. The facial tubercle is very broad.

A specimen from Durban (*F. Muir*); this species seems to be confined to the south of the Region.

21. *Asarcina hirsuticeps*, sp. n.

♂. Length of body 14 mm.; of wing 12 mm.

Very distinct from any other known species on account of its hairy eyes and its exceedingly produced face, which has a very broad black stripe and is clothed on the sides with very long black hairs.

The line of contact of the eyes as long as the vertical triangle (1 mm.), wholly covered with long and dense white hairs; frons unspotted, not tuberculate, clothed with long black hairs; lunula broad, yellow; antennæ widely distant from each other at the base, more so than in the allied species, the first joint moderately long, the third black, except on the lower basal corner which is yellowish; arista black, bare; face very broad and very produced, yellowish-dusted on the sides, where it is clothed with abundant and long black hair; facial tubercle very broad, rounded, horizontal, the black stripe broader than its sides, but not extending above the base of antennæ; peristoma broad, wholly whitish yellow. Thorax yellowish on the sides; scutellum yellow, with metallic

reflexions; black-haired. Squamulæ yellowish; halteres white. Abdomen as in *eremophila*, second and third yellow bands margined on the sides by a black line; genitalia yellowish grey, pale-haired. Legs dark yellow, with black tarsi, the hind ones being yellowish



Fig. 5.—*Asarcina hirsuticeps*, sp. n. Head of ♂, ×9.

towards the base. Wings long, faintly infuscated, with dark yellowish stigma and black veins.

Type ♂, from Busiku, British East Africa, 5. ix. 1911 (*R. J. Sturdy*). This species, which has nothing to do with the Indian genus *Dileoides*, Brunetti (1908), is a very important addition to the genus *Asarcina*.

Genus 5. SYRPHUS, *Fabricius* (1775).

The rather numerous species in the collection before me can be distinguished as follows:—

- 1 (16) Eyes hairy; postocular border fringed along its whole contour with long and dense hairs; antennæ wholly black, the third joint elongate and rather pointed at the tip; face always with a black spot or stripe in the middle.
- 2 (5) Pterostigma entirely yellow, not blackened at base; face distinctly yellow, the dust not hiding the ground-colour; peristoma rather broad and yellow.
- 3 (4) Jowls with a black stripe running from the lower corner of eye to the upper edge of the buccal cavity; abdomen with four white bands, which do not reach the sides; third longitudinal vein straight *capensis*, Wied.*
- 4 (3) Jowls wholly yellow, without black stripe; abdomen with three yellow bands reaching the sides, the first widely interrupted in the middle; third vein sinuous, as in *Lasiophthicus*; abdomen very short, black pilose except at base *cutanatus*, sp. n.

* Not in the collection, included only for comparison.

- 5 (2) Pterostigma with the base black or blackish; face grey-dusted; peristoma usually narrow and almost entirely black; third longitudinal vein always straight.
- 6 (7) Third antennal joint very elongate, as long as the arista, much swollen and pointed at the end; basal joint of hind tarsi distinctly swollen *inflaticornis*, sp. n.
- 7 (6) Third antennal joint much shorter than the arista; basal joint of hind tarsi not swollen.
- 8 (13) Third abdominal segment with a more or less broad yellow band, which reaches the anterior border.
- 9 (12) Peristoma very narrow and black; second and fourth abdominal segments each with a yellow band; front femora yellow, with blackened base.
- 10 (11) Wings entirely hyaline; yellow band of second segment narrow *adligatus*, Wied.
- 11 (10) Wings with the basal half infuscated; yellow band of second segment broader var. *tricolor*, Walk.
- 12 (9) Peristoma broader, with distinct black lateral stripe; second and fourth segments without yellow band; front femora black var. *melas*, var. n.
- 13 (8) Band of the third segment whitish, not broader than the others and distant from the anterior border.
- 14 (15) Thorax shining; wings pure hyaline; femora yellow, blackened at base; face white pilose; abdomen with four distinct bands *claripennis*, Loew.
- 15 (14) Thorax dullish; wings faintly infuscated, pubescent; femora black; face black pilose; abdomen with three less distinct bands *hirticeps*, Loew.
- 16 (1) Eyes bare; postocular fringe short and sparse; antennæ yellow, or rarely darkened above, the third joint short and rounded.
- 17 (18) Abdomen oval, the second segment with a yellow spot on each side, the third and fourth with a broad yellow transverse band, which is slightly emarginate behind *cognatus*, Loew.
- 18 (17) Abdomen parallel-sided, narrow, and linear.
- 19 (20) Face wholly yellow; abdomen entirely yellow, except base and three very narrow black stripes on hind border of second, third and fourth segments, which are sometimes duplicated *trisectus*, Loew.
- 20 (19) Face with a median black stripe; abdomen wholly black, with three pairs of yellow oblique spots, those on third and fourth segments in contact in the middle *redivivus*, sp. n.

22. *Syrphus eutæniatus*, sp. n.

♀. *Length* 12 mm.

Very distinct from any other of the *capensis*-group on account of its sinuous third vein and its very short hairy abdomen, which bears three equal yellow bands reaching the sides.

This species shows unmistakable affinity to true *Lasiophthicus*, but belongs without any doubt to the *capensis-adligatus*-group, which is so characteristic of the Ethiopian fauna.

Head yellow, covered with dark grey tomentum on the occiput and on the frons, the vertical portion of which, however, is broadly shining black; frons not swollen, clothed with short but dense black hairs; face with a small black tubercle and short dark hairs; peristoma broad, wholly yellowish grey, without the black stripe of *capensis*; hair on the postocular border long and dense yellowish above, white and thicker below; antennæ entirely black, the third joint less elongate and rounded at the tip; eyes clothed with short pale hair. Thorax shining black on the disc, with some bluish reflexions, clothed with long erect pale yellowish hairs; on the sides of the dorsum there is a little grey dust; pleuræ dullish, with pale hairs which form a tuft before the root of the wings. Scutellum pale yellowish, mainly black-haired; squamulæ whitish, halteres and plumulæ white. Abdomen oval, shining bluish black, with short black hair, except at base, where the hair is long and pale; first segment black; second with a yellow band near the fore border, interrupted towards the middle; third and fourth with an equal complete band on fore border; fifth wholly black, with only a small yellow spot on the sides at the fore border. These yellow bands are clothed with short pale hairs; the portion of the segment just after the band is blacker and a little less shining than the rest. Venter pale yellow, with two broad black bands before the end and clothed with long white hair. Legs reddish yellow; femora blackened towards the base, those of the hind pair more broadly, having only the apex yellow; tarsi black, the hind pairs yellowish at base. Wings hyaline, with black veins, narrowly yellowish towards the base; mediastinal cell dark yellowish over its whole length, but the stigma not at all blackened at the base; vena spuria strongly chitinised, as black as the other veins; the shape of third vein and of the subapical cell are exactly the same as in *Las. pyrastris*.

Type ♀, a single specimen, from Marsabit, British East Africa (*R. J. Stordy*).

23. *Syrphus inflaticornis*, sp. n.

♀. *Length* 11 mm.

Easily recognised by the very long, swollen, and pointed third antennal joint, and by the distinctly swollen basal joint of hind tarsi.

Head black; frons wholly black, strongly shining, with purplish reflexions towards vertex and above antennæ, towards the middle

with a dullish less distinct transverse grey band, black-haired on the middle, the vertical portion bare (perhaps denuded?); the frons is depressed in the middle, the supra-antennal tubercle being therefore very prominent; face covered with dense grey tomentum, which conceals the ground-colour, and with a shining median black stripe extending to the base of the antennæ; facial tubercle rather prominent; sides of the face clothed with long pale hairs; peristoma narrow, wholly black; postocular border with long hair; eyes covered with dense hair, which above is darker and short; antennæ black, almost reaching the epistoma; third joint very swollen, grey tomentose; arista yellowish. Thorax as in the preceding species; scutellum swollen, pale yellow and with pale hair. Squamule dirty whitish, halteres white. Abdomen clothed on its whole length with rather long pale hair, chiefly on the sides; it is all bluish black and shining, the second and third segments with a narrow basal whitish band, which is yellow by transparency, the band on the third being closer to the fore border; fourth segment with a slight trace of a similar but darker band on the sides only; fifth entirely black. Venter black, with greyish bands and long yellowish hairs. Legs black; the four anterior tibiæ and the knees of the hind legs yellow; first joint of hind tarsi very swollen, as long as the other joints taken together. Wings as in the preceding species, but the stigma blackened at base, the hyaline portion before it being more distinct; third vein almost straight.

Type ♀, from Mpumu, Uganda, 22. v. 1910 (*Dr. C. A. Wiggins*); a single specimen.

24. *Syrphus adligatus*, *Wiedemann* (1824).

Very distinct, owing to the broad yellow band on the third abdominal segment and the dullish thorax.

This species seems to be variable in the size and number of the yellow abdominal bands, in the colour of legs and wings, and in the hair of the face varying from pale to black. I have attempted to distinguish the following three forms:—

(a) *adligatus* (typical).

The band on second segment is narrow, that on third broad, and that on fourth more or less broad; the legs pale; the wings greyish hyaline. This agrees with the form figured by Mr. Austen in 1909 (*Trans. Zool. Soc. xix. pl. iii. fig. 3*), except that the end of the abdomen is not yellow and the legs are not so black.

Two males and a female from Durban (*E. Muir*); a male from Marsabit, British East Africa (*R. J. Stordy*); a female from Mt. Kenia, W. side, Meru-Nyeri Rd., 6,500 ft., 20. ii. 1911 (*S. A. Neave*). *Dr. Speiser* has recorded the species from Kilimandjaro.

(b) *tricolor*, *Walker* (1852).

Distinguished by the wings being infuscated basally and by the yellow abdominal bands being much broader, chiefly those on the second and fourth segments.

A male specimen from British East Africa, E. side of Aberdare Mountains, 7,300 ft., 24. ii. 1911 (*T. J. Anderson*); a female from Blantyre, Nyasaland (*Dr. J. E. S. Old*).

(c) *melas*, var. n.

♂ ♀. *Length* 10 mm.

This form, which may be perhaps considered a distinct species, is characterised by its prevalent black coloration and by its broader jaws.

Frons of male entirely black (in the two preceding forms it is yellowish grey towards the base); face grey, with strong bluish reflexions, long black hair and broad black median stripe; peristoma broadly black; abdomen shining black, with a less broad yellow band on the third segment alone; legs black, the tibiæ dark reddish; wings a little infuscated towards the basal half.

The female has a broad grey peristoma, which bears a black stripe as in *capensis*; thorax duller, almost dullish grey; the rest as in the male.

Type ♂ and *type* ♀ from British East Africa, the former from the E. side of Aberdare Mountains, 7,300 ft., ii. 1911, the latter from N. of Mt. Kenia, 8,300 ft., 18. ii. 1911 (*T. J. Anderson*).

25. *Syrphus claripennis*, Loew (1858).

Distinguished by its clear wings, whitish abdominal bands, and paler head and legs.

Very near *capensis*, but differing in the pterostigma and the want of a genal black stripe. I think that the present species is the same as *intersectus*, Wiedemann (1824), chiefly on account of the fact that it seems to be very common in South Africa.

A single male specimen from Yala Bridge, N. Kavirondo, British East Africa, 24. viii. 1911 (*C. W. Woodhouse*).

26. *Syrphus hirticeps*, Loew (1858).

Distinguished by its prevalent dark coloration on head, abdomen, legs, and wings.

I am in doubt if the specimens before me belong to the same species as described by Loew from Nubia; they agree well enough with the description, but the bands on fourth and fifth abdominal segments are wanting, and that on the third is but little developed; the thorax is dullish.

A male from Blantyre, Nyasaland Protectorate, v. 1910 (*Dr. J. E. S. Old*); another male from Uganda, north spur of Ruwenzori, 27. ii. 1912 (*H. B. Owen*).

27. *Syrphus cognatus*, Loew (1858).

Very like *corollæ*, but distinguished in the male by the third and fourth abdominal segments being almost entirely yellow, with only a dark brown hind border.

A single male from Salisbury, S. Rhodesia (*G. A. K. Marshall*).

28. *Syrphus trisectus*, Loew (1858).

Very near *balleatus*, but differing in its smaller size and brighter orange abdomen; the abdominal black bands are usually not duplicated, that of the fourth segment generally being widely interrupted in the middle; and the black supra-antennal spot is always present.

Of six specimens examined, only a male from Durban has the duplicated bands well developed and shaped almost as in *balleatus*; this specimen also is the only one which has the black band on the hind border of the fourth segment entire. The eyes are wholly bare, even in the undescribed male, which entirely resembles the female, except in the sexual differences.

A male and a female from Durban (*F. Muir*); three females from British East Africa, one from Kenia Forest, near Luchi River, 9. ii. 1911 (*T. J. Anderson*), another from Oyanyi, 8. vii. 1910 (*Dr. J. Pugh*), and the third from Marsabit, 20. ix. 1911 (*R. J. Stordy*); a male from Obuasi, Ashanti, 11. viii. 1900 (*Dr. W. M. Graham*). This species was up to the present known only from Caffraria, but has evidently a wide distribution throughout the Ethiopian Region, where it replaces the European *balleatus*.

29. *Syrphus redivivus*, sp. n.

♂. Length 10 mm.

A narrow elongate species, with black striped face, yellow antennæ, three partly interrupted yellow abdominal bands, and black genitalia.

This species appears to belong to the *auricollis*-group, and its allies among the described Ethiopian species are *schultziannus*, Bezzi (1908), *cinctifacies*, Speiser (1910), and *facæ*, Bezzi (1912).

Head black; frons and face yellow, the former more reddish; a black supra-antennal spot and a brown facial middle stripe reaching the base of the antennæ; peristoma narrow, yellow; facial tubercle rounded, large, prominent; frons clothed with long dark hair, face with white hair on the side; vertical triangle small, not very prominent; eyes bare, with the upper facets larger; antennæ short, yellow, the third joint rounded, narrowly darkened above; middle postocular border with silvery hairs. Thorax shining, yellowish towards the sides, but without any sharply defined yellow stripe, clothed with long erect dark hair; pleuræ blackish grey, yellowish on the hind angle of mesopleura; breast shining black, bare. Scutellum dark yellow, with black hair. Squamulæ dirty white, halteres yellow. Abdomen shining black, but second, third, and fourth segments broadly dull velvety black on disc; its hair is long and dark, but pale on the base; first segment black; second with an ovate yellow spot on each side, placed in the middle and not reaching the sides; third and fourth each with two oblique spots,

not reaching the sides and uniting in the middle, forming therefore a semilunar band, which is emarginate in the middle; fifth entirely black, with an indistinct lateral yellowish spot; genitalia shining black; venter yellow, dark at the apex, smooth and shining in the middle, where it is bare. Legs yellow, including the fore coxæ; tarsi dark at the apex; hind legs with the femora and tibiæ broadly black. Wings greyish hyaline, with the mediastinal cell wholly dark yellow, without a darkened stigma.

Type ♂, from the Cape (*ex coll. W. W. Saunders*).

Genus 6. **SPHÆROPHORIA**, *St. Fargeau* (1825).

This is the first time that this genus has been recorded from the Ethiopian Region.

30. **Sphærophoria quadrituberculata**, *sp. n.*

♂ ♀. Length of male 9 mm., of female 7 mm.

A somewhat aberrant species, distinguishable from any other in the genus by the abdomen being without yellow bands and, in the male sex, provided with four very prominent tubercles, which recall those of the female of the Neotropical *Acrochordonodes dentipes*, but are even more prominent.

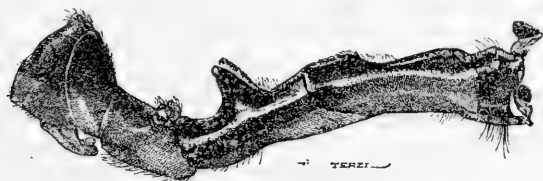


Fig. 6.—*Sphærophoria quadrituberculata*, *sp. n.*
Abdomen of ♂ from the right side. × 12.

Male. Head black, shining on the vertical triangle; frons and face yellow, unspotted, with short and soft white hair; peristoma narrow, yellow; facial tubercle a little more prominent than the antennal one; eyes bare, the line of contact much shorter than the vertical triangle; antennæ short, wholly yellow, the third joint rounded, with a blackish arista; postocular fringe very short and sparse, dark and a little longer above; posterior orbits silvery in the middle. Thorax shining æneous, clothed with erect grey hair; lateral yellow stripe running from the humeri to the suture; pleuræ greyish, with opalescent reflexions and sparse hair, meso- and metapleuræ yellow. Scutellum yellow, with pale hair. Squamulæ small, whitish, with a short fringe; halteres yellow. Abdomen cylindrical, very narrow, with rather long but sparse greyish hair; first segment shining black; second very long, shining black, reddish towards the sides, with a narrow dull black transverse band a little behind the middle; third a little shorter,

shining black, dark reddish at the base and sides, with a dull black band as on the preceding segment; towards the middle it bears a pair of very prominent, approximated, pointed, blackish tubercles; fourth segment short, reddish yellow, shining, with a pair of more distant, less prominent, rounded, reddish protuberances; fifth segment in the shape of two scales, reddish at base and black at apex; genitalia hemispherical, large, bare, dark reddish above, yellowish below, with two appendages beneath. Venter shining black, much hollowed between the sternites, which are prominent below, forming a sort of channel. Legs entirely yellow, including coxæ and trochanters, the femora at end and the tarsi darker, but not black; all the femora are incrassated and a little bent. Wings wholly hyaline, vitreous, with black veins; third vein straight; subcostal cell entirely blackish, the stigma therefore very conspicuous, in the shape of a black line.

Female. Head as in the male; frons broad, shining black on the vertical half, from which begins a broad black stripe which goes to the base of the antennæ, becoming reddish in front. Thorax and scutellum as in the male, the dorsum blacker. Abdomen narrow and elongate; first and second segments wholly black, shining; the others dark reddish, shining, with bluish reflexions, without any trace of the protuberances of the male; last segment black; venter reddish. Legs and wings as in the male.

Type ♂ and *type* ♀, a single couple, from Durban, ii. 1902 (*F. Muir*).

Genus 7. XANTHOGRAMMA, *Schiener* (1860).

I have placed in this genus, taken in a broader sense, the species which cannot remain in *Syrphus*, on account of the complete bright yellow lateral stripes of the thorax, nor in *Spharophoria*, on account of the different abdomen and genitalia. They can be best included provisionally in the present genus, though having a slightly different facies from the typical species, chiefly on account of the abdomen being not so broad. The recently erected genus *Ischiodon*, Sack (1913) applies to the species of the group *scutellaregyptium*; this name can perhaps be used for all the species mentioned below:—

- 1 (2) Third antennal joint ovate, elongate; front coxæ mainly black; yellow lateral stripe on thorax passing the suture, but not reaching the scutellum; hind trochanters of the male with a strong spine and front tar-i with the internal claw bifid at end (*Ischiodon*) *egyptium*, Wied.
- 2 (1) Third antennal joint rounded, short; front coxæ wholly yellow; lateral yellow stripe on the thorax complete, reaching to the scutellum; hind trochanters and fore tarsi of male simple.

- 3 (6) Middle yellow bands on the abdomen entire, the first alone being sometimes interrupted.
- 4 (5) Face with a black median stripe or at least darkened in the middle on the tubercle; a black supra-antennal spot also usually present; first yellow abdominal band broadly interrupted. *rotundicorne*, Loew.*
- 5 (4) Face wholly yellow, not even darkened in the middle: supra-antennal spot wanting; first abdominal band never interrupted, at the most constricted towards the middle *pfeifferi*, Big.
- 6 (3) Abdomen with four pairs of broad yellow rounded spots *calopus*, Loew.

31. *Xanthogramma ægyptium*, Wiedemann (1830).

A very distinct species on account of the elongate third antennal joint and incomplete yellow notopleural stripe, and, in the male sex, the peculiar form of the front claws and hind trochanters.

In my recent paper on the Syrphidæ collected by Fea (1912), I have stated that this species is distinct from the Oriental *scutellare*, Fabr. (1805). This last, common throughout the Oriental Region and described from the Island of Formosa as *Ischiodon trochanterica* by Prof. Sack (1913), is distinguished from the present species in having the spine of the hind trochanters much thicker and proportionally shorter, the inner front claw simple, the scutellum more darkened, and the first yellow abdominal band of the female always interrupted in the middle.

The following names are synonyms of *ægyptium*:—*brachypterum*, Thomson (1869), *felix*, Walker (1852), *fuscotibiale*, Macquart (1842), *longicorne*, Macquart (1842), and *natalense*, Macquart (1846); further, *Syrphus senegalensis* of Guérin-Ménéville (1835) seems to be only the form of the present species in which the abdomen is entirely yellow in its apical half.

The species is common throughout the Ethiopian Region. There are many specimens of both sexes from Northern and Southern Nigeria: Baro, x. 1910 (*Dr. A. Ingram*); Zungeru, xi. 1910 (*Dr. J. W. S. Macfie*); Zungeru and Aba, ix. 1910 (*J. J. Simpson*); Agege, iv. 1911 (*Dr. A. Connal*); Ikom, i. 1912 (*E. Dayrell*). There are also specimens from British East Africa, Isiola R. (*R. J. Stordy*), and from Salisbury, S. Rhodesia (*G. A. K. Marshall*).

32. *Xanthogramma pfeifferi*, Bigot (1884).

Nearly allied to *rotundicorne*, but easily recognised by the wholly yellow frons and face, and by the entire first yellow abdominal band.

* Not in the collection; included for comparison.

I have redescribed this species in the above-quoted paper on Fea's Syrphids; Bigot's description, which was previously included among the synonyms of *ægyptium*, corresponds very well with these specimens, chiefly because Bigot calls the third antennal joint "rounded." Perhaps it is only an extreme form of *rotundicornis*, Loew (1858), of which there are no specimens in the collection, but which is common in South Africa, *dentatum*, Walker (1852), being probably the same species, which is represented in the Oriental Region by the nearly allied *javanum*, Wiedemann (1824).

Several specimens of both sexes: Karonga, Nyasaland, v. 1910 (*Dr. M. Sanderson*); Zungeru, N. Nigeria, xi. 1910 (*Dr. J. W. S. Macfie* and *J. J. Simpson*); Koba District, Nile Province, Uganda, vi. 1909; Lilongwe, Nyasaland, s. i. 1911 (*Dr. J. E. S. Old*); Angola, 1908 (*C. Wellman*); Mauritius, 1911 (*N. B. Rock*).

This species also seems to be widely spread throughout the Region.

33. *Xanthogramma calopus*, Loew (1858).

Very distinct from any other species, on account of its eight very broad and rounded yellow abdominal spots, which recall those of *Syrphus braueri*.

A single female specimen from Pinetown, Natal, 20. iv. 1902 (*E. Muir*).

Genus 8. *BACCHA*, Fabricius (1805).

Of this rich genus, only the following species have been recorded or described from the Ethiopian Region: (1) *picta*, Wied. (1830), (2) *vittata*, Wied. (1830), (3) *sapphirina*, Wied. (1830), (4) *claripennis*, Loew (1858), (5) *flavicornis*, Loew (1863), (6) *punctum*, Bigot (1885), (7) *brevis*, Karsch (1887), and (8) *euryptera*, Bezzi (1908). Of these the second is the same as the first, and the fifth and sixth are the same as the third; the seventh is perhaps the same as the fourth. There are thus only four good Ethiopian species, compared with thirty from the Oriental Region. It is therefore not surprising that the present collection contains numerous new species, some of which are very interesting and beautiful.

They can be tabulated as follows:—

- 1 (2) Wings very narrow and cuneiform at the base, without alula and without prominent axillary lobe; frons produced before the vertex into a conical protuberance, which bears the ocelli; abdomen very long and narrow, much longer than the wings; face yellowish below on the sides. *conifrons*, sp. n.
- 2 (1) Wings not narrowed and often very dilated, always with well-developed alula and axillary lobe; frons without protuberance or with a very slight one; abdomen

- not so elongated, and never longer than the wings.
- 3 (16) Face yellow or reddish; scutellum and thorax very often yellow or yellow-spotted.
- 4 (15) Wings strongly dilated and with extended brown or yellow pattern; antennæ yellow; face without black middle stripe; third vein sinuous; third antennal joint very short ovate.
- 5 (12) Scutellum and pleuræ wholly yellow.
- 6 (11) Wings entirely blackish brown, with a middle yellowish streak and a preapical hyaline band.
- 7 (10) Wings with the axillary cell and alula blackish brown, like the rest; supra-antennal tubercle very prominent and violet-coloured; ocellar tubercle also prominent; thorax of female yellow with three or five black longitudinal stripes.
- 8 (9) Wings with only the central yellow streak and with the preapical hyaline band very broad, extended to the hind border; thorax of the male black *picta*, Wied.
- 9 (8) Wings with an additional yellow streak in the base of the anal cell; preapical hyaline band narrowed below and not reaching the hind border, the apical brown spot being in contact with the discal brown patch var. *superpicta*,
var. n.
- 10 (7) Wings with hyaline alula and yellowish hyaline axillary cell and base of anal cell; supra-antennal tubercle less prominent and yellow, black behind; ocellar tubercle not at all prominent; thorax of female without black stripes *helva*, sp. n.
- 11 (6) Wings with the basal half yellow, a broad blackish middle band and a smaller apical one, this last preceded by a complete hyaline band; thorax of female with only two longitudinal black stripes. *grahami*, sp. n.
- 12 (5) Scutellum entirely black or at the most with a yellow border; pleuræ black, at most with a yellowish spot.
- 13 (14) Scutellum black, yellow-bordered; pleuræ with a yellowish spot *ewyptera*, Bezzi.*
- 14 (13) Scutellum and pleuræ wholly black; wings blackish, with a broad hyaline preapical band, a blackish apical spot, a hyaline middle streak and hyaline axillary cell and base of anal cell *neavei*, sp. n.
- 15 (4) Wings not dilated and entirely greyish hyaline; antennæ wholly black; face with a black middle stripe; third vein

* Not in the collection; it was described from the Congo.

- straight; thorax and scutellum entirely black; abdomen with distinct paired yellowish spots; third antennal joint very elongate. *extranea*, sp. n.
- 16 (3) Face black, or at most with yellowish margins to buccal cavity; thorax and scutellum always black; wings either entirely hyaline or evenly infuscated, without any broad yellow or brown pattern.
- 17 (20) Wings hyaline, with a small brown apical spot at the end of the submarginal cell.
- 18 (19) Pterostigma pale yellowish; eyes adorned with three dark transverse bands; abdomen black at base and reddish with black stripes on the broadened part; female with a rather long and flattened ovipositor *ichneumonea*, sp. n.
- 19 (18) Pterostigma black; eyes with only a middle band; abdomen wholly black; female ovipositor not protruding. *saplarina*, Wied.
- 20 (17) Wings without defined brown apical spot, at most faintly infuscated at the extreme tip.
- 21 (24) Abdomen with a long stalk, the second segment being cylindrical, and as long as or longer than the third.
- 22 (23) Sides of buccal cavity black, like the rest of the face; wings hyaline or faintly infuscated, in the female narrowly but distinctly darkened at the tip; thorax grey-dusted; antennæ short and dark *præusta*, sp. n.
- 23 (22) Sides of buccal cavity yellowish; wings strongly infuscated, almost blackish along the fore border; thorax golden-dusted; antennæ a little longer and paler yellow. *marginata*, sp. n.
- 24 (21) Abdomen with a short stalk, the second segment being shorter than the third, not cylindrical and constricted towards the middle; wings hyaline, with dark stigmatic streak.
- 25 (26) Antennæ and legs mainly yellow *claripennis*, Loew.
- 26 (25) Antennæ dark and legs mainly black. *brevis*, Karsch.

34. *Baccha conifrons*, sp. n.

♀. Length of body 11 mm., of wing 7 mm.

A slender, elongate, *Ichneumon*-like species, easily distinguished by the conical ocelliferous prominence on the frons, and by the proportionally short and very narrow wings, which lack the alula and axillary lobe.

Frons dull velvety black, shining bluish on the prominent supra-antennal tubercle; there is a grey transverse band before the shining portion; ocellar tubercle more prominent than the supra-antennal one, shining black and bare; frons clothed with short dark hair near the vertex and in the depression between the two

tubercles; occiput dull black, grey pollinose, with a fringe of glittering, stiff white hair; face shining black towards the middle, dullish and white pollinose on the sides, yellowish on the lower portion of the cheeks and on the very narrow peristoma; facial tubercle not very prominent, rounded; hairs on the side of the face whitish and very soft. Antennæ short, entirely orange-coloured, the first two joints very short, the third bluntly ovate; arista longer than the antenna, brown, yellowish toward the base. Eyes bare, apparently adorned with two transverse dark bands, one on the middle, the other on the superior fourth. Thorax metallic black, with purple and bluish reflexions, clothed with short, silky, whitish hair, which, however, do not conceal four rounded spots, two before and two behind the suture; the sides and a band along the suture are grey-dusted; humeri with a broad rounded yellow spot; pleuræ bluish black, with greyish dust and short white hair. Scutellum finely punctate, wholly bluish black, with very short dark hair. Squamulæ very small, yellowish, without fringes; halteres yellow, with darker knobs. Abdomen very narrow, the stalk being formed by the second and the front half of the third segments, the rest being very little dilated; therefore the abdomen appears to be more linear than spatulate; second segment black, reddish yellow towards the base, like the first, longer than the third; third, fourth, and fifth dark reddish yellow, shining, with a narrow longitudinal blackish stripe, and two less distinct lateral blackish stripes at the base of the third segment; sixth segment black; after the sixth segment there are two other black segments, terminated by a blackish bilobate scale, which forms a peculiar ovipositor. Venter yellowish, black at the tip; the reddish segments are bordered by a very narrow black line on the exterior sides; the second segment and the constricted portion of the third are clothed with thin erect white hair on the sides, the rest is clothed with short depressed whitish hair. The four anterior legs, with the coxæ, wholly pale luteous; hind legs with bluish, thickened coxæ, black femora yellowish at the tip, black tibiæ yellow towards the base, and yellow tarsi a little darkened at the apex. Wings greyish hyaline, with black veins; subcostal cell and stigma wholly black; a blackish elongate apical spot extends from the end of the first to the end of the third longitudinal vein; third vein sinuous; submarginal cross-vein very sinuous; seventh longitudinal vein not sinuous at end, the anal cell shaped as usual.

Type ♀, a single specimen from Obuasi, Ashanti, 28. vi. 1907 (Dr. W. M. Graham).

35. *Baccha ichneumonea*, sp. n.

♀. Length of body 9 mm., of wing 6 mm.

A medium-sized species, distinguished by its red and black spotted abdomen and by the very long ovipositor of the female. Not unlike a small Ichneumonid wasp of the genus *Cryptus*, and resembling *conifrons* in having very small and not fringed squamulæ.

Head shining black, the occiput also very little dusted; occipital fringe of rigid white hairs well developed; frons very short and with dark hairs, the whitish transverse middle band ill-defined; antennal tubercle not very prominent, the ocellar tubercle not at all prominent; face shining black, with pale grey dust and with sparse pale hair on the sides, the central tubercle small but sharp and prominent; peristoma linear; antennæ very short, wholly orange-coloured, with short, bluntly ovate third joint and bare yellow arista; eyes with two bands, one on the middle, the other on the superior fourth. Thorax black æneous, metallic, shining, clothed with thin and depressed whitish hairs; pleuræ with erect short hairs; humeral calli very small and indistinct, reddish. Scutellum like the thorax pale-haired; squamulæ and halteres yellowish. Abdomen proportionally short; first and second segments entirely black, shining, with long erect white hairs on the sides; second segment as long as the third, not cylindrical, a little constricted towards the middle, alone forming the stalk; the third, fourth, and fifth segments, forming the spatulate and rather broad portion of the abdomen, are reddish with a median longitudinal black stripe, and the third and fourth besides with an oblique black streak on each side proceeding from the posterior corners and passing the middle of the segment. After the fifth segment there is only the ovipositor, which is longer than this segment, rectangular in shape, less attenuated at end and black with the base red; it consists of two broad flattened scales, a superior and an inferior one, the first ending in three, the second in two points. Venter of a reddish colour. Legs short and stout, entirely pale yellow, with a sharply defined and broad black preapical ring on the hind femora. Wings not widened, hyaline, vitreous, the subcostal cell only pale yellowish at end; apical brown spot not large, triangular, extending from the end of the second to the third vein, and along this vein from the subapical cross-vein to the tip; third vein faintly sinuous; anal cell of usual shape; alula and axillary lobe well developed.

Type ♀, a single specimen from Salisbury, S. Rhodesia (*G. A. K. Marshall*).

36. *Baccha picta*, *Wiedemann* (1830).

A handsome species, easily distinguished on account of its yellow, black-striped thorax and very broad and blackish-brown-tinged wings, which bear an abbreviated middle yellow stripe and a broad complete preapical hyaline band.

Loew has already recorded the variability of this species as regards the colouring of the spatulate portion of the abdomen, which varies from entirely black to reddish yellow with three black stripes. The black stripes of the thorax vary also from two to five; sometimes they are even dilated and fused together, the thorax being therefore wholly black in front of the suture.

The previously undescribed male is like the female, but has the thorax wholly black on the back, except a reddish-yellow lateral

stripe, extending from the humeri to the scutellum. The line of contact of the eyes as long as the very narrow vertical triangle: antennal tubercle less glittering violet. Abdomen black, with yellowish ill-defined spots on the sides of the third and fourth segments. Ocellar tubercle not prominent.

One male and three females from Obuasi, Ashanti, vi.-viii. 1907 (*Dr. W. M. Graham*).

Var. *superpicta*, var. n.

♀. Length of body 10 to 11 mm., of wing 8 to 9 mm.

Very like females of the typical form, which have a reddish-black striped abdomen, but the second segment showing always a black ring at the apex. The frons has the same coloration and similarly prominent antennal and ocellar tubercles, the antennal one being violet-coloured, but narrowly yellow in front; the eyes seem to have only a middle brown band, as in the typical form. The halteres have also a blackish club. Wings of the same shape

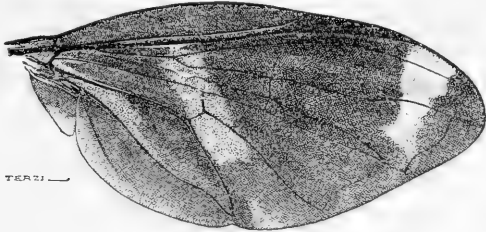


Fig. 7.—*Baccha picta*, var. *superpicta*, var. n.
Wing of ♀. × 7.

and coloration, but with the following two well-marked differences: (1) there is another yellow stripe, which occupies all the base of the anal cell and extends along the seventh vein to the middle of the same cell, ending in a point; (2) the hyaline preapical band is very narrow and short, ending before the hind lower corner of the first posterior cell. The brown apical spot is therefore fused with the brown middle band, not broadly separated as in the preceding form.

Type ♀ and three additional specimens from the same locality and collector as the typical form, vii.-ix. 1907.

37. *Baccha grahami*, sp. n.

♀. Length of body 9 to 10 mm., of wing 8 to 9 mm.

A very elegant species near *picta*, but at once distinguished by the very different wing-pattern, which is yellow basally, with a broad median brown band, and hyaline apically, with a brown band at the tip.

Head as in *picta*, both in shape and coloration; antennae orange-yellow; eyes apparently with a single brown band; occiput bearing

a complete fringe of rigid and glittering yellowish hair. Thorax wholly yellow, with only three parallel black stripes in the centre; the yellowish-grey erect hair on the back and scutellum is thick and twice as long as in *picta*. Squamule and halteres as in *picta*. Abdomen shaped as in *picta*; it is wholly yellow, with a black ring at the end of the second segment, a black longitudinal stripe from the base of the third segment to the end of the abdomen, and a short oblique black streak on the hind corners of the third and fourth segments; hair rather long, that on the spatulate portion also long and dark. Legs with the coxæ entirely pale yellow, without any dark marking. Wings as broad as in *picta* and of similar shape; third vein only slightly sinuous, and the seventh likewise, the anal cell therefore almost regular at the apex; wings yellow from the base to the small cross-vein,

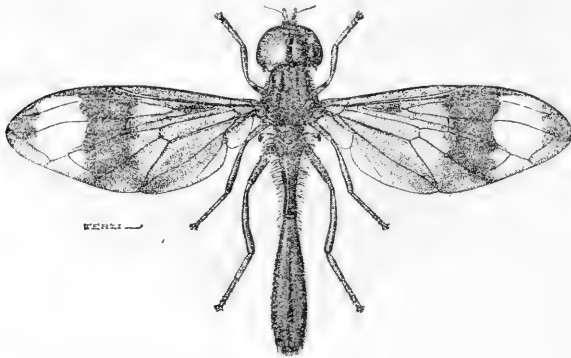


Fig. 8.—*Baccha grahami*, sp. n. ♀. × 5.

leaving the alula and the hind border of the axillary cell almost hyaline; the median brown band begins at the fore border a little before the end of the auxiliary vein and goes perpendicularly to the hind margin, where it ends at the apex of the third posterior cell; subcostal cell filled up with brown to the extreme end; apical brown band running from the end of the first to the end of the fourth vein; the hind border of the wings is infuscated from the tip to the end of the axillary cell. The veins are black, but yellow in the yellow portions of the wing.

Type ♀ and another specimen from Obuasi, Ashanti, vi. viii. 1907 (*Dr. W. M. Graham*). Named in honour of the collector, who has discovered so many interesting new species of West African Diptera.

38. *Baccha helva*, sp. n.

♀. Length of body 13 mm., of wing 11 mm.

Near *picta*, but more robust, without black stripes on the thorax,

with differently shaped frons, and narrower wings, with a different pattern.

Frons shining bluish black at the vertex, with a grey band before the ocelli; antennal tubercle less prominent, yellow, black behind; ocellar tubercle only slightly prominent; frons clothed with short pale hair; face and peristoma wholly reddish yellow, the facial tubercle more prominent than in *picta*; antennæ and arista orange-coloured; the eyes do not seem to be banded. Occiput black, greyish-dusted, whitish on the lower orbits; the occipital fringe seems to be limited to the superior part. Thorax and scutellum entirely shining reddish, with very short whitish hair;

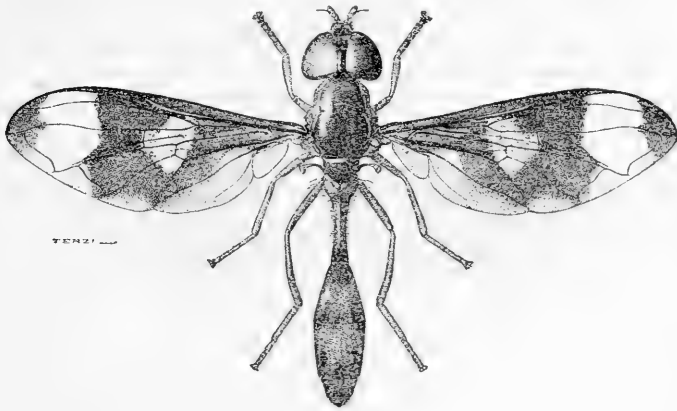


Fig. 9.--*Baccha helva*, sp. n. ♀. × 4.

pleuræ paler above, darkened below like the pectus, with very short hair. Squamulæ yellowish, with a short golden fringe; halteres yellowish. Abdomen proportionally shorter and broader, the second segment being as long as the third; it is wholly reddish, with indistinct black spots at the end of the second and on the posterior corners of the third and fourth segments; hair on the stalk pale and erect, on the rest dark and depressed. Legs including the coxæ wholly yellow, without any dark marking. Wings distinctly less broad than in *picta*; third vein sinuous as in *picta*, and the seventh likewise, the anal cell therefore suddenly constricted to a point before its end. The wings are blackish brown, but with a broad and complete hyaline band, and besides with hyaline alula and hyaline base of anal and axillary cells; the middle yellowish spot is not a simple streak, but is more than double as broad, extending to the small cross-vein and leaving a whitish spot in the submarginal cell just above the bifurcation of the second and third veins; apical isolated spot as in *picta*.

Type ♀, a single specimen from Durban, Mitchell Park, 22.i.1903 (*F. Muir*).

It is quite possible that *B. helva* is the female of the very dark-coloured *B. neavei*, described below.

39. *Baccha neavei*, sp. n.

♂. Length of body 11 to 12 mm., of wing 9 to 10 mm.

A species evidently belonging to the *picta*-group, but distinguished from any other on account of the wholly black coloration of thorax and scutellum; in all probability, however, the unknown female will be found to be paler-coloured than the male.

Head black; face yellowish red, the middle tubercle more yellow, the sides with bluish reflexions and sparse tomentum, and also with some dark hairs; peristoma narrow, blackened behind; frontal triangle shining blackish æneous, dark-haired; the not very prominent antennal tubercle is yellow towards the lunule and somewhat violet-coloured on the sides; vertical triangle very narrow, æneous black, black-haired; occiput black, whitish-dusted, with a complete white fringe, darkened above; lateral margin of the eyes white; antennæ dark orange-coloured, the basal segments blackened, with bluntly ovate third joint and brown arista, which is, however, yellow at the base and sometimes shortly pubescent. Line of contact of eyes as long as the vertical triangle; eyes apparently adorned with a single median dark band. Thorax and scutellum entirely metallic shining æneous, with short pale hairs; humeri very narrowly reddish; pleuræ like the back, darkened above, clothed with slightly longer hairs. Squamulæ yellow, with a short fringe; halteres whitish. Abdomen very narrow, cylindrical, only slightly spatulate, wholly shining black; third and fourth segments with an oblique yellowish spot towards the middle of the sides, sometimes fused to form a complete band; hair on the stalk very long and erect, otherwise short and dark. Genitalia black, grey-dusted and grey-haired. Front legs with the coxæ entirely pale yellow; middle legs with the femora blackened behind towards the base; hind legs with the femora black, yellow at the apex, and the tibiæ yellowish with a more or less distinct subapical black ring. Wings less broad than in *picta*, with black veins, the third and the seventh sinuous, the anal cell therefore irregularly shaped as in *picta*; wings blackish brown, but with hyaline alula, axillary cell, and hind border; there is a narrow hyaline streak in the middle extending from the bifurcation of the second and third veins to the third posterior cell; subcostal cell black; a broad hyaline preapical band and a broad apical brown spot extending from the end of the first to the third vein, and often even passing it more or less.

Type ♂ and two additional specimens from Lamoru Station, Uganda Rly., British East Africa, 9-10. iii. 1911, 7,340 ft., collected by *Mr. S. A. Neave*, in whose honour the species is named. There is also a male specimen from Durban, 6. vi. 1903 (*F. Muir*).

40. *Baccha extranea*, sp. n.

♂. Length of body 11 mm., of wing 9 mm.

Distinguished from any other known African species by its wholly black antennæ (which besides have an elongated third joint), the black-striped face, and the sharply-defined pale yellowish abdominal spots. The present species has no ally in the African fauna, and resembles the American *clavata*, Fabr., from which, however, it is at once distinguished by the wholly black scutellum.

Frontal triangle and face whitish yellow; lunula black; a black median stripe on the face extending from the buccal cavity to the lunula, but becoming smaller and undefined above; peristoma narrow, pale yellow, with a narrow blackish border along the eyes; vertical triangle shining black; occiput black, grey-dusted, with a fringe of white, thick, and soft hair, which is very different from the sparse and rigid hair forming the same fringe in the preceding species; antennæ wholly black, the third joint rather elongate, almost as long as the arista, which is brown and short; eyes touching along a line equal to the length of the vertical triangle, and apparently not banded. Thorax shining æneous black, without any yellow marking, clothed with erect greyish hair; pleuræ slightly greyish, with longer white hair. Scutellum like the thorax, wholly shining bluish black. Squamulæ white, with a short fringe; halteres white. Abdomen narrow, entirely black, the spatulate portion not very broad; second segment cylindrical, as long as the third; hairs on the stalk short; second segment with a small rounded whitish spot on the middle of the sides; third with a like spot, which is, however, broader and nearer to the base; fourth with two larger spots, which are almost in contact with the base and approach each other above in the middle. Genitalia shining black, with a short yellowish appendage beneath. The four anterior legs are reddish yellow, with the basal half of femora black and with the tibiæ bearing a sharply defined median black ring, tarsi blackened at the apex; hind legs with the femora black, yellow at the extreme tip, the tibiæ black, but broadly yellow towards the base; the tarsi black at the apex. Wings narrow, greyish hyaline, without any distinct marking; stigmal streak pale yellowish; third vein straight; seventh also straight, the anal cell being therefore regularly lanceolate at the end; veins black; alula and axillary lobe well developed; postical cross-vein almost straight.

Type ♂, a single specimen from Salisbury, S. Rhodesia (*G. A. K. Marshall*).

41. *Baccha marginata*, sp. n.

♂. Length of body 12 mm., of wing 10 mm.

Distinguished by the golden pubescence on the thorax, by the yellow margins of the buccal cavity, and by the infuscated wings, which have a blackish fore border.

Head black; occiput with dark grey dusting, whitish on the sides below, and with the usual fringe of yellowish, rigid hairs; vertical triangle black, short and very narrow, black-haired; frontal triangle æneous, with some dark hairs above and on the sides; frontal tubercle rounded, prominent, violet-coloured, shining purple on the sides, with a semicircular depression above; face shining æneous above and towards the middle, grey-dusted on the sides, yellowish below, the sides of the buccal cavity and the peristoma yellow, this last black behind; antennæ dark luteous, the third joint short-oval; eyes with the middle brown band only, touching along a line which is a little longer than the vertical triangle. Thorax æneous, without yellow markings, punctate, not very shining, clothed with depressed golden hairs; pleuræ more shining, with longer golden hairs on the mesopleuræ; scutellum wholly æneous, punctate, with very short and sparse hairs. Squamulæ yellowish, with a short fringe; halteres yellowish. Abdomen long and slender, almost linear; the hairs on the sides of the stalk are erect and yellowish, of medium length, the others are short and darker; first segment æneous in the middle, yellowish on the sides; second entirely shining black, cylindrical, as long as the third; third and fourth at the base each with two ill-defined yellowish spots, which are bifid behind; fifth entirely black; genitalia shining æneous, pale-haired; venter black, in the middle of the third and fourth segments there is a yellow spot, which is bifid behind. The four front legs and the front coxæ are yellow, the tarsi alone being darkened at the tip; hind femora yellow, with a broad preapical black ring; hind tibiæ blackish, with broad yellow base; hind tarsi blackish, the first joint yellowish. Wings of normal size, evenly infuscated with a yellowish-brown tinge, which is a little paler on the hind border near the base; fore border blackish in the costal, marginal, and end of submarginal cells to the end of the third vein; subcostal cell and stigma black; third vein rather sinuous; seventh vein bent up at the end, and therefore the shape of the anal cell is like that in the broad-winged species, but not so accentuated. The peculiar fleck at the end of the second basal cell is more conspicuous than usual in the clear-winged species; from this fleck issues, as in the other species, a vein-like fold which divides the upper cross-vein between the second basal and the discal cells.

Type ♂, a single specimen from Obuasi, Ashanti, 8. xi. 1907 (Dr. W. M. Graham).

42. *Baccha sapphirina*, Wiedemann (1830).

A black species, easily distinguished by the bright orange antennæ, by the shining bluish transverse abdominal bands, and by the pure hyaline wings, which bear a black stigma and a black apical spot.

B. flavicornis, Loew (1863), and *B. punctum*, Bigot (1883), are certainly identical with the present species; in 1908 I used the former name in recording the species from Erythraea. But,

subsequently, the late Mr. Verrall recorded the Oriental *sapphirina* from Aden, and Dr. Speiser has even reported it from Erythræa therefore I now think that we have only one species, which is widely distributed in the Oriental and Ethiopian Regions, like *Paragus serratus*.

Eyes with a median brown band only.

There are in the collection six males and two females from Zungeru, Northern Nigeria, 29. iii. 1911 (*Dr. J. W. S. Macfie*); also a male from Durban, 6. vi. 1903 (*F. Muir*). Another male from Salisbury, S. Rhodesia (*G. A. K. Marshall*), shows below the stigma an ill-defined dark yellowish spot, extending over the small cross-vein to the fourth vein, like that which I described in 1908; Dr. Kertész has figured it as characteristic of the male wing in *Ann. Mus. Nation. Hungar.* xi. p. 280, fig. 7a (1913), but in Ethiopian specimens it is often entirely wanting.

43. *Baccha præusta*, sp. n.

♀. Length of body 8 to 10 mm., of wing 5 to 7 mm.

A black species, very like the preceding, but with darker antennæ and greyish hyaline wings, which have no apical spot, but are only narrowly infusate near the tip.

Head shining black, with bluish reflexions; frons pale-haired, with a transverse whitish band on the depression; antennal tubercle rounded and large, rather prominent; no distinct ocellar tubercle; facial tubercle small, but narrow and cariniform; peristoma linear; face with whitish dusting on the sides; occipital fringe of typical shape, white; eyes apparently with the middle band only; antennæ short, dark yellow, almost brownish. Thorax and scutellum shining black, without any yellow marking, clothed with sparse whitish hairs, which are longer and whiter on the mesopleuræ. Halteres and squamulæ white, the latter with short white fringe. Abdomen with a long stalk and the spatulate portion not very broad; it is black, with bluish bands at the base of the third and fourth segments, that on the third broader than the other; stalk with long erect white hairs on the sides, the hairs elsewhere rather long, but darker. Venter black. Legs yellow, with black coxæ; the four front femora broadly black at the base, but the extreme base yellowish; hind femora black, narrowly yellow at both ends; tibiæ black, broadly yellow towards the base; tarsi black, with yellowish first joint. Wings short and rather broad, rounded outwards, uniformly pubescent and therefore greyish hyaline; the stigma blackish; the apical infuscation small, but very distinct; third and seventh veins almost straight; alula and axillary lobe broad; veins black and thick.

Type ♀ and four additional specimens from Obuasi, Ashanti, viii.-xii. 1907 (*Dr. W. M. Graham*).

? *Male*. A specimen from Durban, 1903 (*F. Muir*), seems to be the male of the present species. Head, antennæ, and thorax as in the female. Abdomen with a long stalk, with the spatulate

portion shorter and broader; legs with the four front femora entirely yellow and the hind ones with the basal half yellow; wings narrower and longer, without the apical infuscation, and with more slender veins.

Another male from Zungeru, N. Nigeria, xi. 1910 (*Dr. J. W. S. Macfie*), is very similar, but has the wings infuscated with a yellowish-brown tinge.

44. *Baccha* ? *brevis*, *Karsch* (1887).

Near *claripennis*, having hyaline wings and a short abdominal stalk constricted in the middle, but apparently distinct, on account of its darker antennæ and legs.

I refer with doubt to this species a female specimen from Chirinda Forest, Melssetter District, S. Rhodesia, x. 1905 (*G. A. K. Marshall*), which is 8 mm. long and has dark luteous antennæ, with the third joint blackened above, and almost black legs, with only the knees and the basal joints of the tarsi yellow. In other respects it answers to the description of *claripennis*; the true *brevis* seems to be smaller, only 6 mm. in length, and was found at Loanda, Angola. The pterostigma is pale yellowish, not brown at the base.

Genus 9. *RHINGIA*, *Scopoli* (1763).

For a long time the only known Ethiopian species of this genus was that described by Loew in 1857; Austen added a second species in 1893, and I myself a third in 1908; more recently four other species have been described by Dr. Speiser and by myself. It seems that the Ethiopian fauna is very rich in species of this genus, chiefly of the characteristic group of metallic-blue forms. Those in the collection can be distinguished as follows:—

- | | | |
|---|--|-----------------------------|
| 1 | (2) Thorax and scutellum entirely yellow; frons of the female wholly yellow; snout wholly yellow, without black band; abdomen yellow, with very narrow black hind borders to the segments | <i>lutea</i> , sp. n. |
| 2 | (1) Thorax either entirely metallic blue, or entirely black, or with only the sides and pleuræ yellow. | |
| 3 | (6) Abdomen yellow with black or blue bands. | |
| 4 | (5) Sides of thorax and pleuræ metallicaceous, with only some small yellowish markings; scutellum dark metallic; abdominal bands black, that on the second segment not dilated towards the sides | <i>semicærulea</i> , Aust. |
| 5 | (4) Sides of thorax and pleuræ yellow; scutellum yellow; abdominal bands blue, that on the second segment greatly dilated on the sides, occupying the whole of the lateral borders | <i>pellucens</i> , sp. n. ✓ |

- 6 (3) Abdomen metallic blue, more or less yellow towards the base; scutellum and thorax of a metallic-blue colour.
- 7 (10) Snout reddish yellow; second abdominal segment more or less yellow, third with a dull black or bluish hind border.
- 8 (9) Legs entirely pale yellow; species of smaller size *cærulescens*, Loew.
- 9 (8) Legs strongly infuscated; species of larger size var. *fuscipes*, var. n.
- 10 (7) Snout shining blue, like the rest of the body; only the first abdominal segment yellowish towards the middle, third without dark hind border *pycnosoma*, sp. n.

45. *Rhingia lutea*, sp. n.

♀. Length of body 11 mm.

A wholly luteous species, distinct from the allied *mecyana*, Speiser, in having the frons and the snout entirely yellow, and the black hind border of the abdominal segments narrower.

Head reddish yellow, the sides of the occiput blackish, with dark grey dust; frons shining, clothed with very short dark hairs placed on small dark punctures, and with an ill-defined dusted band before the supra-antennal tubercle, which is rounded, prominent, and bare; face shining, with a reddish middle keel continued on the snout, which is long and dull reddish, without any brown marking; peristoma yellowish, whitish and white-haired behind; proboscis black, as long as the snout; antennæ orange-coloured, with the basal joints very short and the third longer than broad and somewhat pointed at the tip; arista bare, long, brown, broadly reddish towards the base; occiput with some erect dark hairs at vertex, but without any fringe on the sides. Thorax reddish, punctate, with very short dark hairs on the punctures; pleuræ with greyish tomentum and almost bare; a blackish spot on the breast over the hind coxæ; seen from behind the thorax shows in the middle two ill-defined, broad and parallel, whitish stripes. Scutellum very broad, semicircular, yellow, punctate, with short black hairs, the punctures and the hairs being more developed along the hind margin, which therefore appears minutely serrulate; below in the middle it is clothed with erect soft white pubescence. Squamulæ yellowish, with a very long fringe of dark yellowish feathered hairs. Halteres yellowish. Abdomen broad and rounded, less punctate and more glittering than the thorax, the first two segments pale yellowish, the others reddish like the thorax; first segment with a very small black line behind, broadly interrupted in the middle and not reaching the sides; second segment with a black hind border, which is narrowed but not interrupted in the middle; third, fourth, and fifth with a slightly broader black hind border. The hair on the abdomen is very short and dark, only on the sides at base longer and yellowish. Venter yellow, with black hind borders on the sides of third and middle of fourth segments. Legs with the

coxæ entirely pale yellow; front tarsi with the basal joint showing at the base a very conspicuous but short black stripe. Wings hyaline, with a faint yellowish tinge; subcostal cell very long, pale yellowish, but there is no distinct stigma; veins black, yellowish towards the base, the first being yellow throughout its whole length: third vein strongly bent backwards at the end, and therefore ending beyond the tip of the wing, the submarginal cell being greatly dilated at the apex.

Type ♂, a single specimen from Ruwe, Iualaba R., Belgian Congo, circa 11° S., 26° E., ii. 1906 (*Dr. A. Yale Massey*).

A single badly-preserved male from Durban seems to belong to this or to a very closely allied species; it has no black spot on the breast, and the hind borders of the abdominal segments are very narrow and linear.

46. *Rhingia semicærulea*, *Austen* (1893).

Distinguished by the æneous, partly cæruleous, thorax, and by the yellow, black-banded abdomen, the band on the second segment not being dilated at the sides.

The determination is doubtful, because the specimens are not well preserved; the subcostal cell is distinctly yellowish, the legs are infuscated, the thorax, sides, and pleuræ are partly dark yellowish, the frons of the female is shining blue, but the antennal tubercle is yellow in front and black behind.

A couple from Blantyre, Nyasaland Protectorate, 5.iii.1910 (*Dr. J. E. S. Old*), the male with the proboscis accidentally protruding, measuring 9 mm. in length, while normally the proboscis is not longer than the snout: an immature female specimen from Zomba, Nyasaland (*Dr. H. S. Stannus*). The species was originally described from Sierra Leone.

47. *Rhingia pellucens*, sp. n.

♂ ♀. Length of body 9 to 10 mm.

Allied to the preceding, but distinguished by its smaller size and differently coloured thorax and abdomen.

Head of the male almost entirely occupied by the eyes, which are united along a very long line, as long as $2\frac{1}{2}$ times the black vertical triangle, and have the upper facets very large and redder in colour than the others; eyes of the female with equal facets, parted by a broad frons which is blue, very glittering, with short dark hair, without any tomentum and with the antennal tubercle dark reddish yellow; face and snout in both sexes and the bare frontal triangle in the male reddish yellow; peristoma yellow; antennæ orange-coloured, the third joint a little longer than broad, with a long bare yellow arista, which is brown towards the tip. Thorax shining blue or æneous in the middle, clothed with erect pale hairs in the male and with very short ones, inserted on small punctures, in the female; sides of thorax broadly, and pleuræ more

or less, yellowish, with some metallic reflexions; sternopleuræ and breast with broad black spots. Scutellum yellow, with metallic-bluish reflexions, punctate, clothed with short dark hairs and with some longer and bristle-like hairs on the hind border. Squamule yellowish grey, with a long fringe; halteres yellow. Abdomen shortly oval; first segment pale yellow, with a very narrow black hind border, which is broadly interrupted in the middle and does not reach the sides; second segment pale yellow, with a narrow black hind border, which at the sides becomes blue and dilated, covering the sides broadly and reaching the first segment; third and fourth segments reddish yellow, glittering, with some faint metallic reflexions and a black hind border, which also becomes blue towards the sides, where, however, it is not

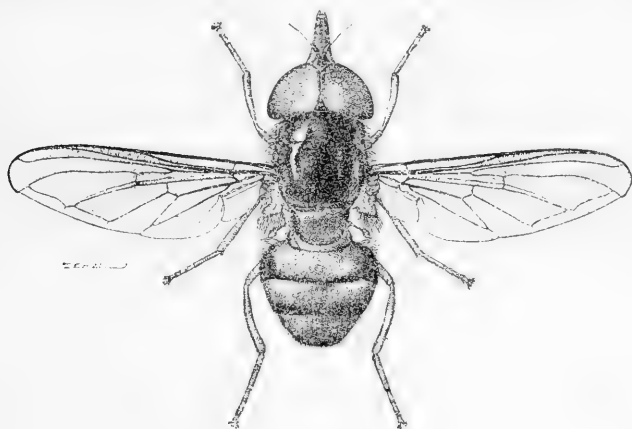


Fig. 10.-- *Rhingia pellucens*. sp. n. ♂. $\times 3\frac{1}{2}$.

dilated, but only produced to the hind margin of the preceding segment as a narrow line; the hairs on the base are longer, the others are short and dark in the female, erect and pale in the male; genitalia of the male reddish yellow, with black spots below, pale-haired. Venter pale yellow towards the base, reddish yellow at apex. Legs entirely of a pale yellow colour, only the tips of the hind tarsi darkened; the black streak on the front tarsi is distinct. Wings hyaline, with a very faint yellow tinge, more distinct in the subcostal cell; veins yellowish, darkened at tips, following the same course as in *R. lutea*.

Type ♂ and *type* ♀ and a couple of additional specimens from Nuwisi Stream, Nkana, N. Nyasa, 9. iv. 1909 (*Dr. J. B. Davey*); a male and two females from Blantyre, Nyasaland Protectorate, iii.-iv. 1910 (*Dr. J. E. S. Old*); a male from the W. shores of Victoria Nyanza, Buddu, Uganda Protectorate, 3,700 ft., ix. 1911

(*S. A. Neave*); a female from Chirinda Forest, Melsetter District, S. Rhodesia, x. 1905 (*G. A. K. Marshall*); two males and a female from the same locality, 3,800 ft., 3 20. iv. 1910, "very common in house" (*C. E. M. Swynnerton*).

48. *Rhingia cærulescens*, Loew (1858).

A pretty violaceous or æneous species, with reddish snout and wholly metallic, not banded, abdomen, which is more or less broadly yellow towards the base.

The present species is of the same size as the preceding one, but very different in coloration. The yellow on the base of the abdomen is very variable; some specimens have only the first segment and a median spot on the second segment yellow; some others have the second segment yellow, except on the sides, and the third with a more or less broad yellow median spot. Basal black streak on the front tarsi very distinct.

This species, like the preceding one, in whose company it is often found, seems to be very common. A female from Marsabit, British East Africa, 23. ix. 1911 (*R. J. Sturdy*); Chirinda Forest, S. Rhodesia (*G. A. K. Marshall* and *C. E. M. Swynnerton*); Zomba, Nyasaland (*Dr. H. S. Stannus*); Luulaba River, Belgian Congo, 1910 (*Dr. A. Yale Massey*); a male from Western Ankole, Uganda Protectorate, 4,500-5,000 ft., 12-14. x. 1911 (*S. A. Neave*).

Var. *fuscipes*, var. n.

♂ ♀. Length of body 11 mm.

Distinguished from the typical form by its slightly greater size, and by having all the femora more or less dark brown or black, with only the apex yellow; sometimes the hind tibiæ also are blackish in the middle and all the tarsi darkened towards the end.

Type ♂ and *type* ♀ from Chirinda Forest, S. Rhodesia, 3,800 ft., 3. iv. 1910 (*C. E. M. Swynnerton*); a male from N.-E. Rhodesia, near R. Chire, 17. ii. 1909 (*Dr. J. B. Davey*); a female from N. Nyasa, Mt. Waller, 1. ix. 1909 (*Dr. J. B. Davey*).

49. *Rhingia pycnosoma*, sp. n.

♂. Length of body 10.5 mm.

A wholly shining cæruleous species, resembling a *Pycnosoma*, very distinct from any other on account of its cæruleous frontal triangle, face, and snout.

This species seems to be closely allied to *cyanoprora*, Speiser, and *pulcherrima*, Bezzi, but differs from both in the coloration of the legs, and from the former in the thorax being all cæruleous without yellow markings. *R. cærulea*, recently described by me, is perhaps the female of the present species, but has a yellow face and snout.

Head black, with bluish reflexions, with sparse grey dust on the occiput, some black hairs at the vertex, and whitish hairs on the chin; frons and face entirely bare; eyes large, entirely brown, in contact along a line which is double as long as the vertical triangle, with the upper facets much larger than the others; antennæ with the two basal joints blackish, the third yellow-brown, oval, longer than broad, with a long arista, which is yellowish towards the base; face strongly shining, without any yellow marking; snout dullish black at the tip, with a dark yellow longitudinal stripe on each side; peristoma entirely bluish black. Thorax entirely shining bluish, the humeral and postalar calli narrowly reddish; the back is clothed with long erect black hair, the pleuræ are grey-haired; scutellum like the thorax, deeply punctate, aeneous on the hind border, and there with some long bristle-like hairs, clothed below with yellowish hair. Squamulæ dirty whitish, with a long fringe; halteres dark yellowish. Abdomen entirely shining blue, the first segment only being dark reddish in the middle below the scutellum; second with hind border broadly dull blackish blue towards the middle; third similar, but less distinct. The hairs on the abdomen are longer at the base and dark externally, those on the back erect and pale, but those on the dark portion of the second segment black. Legs, including the coxæ, black, the femora being very narrowly yellow at the extreme tip; the four anterior tibiæ are pale yellow, the hind tibiæ darkened as in the middle and reddish at the tips; fore tarsi less darkened apically, hind tarsi more broadly so; front tarsi with a distinct basal stripe; first joint of front and hind tarsi thickened. Wings hyaline, with a yellowish-brown tinge; mediastinal cell more yellow; venation typical, but the third vein not so much bent downwards at the end and therefore the submarginal cell not so much dilated at the tip; vena spuria not so strongly chitinised as in the other species.

Type ♂, from Obuasi, Ashanti, 27. iv. 1907 (*Dr. W. M. Graham*), a single specimen.

Subfamily II. VOLUCELLINÆ.

Genus 10. GRAPTOMYZA, *Wiedemann* (1820)

Of this very peculiar genus five species only are known from the Ethiopian Region—one described by Karsch in 1887, two by Bigot in 1882 and 1883, one of which he referred to a new genus called *Ptilostylomyia*, and two by me in 1908. I have given a table for the distinction of these species in my paper on Fea's Syrphidæ; but I now think that there are only three distinct species, viz. *suavissima*, Karsch, very different from the others on account of its blue abdomen; *vittigera*, Bigot, with its six black abdominal stripes; and *triangulifera*, Bigot, of which my *melanura* and

pentaspila are synonyms corresponding to the two usual forms of the male and female. To these three species is to be added *Paragus signatus*, Walker, from Durban, and perhaps also *Microdon varius*, Walker, from Sierra Leone. From the Oriental Region no less than nineteen species have been described by Osten Sacken, Brunetti and de Meijere. The genus seems therefore to be mainly Oriental, but Africa possesses some very interesting species, provided with very peculiar structural characters. All these species seem to mimic the hymenopterous genus *Melipona*, which they resemble very much in shape, colouring, and structure of the legs; probably they are scavengers in their habits, as are our species of *Volucella*.

In the collection there are the four following species:—

- | | |
|---|-----------------------------|
| 1 (2) Second and fourth longitudinal veins bearing from the base to the middle very numerous and long bristles; basal joint of middle tarsi in the male not dilated and as long as the four succeeding joints; scutellum with a yellow margin and a broad black depression; legs with black markings; wings with three narrow dark bands. . . . | <i>triangulifera</i> , Big. |
| 2 (1) The second vein alone with bristles near the base; species usually of larger size; wings with broad brown spots or bands. | |
| 3 (4) Legs usually of a pale yellow colour, without any black marking; scutellum with a very broad black depression, apparently black with a yellow border; abdomen yellow, with black markings; basal joint of middle tarsi as long as the others taken together | <i>xanthopoda</i> , sp. n. |
| 4 (3) Legs with black markings on the femora and tibiæ; scutellum yellow, with a small central black depression; basal joint of middle tarsi short, and that of the male dilated, only as long as the next joint; abdomen black, with yellow markings. | |
| 5 (6) Scutellum entirely of a reddish colour, the median depression alone black; thorax and abdomen with golden tomentum and golden hairs | <i>area</i> , sp. n. |
| 6 (5) Scutellum yellow, with the basal half black; thorax without golden tomentum or golden hairs | <i>nigra</i> , sp. n. |

50. *Graptomyza triangulifera*, Bigot (1882).

A small species, readily recognised by the fourth longitudinal vein being bristly towards the base and by the peculiar abdominal pattern.

The male measures 5–6 mm. in length and was described by me as *melanura*; the female measures 6–7 mm., and was described by me as *pentaspila*. I am enabled to substantiate this synonymy

on account of the good preservation of the material collected by Dr. Graham, while the specimens on which I founded these species were badly preserved. Bigot described the arista as bare; but this is an error, due to the fact that the hairs are easily abraded, like those on the eyes; in reality, the arista is shortly plumose, as in the other species.

G. pentaspila corresponds to the female, which is larger and in which the third and fourth abdominal segments have the median black spot divided into two by a narrow yellow line; *G. melanura* corresponds to the male, which is smaller and has only a triangular black spot on the third segment, while the fourth is entirely black. The mesopleurae have in both sexes a perpendicular yellow band, attenuated below and in continuation with the sutural band. The bristles on the thorax and scutellum, and the scutellum itself are as in the following species. The four anterior legs, including the front coxae, are entirely pale yellow; hind legs with black coxae, the femora with the apical half abruptly shining black, the tibiae black, densely clothed with hairs, the tarsi yellow. The first joint of the tarsus of the middle legs of the male is simple, cylindrical, and almost as long as the other joints together. The hind tibiae bear stout black bristles placed in a row along the external fore border, which are more developed in the female. In the wings, the bristles on the second vein run from the base to its bifurcation, those on the fourth vein are present only on the portion before the cross-vein dividing the second basal from the discal cell: but these bristles seem to be also easily abraded. There are on the wings three brown cross-bands; the first very short below the stigma, not passing the second vein; the second broader, extending beyond the hind cross-vein; the third smaller, passing the subapical cross-vein.

Five males and two females from Obuasi, Ashanti, v. xi. 1907, caught on window or in bush (*Dr. W. M. Graham*).

51. *Graptomyza xanthopoda*, sp. n.

♀. Length of body 6 mm.

A small species, closely allied to the preceding one, but distinguished by having a bare fourth vein, less distinct median abdominal spot, wholly yellow hind legs, and broadly spotted wings.

Head shining black, the occiput almost without any tomentum; frons broad, flat, with a keel and a round small fovea on each side in the middle; the frons is clothed with almost yellowish hairs, which become darker over the antennae, and is black with four subquadrate yellow spots, two near the ocelli and two on the sides of the slightly prominent supra-antennal tubercle, all these four spots being in contact with the eyes; face shining yellow, moderately produced, with yellowish hair, and three ill-defined brownish stripes, one in the middle and one on each side; peristoma yellow, with whitish hair behind; vertical fringe yellowish; eyes clothed with short whitish hairs; antennae black, the very elongate third

joint being a little yellowish below near the base, with a long, shortly plumose arista; proboscis shining black, with yellowish labella. Thorax quadrate, punctate, black, with indistinct purplish reflexions; humeri yellow, there is also another smaller yellow spot on the inner side of each humeral callus; sides of the suture with an abbreviated yellow band; the postalar calli and a band just before the scutellum also yellow; pleuræ shining black, the propleuræ and a vertical band across the mesopleuræ yellow; this band is clothed with long yellowish hair and is attenuated below and dilated above, where it is in contact with the sutural band. The dorsum of the thorax is clothed with dark and yellow hair, which latter forms a median longitudinal band, which is bifid in front, a broadly interrupted sutural band, and a complete one before the scutellum; there are also some very long black bristles, a group of shorter ones in front, and four very long ones behind them, and besides a row of short bristles before the scutellum, the external ones being longer and decussate. Scutellum black at the base, yellow below and on the sides; the entire middle is occupied by a very broad and deep depression, which is black and grey-dusted in the centre; the scutellum bears golden-yellow hairs on the sides and along the hind border, and four very long black bristles, the middle ones decussate. Metanotum shining black; squamulæ whitish, with a yellowish fringe; halteres white. Abdomen oval, blunt at the end, convex, very strongly punctate; first segment yellow, with a smooth and glittering median depression below the scutellum; the sides produced anteriorly, forming two very prominent tubercles; the succeeding segments are yellow, punctate throughout, with only a linear shining band on the front border of the second segment, before which the border is granulated, and a narrow band on the hind margin of same segment; the hairs are whitish and erect on the sides, golden yellowish and depressed in the middle, becoming longer on the fourth segment; there are two lateral black stripes, one on each side, running from the fore border of the second to the hind border of the fourth segment; in the middle of the second, third, and fourth segments there are two brownish indistinct divergent spots, forming the usual triangle. The venter is greatly sunken, surrounded by a raised margin, shining yellow, black at the end. Legs, including the coxæ, entirely yellow, the hind pair strong and thickened, with short but dense yellow hairs; tarsi darkened at end; hind femora with the apical half a little reddish; hind tibiæ without stout black bristles externally; basal joint of middle tarsi long and thin, as long as the other joints together. Wings with a yellowish-grey tinge and the usual venation, with no trace of a vena spuria; the stumps of veins at the lower angles of the first posterior and discal cells very long, longer than in the preceding species; stigma brown; subcostal cell yellow, brown at the end; the first oblique brown band begins at the stigma and ends at the fourth vein near the small cross-vein; the second broader band begins at the end of the first vein and ends broadly in the first posterior cell, where it fuses

with a brown band on the subapical cross-vein; hind cross-vein with a broad spot; end of the anal cell with an ill-defined brown spot.

Type ♀, a single specimen from Obuasi, Ashanti, 23. vi. 1907 (Dr. W. M. Graham).

52. *Graptomyza aurea*, sp. n.

♂ ♀. Length of body 8 to 9 mm.

Allied to the preceding species, but larger and distinguished by the black facial stripes, the black abdomen clothed at the end with golden hairs, and by the shorter basal joint of the middle tarsi, which besides is dilated in the male.

Head as in *G. xanthopoda*, but a little more produced; frons of equal width in both sexes, with the two foveæ merged into a single

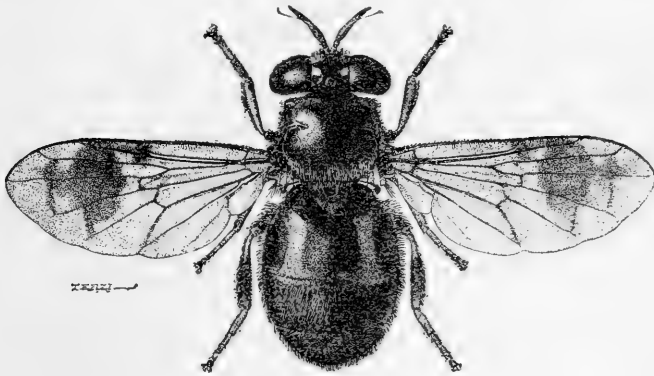


Fig. 11.--*Graptomyza aurea*, sp. n. ♂. × 5.

broad depression, and the two lateral yellow spots usually fused together along the eyes; the three facial stripes are well marked, black, but not broad; hairs on eyes longer; antennæ as in the preceding species, but the hairs on the arista a little longer. Thorax with the colour and hairs as in *G. xanthopoda*, but the golden hairs more abundant and longer, chiefly towards the hind border; bristles similar. Scutellum very different, with a smaller and deeper median depression, which is dark and dusted in the middle; the golden hairs are longer; the four bristles as in the preceding species, but the apical ones are distant and not decussate. Halteres and metanotum as in *G. xanthopoda*; squamulæ dark, with golden fringe. Abdomen of the same shape and punctate as in the preceding species, but towards the end clothed with longer and denser golden hair; first segment black, with only the middle depression and the tips of the lateral prominences yellow; second black, with a median yellow hind border, abbreviated laterally and united with

two yellow stripes, thus forming a perfectly quadrate black median spot; the other segments black, the third bearing sometimes a pattern like that of the second, or with a more or less broad yellow spot; venter black, yellow towards the middle at the base; male genitalia black. The four front legs are yellow, but the coxæ and femora, except the ends, are black, the front femora besides are yellow on the anterior surface; middle tarsi very characteristic, the basal joint being in the male disciform, nearly circular, and in the female not dilated, but much shorter than in the females of the two preceding species; hind legs strong and thick, black, the femora yellow at each end, the tibiæ unarmed externally, the tarsi yellow; the hairs are dense and short; first joint of front tarsi with a black basal stripe (as in *Rhingia*), which is often indistinct. Wings with a faint brownish-yellow tinge; stigma darkened at the base; there is a single broad middle band, beginning at the fore border before the end of the first vein and ending towards the apex of the discal cell; there is besides sometimes a trace of an indistinct short second band along the subapical cross-vein.

Type ♂, another specimen, and *type* ♀ from Oshagbo, S. Nigeria, x. 1910 (*Dr. T. F. G. Mayer*); a female from Ilesha, S. Nigeria, 23. vii. 1910 (*Capt. L. E. Humphrey*); two females from Obuasi, Ashanti, 7-30. vii. 1907 (*Dr. W. M. Graham*).

53. *Graptomyza nigra*, sp. n.

♂ ♀. Length of body 8 mm.

Near the preceding species, but darker, with broader facial stripes, the base of the scutellum black, and the abdomen not golden.

Head as in *G. aurea*: the four frontal yellow spots are very small and separated; the median facial stripe is shining black and very broad, the face therefore appearing to be black with two yellow stripes: third antennal joint entirely black, with a yellow and shortly plumose arista; eyes clothed with long whitish hairs. Thorax as in the preceding species, but with shorter pubescence, which is grey and not golden; the yellow markings are less developed, there is no spot inside the humeral callus, the sutural streak is smaller, and the mesopleural stripe is very narrow; scutellum as in *G. aurea*, but shining black on the basal half. Squamula whitish and with a white fringe. Abdomen as in the preceding species, but the pubescence is grey, mixed with black hairs towards the end of the fourth segment; it is black, with only two parallel narrow yellow stripes running from the fore border of the second segment to the middle of the third; there is besides a yellow marginal stripe, which is broader on the sides of the second segment: venter black; male genitalia black. Legs as in *G. aurea*, but the hind femora only with the extreme base narrowly yellow; the knees are also more narrowly yellow; first joint of middle tarsi of male distinctly, but less, dilated; the black hairs are more abundant. Wings with the stigmatic field yellow, black towards

the base; there is in the marginal cell a dark spot below the stigma and connected with it; a broad band, as in the preceding species, united with the less distinct pre-apical band in the first posterior cell.

Type ♂ and *type* ♀ from the Uganda Protectorate, Mabira Forest, Chagwe, 3,500–3,800 ft., 16–25. vii. 1911 (*S. A. Newve*).

Subfamily III. MERODONTINÆ.

Genus 11. PROTYLOCERA, *Bezzi* (1912).

This name was introduced by me to replace *Stenaspis* (*Senaspis*), which is preoccupied in Coleoptera; I had previously adopted the name *Dolichomerus*, which, however, having for type *crassus*, Fabr., is completely identical with *Phytomia* (*Megaspis*). All the species of the present genus have a common facies and are easy to recognise; but there are some variations, and forms with open marginal cell or with pubescent eyes are perhaps to be included here. The genus is eminently characteristic of the Ethiopian fauna.

We have in the collection the following species:—

- | | | |
|---------|---|-----------------------------|
| 1 (10) | Wings either entirely blackened, or with a broad black median band. | |
| 2 (5) | Wings uniformly tinged with purplish brown, except on the hind border, which is clear. | |
| 3 (4) | Face, antennæ, and legs red; thorax black, with a short velvety-black stripe on each side of the suture; scutellum dark reddish | <i>dibaphus</i> , Walk. |
| 4 (3) | Face, antennæ, and legs black, dorsum of thorax covered with a light yellowish-grey pollen; scutellum yellow | <i>elliottii</i> , Aust. |
| 5 (2) | Wings hyaline, with a median brown band or spot. | |
| 6 (7) | Abdomen entirely black, with grey markings; wings yellowish on the basal half. | <i>csacus</i> , Walk. |
| 7 (6) | Abdomen entirely yellow or black with reddish end. | |
| 8 (9) | Abdomen entirely yellow; wings hyaline with a distinct median black spot; scutellum blackened | <i>xanthorrhœa</i> , Bezzi. |
| 9 (8) | Abdomen black, with the last segments reddish yellow; wings blackened at the base and along the fore border; scutellum light yellow | <i>hæmorrhœa</i> , Gerst. |
| 10 (1) | Wings yellowish hyaline, without dark band or spots. | |
| 11 (12) | Face and frons black; scutellum light yellow; squamulæ yellow; hind femora simple | <i>nigrita</i> , Big. |

- 12 (11) Face and frons yellow; scutellum blackish; squamule black, with a white fringe; hind femora at the base with a conspicuous conical tubercle *apophysata*, sp. n.

54. *Protylocera dibaphus*, Walker (1849).

A handsome species, easily recognisable on account of its red face, antennæ, and legs, and the broadly interrupted velvety-black band on the thoracic suture.

The present species was described as *Eristalomyia rufonasuta* by Bigot in 1891, and more recently as *Stenaspis gypseisquama* by Dr. Speiser; the identity with Walker's *Xylota dibaphus* is established after comparison by Mr. Austen with the type in the British Museum.

This species seems to have a wide range in Tropical Africa, from the East to the West Coast. In the present collection there are three females from Obuasi, Ashanti, iv.-vii. 1907, "sucking a cut plantain stem" (*Dr. W. M. Graham*); a male from Uganda Protectorate, between Jinja and Busia or Mbwago's, E. Busoga, 3,800-4,000 ft., 18. vii.-1. viii. 1911 (*S. A. Neave*).

55. *Protylocera elliotii*, Austen (1909).

Very distinct, owing to the densely yellow pollinose dorsum of the thorax and scutellum, and the purplish-brown wings.

Originally described from Ruwenzori Mountains, this species is also widely spread in Tropical Africa. According to the description, *Xylota purpurea*, Walker, seems to be very like this insect.

A female from British East Africa, Ilala, Marama's Dist., 14 m. E. of Mumia's, 4,500 ft., 18-21. vi. 1911 (*S. A. Neave*), and a male from Yala River, southern edge of Kakumega Forest, 4,800-5,300 ft., 21-28. v. 1911 (*S. A. Neave*).

56. *Protylocera æsacus*, Walker (1849).

Characterised by the yellowish scutellum and hind portion of the thorax, the black abdomen, and by the wings being yellowish basally and having a broad median brown spot.

This species is very common in West Africa, but in the collection there is only a single female specimen from Obuasi, Ashanti, 8. viii. 1906, "caught on leaf in coitã" (*Dr. W. M. Graham*).

57. *Protylocera xanthorrhœa*, Bezzi.

♀. Length of body 13 mm.

Near the preceding, but distinguished by the entirely yellow abdomen and different pattern of the wings.

Head black, covered with dense grey pollen, shining black on the ocelli; lunula reddish; facial tubercle broad and round, grey

pollinose; lower orbits and edges of buccal cavity reddish; frons clothed with hairs, which on the basal half are erect, shorter, and more white, and on the front half are longer, grey, and directed forwards; face with grey hairs on the sides; antennal tubercle prominent; antennæ short, black, with yellow arista; peristoma narrow, horizontal, not descending; eyes bare, brown, with the usual rounded pale spots; hind orbits above with long grey hairs and very short black bristle-like hairs. Thorax black, clothed on the pleuræ with long grey hairs and on the back with shorter ones, but on two spots before the suture and on two broader ones behind there are short black hairs. Scutellum yellow, darkened above, with black hairs on the middle and pale hairs on the hind margin. Squamulæ whitish yellow, with a white fringe; halteres whitish; the subalar callosity yellowish. Abdomen yellow; first segment black; second with a narrow black basal band, which in the middle is dilated into a triangle; hairs golden and short, those on the base of the first and second segments are whitish grey, and on the second and third segments there is in the middle of the hind border a triangular area clothed with black hairs, and a similar one is to be observed on the fourth segment also. Legs dark reddish brown, with white hairs, the hind tibiæ with a black fringe on the inner side; hind femora rather thick, with the two usual subapical callosities beneath and with a black spot externally at the base. Wings typical, with very shortly stalked marginal cell and with a triangular appendiculated kink in the third vein; they are greyish hyaline, with a broad brown median spot very like that of *asacus*, but almost interrupted across the second basal and discal cells; fifth vein bordered with dark towards the base; end of the marginal cell infuscated; basal half of the wings not at all yellow.

Type ♀, a single specimen from British East Africa. Voi, June–July (*C. S. Betton*). The species has already been diagnosed by me in *Ann. Mus. Civ. Genova*, (3) v. 1912, p. 416.

58. *Protylocera hæmorrhœa*, *Gerstäcker* (1871).

Easily distinguished by the pale yellow scutellum, reddish end of the black abdomen, and brown median band on the wings extending to the base along the fore border.

A female specimen from Nyasaland, 5 m. S.-E. of Rifu, 16–17. ix. 1910 (*S. A. Neave*); a male from Beira, Portuguese E. Africa (*P. A. Sheppard*); a female from N.-E. Rhodesia, Upper Luangwa Valley, 1. viii. 1910 (*S. A. Neave*).

59. *Protylocera nigrita*, *Bigot* (1859).

Very distinct from any other species, being entirely black, with pale yellow scutellum and squamulæ, and with yellowish wings without any brown marking.

In this species the marginal cell has a longer stalk than in the typical species, and therefore the subcostal cell is a little longer

than the marginal one; but the shape of the head, the spots on the eyes, and the shape of the kink in the third vein are quite typical.

A single female specimen from Madagascar, without further locality.

60. *Protylocera apophysata*, sp. n.

♂. Length of body 20 mm.

Closely allied to the preceding species, but distinguished by the yellow face and antennæ, black scutellum, and squamulæ, and by the conical tubercle at the base of the hind femora.

This species is doubtfully referred to this genus, with which it agrees in general facies and the shape of the head, but from which it differs in having unspotted eyes, a long-stalked marginal cell, and a rounded, not appendiculated, kink in the third vein.

Head yellow, with grey dust on the occiput, blackish on the vertical triangle; eyes touching along a short line, which is shorter than the vertical triangle, bare, with equal small facets, without any trace of the rounded pale spots characteristic of the genus;



Fig. 12.—*Protylocera apophysata*, sp. n. ♂.

Left hind leg from inner side. $\times 6$.

antennal tubercle very strongly prominent, clothed like the frontal triangle with golden-yellow hairs; face deeply excavated below the antennæ, its middle tubercle round but flattened, almost united with the epistoma, which is prominent; peristoma narrow, not produced; sides of the face with golden-yellow hair; hair on the vertex brown; antennæ short, entirely yellow, the third joint rounded, with a dark yellowish arista. Thorax dull black, on the sides with a dark reddish band running from the humeri to the scutellum; hairs dark on the middle, golden reddish on the sides and behind; pleuræ black and with black hairs, with reddish hairs only on the upper border; propleuræ red. Scutellum rectangular, blackish brown, with dark reddish hair, strongly margined behind; squamulæ black, with a white fringe; halteres pale yellow; subalar callosity cochineal-red. Abdomen entirely dull black, with short black hair, at the base only with grey hair; the fourth segment more narrow than usual, cylindrical, dark reddish; the genitalia of

very great size, swollen, rounded, dark reddish, asymmetrical, prolonged to the middle of the venter below, and there with a strong, cylindrical, projecting piece. Legs short and strong, blackish brown, the four anterior femora more reddish; front coxæ very long and broad, yellow, grey-dusted, and the piece before them also yellow, yellowish pilose, with a row of six short but strong black spines; all the legs are clothed with short black hair; hind femora thick and short, almost arcuate, at the base below with a strong and black conical tubercle, which is blunt and clothed with short black hairs; hind tibiæ short and broad, bent at the base; tarsi broad and flattened; claws red, with black tips. Wings coloured as in *nigrita*; stalk of the marginal cell rather long, the subcostal cell, therefore, longer than the marginal; kink in the third vein deep, but rounded and not appendiculated; discal cell with a long stump at the lower angle; anal cell dilated towards the middle.

Type ♂, a single old and damaged specimen, from Betsileo, Madagascar (*Rev. D. Cowan*).

Genus 12. PHYTOMIA, Guérin (1833).

The very numerous Ethiopian species can be divided into three groups. The first, or *bullata*-group, resembling the Oriental *crassa*-group, contains the more striking and characteristic African species. The second, or *natalensis*-group, recalling the Oriental *zonata*-group, embraces the yellow-and-black banded species, the new species *fucoides* forming a link with the next group. The third, or *incisa*-group, very like the cosmopolitan *Eristalis tenax* in general appearance, seems to be peculiar to the Ethiopian Region, and can be divided into two smaller groups, viz. (1) the species with broad black face and black peristoma, and (2) the species with narrower yellowish face and usually yellow peristoma. These last species approach the genus *Simoides*; *villipes*, Loew, was described as a member of the latter genus, but I place it here on account of its wings being without any pubescence. The male is yet unknown.

It seems that many species of Ethiopian *Phytomia*, if not all, have the eyes adorned with dark horizontal bands, which are however, much less distinct than in *Eristalodes*, in which, besides, the bands are perpendicular.

The very numerous species in the collection can be distinguished as follows:—

- 1 (20) Body short and broad, thick, very different from that of *Eristalis tenax* both in shape and coloration.
- 2 (15) Abdomen with more or less distinct bullæ (*i. e.* rounded prominent tubercles).
- 3 (14) Arista plumose; abdominal bullæ well developed, very prominent.

- 4 (11) Wings with a sharply-defined, broad black pattern; third and fourth abdominal segments each with three prominent bullæ.
- 5 (8) Body and legs entirely black, even the abdominal bullæ wholly black; wings with the basal half entirely blackened and with a single band in addition.
- 6 (7) Third and fourth abdominal segments with the middle bulla encircled by a velvety-black patch, the lateral bullæ bare and shining, distinct; sides of the abdomen with black hairs *bullata*, Loew.
- 7 (6) Third and fourth segments on each side of the middle bulla with a broad patch of golden pubescence, which entirely covers the lateral bullæ, which are therefore not visible; sides of the last three segments with a fringe of golden hairs *aurigera*, sp. n.
- 8 (5) Body and legs mostly red or yellow; abdominal bullæ red or yellow; wings almost entirely hyaline at the base, with two black bands on the middle.
- 9 (10) Tibiæ and tarsi black; wings rather darkened at the base; bulla on the second abdominal segment red, black only towards the fore border *krœleri*, sp. n.
- 10 (9) Tibiæ and tarsi red; wings entirely hyaline at the base; bulla on second segment entirely black *neavei*, sp. n.
- 11 (4) Wings either without any pattern or with an ill-defined one in the middle; third and fourth segments each with only a middle bulla.
- 12 (13) Wings vitreous, without any pubescence towards the middle, with a small, more or less distinct dark band extending to the præfurca; squamulæ with a whitish fringe; second abdominal segment with a broad yellow band; face without a distinct lateral keel below, with the middle tubercle not very prominent and grey-dusted. *bulligera*, Aust.
- 13 (12) Wings broadly pubescent to the subapical and postical cross-veins, in the middle with a broad brown spot extending to the middle cross-vein; squamulæ with a dark fringe; face below with an oblique prominent keel on each side and with the tubercle bare, black, very shining *pubipennis*, sp. n.
- 14 (3) Arista bare; abdominal bullæ but little prominent, indistinct; thorax on the back with dark and grey transverse bands; wings hyaline, unspotted *erratica*, Bezzi.
- 15 (2) Abdomen without distinct bullæ.
- 16 (19) Thorax and abdomen with bright yellow transverse bands; hind femora half yellow and half black.

- 17 (18) Thorax with a yellow band just before the scutellum; yellow abdominal bands broader, well developed on the third and fourth segments also *curta*, Loew.
- 18 (17) Thorax without such a band; yellow bands narrower, those on the third and fourth segments usually reduced to a small lateral spot *natalensis*, Macq.
- 19 (16) Thorax and abdomen without such bands; hind femora black, dark yellowish only at the extreme base *fucoides*, sp. n.
- 20 (1) Body elongate, not incrassate, very like that of *E. tenax* in shape and coloration.
- 21 (30) Frons clothed with long and intricate hairs; thorax covered with long hairs on the back; peristoma black; face broad and usually entirely black.
- 22 (27) Hind tarsi not shortened, of usual length; face entirely black, very broad; squamulae blackish.
- 23 (26) Second abdominal segment simple, of the usual shape.
- 24 (25) Abdomen at the base with yellow bands .. *fronto*, Loew.
- 25 (24) Abdomen entirely black at the base..... var. *meias*, var. n.
- 26 (23) Second abdominal segment of a very peculiar (perhaps abnormal) shape *ephippium*, sp. n.
- 27 (22) Hind tarsi much shortened; face narrower, yellowish, with a median black stripe; squamulae whitish.
- 28 (29) Hind femora entirely black *villipes*, Loew.
- 29 (28) Hind femora in greater part yellow var. *femoralis*,
- 30 (21) Frons clothed with short and equal hairs; thorax with short hairs; peristoma yellow; face proportionally narrow, yellow, black-striped; squamulae whitish *incisa*, Wied. [var. n.]

61. *Phytomia (Megaspis) bullata*, Loew (1858).

An entirely black species, very distinct owing to the numerous black abdominal bullae and the extended black pattern of the wings.

This characteristic species, which is not unlike the Tabanid *Thaumastocera akwa*, Grünbg., was originally described from Caffraria, and subsequently recorded from Kilimandjaro by Dr. Speiser. Loew compares the species with *Ph. crassa*, Fabr., in which, however, the legs are very different; especially as regards the coloration of the legs, there is greater resemblance to the Oriental *Ph. chrysopyga*, Wied. Speiser, in 1910, recorded the male, which was previously unknown, but did not describe it.

Two females from British East Africa, one from Mt. Kenia, W. side, Meru-Nyeri Road, 6,500 ft., 22. ii. 1911, and the other from S.E. slopes of Kenia, 6,000-7,000 ft., 3-12. ii. 1911 (*S. A. Neave*).

62. *Phytomia aurigera*, sp. n.

♂. Length of body 16 mm.

A handsome species, very like the preceding, but easily distinguishable owing to the presence of four broad spots of golden tomentum near the end of the abdomen, which also bears a golden fringe on the sides.

I originally believed that this species was the undescribed male of *Ph. bullata*, but after correspondence with Dr. Speiser and Prof. Sjöstedt, I have come to the conclusion that this cannot be so. With reference to the males of *Ph. bullata* in the Stockholm Museum, Prof. Sjöstedt wrote: "there are no large spots of golden tomentum on the posterior segments; isolated yellow hairs are

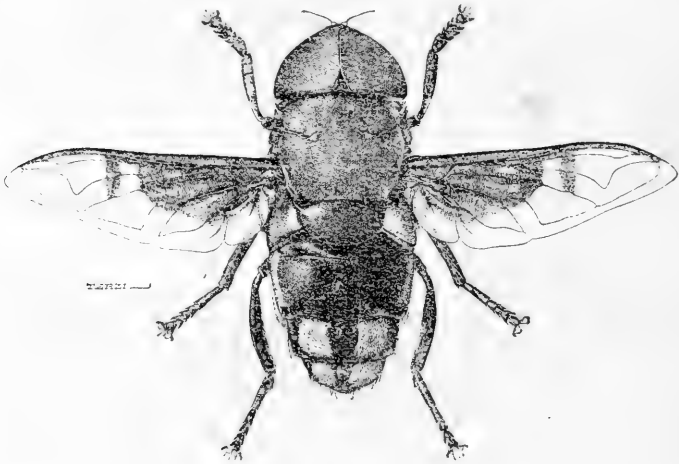


Fig. 13.—*Phytomia aurigera*, sp. n. ♂. × 3.

certainly present here as elsewhere, but there are no definite spots." I therefore describe the species as new, but it seems singular that in the collection there are only ♀♀ of *bullata* and only ♂♂ of *aurigera*, while the localities of both are not far apart.

In the nearly allied Oriental *Ph. chrysopyga*, Wied., both sexes have a gilded abdomen, therefore it is perhaps probable that the female of *aurigera* also possesses golden patches on the abdomen.

Head and its appendages exactly as in *bullata*; the antennæ are even smaller, the third joint being almost circular; the eyes are in contact for a very long distance, which is more than double the length of the vertical triangle; the facets of the upper half of the eyes are of a reddish colour, and much larger than the inferior ones, which are also dark-coloured and show three horizontal dark bands (in the female of *bullata* at least four such

bands are visible); the frontal triangle is reduced to the wrinkled supra-antennal area; the eight small silvery dots on the jowls near the eyes, four on each side, are quite distinct. Thorax and scutellum as in *bullata*, but the pleuræ showing traces of scanty golden tomentum; squamulæ black and black-fringed; halteres dark brown. Abdomen, as regards shape and bullæ, the same as in *bullata*; the second segment is covered on the sides with a light, silvery, shining tomentum; the third and fourth show in the middle, on each side of the median bulla, which appears as though encircled by a velvety-black border, a large patch of dense golden tomentum; the lateral bullæ seem to be less prominent and are partly hidden below the golden tomentum; the sides of the second, third, and fourth segments are also fringed with rather long golden hairs; the velvety-black border around the middle tubercle on the second segment is very broad. Genitalia shining black and black-haired; venter shining black, with sparse but long yellow hairs. Legs as in *bullata*, but the femora scantily clothed with golden pollen. Wings with precisely the same pattern as in *bullata*, but the black band covering the middle cross-vein is distinctly narrower.

Type ♂, a single specimen from the Uganda Protectorate, Toro Forest, S.E. Buddu, 3,800 ft., 26-30. ix. 1911 (*S. A. Neave*).

63. *Phytomia kroeberi*, *Bezzi*.

♀. Length of the body 15 mm.

A very handsome species allied to the two preceding, but distinguished by the predominant red colour of the head, abdomen, and femora and by the wings being almost hyaline basally, and having two abbreviated black bands in the middle. A short diagnosis of this species has already been given by me (*Ann. Mus. Civ. Genova*, (3) v. 1912, p. 423).

Head reddish yellow, the occiput towards its middle and the frons above dull blackish; frons almost bare, with scanty whitish

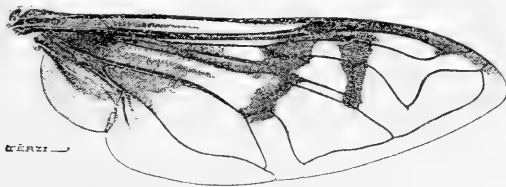


Fig. 14.—*Phytomia kroeberi*, *Bezzi*.

Wing of ♀. × 6.

pollen, the wrinkled area above the antennæ dark red; face broad, light yellow, deeply excavated below the antennæ where it is whitish pollinose; facial tubercle flattened, expanded on the sides, not distinct from the epistoma; peristoma broad, but not

descending, entirely reddish; face bare, with only short and sparse incumbent white hairs; antennæ very short and small, pale yellowish, the two basal joints darker; arista wanting, but probably short plumose at the base; eyes bare, small, with four indistinct horizontal dark bands; proboscis black; posterior orbits towards the middle silvery shining; face without distinct oblique ridges below. Thorax dull black on the back, clothed with very short black hairs, appearing bare; a lateral stripe connecting the humeri with the scutellum is dark red; pleuræ entirely reddish yellow, with rather long and dense golden or reddish hairs; subalar callosity dark cochineal-red; in front of the scutellum there is a broad dark red spot. Scutellum dark red, almost bare, rectangular, margined behind; metanotum reddish yellow; squamulæ black and black-fringed; halteres dark yellow, with brown knobs. Abdomen almost as bare as the thorax, but fringed on the sides with short golden-yellow hairs; first segment entirely yellowish red; second reddish, darkened on the sides towards the hind margin, shining on the sides and dull in the middle, where there is a large rounded prominent tubercle, which is dull velvety black on the fore two-thirds and shining red on the hind third; third segment reddish, strongly shining on the sides, where it is margined with black, dull and dark in the middle, with three reddish shining bullæ, and in addition two shining lunate swellings on the hind margin, making in all five bullæ on this segment alone; fourth segment with three bullæ, and margined with black; fifth almost entirely shining black. Venter yellow, dark grey in the middle, clothed with sparse yellowish hair. Coxæ and femora red, the latter black at the tips; tibiæ black, broadly white at the base, silvery shining, at any rate in the case of the first two pairs; tarsi entirely black; the legs are shining, almost bare. Wings hyaline, without any pubescence; the extreme base is blackish, from which a small infuscation passes to the basal cells, the first being entirely infuscated; the subcostal cell in its entirety and the extreme tip of the submarginal cell are blackened, forming a narrow black fore border; of the two middle cross-bands, the first runs obliquely to the end of the cross-vein closing the second basal cell, the second includes the middle cross-vein, ending at the fourth longitudinal vein; kink in the third vein appendiculate; lower angle of the discal cell without an appendix.

Type ♀, a single specimen from German East Africa, Usambara, Nguelo (*Rolle*).

I have in my own collection a second specimen from the same locality, which was presented to me by Herr Kröber, of Hamburg, in whose honour the species is named.

64. *Phytomia neavei*, sp. n.

Very like the preceding, but smaller, with entirely red legs and differently coloured abdomen and wings; perhaps only a variety of the foregoing.

Head as in the preceding species, but the yellowish pollen on the middle of the frons more abundant; peristoma about half as broad; third antennal joint darker, almost blackish; arista yellow, long plumose near the base. Thorax, scutellum, and squamulae exactly as in *kroeberi*. Second abdominal segment yellow, dull in the middle, bearing two broad rounded shining yellow spots, one on each side; the bulla is entirely black and dull, with only a small shining area behind; third and fourth segments as in *kroeberi*, but darker and dull in the middle, clothed with distinct golden hairs and with the sides broadly black. Legs entirely red, narrowly black on the knees only; white parts of tibiae less conspicuous; the front tarsi alone are black, and are also very short, as in the preceding species. Wings as in the foregoing species, but almost entirely hyaline at the base; the two black bands are less dark and somewhat interrupted.

Type ♀, a single specimen from the Uganda Protectorate, Entebbe, 1-11. ix. 1911 (*S. A. Neave*).

65. *Phytomia (Megaspis) bulligera*, *Austen* (1909).

Very distinct from all the foregoing species, owing to the presence of but a single bulla on the third and fourth abdominal segments, and owing to the wings being hyaline, with only a short and less conspicuous brown band below the stigma.

This species, besides occurring in West Africa, seems to be fairly common in the mountains of English and German East Africa; in the present collection there is a single male specimen from the Uganda Protectorate, Mount Kokanjero, S.-W. of Elgon, 6,400 ft., 7-8. ix. 1911 (*S. A. Neave*).

66. *Phytomia pubipennis*, sp. n.

♀. Length of the body 12 to 13 mm.

Closely allied to the preceding, but distinguished by its black abdomen and especially by its pubescent wings—an exceptional and aberrant character in the present genus.

Head entirely black; frons clothed with dense and moderately long reddish hairs, except on the supra-antennal area which is broad and high, shining black, with a few very deep punctures, and in the centre a distinct smooth line, divided by a median furrow; face broad and short, deeply excavated below the antennae and there grey pollinose, bearing on the sides very short grey hairs, under which the shining black ground-colour is clearly visible; the facial tubercle is perfectly circular, well developed, but not very prominent, bare, and shining black; from the lower border of the tubercle there start two sharp prominent keels, one on each side, which pass obliquely upwards to the eyes; jowls rather broad, shining black; eyes adomed in the middle with two brown horizontal bands, from the posterior extremities of which is emitted, above

and below, an oblique band running to the superior and inferior corners of the eyes; proboscis black; antennæ short, black, brownish towards the base; third joint oval; arista long, yellowish, feathered with long hairs. Thorax black, covered with dense and short reddish hairs; the ground-colour is deep black behind the suture and grey in front of it, and consequently the thorax viewed from behind appears to be banded; pleuræ grey pollinose, the hairs becoming paler below. Scutellum brown, clothed with hairs like those on the main portion of the dorsum of the thorax, reddish tomentose on the hind border and below. Squamulæ blackish, with a dark fringe; halteres dirty yellow. Abdomen entirely blackish brown, somewhat dark reddish on the sides of the second and on the fourth segment; the bullæ are black, disposed as in *bulligera*, the largest and most prominent bulla being that on the second segment; the latter also exhibits a basal band of short yellowish hairs, which is broader towards the sides; hairs on the following segments more golden. Venter black. Legs black, the tibiæ whitish at the base, those of the hind pair more narrowly; hair short and dense, mainly black on the upper side of femora and yellow on the tibiæ, which are brown in the case of the two anterior pairs; hind tibiæ broad, on the inside with a black, on the outside with a yellow fringe; all the tarsi red, those of the first pair very short and broad. Wings appearing rather dark on account of the short and dense pubescence, which covers all the surface from the fore border to the line formed by the subapical, postical cross-vein and seventh vein; the hind border is therefore narrowly hyaline, but in the axillary cell there is a broad spot of pubescence; alula also pubescent; the extreme base of the wings is blackened; there is also a broad dark median band running from the stigma to the end of the second basal cell; this band is darker towards the small cross-vein; kink in the third vein deep, angular, with only the rudiment of an appendix; lower angle of the discal cell with a long appendix.

Type ♀, a single specimen from the Uganda Protectorate, Daro or Durro Forest, Toro, 4,000–4,500 ft., 25–29. x. 1911 (*S. A. Neave*). There is also an aberrant female from Obuasi, Ashanti, W. Africa, 2. vii. 1907, "caught on flower" (*Dr. W. M. Graham*), which I regard as a melanic form of the present species. The hairs on head, thorax, and scutellum are grey, not fulvous; the abdomen is entirely shining black, even at the base and distal extremity, and the hair, including the lateral fringe, clothing it is grey, not golden; the fore tibiæ are black instead of brown, and the fringe on the hind tibiæ is black on the outer as well as on the inner side. The eyes seem to be without distinct bands. Wings with the same pattern and pubescence as in the type, but the pubescence is less developed, partly wanting in the anal cell and entirely wanting in the axillary cell; the glabrous hind border is therefore broader; the appendix to the kink in the third vein is rather long.

67. *Phytomia (Megaspis) erratica*, *Bezzi*.

Megaspis erratica, *Bezzi*, Ann. Mus. Civ. Genova, (3) v. p. 424 (1912).

At once distinguished from the other Ethiopian species of the *bullata*-group on account of its bare arista, and very like the Oriental *errans*, from which it is distinguishable owing to its entirely black antennæ.

The female, which is not yet described, is, apart from sexual differences, very like the male. The eyes have five to six horizontal dark bands.

Type of ♀, from Betsileo, Madagascar (purchased from E. Bartlett, 1878). Additional specimens as follows:—a male from Zomba, Nyasaland (*Dr. H. S. Stannus*); females from Marsabit and other localities in British East Africa, vii.–x. 1911 (*Dr. J. Pugh*, *R. J. Stordy*, and *Capt. C. A. Neave*); a female from Durban, Natal, 26. x. 1902 (*F. Muir*). The species seems to be quite common throughout the Ethiopian Region.

68. *Phytomia (Eristalis) natalensis*, *Macquart* (1849).

Very distinct from any other African species, with the exception of the following one, owing to the presence of broad, alternate yellow and black bands on thorax and abdomen.

This and the following species are closely related to the Oriental *zonata*, *Fabr.* (syn. *cingulata*, *Snell*, v. *Voll.*), and its ally *Ph. (Eristalis) flavofasciata*, *Macq.* (syn. *zonata*, auct.); they may, however, at once be distinguished by the hyaline unspotted wings, which are totally devoid of pubescence.

Phytomia natalensis is widely distributed in Africa, but more prevalent in the south; there are two females in the collection, one from Durban, Natal (*F. Muir*), and one from Marsabit, British East Africa, 23. ix. 1911 (*R. J. Stordy*).

69. *Phytomia curta (Eristalis curtus)*, *Loew* (1858).

Although *Phytomia curta* is generally considered as only a variety of the preceding, after examining a very extensive series of more than fifty specimens of both sexes in the Hungarian Museum, I am convinced that *Loew* was right in distinguishing it as a species. It is recognisable at once, owing to its short and more rounded shape, the presence of a broad yellow tomentose band just before the scutellum, and the greater breadth of the yellow bands on the abdomen, which are well developed even on the third and fourth segments, the latter being also very shining.

While *natalensis* is more especially a southern form, the present species is commoner in Equatorial Africa, chiefly on the East Coast.

A female from the Uganda Protectorate, Daro or Durro Forest, Toro, 4,000–4,500 ft., 25–29. ix. 1911 (*S. A. Neave*); four females from Obuasi, Ashanti, West Africa, viii.–ix. 1907, caught "hovering over swampy ground" (*Dr. W. M. Graham*).

70. *Phytomia fucoides*, sp. n.

♀. Length of the body 15 mm.

This species unites the characters of the *bullata*-group with those of the *zonata*-group, agreeing in shape with *natalensis*, but not being yellow-banded; it is distinguished by its black abdomen and by the wings being pubescent on the basal half.

Head black, grey pollinose, moderately shining; frons broad, gently rounded, clothed with rather long and closely-set yellowish hairs, which are dark towards the middle; occipital border almost bare, white below; supra-antennal area rather small, dark reddish, more deeply punctate than wrinkled; antennæ short, blackish brown, the third joint rounded, with a reddish arista, which is plumose basally; face broad, with short yellowish hairs, the tubercle rather prominent but rounded, the lateral keels rather distinct; peristoma broad, shining black on the middle, yellowish pilose beneath; opening of buccal cavity small; proboscis black; eyes small, purplish black, with (?) four bands. Thorax black, dark pollinose, dark reddish on the humeri, clothed on the dorsum with dense yellowish-red hairs, and on the pleuræ with paler hairs, though those on the mesopleuræ are black. Scutellum dull black, dark red towards the hind border, margined, and densely clothed with erect cinnamon-rufous hair; squamulæ black and black-fringed; halteres brownish; subalar callosity dark brownish. Abdomen dull black, somewhat shining towards the distal extremity; the hair is short and dense, longer towards the apex, coloured like that on the thorax, but darker on the middle and hind border of each segment. Legs black and clothed with similarly coloured hair, all the tibiæ whitish towards the base, and there pale pilose; tarsi dark red, those on the first pair short and broad. Wings hyaline, with typical venation, the basal half as far as the base of the discal cell appearing infuscated on account of its dense pubescence.

Type ♀, a single specimen from the Uganda Protectorate, Daro or Durro Forest, Toro, 4,000–4,500 ft., 25–29. ix. 1911 (*S. A. Neave*).

There is in the collection a damaged female specimen, without a head, from Madagascar, Ambohinimbo, 26. i. 1895 (*Dr. Forsyth Major*), very like the present species, but distinguished by the second abdominal segment being yellowish on the sides, and by the legs being quite black, except the tarsi which are bright orange.

71. *Phytomia (Eristalis) fronto*, Loew (1858).

A species resembling *E. tenax*, with hind tarsi of ordinary length, very broad black face, and frons densely clothed with long hairs.

Described from Caffraria by Loew, and not recorded again till now. Typical specimens have the second abdominal segment yellow with a broad black hind border and a short black transverse band on the fore border; the third and fourth segments are also yellow on the fore border.

A female from the E. side of edge of foot of Aberdare Mountains, 7,300 ft., British East Africa, 24. ii. 1911 (*T. J. Anderson*), and another from Mt. Kenia, W. side, Meru-Nyeri Road, 6,500 ft., 20. ii. 1911 (*S. A. Neave*).

Other specimens belong to a variety which I call

Var. *melas*, var. n.

Distinguished by the entirely black abdomen, and agreeing with the type in other respects.

Type ♀, an additional specimen, and another female from same localities and collectors as the typical series.

72. *Phytomia ephippium*, *Bezzi*.

Very like the *melas* variety of *fronto*, but distinguished by the peculiar conformation of the second abdominal segment. Already diagnosed by me in *Ann. Mus. Civ. Genova*, (3) v. 1912, p. 424.

I introduce this form as a new species with considerable hesitation, because it may well be that the type is merely an aberrant variety of *fronto*; but the singular conformation of the second abdominal segment appears to be so regular that it may be normal.

Head as in *fronto*; the long and dense frontal hairs are mostly black; the eyes seem to have four transverse dark bands as in the preceding species; the frontal wrinkled area is black, as is the whole of the face. Thorax and scutellum also black, but the scutellum is more yellowish along the hind border, and the hairs on its base are black. First abdominal segment normal; second consisting of two transverse ovate lappets, the inner extremities of which nearly meet in the middle line, and each of which shows posteriorly a broad depression followed by a flattened margin. It looks as though there were two segments abnormally fused together; the number of the abdominal segments is, however, normal. All other details as in *fronto melas*.

Type ♀, a single specimen from British East Africa, 5 miles inside Kenia Forest, near Luchi River, 9. ii. 1911 (*T. J. Anderson*).

73. *Phytomia (Simoides) villipes*, *Loew* (1858).

Very like *fronto*, but easily distinguished by its shortened hind tarsi and narrower face, which is yellowish with a black median stripe.

This species, the type of which was collected in Nubia, was described by Loew as belonging to the genus *Simoides*; the male, however, is as yet unknown. I place it in *Phytomia* on account of the very broad frons of the female, which is very like that of *fronto* and allied species, and on account of the wings showing no trace of the apical pubescence so characteristic of the typical species of *Simoides*.

Coloration of the face like that of *incisa*, but the peristoma is black; coloration of abdomen as in *fronto*, but specimens are frequently found in which the coloration is like that of the variety *melas*, the abdomen being quite black with only the second segment narrowly yellow towards the base. Hind femora in typical specimens entirely black, while in *fronto* they are yellow at the base. Squamulæ of a paler colour.

Six female specimens from British East Africa: 5 miles inside Kenia Forest, near Luchi River; Kilolo River, N. of Mt. Kenia, 7,700 ft.; and E. side of edge of foot of the Aberdare Mountains, 7,300 ft., all caught in February, 1911 (*T. J. Anderson*).

Var. *femoralis*, var. n.

Similar to the type, with the same coloration of face and base of abdomen, but the hind femora are broadly yellow, with the apical half black or blackened, and again yellow at end.

Type ♀, and an additional specimen from Howick, Natal, 1903 (*J. P. Gregoe*).

74. *Phytomia incisa* (*Eristalis incisus*), *Wiedemann* (1830).

Distinguished from all the preceding species of its group by the short and regular hairs on the frons and thorax, by the yellow peristoma, and by the whitish and white-fringed squamulæ.

This species is widely distributed in the south of the Ethiopian Region, and has been described several times under various names. In the present collection there are only two male specimens, from Chirinda Forest, x. 1905 (*G. A. K. Marshall*), and German East Africa, Uhehe District, 22-27. xi. 1910, 3,000-3,500 ft. (*S. A. Neave*).

Genus 13. **SIMOIDES**, *Loew* (1858).

As restricted here, the species of this genus are distinguished not only by the separated eyes of the male and by the narrower frons of the female, but also by the pubescence at the apex of the wings, which is always wanting in *Phytomia*. Hind femora more inerassate. Eyes destitute of the straight horizontal bands seen in *Phytomia*, but instead adorned with some sinuous and confluent dark bands, which appear to be two in number.

I know only one true species of this genus, viz.:

75. *Simoides crassipes*, *Fabricius* (1805).

Very like the preceding species of the last group of the genus *Phytomia*, but at once distinguished by its generic characters.

The face is more or less yellowish, and striped with black; the peristoma is yellow, with a black oblique band on each side; the hind femora seem to be variable, being more or less broadly yellow at the base.

The species is also widely distributed in the Ethiopian Region, but seems to be very often confused with some other species belonging to the preceding genus. In the collection there are two males and two females from Durban, 1902 (*F. Muir*); Salisbury, S. Rhodesia (*G. A. K. Marshall*); Oshogbo, Southern Nigeria, x. 1910 (*Dr. T. F. G. Mayer*); Obuasi, Ashanti, W. Africa, x. 1907, "caught on window" (*Dr. W. M. Graham*).

Genus 14. **LATHYROPHTHALMUS**, *Mik* (1897).

I have adopted here for practical purposes the present group, which is evidently an artificial one, based only on the spotted eyes of the male. It contains heterogeneous elements, such as species with bare eyes or with widely separated eyes in the male sex; but, as a rule, the eyes are united and densely pilose on the upper half. No doubt the naked-eyed species, with conical abdomen, form a transition to *Simoides*, from which they are distinguished only by the spotted eyes.

The rather numerous species in the collection can be divided into five distinct groups, viz.:—(1) Eyes bare, separated in the male; face produced below. (2) Eyes bare, united in the male; face produced. (3) Eyes hairy; face produced, with a broad black stripe. (4) Eyes hairy; face not produced, with three black stripes. (5) Eyes hairy; face less produced, with a yellow tubercle; body short and broad.

- 1 (10) Face very much produced below, almost conical; antennal tubercle very prominent; third antennal joint entirely black, or only narrowly yellowish below; black spots on the eyes coalescent, sometimes fused; eyes of the males touching for a short distance or separate.
- 2 (7) Eyes quite bare; third joint of the antennae rounded, wholly black; antennal tubercle and face grey pollinose, the facial tubercle black; hind femora rather thick; hind tarsi black.
- 3 (4) Eyes of the male widely separate as in *Simoides*; fourth ventral segment of the male with a long bilobed appendage; hind femora yellow on the basal half; fourth abdominal segment brown or black, with the whitish hind band alone; thorax not banded. *modestus*, Wied.
- 4 (3) Eyes of the male united along a short line; fourth ventral segment without appendage.
- 5 (6) Hind femora broadly yellow at the base; thorax on the back with a

- broad dark transverse band behind the suture; fourth abdominal segment with three whitish transverse bands; second abdominal segment of the female with an entire yellow band *myiatropinus*, Speis.
- 6 (5) Hind femora wholly black; thorax without transverse bands, in the male with four indistinct longitudinal black stripes; fourth abdominal segment without the central whitish band; yellow band on the second abdominal segment in the female broadly interrupted *gymnops*, sp. n.
- 7 (2) Eyes clothed with long hairs above, more or less bare on the inferior half; third antennal joint elongate, yellowish below; antennal tubercle and a broad facial stripe shining black; hind femora not thickened; hind tarsi yellow with black tips.
- 8 (9) Front tarsi black, the same colour also predominating in the legs generally; yellow bands on the abdomen small, the first usually interrupted in the middle in both sexes; abdomen of the male with strong æneous reflexions *euzonus andersoni*, var. n.
- 9 (8) Front tarsi yellow, at least broadly yellow towards the base; abdomen with broad yellow bands, the first of which is not interrupted in the middle; abdomen of the male without æneous reflexions *melanops*, Karsch.
- 10 (1) Face not produced, almost rounded below, or very little produced; antennal tubercle less prominent; third antennal joint yellow, at most with a dark upper border; black spots on the eyes usually not coalescent; eyes always hairy, those of the male usually united for a long distance; thorax with very distinct stripes on the back.
- 11 (14) Face adorned with three black stripes, the middle tubercle being black; peristoma very narrow, not prominent at all; scutellum entirely pale-haired; pterostigma with a single brown spot.
- 12 (13) Wing-veins black towards the end; abdomen of the female with broad basal yellow spots on the sides; white bands on the abdomen smaller and less striking; black peristomal stripe broad; venter black or black-spotted. *quinquelineatus*, Fabr.

- 13 (12) Wing-veins and costa entirely yellow; abdomen of the female narrowly yellow on the sides; white abdominal bands broad, pure white, and very conspicuous; black peristomal stripe usually not distinct; venter yellowish grey, unspotted var. *tabanoides*, Jaenn.
- 14 (11) Face without black stripes, the middle tubercle being yellow; peristoma rather broad and more prominent; pterostigma with a basal and also an apical brown spot; scutellum with black hairs in the middle.
- 15 (22) Second abdominal segment without a black band on the fore border, or with a very small one; first yellow band never interrupted; hind femora more or less broadly yellow at the base; all the tarsi yellow, or very rarely the hind pair blackened at the tips.
- 16 (21) Abdomen with very broad black bands, which are broadly shining behind, the third and fourth segments in great part black; hind tarsi wholly yellow, or only a little infuscated towards the end.
- 17 (20) Third and fourth abdominal segments with a yellow band, the third without transverse white stripe; thoracic stripes dullish or dull; hind femora black with yellow base.
- 18 (19) Smaller and pale-coloured species; squamulae pale with broad dark border; hind femora broadly yellow at the base; black thoracic stripes narrow, not broader than the grey stripes, the median stripe distinctly divided *trizonatus*, Big.
- 19 (18) Species of larger size and darker colouring; squamulae blackish; hind femora narrowly yellow at the base; black thoracic stripes broad, the median stripe scarcely divided, the lateral stripes more than twice as broad as the grey stripes *flaveolus*, Big.
- 20 (17) Third and fourth abdominal segments entirely black, the third with a complete white stripe like the fourth; hind femora wholly yellow; thoracic black stripes shining, with a dull black border *xanthopus*, sp. n.
- 21 (16) Abdomen wholly yellow, with narrow black bands on the hind borders of second, third, and fourth segments, which are all opaque; hind tarsi black on the two apical joints; all

- the femora broadly yellow towards the base *vicarians*, sp. n.
- 22 (15) Second abdominal segment with a broad black fore border, which is usually united with the hind border in the middle line, the first yellow band consequently interrupted in the middle; hind femora quite black; all the tarsi black at the tips.
- 23 (24) Eyes with a few well-separated black spots; sides of face wholly dull, densely covered with pollen; thorax on the back entirely dull *dulcis*, Karsch.
- 24 (23) Eyes with very numerous, partly confluent, black spots; sides of face a little shining, the black colour of the ground being distinct; dorsum of thorax distinctly shining on the posterior half *dissimilis*, Ad.

76. *Lathyrophthalmus modestus*, Wiedemann (1818).

Very distinct from any other species of the present genus on account of its bare eyes, which are broadly separated in the male, and of its thorax, which is without any distinct pattern on the back.

Originally described from South Africa as a *Helophilus*, I think that this is the species subsequently described by Macquart as *Eristalis analis*; Adams has recorded the latter species from Rhodesia, but, from his description of the thorax and fourth abdominal segment, it appears more probable that he had the species *myiatropinus* before him.

The genitalia of the male are very characteristic; they are globose, shining reddish black; the fourth ventral segment terminates below in a long appendage, which is deeply incised in the middle, appearing bilobed; the third ventral segment is also produced in the middle, but not bilobed. The yellow band on the second abdominal segment is often divided in the middle, chiefly in the female, the anterior black band being united with that on the hind border.

A male from Deelfontein, Cape of Good Hope (*Surg.-Gen. Sir A. T. Sloggett*); another male from the Cape of Good Hope, without precise locality; a female from the Cape of Good Hope (presented by *Rev. A. E. Eaton*). A small female from Stellenbosch, Cape of Good Hope, xi. 1904 (*G. A. K. Marshall*), is only 10 mm. long, and has the yellow hind borders to the segments a little broader than usual; the eyes have no distinct spots, but the specimen is greasy; I have a very similar female from Willowmore, Cape of Good Hope, in which the spots on the eyes are as usual very distinct.

77. *Lathyrophthalmus myiatropinus*, Speiser (1910).

A very peculiar species, easily recognisable in both sexes by the pattern on the thorax and fourth abdominal segment.

Dr. Speiser described the male from Kilimandjaro. The female is very similar; the middle of the frons is clothed with grey pollen, interrupted by a transverse moderately shining median band; thorax with the characteristic pattern; second and third abdominal segments with broad black hind borders, that on the third being the broader of the two, fourth segment entirely black, with the peculiar pattern seen in the male.

Abdomen of the male more conical and narrower behind than in the allied species; genitalia rounded, black, with some black appendages below, but the fourth ventral segment is merely cleft, without the bilobate appendage exhibited by the preceding species.

A male from Durban, Natal, 19. iv. 1892 (*F. Muir*); another from British East Africa, M'bagori's Village, edge of Kenia Forest, 5,000 ft., 12. ii. 1911 (*T. J. Anderson*); and another from Yala Bridge, N. Kavirondo, Br. E. Africa, 24. viii. 1911, "on mule." (*C. W. Woodhouse*).

78. *Lathyrophthalmus gymnops*, sp. n.

♂ ♀. Length of the body 12 mm.

Closely allied to the preceding, but distinguished from it and from the other bare-eyed species by its hind femora being entirely black.

Head black, dark grey pollinose; eyes reddish, bare, with many round black spots, less numerous and mostly isolated on the lower half, but very numerous and confluent on the upper half; in the male the eyes are united for a very short distance, shorter than half the length of the vertical triangle; occipital border with long grey hairs above; vertical triangle black-haired; frontal triangle narrowly black and shining immediately above the antennæ, black pilose higher up; face very much produced below, conical, with a small black median tubercle and a black border to the edge of the buccal cavity; peristoma narrow and shining black, pale-haired beneath; epistoma with a deep notch in front; sides of the face clothed with long whitish hair; frons of the female shining black on the upper fourth, dark grey below, clothed with long and closely-set blackish hair, with a small shining black subtriangular spot above the antennæ; lunula reddish; antennæ short, quite black, the third joint very short and rounded; arista long, dark reddish, bare; opening of buccal cavity long and narrow, linear; proboscis black. Thorax moderately shining, black, clothed on the dorsum with rather long grey-fulvous hair, with some black hair intermingled; pleuræ greyish, pale-haired; in the male there are four inconspicuous longitudinal black stripes, which in the female are scarcely noticeable. Scutellum dark yellowish, blackish towards the base, clothed with hair like that on the thorax, with some

black bristle-like hairs in the middle; squamulæ whitish, yellow-margined and white-fringed; halteres whitish. Abdomen of the male less conical than in the preceding species; first segment black, grey-margined; second yellow, with a rather broad black basal band, tapering towards the sides, which it does not reach; there is also a short brownish band before the hind border; third yellow, with a brownish and darker band before the hind border; fourth brownish black, shining, with whitish bands on the fore border, sides, and hind border, but without a middle band; genitalia of the male shining black, with a single black appendage below; fourth ventral segment simple. The hair on the abdomen is pale, rather long on the base at the sides, dark on the dark portions. Abdomen of the female almost entirely black, moderately shining; second segment with a yellow band, broadly interrupted in the middle and dilated on the sides; third segment with only a small yellow stripe on each side; fourth with the whitish pattern less distinct. Legs entirely black, clothed with short pale hair; knees and base of tibiæ, more broadly in the female, yellow; hind femora rather thick, a little bent, almost bare below, with some black bristles before the end; claws black, small, reddish at the base. Wings hyaline, with a faint yellowish tinge, without any pubescence; marginal cell very short-stalked, as long as the subcostal cell; kink in the third vein very deep, but rounded; small cross-vein at the middle of the discal cell; this last cell without an appendix; anal cell dilated towards its middle; there is a small black stigmatic spot.

Type ♂, *type* ♀, and an additional female specimen from British East Africa, Kilolo River, N. of Mt. Kenia, 7,700 ft., 16. ii. 1911, and W. of Mt. Kenia, 8,300 ft., 18. ii. 1911 (*T. J. Anderson*).

79. *Lathyrrophthalmus euzonus*, *Loew* (1858).

Distinguished by the prominent face, which is almost entirely shining black like the antennal tubercle, and by the legs being for the most part black. The species *longicornis*, Adams, seems also to belong here. The colouring of the abdomen appears to be very variable, according to Loew; the present specimens, however, belong to a distinct variety, which I had previously regarded as a good species. This variety may be characterised as follows:—

Var. *andersoni*, var. n.

♂ ♀. Length of the body 10–11 mm.

Head black, dark grey pollinose, whitish on the lower occipital border; eyes clothed with dark and rather long hairs, and adorned with numerous confluent black spots; in the male they meet together for a short distance, equal to half the vertical triangle in length; occipital border with long yellowish hair above, almost bare on the sides, and with long white hair below; vertical triangle of the male moderately shining, black and clothed with

black hair; frontal triangle entirely shining black, clothed with long black hair; frons of female rather narrow, densely covered with dark grey pollen, with long dark hairs (which become paler towards the antennæ) in the middle, shining black around the ocelli and above the base of the antennæ; antennal tubercle very prominent; antennæ black, the third joint elongate, rectangular, but rounded on the upper side, with a yellow border below; arista longer than the antenna, bare, dark red; face shining black, the pollen on its sides very faint in the male, denser in the female; facial tubercle small, shining, black, prominent and rounded; face much produced below; peristoma narrow and shining black, white pilose beneath; epistoma deeply divided, the opening of the buccal cavity long and narrow; proboscis black. Thorax black, dark grey pollinose, somewhat shining, especially behind the suture, with trace of dark longitudinal stripes and clothed with long yellowish-grey hairs, which are greyer on the pleuræ. Scutellum rounded, yellow with metallic reflexions, blackish towards the base, clothed with long hairs like those on thorax, without any black hairs; squamulæ yellowish white, with whitish fringes; halteres whitish. Abdomen of the male with a metallic sheen over the whole surface; first segment black, bordered with grey; second yellow, with a black border in front and behind, united together in the middle; third black, with a yellow spot on the fore border on each side; fourth entirely black; genitalia shining black; hairs long, pale on the base and on the yellow portions, black at the end and on the dark portions; sides and belly clothed with very long yellowish hairs. Abdomen of the female black, with a yellow spot on each side of the second and third segments, those on the second being broader; fourth with a basal whitish tomentose transverse band. Legs black, tibiæ yellow at the base; hind femora not thickened, narrowly yellowish at the base; front tarsi black, the others yellow at the base; hairs black, pale on the yellow portions and on the hind femora. Wings hyaline, without pubescence, but with a slight yellowish tinge towards the middle; venation typical, but the marginal cell very short-stalked, sometimes almost sessile; second basal cell rather dilated towards its upper exterior angle; stigma dark yellow, broadly black at the base, and more narrowly at the end.

Type ♂, *type* ♀, and three other additional specimens from British East Africa, five miles within Kenia Forest, near Luchi River, 9. ii. 1911, and E. side of edge of foot of Aberdare Mountains, 7,300 ft., 24. ii. 1911, collected by *T. J. Anderson*, in whose honour the variety is named.

80. *Lathyrophthalmus melanops*, *Karsch* (1887).

Very near the preceding species, and perhaps only a variety of it, distinguished by the paler coloration of abdomen and legs, and by being known only from the West Coast.

Described from Pungo-Andongo under the names *melanops*

and *decolor*, the first of which must be retained, in opposition to Kertész's Catalogue, which has the second. Karsch describes only the male; the third antennal joint is elongate, rectangular, longer than the first two joints taken together, black, narrowly reddish below; arista dark brown, bare, longer than the antenna. The female is very like the male, but has the middle black facial stripe less broad; above the antennal tubercle there is a shining black broad area; frons black, but in the middle with a grey transverse band; hairs on the frons rather short and regular, mostly black. Abdomen as in the male, with very broad yellow bands; fourth segment black or only with a narrow yellow stripe on fore border.

A male and three females from West Africa, Obuasi, Ashanti, iv.-viii. 1907, "caught hovering over wells in stream, or on composite flowers" (*Dr. W. M. Graham*).

81. *Lathrophthalmus quinquelineatus*, *Fabricius* (1781).

Easily distinguishable from any other species here recorded owing to the presence of three black facial stripes, and to the face being rounded and not produced. The eyes of the female are almost bare, with only a few hairs above.

Of this common and widely spread species there are numerous specimens of both sexes from Nyasaland, Fort Johnston, 2,000 ft., vi. 1910, dry season (*A. H. Barclay*), and same locality, i. 1910 (*H. N. Tate*); from Zomba, iv. 1910 (*Dr. H. S. Stannus*); from Durban (Mitchell Park), Natal, 23. i. 1903 (*F. Muir*); from Marsabit, British East Africa, 24. ix. 1911 (*R. J. Stordy*), and same locality (*Dr. G. Pugh*).

82. *Lathrophthalmus tabanoides*, *Jaenicke* (1867).

Perhaps only a variety of the preceding, from which it differs owing to paler coloration and broader and more conspicuous white bands on the abdomen.

Becker considers it to be a good species, while Verrall has it as a synonym of the preceding, with a query. The male is unknown.

There are in the present collection some females from British East Africa, Languaira, 11. ix. 1911 (*R. J. Stordy*), and one from N. Guaso-Njero, 7. ix. 1911 (*same collector*); also a female from Massowah, xii. 1886 to ii. 1887 (*D. W. Barker*). This last is the locality where the species was first discovered by Rüppell.

83. *Lathrophthalmus trizonatus*, *Bigot* (1858).

Among the members of the group characterised by a yellowish facial tubercle, double pterostigma, and a band of brown hair across the middle of the scutellum, the present species is distinguished by having yellow tarsi and broad black abdominal bands, the second segment with the hind border only black.

With this species begins a group of closely allied small species, of which there are six in the collection. The thorax is strongly striped as in *quinquelineatus*, the stripes being equally strong in both sexes; the body is short and quadrate, while in all the preceding groups it is elongate and conical.

The present species was originally described from Gaboon; there are three females from West Africa, Obuasi, Ashanti, v.-viii. 1907, "caught in swamp" (*Dr. W. M. Graham*).

84. *Lathyrophthalmus flaveolus*, Bigot (1880).

Very near the preceding, but of greater size and darker colouring, with the black thoracic stripes broader than the light ones.

Originally described from Senegal; some specimens of both sexes from West Africa, Obuasi, Kumasi and E. Ibadin, Ashanti, i.-x. 1907, "caught hovering in swamp or near stream, the ♂ hovering round head" (*Dr. W. M. Graham*).

85. *Lathyrophthalmus xanthopus*, sp. n.

♀. Length of the body 11 mm.

Closely allied to the two preceding species, but distinguished by the black thoracic stripes being somewhat more shining, and by the third and fourth abdominal segments being wholly black, without yellow bands.

Head black, densely grey pollinose, only a little shining near the vertex; frons clothed with dark hairs, which become paler near the fore border; before the ocelli there is a trace of a small black transverse band; antennal tubercle very little developed, wholly pollinose; face entirely pollinose, the pollen grey on the sides, yellowish in the middle and below, disposed on the sides in oblique waves; hair on the sides whitish; tubercle yellow, not very prominent; face but little produced, epistoma not deeply bilobate, the opening of the buccal cavity small and round; proboscis black; peristoma narrow, shining black, white-haired behind; antennæ entirely yellow, the third joint short-oval, subquadrate, with a dark upper border; arista long, bare, dark reddish; eyes dark red, with very numerous and small round black spots, only on the upper edge a little confluent; the hairs on the eyes are very short and scarce, brown, confined to the upper edge, the greater part being bare. Dorsum of thorax yellowish-grey pollinose, with four broad longitudinal black stripes, which have a purplish sheen in the middle and are velvet-black on the sides; the two middle stripes are close together and become broader behind, the two lateral stripes are broader than the dividing-lines and become narrower behind; notopleural region æneous and somewhat shining; pleuræ grey pollinose, with a dark horizontal band across the mesopleura; hairs short, pale yellowish. Scutellum yellow, darkened at the base, clothed with yellowish hairs, but with the broad middle band of black hairs very distinct.

Abdomen clothed with very short pale hair, a little longer on the sides; first segment whitish, with a black spot below the scutellum, and a very narrow black hind border continuous with the fore border of the second segment; this segment whitish, with a broad dull black hind border, narrowed towards the sides and shining near the hind margin; third and fourth segments shining æneous black, with a broad dull black band across the middle, and on the fore part of this band with a narrow curved whitish band, which does not reach the sides; last segment entirely shining æneous; venter black, grey pollinose. Femora and tarsi reddish, tibiæ whitish, the hind ones reddish on the apical half; there are no actual black markings on the femora, although these joints bear darker patches; the hairs are white, black on the femora and partly on the hind tibiæ. Wings hyaline, slightly yellowish, with yellowish veins and typical venation; discal cell with a short appendix; stigma yellow, with the usual two small black spots; marginal cell short-stalked.

Type ♀, a single specimen from West Africa, Obuasi, Ashanti, "caught hovering over pond" (*Dr. W. M. Graham*).

86. *Lathyrrophthalmus vicarians*, sp. n.

♂. Length of the body 10 mm.

Near the preceding species, but distinguished by the abdomen being yellow, with narrow dull black bands, and by the hind tarsi being black at the tips.

This species is very like the Oriental *quinquestriatus*, Fabricius, from which it differs chiefly in the colour of the legs.

Head black, densely covered with yellow pollen, which entirely conceals the ground-colour; vertical triangle very small, dark-haired; eyes purplish red, shining towards the middle, covered with small black spots, which are confluent on the upper part; the eyes are clothed on the upper half with short brown hair, and meet together for a distance equal in length to the frontal triangle; the upper facets are distinctly larger than those of the lower part; frontal triangle broad and rounded, with long but sparse dark hairs; facial tubercle yellowish, not very prominent; pollen on the face disposed in waves on the sides, which are also clothed with short yellowish hair; peristoma narrow, not produced, shining yellow towards the edges of the buccal cavity; epistoma not deeply bilobate; opening of buccal cavity short and broad; antennæ entirely yellow, the third joint ovate, with a dark upper border; arista long, bare, dark yellowish on the base; hairs on the peristoma yellowish behind. Thorax yellow pollinose, on the dorsum with four distinct dull black stripes, of which the lateral ones are only as broad as the dividing stripes; all the stripes taper off before the scutellum; hairs long, yellowish; pleuræ grey, meso- and sternopleura partly dark. Scutellum yellow and clothed with yellow hair, with the broad band of black hair very well marked. Squamule blackish; halteres yellowish. Abdomen entirely yellow,

on the hind border of second, third, and fourth segments with a small dullish black band; genitalia shining black, small; hairs pale yellowish, rather long, dark on the black bands; venter yellow, black on the extreme border of the fourth segment. Femora black, the four anterior ones yellow at base and at end, the two posterior only at the base but broadly; tibiæ black, with whitish base, which is broader on the four anterior; tarsi yellow, last two joints of the hind pair dark brown; hair whitish on the pale-coloured and black on the dark portions. Wings yellowish hyaline, with a double stigma and typical yellowish veins; marginal cell short-stalked; discal cell with a very short appendix.

Type ♂, a single specimen from S. Nigeria, Lagos (*Dr. A. Connal*).

87. *Lathyrophthalmus dulcis*, *Karsch* (1887).

Very near *trizonatus*, but distinguished by the entirely black hind femora, by the black ends of all the tarsi, and by the broad black band on the anterior margin of the second abdominal segment.

Originally described from Pungo-Andongo. A single female from West Africa, Obuasi, Ashanti; "caught in swamp," 27. v. 1907 (*Dr. W. M. Graham*).

88. *Lathyrophthalmus dissimilis*, *Adams* (1905).

Very like the preceding, but differing in the eyes having a larger number of confluent spots, and in the sides of the face and the hind part of the dorsum being shining.

The eyes of the male are united for a short distance, the length of which is shorter than that of the vertical triangle; owing to the large number and partly confluent character of the spots on the eyes, and to the rather prominent face, this species forms a connecting-link with the *melanops*-group. The pollen on the sides of the face is very characteristic, since it allows small spots of the ground-colour to be seen.

A single male specimen from Salisbury, S. Rhodesia (*G. A. K. Marshall*); this is the type locality, but the present specimen measures only 7 mm. in length, while Adams gave 10 mm.

Genus 15. **ERISTALODES**, *Mik* (1897).

This genus seems to be characteristically Ethiopian, and has few, if any, representatives in the Oriental Region, from which I do not know a single species with certainty (? *kobusi* and *multifarius*).

The species before me may be distinguished as follows:—

- 1 (8) Scutellum yellow, transparent, or only blackened towards the base, clothed entirely or at least on the hind border

- with yellow hair; pterostigma pale yellow and short.
- 2 (5) Antennæ yellow, the third joint darkened along the upper border or in the upper part; dorsum of thorax strongly striped.
- 3 (4) Facial tubercle black; eyes with four or three dark bands; femora mostly black; thoracic stripes shining and bordered with black; fourth abdominal segment without yellow band; upper facets of the eyes only a little larger than the lower ones; occipital border in the female broadly shining black above *plurivittatus*, Macq.
- 4 (3) Facial tubercle yellow; eyes with five bands; femora mostly reddish yellow; thoracic stripes not margined with black; fourth segment usually with a yellow band; upper facets distinctly larger; occipital border grey pollinose *barclayi*, sp. n.
- 5 (2) Antennæ black, or only the third joint narrowly yellowish below; dorsum of thorax with less distinct or indistinct stripes.
- 6 (7) Eyes with five to six narrow bands, and not spotted between; face with distinct lateral stripes *teniops*, Wied.
- 7 (6) Eyes with three broad black bands and some spots between; face almost entirely black, the lateral stripes therefore not distinct *fuscicornis*, Karsch.
- 8 (1) Scutellum quite black, with a bluish tinge, entirely clothed with black hair; face with two very broad metallic shining stripes on the sides; abdomen without yellow bands; wings strongly infuscated, with a very elongate black stigma; squamulæ blackish *seychellarum*, sp. n.

89. *Eristalodes plurivittatus*, Macquart (1855).

Easily distinguishable by the four thoracic stripes being shining and margined with black, and by the eyes, the upper facets of which in the male are smaller than in the allied species, usually having four dark bands.

This species seems to be widely distributed over the Ethiopian Region, but is more common on the West Coast. The eyes show rather numerous black spots between the bands. There are some specimens in which the bands on the eyes are only three in number, the first (or that nearer the antennæ) being wanting or only faintly indicated; these specimens are usually of smaller size. Some of them, which appear to be immature, have pale reddish femora, reddish peristoma, and also often the lower portion of the facial tubercle yellowish. The yellow band on the second abdominal segment is rarely wanting; the greyish-white bands on the

third and fourth segments are sometimes reduced or wanting. The black band or spot on the frons of the female is usually broad and intensely black, but sometimes much reduced and less distinct. A good character of this species is the broad, shining black, upper occipital border in the female.

There are in the collection two males and eighteen females of the typical form: Obuasi, Ashanti, v.-ix. 1907 (*Dr. W. M. Graham*); Sierra Leone Protectorate, Karina District, x.-xi. 1906 (*Dr. H. E. Arbuckle*); S. Nigeria, Oshogbo, i.-vi. 1910 (*Dr. T. F. G. Mayer*); Ibadan (*Capt. Leslie*); British East Africa, Kemia Forest, near Luchi River, 9. ii. 1911 (*T. J. Anderson*); Nyasaland, Zomba (*Dr. H. S. Stannus*); Durban, S. ii. 1902 (*F. Muir*). Besides these there are three female specimens with only three bands on the eyes, but typical in other respects, from Sierra Leone (*J. Fovcroft*) and from Obuasi, Ashanti, vii. 1907 (*Dr. W. M. Graham*). A female from Entebbe, Uganda, 1. x. 1904, has three ocular bands, entirely black abdomen, and almost entirely black scutellum, with only the hind border yellow. Finally, three females, with three ocular bands, pale legs, and more or less yellowish peristoma and facial tubercle, from Zungeru, N. Nigeria, 9. iii. 1911 (*Dr. J. W. S. Macfie*) and Oshogbo, S. Nigeria, i.-iii. 1911 (*Dr. T. F. G. Mayer*).

90. *Eristalodes barclayi*, sp. n.

♂ ♀. Length of the body 14-15 mm.

A very distinct species, with 5-6 narrow ocular bands, sharply striped thorax, and facial tubercle and edges of buccal cavity wholly yellow.

This rather large species recalls *E. tæniops*, from which it is at once distinguished by the strongly striped thorax; it is also allied to *E. macrops*, Karsch, which has opaque thoracic stripes and a black facial tubercle; it seems also to have some affinity with the Oriental *E. arvorum*, Fabr., which has also a yellow facial tubercle, but has no bands on the eyes.

Head black, covered with grey pollen on the occiput and yellowish-grey pollen on the frons and face; occipital upper border in the female also pollinose, only narrowly shining near the eyes; lower orbits whitish grey; vertical triangle of the male small, yellowish pollinose, with dark hairs; orbital border almost bare; eyes in the male yellowish red, opaque below, purplish shining above, and there with broader facets and long brown hairs; in the female the eyes are entirely opaque with very short hairs above; the dark bands are narrow and show a tendency to break up into spots, chiefly below, where they are attenuated; there are also some black spots on the hind portion; in the male the line of contact of the eyes is longer than the frontal triangle and twice as long as the vertical triangle; frontal triangle of the male rather small and convex, densely yellowish pollinose, clothed with long dark hairs, which become paler near the antennæ; there is sometimes a trace of a black median line, which becomes yellow above the base of the

antennæ; lunula yellow; frons of female wholly pollinose, even on the ocelli; clothed with dense yellowish hair, blackish only in a band before the ocelli, the transverse black band wanting or less distinct; a thin black middle line in front, which becomes yellow above the antennæ; antennæ placed on a less prominent tubercle, yellow, the third joint elongate-oval, with a black upper border; arista bare, long, yellow. Face densely yellowish pollinose, with yellowish hairs on the sides; the tubercle rounded, shining yellow, and hollowed below the antennæ; on each side of the tubercle there is a shining black line; peristoma narrow, shining black, with white hairs behind, reddish before the edges of the buccal cavity; opening of the buccal cavity broad, proboscis black. Thorax black, yellowish-grey pollinose, with sharply defined black stripes in both sexes; these stripes are rather shining æneous, not margined with black, the two lateral not broader than the middle ones and attenuated behind; hairs yellowish, dense, and long; pleuræ grey, with long grey or yellowish hairs. Squamulæ brownish yellow, with a whitish fringe; halteres whitish. Scutellum yellowish, transparent, shining æneous above, darkened at the base, yellowish pilose, with a transverse band of black hairs near the base. Abdomen yellow, and yellowish-grey pilose; first segment grey; second with a narrow even black fore border and a broader one on the hind margin, which is attenuated at the sides and triangularly broadened in the middle, where it unites with the fore border, the yellow band being therefore interrupted in the middle; third and fourth segments similarly coloured, but the yellow bands narrower, chiefly in the female, and besides with a complete transverse whitish band near the fore border; the hind borders of the black bands are shining, chiefly near the middle; the abdomen is more yellow in the male than in the female; venter yellowish, blackened at the base and at the tip; genitalia of the male shining black. Legs reddish, the tibiæ pale yellowish, the femora darker, those of the hind pair blackened at the base and above; hairs pale; hind femora thin; tarsi darkened at the apex. Wings hyaline, not pubescent, with typical venation; marginal cell with a short stalk; stigma pale yellow, black at the base and more narrowly at the end; upper fore corner of the second basal cell roundly dilated; small cross-vein a little beyond the middle of the discal cell; this last cell appendiculated.

Type ♂ and *type* ♀, and four additional specimens from Nyasaland, Fort Johnston, 2,000 ft., dry season, vi. 1910, collected by *Dr. A. H. Barclay*, in whose honour the species is named; besides a female from Lake Chilwa, Nyasaland, iv. 1910 (*Dr. H. S. Stannus*).

91. *Eristalodes tæniops*, *Wiedemann* (1818).

A Mediterranean species, widely spread over the Ethiopian Region, and readily distinguished by its five dark bands on the eyes and by the very indistinct thoracic stripes.

Six specimens from Nairobi, 3. v. 1911; one from British East Africa, Kenyamkago (*Dr. J. Pugh*), and another from Marsabit (*R. J. Stordy*); a couple from Durban (*F. Muir*); a male specimen from Stellenbosch, Cape Colony, xi. 1904 (*G. A. K. Marshall*).

92. *Eristalodes fuscicornis*, *Karsch* (1887).

Characterised by having only three broad bands on the eyes and the face almost entirely black, the lateral black stripes being therefore indistinct.

Karsch has described the male alone from Pungo-Andongo. In the collection there is a single female specimen, which agrees well enough in its general characters. It measures 14 mm. in length; the frons is grey pollinose and dark-haired; the vertex and a broad band just above the antennæ are black; there is also a broad dull black band on the middle of the frons. Abdomen entirely black, the first segment whitish cinereous; the second with an indistinct trace of the yellow band; third and fourth entirely black, without white bands.

A single female specimen from British East Africa, Mt. Kenia, W. side, 6,500 ft., 20. ii. 1911 (*S. A. Neave*).

93. *Eristalodes seychellarum*, sp. n.

♀. Length of the body 12 mm.

An entirely black species, adorned with bluish reflexions, and having a very broad black band on each side of the facial tubercle. This species seems to be allied to the Oriental *E. nigra*, Wied.

Head black, æneous on the frons and bluish on the face; eyes almost entirely bare, with only a few very short hairs on the upper corner; the eyes are red, with four regular dark stripes and with a few dark spots interposed, more numerous behind; in life they are striped dull red and orange (note by the collector); frons shining, black-haired, with grey pollen only towards the sides; lunula yellow; face with strong bluish reflexions, very shining, covered with short whitish hairs on the sides; the grey pollen is distinct on the sides, on the under border, and on two small lines on the sides of the tubercle, the two stripes being also very broad, rectangular, and almost twice as broad as the middle stripe; peristoma shining, not produced; antennæ placed on a slightly prominent tubercle, entirely brownish black, the elongate third joint having only a small dark yellow spot below; arista long, bare, brown; vertical and occipital hairs black. Thorax dark-haired, with long black hairs on the sides, grey pollinose on the back, with four well-developed dull black stripes, the two middle ones evanescent behind and there somewhat shining, the two lateral ones interrupted at the suture and attenuated behind; pleuræ shining bluish, grey pollinose below, and black-haired. Scutellum entirely shining bluish black and black pilose. Squamulæ blackish brown, with a

dark fringe; halteres with a yellow stalk and darker knob. Abdomen entirely shining blackish æneous, very shortly dark pilose, only on the sides with longer and paler hairs; the fore halves of the segments are slightly greyish pollinose, while behind there is an indistinct transverse dull black band, nearer to the hind border and produced forwards towards the middle. Venter black and with black hairs. Legs black, with pale and black hairs; hind femora



Fig. 15. *Eristalodes seychellarum*, sp. n. ♀. $\times 3\frac{1}{2}$.

shining, thin; all the tibiæ yellowish near the base, the anterior four more broadly; tarsi black, the first joint yellowish; claws black, with reddish base. Wings distinctly infuscated, with black veins, the vena spuria being also darker than usual; stigmal spot very elongate, entirely black; the venation is normal, the discal cell not appendiculate, and the second basal cell not dilated towards its upper corner.

Type ♀, a single specimen from Mahé, Seychelles.

Genus 16. **ERISTALIS**, *Rondani* (1844).

The following species are represented in the collection:—

- | | | |
|-------|--|----------------------------------|
| 1 (2) | Eyes with two bands of brown hairs; hind femora thin; wings without any pubescence and with the kink in the third vein rounded | <i>tenax</i> , L. |
| 2 (1) | Eyes with unicolorous hairs; hind femora much thickened; wings minutely pubescent and the kink in the third vein rather angular. | |
| 3 (4) | Wings unspotted; facial tubercle black; hind femora with the basal half bright yellow | <i>dasyops</i> , Wied. |
| 4 (3) | Wings with an apical brown spot; facial tubercle reddish; hind femora wholly brown | <i>meromacriiformis</i> , sp. n. |

94. *Eristalis tenax*. Linné (1758).¹

This almost cosmopolitan species is recognisable at once by the two bands of brown hairs on the eyes.

It seems to be not common in South Africa, perhaps because it has only recently been introduced. Two female specimens only from Stellenbosch, Cape Colony, xi. 1904 (*G. A. K. Marshall*).

95. *Eristalis dasyops*, *Wiedemann* (1819).

In general aspect very like the preceding, but differing in the unicolorous hairs of the eyes and the yellow hind femora, which are black towards the apex.

This species is perhaps a *Protygocera* with pubescent eyes, the shape of the head and the pale rounded spots on the eyes being the same as in that genus; besides the wings are pubescent, the marginal cell is short-stalked, and the kink in the third vein is angular and provided with the rudiment of an appendix (*v.* the notes in my paper on Fea's Syrphids, p. 432). The present species is probably congeneric with the following, but not with the preceding.

A female specimen from Obuasi, Ashanti, 31. vii. 1907 (*Dr. W. M. Graham*).

96. *Eristalis meromacriformis*, sp. n.

♂. Length of the body 14 mm.

Very distinct from any other species on account of the apical brown spots on the wings. This species shows a great resemblance to the American genus *Meromacrus* in the pubescence and pattern on the wings, in the eyes of the male, in the hind femora, and in shape of the abdomen; but the eyes are hairy and the face has a well-developed tubercle. I place it for the present in *Eristalis*. *Milesia maculata*, Macquart (1849), stated to be from Africa, which was in my catalogue placed in *Meromacrus*, while in Kertész's it is left in *Milesia*, is without any doubt the American *Meromacrus cruciger*, Wied.; the present species, although showing a rather similar pattern on the wings, is very different, owing to the want of any golden-yellow marking.

Head black, the lower portion of the face and the peristoma reddish; frontal triangle of the male very elongate, attenuated in front, dark grey pollinose, and with pale hairs; eyes dark red, slightly shining towards the middle, entirely clothed with whitish hairs, without any distinct pattern and also without the pale spots of *Protygocera*; they are approximated at a point midway between the antennæ and the vertex, but not in contact; frontal triangle grey pollinose, elongate, with long pale hairs directed forwards; lunula reddish; antennæ placed on a tubercle as in *Protygocera*, the basal joints reddish, the third brownish, elongate-oval, with a long and bare, dark reddish arista; face reddish, blackish above and on the sides, where it is grey tomentose and clothed with sparse and short pale hairs; it is deeply excavated below the

antennæ, with a rounded prominent tubercle, which is united below with the epistoma; peristoma narrow, not produced; lower posterior orbits white pollinose and white pilose; opening of the buccal cavity broad, ovate. Thorax black, dark pollinose and with very short pale hairs on the back, without distinct pattern, reddish on the humeri and on the pro- and mesopleura; scutellum dark reddish, with short pale hairs. Squamulæ pellucid, with a whitish fringe; halteres whitish. Abdomen elongate, almost cylindrical, gradually attenuated behind; it is entirely black, dark grey pollinose, brownish towards the end, with short grey hairs; second and third segments with a narrow yellow hind border; venter grey; genitalia rounded, brownish red. The four front legs, including the coxæ, dark red, with black grey-pollinose tibiæ and tarsi; hind legs with more blackish coxæ and femora, which are greatly swollen and bear black bristles, but are not toothed below; hind tibiæ curved, reddish, the tarsi black. All the hairs on the legs are pale. Wings narrow, greyish hyaline, very thinly pubescent; costal cell yellowish; the black spot filling the ends of the marginal and submarginal cells, not passing the third longitudinal vein, but touching the costa in front and reaching the kink in the third vein; marginal cell shortly stalked; kink in the third vein narrow and triangular, but its fore branch straighter and more perpendicular than the hind one; small cross-vein curved and placed a little beyond the middle of the discal cell; vena spuria chitinized; outer lower corner of the discal cell rounded, not appendiculate; second basal cell not dilated at the end above; anal cell dilated towards its middle.

Type ♂, a single rather old and badly preserved specimen from South Africa (*R. W. Plant*).

Genus 17. **HELOPHILUS**, *Meigen* (1803).

Subgenus **MESEMBRIUS**, *Rondani* (1857).

All the species in the collection belong to this subgenus, which is very characteristic of the Ethiopian fauna, and they all have the globiferous hairs at the base of the hind tarsi. They can be distinguished as follows:—

- 1 (10) Thorax with very sharply defined black and yellow stripes on the back.
- 2 (5) Hind femora of the male without a brush-like tuft of black hairs on the inner side near the base.
- 3 (4) Middle tibiæ of the male with the long yellow pubescence present also on the anterior side and extending only to the first joint of the tarsi; hind tibiæ black; first yellow abdominal band of the female interrupted in the middle *capensis*, Macq.
- 4 (3) Middle tibiæ of the male with the yellow pubescence only on the posterior side and extending to the four first joints of the

- tarsi; hind tib.æ broadly yellow towards the base; first yellow abdominal band of the female entire *lagopus*, Loew.
- 5 (2) Hind femora of the male with a brush-like tuft of dense black hairs on the inner side near the base.
- 6 (9) Middle yellow stripe on the thorax wanting or very narrow; abdomen of the female with the black hind borders of the segments well developed.
- 7 (8) Fourth abdominal segment of the male with a small furrow on each side, which is densely covered with golden hairs forming short longitudinal stripes; middle yellow thoracic stripe wanting *strigilatus*, Bezzi.
- 8 (7) Fourth abdominal segment with the usual pubescence, without any furrows; middle thoracic stripe very narrow, but distinct. *minor*, sp. n.
- 9 (6) Middle yellow thoracic stripe very broad; hind portion of the abdominal segments grey, without a black border *africanus*, Verr.
- 10 (1) Thorax on the back with less distinct stripes or even not striped at all.
- 11 (12) Scutellum yellow; front tarsi reddish; wings greyish hyaline; eyes of the male touching; tibiæ with long black hairs, those of the hind legs with a strong tubercle *ingratus*, Loew.
- 12 (11) Scutellum and front tarsi black; wings strongly infuscated and with purplish-blue reflexions.
- 13 (14) Scutellum black, with a yellowish hind border; abdomen in great part reddish, with black markings; eyes of the male a little separated; tibiæ with short and partly pale-coloured hairs, those of the hind legs without tubercle *cyanipennis*, sp. n.
- 14 (13) Scutellum and abdomen entirely black. *morio*, sp. n.

97. H. (*Mesembrius*) *capensis*, Macquart (1842).

I think that the present species is possibly the same as the *caffer* of Loew, because it is the commonest of all the South African species.

A couple of specimens from Blantyre, Nyasaland, 23-25. iv. 1910 (*Dr. J. E. S. Old*); a couple from Durban (*E. Muir*); three males from Kenyankago, British East Africa (*Dr. J. Pugh*); some specimens from Chintechi, Nyasaland (*Dr. H. S. Stannus*); a male from Uganda (*Capt. E. D. W. Greig*); N. Nyasa, near mouth of R. Ruml, 12. v. (*Dr. J. B. Davey*).

98. H. (*Mesembrius*) *lagopus*, Loew (1860).

A male from Salisbury, S. Rhodesia (*G. A. K. Marshall*); a female from Durban, i. 1903 (*E. Muir*).

99. *H. (Mesembrius) strigilatus*, *Bozzi* (1912).

Recently described by me from French Congo and Portuguese Guinea.

There are in the collection two female specimens from Busoga, Uganda, iii. 1906 (*Dr. A. D. P. Hodges*), and a female from Obuasi, Ashanti (*Dr. W. M. Graham*); which I refer with some doubt to this species.

100. *H. (Mesembrius) minor*, sp. n.

♂ ♀. Length of the body 11.5-12 mm.

A small species, nearly allied to the preceding one, but distinguished by the simple last abdominal segment of the male, by the abdominal pattern of the female, and in both sexes by the narrow median pale line on the thorax.

Head black, covered with dense yellowish pollen, the ocellar triangle alone being shining black; all the hairs are yellowish; antennal tubercle and middle line of the face also shining black; antennæ entirely black, the third joint rounded, with a dark reddish-brown arista; eyes brown, unicolorous, bare, touching along a short line in the male, separated as usual in the female; proboscis black. Thorax yellowish grey on the back, with three black stripes, the middle one abbreviated behind and divided by a very narrow median pale line; pleuræ grey, more densely pollinose towards the middle; scutellum yellowish, darkened at the base. All the hairs on the thorax are pale. Halteres whitish; squamulæ yellowish, with a yellowish fringe. Abdomen reddish yellow, the lateral spots on the second segment in the male more yellow than in the female; first segment black; second with the usual A-shaped median black mark and with a reddish hind border; third segment with a similar median mark, which, however, is not dilated forwards and is more grey behind; fourth grey, yellowish on the sides and behind, with a dull black spot towards the middle of fore portion; genitalia black; belly pale yellow; all the hairs long and pale. In the female the first segment is grey, yellowish towards the sides; the yellow band on the second is not interrupted in the middle; the third and fourth are grey, yellowish on the sides, with an arched transverse black band; the fifth is triangular, grey at the base, shining black at the apex. Legs black, grey pollinose, and with pale hairs; tips of the femora, tibiæ, and basal joints of tarsi yellow, in the male more broadly, the front tarsi being even entirely yellow; hind femora of the male thickened with an external yellow fringe, provided below near the base with a brush-like tuft of dense black and brown hairs; before the end there is a not very prominent black-haired tubercle and on the outside in the apical third there is an elongate, deep, shining furrow; hind tibiæ curved, black on the apical half; hind tarsi entirely black. Wings greyish hyaline, with a faint yellowish tinge near the base; the veins are black externally; discal cell not appendiculate; kink in the third vein not very deep, but broad and rounded.

Type ♂ from Chintechi, Nyasaland (*Dr. H. S. Stannus*), and an additional specimen from North Nyasa, Songwe River, 17. ix. 1909 (*Dr. J. B. Davey*); *type* ♀ and another specimen from N. of Mount Kenia, near Crater Lake, 5,700 ft., 15. ii. 1911 (*T. J. Anderson*).

101. **H. (Mesembrius) africanus**, *Verrall* (1898).

A single female specimen from British East Africa, Makindu, 3,300 ft., 5-7. iv. 1911 (*S. A. Neave*), which agrees very well with the description of this species from Aden, but also with that of *senegalensis*, Macq.

102. **H. (Mesembrius) ingratus**, *Loew* (1858).

A very distinct species, with entirely black legs. Front tarsi of the male short and broad, yellow; the first joint bears on the outside a tuft of black hairs, which are like those of the tibiæ; the last joint has two very distinct black rounded spots. Hind tibiæ with a prominent tubercle on the last third; hind tarsi black, the first joint rather swollen.

The present species shows a great many characters of the genus *Prionotomyia*, Bigot, which is therefore probably synonymous with *Mesembrius**. Two males from N.E. side of Lake Albert Edward, Uganda, 1906 (*Dr. A. D. P. Hodges*); a couple from Durban, 26. x. 1902 (*F. Muir*); some additional specimens of both sexes from Uganda, various localities (*Dr. R. van Someren*).

103. **H. (Mesembrius) cyanipennis**, sp. n.

♂ ♀. Length of the body 10-12 mm.

A very distinct black species, with the abdomen mainly reddish and with infuscated wings, which have very strong bluish reflexions.

Head black, the frons with black, the occiput with yellowish, and the face with white, hair; face with a faint whitish pollen, the median black stripe being therefore indistinct; antennæ entirely black, the third joint rounded; face with a distinct but not very prominent tubercle; eyes bare, unicolorous, in the male approximated but not touching; frons of female shining black, with an indistinct transverse greyish band in the middle. Thorax and scutellum entirely black, slightly shining, but the scutellum reddish along the hind border; the hair is short and grey, longer and paler on the pleuræ; the thorax shows no distinct stripes on the back, but two parallel rather distinct longitudinal furrows. Squamulæ pure white and with a white fringe; halteres yellowish. Abdomen of male more red than yellow; first segment black;

* Since this was written Dr. Speiser has shown that the synonymy here suggested is correct.

second with a broad black band, which does not reach the hind border, is dilated forwards, and has on each side a yellowish spot; third entirely red, with a small black basal spot; fourth red; genitalia and venter shining dark red; the hair is long, yellowish or reddish. In the female the colouring of the abdomen seems to be variable; in the type it is very like that of the male, the black stripe of the second segment being dilated on the hind border; most of the other specimens have the band of the second segment extended to the sides towards the hind border, the third and fourth similarly marked, and the fifth entirely black. Legs black, with the base of the tibiæ and tarsi more or less yellow, the middle tibiæ of the female often entirely yellow. Hind femora equally thickened in both sexes, those of the male simple, without the basal brush; hind tibiæ simple, without a tubercle; middle tibiæ of the male with a posterior apical tuft composed of 5-7 strong erect hairs. Wings more or less darkened, with very characteristic strong bluish reflexions; veins black to the base; kink in the third deep and narrow; lower corner of the discal cell with a short but strong stump.

Type ♂ from Entebbe, Uganda, 1-21. ix. 1911 (*S. A. Neave*), and an additional specimen of smaller size from Obuasi, Ashanti, 20. v. 1907 (*Dr. W. M. Graham*); *type* ♀ and an additional specimen, viii. 1906, same locality and collector; four other specimens of the variety with the apex of the abdomen black, April to August, same locality and collector.

104. H. (*Mesembrius*) *morio*, sp. n.

♀. Length of the body 12-13 mm.

Possibly only a dark variety of the preceding; distinguished by its entirely black scutellum and abdomen.

Head and antennæ as in *M. cyanipennis*, but the basal joints and the lunula are somewhat yellowish. The thorax is very like, but the pleuræ are darker and with darker pubescence. Abdomen entirely black, shining, even on the belly; second segment with a dull black pattern of the usual shape. Legs as in the preceding species; also the wings, which are even more infuscated towards the middle and more blue.

Type ♀ and an additional specimen from Nguelo, Usambara, German East Africa.

Genus 18. *MALLOTA*, *Meigen* (1822).

I here employ this genus in its widest sense, placing in it *Helophilus extremus*, Loew, and my species, *M. ænigma*. It differs from *Mesembrius* in having the eyes densely pilose and the face concave below the antennæ, with a distinct tubercle; and from *Protygocera* by the hairy eyes and the open marginal cell. The single known male has the eyes separated.

- 1 (4) Hind femora moderately thickened; yellow band of the 2nd abdominal segment entire.
- 2 (3) Third abdominal segment with a broad basal yellow band and the fourth with a narrower one; hind borders of segments 2 to 4 with a yellow line; tarsi yellow; eyes with long hair; marginal cell widely open *ænigma*, Bezzi.
- 3 (2) Third abdominal segment wholly black and no yellow line at the hind border of the segments; tarsi dark brown; eyes with short hair; marginal cell narrowly open .. *extrema*, Loew.
- 4 (1) Hind femora exceedingly thick; yellow band of the second segment broadly interrupted in the middle *pachymera*, sp. n.

Of the species *extrema* I have not seen any specimens, but is included here for comparison.

105. *Mallota ænigma*, Bezzi (1912).

Recently described by me from the Island of Fernando Po. There is a single female from Chirinda Forest, x. 1905 (*G. A. K. Marshall*), which agrees well enough with the type. The black spot at the base of all the femora is present, as well as in the two other species.

106. *Mallota pachymera*, sp. n.

♂ ♀. Length of the body in the male 10 mm.; in the female 13.5 mm.

Easily recognised by the enormously thickened hind femora and by the abdominal pattern; notwithstanding the difference in the size, I believe that the two specimens belong to the same species. Head shining black, but covered with long and dense greyish hair; sides of the face grey pollinose, and therefore there is a broad black band in the middle; antennal tubercle prominent; face hollowed below the antennæ and with a broad rounded tubercle; lunula yellow; eyes with no distinct spots, clothed with long and dense grey hair; eyes of the male approximated on the middle of the frons, but not touching; antennæ black, the basal joints reddish, the third ovate, twice as long as the two others, with a bare, dark yellowish arista. Back of the thorax grey, not striped, clothed with rather long greyish hair, longer on the pleuræ; scutellum yellow, with long hair. Squamulæ lurid, with a grey fringe; halteres whitish. Abdomen shining black, clothed with rather long grey hair, shorter in the female, black at the hind border of the segments; the first segment is yellowish-grey with a basal black spot below the scutellum; second with two indistinct and narrow yellow spots on the sides, forming an interrupted band; other segments only a little yellowish at the sides and on the hind border; in the female with a narrow basal pollinose band; genitalia

blackish; venter shining yellow. The four anterior legs are almost entirely pale yellow, the femora darkened on the apical half, more distinctly so in the male; hind femora enormously thickened in both sexes, pale yellow interiorly, blackened towards the middle exteriorly, with some whitish hairs above and some black ones below; hind tibiæ arched and with a short fringe; tarsi yellow. The black basal spot of the femora is very distinct. Wings hyaline, bare, unspotted; veins in great part yellow; marginal cell broadly open; loop of the third vein deep and narrow, not appendiculated; lower corner of discal cell with a short stump.

Type ♂ and *type* ♀, a couple of specimens from the Cape of Good Hope.

Genus 19. **MERODON**, *Meigen* (1803).

Of this characteristic Mediterranean genus there are only a few Ethiopian species known; the collection comprises the three following:—

- | | | |
|-------|---|---------------------------------|
| 1 (2) | Face retreating below, not at all prominent towards the buccal cavity; lower corner of the discal cell with a short stump . . . | <i>planifacies</i> , sp. n. |
| 2 (1) | Face even more prominent than usual at the buccal cavity; lower corner of the discal cell not appendiculated. | |
| 3 (4) | Abdomen at the base with an orange spot on each side of the second segment; antennæ and tarsi entirely black | <i>melanoceus</i> , sp. n. |
| 4 (2) | Abdomen at the base entirely black; antennæ and tarsi reddish | <i>nasicus</i> , <i>Bezzi</i> . |

107. **Merodon planifacies**, sp. n.

♂. Length of the body 10 mm.

A rather aberrant species, very distinct from any other on account of the shape of the face; in general aspect not much differing from *M. constans*, Rossi, but the hind trochanters and the hind tibiæ are wholly simple.

Head black, densely clothed with grey hair, the vertical triangle alone being shining and the hairs around ocelli dark; eyes touching for a considerable distance, covered with whitish hair, which is dark on the upper part; frontal triangle not very prominent, densely clothed with whitish hair; face very short and entirely flat, a little retreating, not prominent at the buccal cavity, distinctly shorter than the eyes; antennæ short, reddish, the third joint rectangular and of a pale yellowish colour; arista bare, yellowish; opening of the buccal cavity very small; proboscis short and concealed. Dorsum of thorax clothed with dense and rather long grey hair; it is of a shining æneous colour, and has three broad purplish-black bands, the middle one being abbreviated behind and divided by a thin æneous line, while

the lateral ones are abbreviated in front and almost interrupted towards the suture; pleuræ shining æneous, with grey hair; scutellum entirely blackish æneous, pale-haired. Squamulæ lurid, with a yellowish fringe. Abdomen broad and rounded at the apex, not conical; it is shining dark tawny with some bluish reflexions; first segment very small and blackish; second with a narrow black fore border, not reaching the sides, an obsolete median black band and two orange lateral spots, forming an interrupted band; third and fourth with a transverse yellowish pellucid median band, interrupted towards the middle, that of the third paler, the hair is whitish, pure white on the transverse bands, but that on the orange spots is orange; genitalia large and rounded, but not prominent, black; venter reddish yellow, clothed with long pale hair, like that on the sides. Coxæ and femora shining black, narrowly yellow at the apex, with grey hair; hind femora moderately thickened, with a short but strong pre-apical tooth; hind trochanters rounded, simple; tibiæ black, with the basal third yellow, whitish pilose, those of the hind pair without any apical tooth; tarsi brownish yellow, the last joint black. Wings grey, unspotted, with typical venation, but the discal cell broader and its inferior corner provided with a short but distinct stump.

Type ♂, a single specimen from Durban, 24. x. 1902 (*E. Muir*).

108. *Merodon melanocerus*, sp. n.

♀. Length of the body 12 mm.

A species very like *græcus*, Loew, and probably belonging to the *armipes*-group of Dr. Sack's Monograph, but distinguished by the entirely black antennæ; perhaps, however, more allied to *segetum* and belonging to the *mænium*-group.

Frons æneous black, the ocellar portion and a median longitudinal line being shining, the sides covered with grey pollen; face shining black, with sparse white hair; edge of buccal cavity very prominent; antennæ black, the third joint attenuated at the apex, twice as long as broad; proboscis black; eyes with grey hair. Thorax shining black, with short grey hair and no distinct bands. Scutellum entirely black, pale-haired; squamulæ white, with a yellowish fringe. Abdomen shining black as in *græcus*; the bands of white pollen on the second and third segments are straight and narrowly interrupted towards the middle, that of the fourth is triangularly produced forwards in the middle; the sides are clothed with dense yellow hair; the hind borders of second to fourth are yellowish with white margins. Legs simple, dull black, with yellow knees. Wings greyish hyaline, with typical venation; lower angle of the discal cell rounded, not appendiculated.

Type ♀, a single specimen from Piet Retief, Transvaal, 25. x. 1903 (*A. Crawshaw*).

109. *Merodon nasicus*, *Bezzi* (1914).

Very near *M. funestus*, but belonging to the *mœnium*-group, distinguished by the upper margin of the buccal cavity being very much produced and elevated, by the abdomen being entirely black, and by the very long frons, the face being therefore very short. Described by me from Erythræa in the Collection of the Hungarian Museum; there is a single female specimen, only 10 mm. in length, with the 4th abdominal segment lacking the broad hind grey border, from British East Africa, Njoro, "in the clutches of a small Asilid" (*A. J. Cholmley*). In the year 1908 I wrongly recorded specimens of this species from Erythræa as *M. funestus*.

Subfamily IV. XYLOTINÆ.

Genus 20. *CHASMOMMA*, nov.

A genus allied to *Tropidia*, *Myiolepta*, and *Xylota*, and like the first connecting the Merodontinæ with the Xylotinæ; it is to be placed near *Xylota*, no species of which has yet been found in the Ethiopian Region.

The essential distinguishing characters of this new genus are: face tuberculate in both sexes; eyes of male widely separate; hind femora strongly incrassate, bristly below, but without tooth-like process; third vein with a deep kink, but not as in the *Eristalis*-group.

There are some other genera with dichoptic males, which to a certain extent seem to be allied to *Chasmomma*, viz. the Japanese *Kirimyia*, Bigot, which, however, seems to be more nearly related to *Helophilus*, and in which the face is not tuberculate; the North-American *Chalcomyia*, Williston, which has a straight third vein and no tubercle on the face; and the Chilean *Stilbosoma*, Philippi, which has also a straight third vein and bidentate hind femora.

The new genus may be characterised as follows:—

Body bare, black without any yellow markings, but with velvety black bands on the abdomen. Head semiglobular, rather broader than the thorax; frons not prominent, rather narrow, that of the male only a little narrower than in the female; antennal tubercle rather prominent; face long, perpendicular, in both sexes with a prominent tubercle in the centre; margin of buccal cavity not prominent; jowls very narrow; opening of buccal cavity horizontal, elongate; proboscis short; eyes bare, separated in both sexes; antennæ rather short, reaching only to the median tubercle, the third joint elongate, one and a half times as long as broad, rounded at tip, not broadened; arista bare, as long as the antennæ, inserted near the base of the joint. Thorax of normal shape, punctulate, bare; scutellum the same, but strongly margined behind. Abdomen with almost parallel sides, bare; male genitalia asymmetrically placed. Legs normal, those of the hind pair very elongate, coxæ and trochanters simple; hind femora greatly thickened, but not toothed and only with some bristles below near the end as in *Xylota*;

hind tibiæ arched, much shorter than the femora; tarsi simple. Wings with the marginal cell broadly open; the third vein with a deep but broad kink, exactly as in *Tropidia fasciata*; middle cross-vein just above the middle of the discal cell; vena spuria strong, but not entirely chitinised; distal extremity of first posterior cell shaped as in *Xylota*; lower corner of the discal cell rounded and without an appendix; all the veins bare.

Type: the following new species.

110. *Chasmomma femoratum*, sp. n.

♂ ♀. Length of the body 7–8 mm.

An interesting insect, strongly resembling *Xylota femorata*, L., but less than half its size.

Head shining æneous black, the occiput and frons in both sexes as far as the middle velvety black and dull; face with a faint white

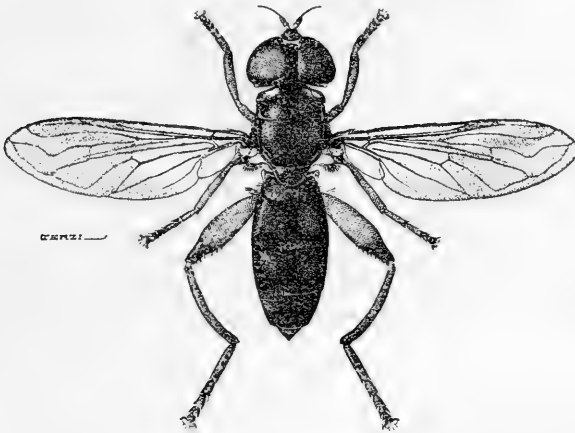


Fig. 16.—*Chasmomma femoratum*, sp. n. ♀. $\times 4\frac{1}{2}$.

pollen, but the median tubercle shining black; frons and sides of face bearing very thin and rather long greyish hairs; occipital border narrowly argenteous behind; antennæ black, brownish towards the base. Thorax wholly black, somewhat shining, with whitish pollen at the sides, on the humeri, and along the transverse suture; the back is almost bare; pleuræ partly whitish pollinose, with rather short pale hair. Squamulæ small, white; halteres whitish. Abdomen bluish black, shining, with the following dull black markings: a rounded spot on each side of the first segment; second segment with a median longitudinal band, dilated into a transverse band in front and behind, the posterior band being somewhat removed from the hind border; third and fourth segments with a similar pattern, which is, however, less distinct especially on the fourth; these patterns are more clearly defined and broader in

the male; hind borders narrowly pale; male genitalia shining black; hair at the base of the abdomen pale; venter black, the sides and hind margins of the ventral plates yellowish. Legs bare, of a reddish-yellow colour; coxæ black, but those of the front pair yellowish; hind trochanters black; front tarsi broad, black; middle tarsi dark brown, but the basal joint partly yellow; hind tarsi



Fig. 17.—*Chasmomma femoratum*, sp. n. ♀.
Left hind leg from inner side, $\times 10$.

very strong and broad, intensely black; hind femora broadly black at end, especially in the female, provided with eight to ten bristles; hind tibiae intensely black, only the knees yellowish. Wings greyish hyaline, the stigma and subcostal cell blackish; apical half more or less infuscated.

Type ♂, an additional specimen, and *type* ♀, from Oshogbo, S. Nigeria, xi. and xii. 1910 (*Dr. T. F. G. Mayer*); another male specimen from Ibadan, S. Nigeria (*Capt. Leslie*).

Genus 21. **SYRITTA**, *Saint Fargeau et Serville* (1825).

This genus seems to be very abundantly represented in the Ethiopian Region, more than 20 species being already described; the species, however, appear to be very closely allied to each other, and as regards the coloration of the legs as variable as our *S. pipiens*. Only a few of these species (such as *nigrifemorata*, *latitarsata*, and *spinigera*) are distinguished by good structural characters, the others are possibly not more than colour-varieties. The "species" in the Collection may be separated as follows:—

- 1 (4) Vena spuria not distinct, nearly obsolete, other veins of a yellowish colour; hind femora with a very long and strong spine near the base; yellow abdominal bands of male not interrupted in the middle; third antennal joint in great part black; last ventral plate in the male with a tuft of erect bristly hairs in front of the genitalia.

- 2 (3) Hind femora with two or three other smaller spines on the basal half beyond the very strong basal spine *spinigera*, Loew.
- 3 (2) Hind femora without any spine beyond the basal one *aculeipes*, Schin.
- 4 (1) Vena spuria as distinct as usual and black like the other veins; hind femora without basal spine or with a much shorter one; yellow abdominal bands of male interrupted in the middle, at least the first; third antennal joint entirely of a pale yellow colour; ventral tuft less distinct.
- 5 (10) Hind tibiae of the male simple; hind femora in both sexes not strongly armed towards the middle.
- 6 (7) Hind femora pale yellow with black tips, and provided with a rather strong basal spine; pollen on the thorax in the female more yellow and present also in front of the scutellum *bulbus*, Walk.
- 7 (6) Hind femora dark reddish, brown, or black, and without strong basal spine; thoracic pollen grey or whitish, entirely wanting in front of the scutellum.
- 8 (9) Smaller species with hyaline wings; yellow colour on the female abdomen more extensive; hind femora mostly black, ciliated and toothed below on the basal half *fasciata*, Wied.
- 9 (8) Species of larger size, with slightly infuscated wings; yellow colour in the female less extensive; hind femora reddish brown, not ciliate below, and nearly smooth on the basal half *stigmatica*, Loew.
- 10 (5) Hind tibiae of male beyond middle with a strong tubercle and a deep notch; hind femora in both sexes of a reddish colour with a black apex, with the strongest armature towards the middle *austeni*, sp. n.

111. *Syritta spinigera*, Loew (1848).

This species is the type of a small but well-defined group, the members of which are distinguished by the absence of the vena spuria, a character overlooked by Loew and pointed out for the first time by Thomson. All the other species of this group, and also the following, are perhaps only colour-varieties, such as *armipes*, Thoms., *spinigerella*, Thoms., *vitripennis*, Bigot, and perhaps *nigricornis*, Macq., the latter name having priority; since the abdomen of *spinigera* is often entirely yellow at the end, Loew's name may be a synonym of *flaviventris*, Macq.

There are two males and three females from Howick, Natal (*J. P. Gregoe*), and a female from Johannesburg, Transvaal (*A. J. Cholmley*).

112. *Syritta aculeipes*, *Schiner* (1868).

A single male specimen from Nairobi, 5. vi. 1911, appears to belong to this species, which, with the exception of the hind femora, agrees in all respects with the foregoing.

113. *Syritta bulbus*, *Walker* (1849).

I believe I have this species before me in the shape of a female from Obuasi, Ashanti, West Africa (*Dr. W. M. Graham*), which is readily distinguishable owing to the yellow colour of the thoracic pollen, of the hind femora, and of the abdominal spots. The abdomen, which is wanting in Walker's specimen, is velvety black, shining only on the last segment; the first segment has a small yellow spot on the sides; the second and third have broader lateral yellow spots; the fourth has a yellow spot on the fore corner and a yellow hind border; the hind femora have a very strong basal spine. This specimen agrees very well with the description of *S. bulbulus*, *Speiser*, 1913.

I also refer to this species a male from Durban, Natal, S. ix. 1903 (*E. Muir*), which shows the same coloration of the hind femora, and has also a strong basal spine on the latter; its coloration, however, is like that of *picipiens*, and the thoracic tomentum has the usual colour and disposition.

114. *Syritta fasciata*, *Wiedemann* (1830).

I am of opinion that the present species is the Ethiopian representative of *S. picipiens*, L., from which it differs in its smaller size, paler antennæ and face, more extended yellow markings on the abdomen, the second yellow band (*i. e.* that on the third segment) being mostly uninterrupted in the middle in the male and being very broad in the female. The hind femora are black, varying more or less to a reddish brown; they are finely toothed beneath and bear long white hairs, which, as in *picipiens*, appear to be deciduous. Hind trochanters smooth, not so beset with minute spines as in *picipiens*; coloration of abdomen and legs apparently variable as in *picipiens*.

S. abyssinica, *Rondani*, from Keren, Abyssinia, of which I have topotypes before me, is only a smaller variety with black hind femora.

Two males from Durban, Natal (*E. Muir*), and one from Sierra Leone (*J. Essexcroft*).

115. *Syritta stigmatica*, *Loew* (1858).

I refer with some doubt to this species some specimens which seem to be only a variety of the preceding. They are usually of greater size, the yellow markings on the third abdominal segment of the female are greatly reduced, the wings are more or less infus-

cated, the hind legs reddish brown, not ciliated below, and smoother on the basal portion.

Two typical females from Durban, Natal, a male and a very small female from Howick, Natal (*J. P. Cregoe*); a male from Basutoland (*R. Crawshaw*).

It would appear that this species is only a southern form, but I have seen specimens from Abyssinia in the collection of the Hungarian Museum; the species which I have assumed to be *S. decora*, Walk., from the Congo, also belongs here.

116. *Syritta austeni*, sp. n.

♂ ♀. Length of the body 7·5 to 8·5 mm.

A species readily distinguishable, owing to the shape of the hind tibiæ of the male and the armature of the hind femora in both sexes. It is possibly allied to *S. nigrifemorata*, Macquart, from Mauritius, which shows a similar structure of the hind tibiæ, but seems to differ in the armature and coloration of the hind femora and in the shape of face.

Face and frons bare, covered with white dust on yellowish ground; jowls very small, shining pale yellow; face carinate, lightly concave in the middle, with the margin of the buccal cavity prominent; eyes of the male in contact for a moderate space, with dilated front facets; vertical triangle very narrow and elongate, shining towards the ocelli, with white dust on the anterior half and clothed with erect grey hairs; frons of female with short pubescence above, shining black round the ocelli; and elsewhere covered with a white dust, except on a more or less developed black spot above the antennæ and a broad transverse band across the middle; occiput black, with a white spot above on each side of the vertical triangle, and with a white-dusted border below next the eyes; antennæ entirely yellow, the third joint rather elongate, rounded at the tip; proboscis black. Thorax dullish black, punctate, with very short pale pubescence, the humeri, the sides down to the suture, and the pleuræ with a whitish-grey dust and longer whitish pubescence; in front of the scutellum there is on each side a white spot. Scutellum more punctate than the remainder of the thorax, but of the same colour, with a few thin short bristles on the margin. Squamulæ and halteres white, the former with a white fringe. Abdomen deep black, shining on the last segment alone, almost bare, with the usual tuft of white hairs at the base and some hairs on the sides of the last segment. In the male the first segment is black, grey on the sides; second and third segments yellow, whitish pollinose, with a black median line which is triangularly dilated behind, forming a broad hind border; fourth segment entirely shining black, with a yellow hind border and a basal spot of white dust on each side; genitalia swollen, black, with pale pubescence; venter whitish, with black hind borders to the segments and rather long pubescence at end of the last segment, but without a distinct tuft of erect bristles, and only with a few tiny hairs. In

the female the abdomen is black; but partly shining even on the second and third segments, exhibiting a distinct deep black pattern like that of the male; second segment on each side with a yellow spot, third with a small one on fore corners; fourth with a yellow hind border; venter mostly black, with bands of whitish dust. Four anterior legs entirely yellow, with blackish coxæ; hind trochanters brown and smooth; hind femora as in *pipiens*, but of a reddish-brown colour, broadly black at end, the basal half bearing some tubercles, of which the stronger and longer are situated towards the middle; these tubercles are more prominent in the male. Hind tibiae arched, reddish brown, with black bases and pale yellow knees; in the male the hind tibia exhibits a notch with a tubercle on the inner side, for the reception of the long spine on the femur, when closed; in the female there is no trace of this notch, but the lower apical angle is prolonged into a point which is longer than in the allied species; the femora of the female have also the strongest spine in the middle; hind tarsi blackish, not dilated. Wings hyaline, with black veins and a brownish stigma; vena spuria strongly chitinised, black.

Type ♂ and *type* ♀ from Freetown, Sierra Leone, 17-26. viii. 1899, collected by Mr. E. E. Austen of the British Museum, in whose honour the species is named; two additional females from Aiyangba, N. Nigeria, 11. i. 1911 (*Dr. J. J. Simpson*), and another from Zungeru, N. Nigeria, 15. xi. 1910 (*Dr. J. W. S. Macfise*).

Genus 22. **EUMERUS**, *Meigen* (1822).

This genus seems to be represented in the Ethiopian Region by a great many very different forms, which are often distinguished by important structural characters, chiefly in the male sex. In the collection before me there are no species in which the eyes are separate in the male, although examples of such (as, for instance, *argenteus* and *argyropsis*, *jacobi* and *rubiginosus*) have been described from South Africa. The species can be tabulated as follows: it should be remarked that *erythrocerus*, *unicolor*, and *vestitus* are not represented in the collection, and are included in the table only for the sake of comparison:—

- 1 (6) Hind femora not thickened, with only a few small spines or bristles towards the end; species of very small size, rarely exceeding 5 to 6 mm. in length; eyes in the male approaching each other only at one point, not really in contact for any distance; hind border of scutellum with very prominent small teeth, which are longer than usual; third antennal joint broadly red or reddish brown; ocelli approximate, arranged in an equilateral triangle; male genitalia very large, bilobate, often protruding.

- 2 (5) Wings more or less hyaline, without infuscated markings; second abdominal segment without broad yellow spots; thorax of male more or less cyaneous, clothed with dense silvery hair.
- 3 (4) Second and third abdominal segments entirely covered with dense silvery hair, the usual lunulæ therefore not visible; male genitalia protruding in the form of a sphere divided in the middle; pterostigma dark yellowish coloured *paula*, Herv.-Baz.
- 4 (3) Second and third abdominal segments with the usual pubescence, the lunulæ being clearly visible; male genitalia concealed; pterostigma colourless *serratus*, sp. n.
- 5 (2) Wings with distinct fuscous borders to the cross-veins; second abdominal segment with two broad yellow spots *maculipennis*, sp. n.
- 6 (1) Hind femora more or less thickened and strongly toothed at the tips; species of larger size, over 7 mm. in length; eyes in male always in contact for a more or less considerable distance; male genitalia rounded, not bilobate, concealed.
- 7 (12) Hind femora cylindrical at the tips, with more or less well-developed spines, but without a prominent denticulate plate, not *Merodon*-like; vertical triangle in the male very narrow, frons in the known females also narrow.
- 8 (9) Scutellum with hind margin unicolorous, black; hind femora in the male bearing near the base a very strong black tooth, almost as strong as in *Syritta spinigera*; ocelli equidistant *armipes*, sp. n.
- 9 (8) Scutellum with hind margin yellow; hind femora in the male without the basal tooth; anterior ocellus distant from the others.
- 10 (11) Body bluish black, very deeply punctate, almost wrinkled; legs in great part black; thorax almost bare on the middle of the back, without bands; antennæ small *scaber*, sp. n.
- 11 (10) Body æneous black, more thinly punctate; legs in great part yellow; thorax with a golden pubescence and distinct grey stripes; antennæ broad *fee*, Bezzi.

- 12 (7) Hind femora greatly thickened, often flattened at the tip and bearing a prominent denticulate plate below, *Merodon*-like; vertical triangle in the male broad, frons in the female very broad.
- 13 (18) Third antennal joint red or reddish, sometimes more or less infuscated, but never black; ocelli arranged in an equilateral triangle.
- 14 (15) Abdomen more or less red on the sides near the base; front coxæ and four anterior legs entirely red; wings hyaline with pale stigma . . . *axinecerus*, Speis.
- 15 (14) Abdomen entirely black, or at the most with yellow spots on the second and third segments; front coxæ black; fore legs more or less black; wings infuscated towards the middle, with blackish stigma.
- 16 (17) Abdomen with broad yellow spots on the second and narrower ones on the third segment; third antennal joint small, dark brown. *quadrimaculatus*, Macq.
- 17 (16) Abdomen with the usual lunulæ, beneath which can be seen a yellow ground; legs often with black tarsi also; third antennal joint broad, red *erythrocerus*, Loew.
- 18 (13) Third antennal joint entirely black; ocelli arranged in an isosceles triangle, the anterior ocellus being further from the posterior ocelli than the latter are from each other.
- 19 (22) Scutellum long, clothed with short hair, not ciliated behind, with the hind border thin, sharp, and granular, not tomentose; thorax shining black in front of the suture, without grey pattern; frons in the female shining black; abdomen elongate, with less distinct lunulæ.
- 20 (21) Eyes bare; hind femora and tibiæ flattened, shining black, almost bare; third antennal joint triangular. *triangularis*, Herv.-Faz.
- 21 (20) Eyes densely pilose, even in the female; hind femora and tibiæ of usual shape, very hairy; abdominal lunulæ evanescent outwards. *unicolor*, Loew.
- 22 (19) Scutellum rather short, clothed with long hair, ciliated behind, its hind border not sharp, less granular and grey tomentose; thorax in front of the suture with distinct grey markings; frons in female densely tomentose, the ground-colour not

visible; abdomen short, with very distinct lunulæ; hind legs densely pilose.

- 23 (24) Abdomen dull, with only two pairs of lunulæ, the fourth segment being entirely covered with dense pollen; hind tarsi of male fringed above only at base. *vestitus*, Bezzi.
- 24 (23) Abdomen shining, with three pairs of lunulæ, the last segment not pollinose; hind tarsi of male fringed above throughout almost the whole length *obliquus*, Fabr.

117. *Eumerus paulæ*, *Hervé-Bazin* (1913).

A pretty species, very distinct in the male sex, owing to the silvery pubescence on the abdomen, which almost entirely conceals the usual lunulæ, and owing to the enormous genitalia, which are usually exerted.

This and the two following species belong to a peculiar group, which is perhaps allied to the Mediterranean *argyropus*, Loew (*exilipes*, Rondani); in the latter species, however, the eyes of the male are in contact for a long distance as usual. The female is like the male, but has no silvery pubescence and only normal hair, and on the abdomen there are three pairs of distinct lunulæ as usual.

A male from Durban, Natal (*F. Muir*), another from Howick, Natal (*J. P. Cregeoe*), and a third from Nyasaland (*Dr. J. E. S. Old*). A female from Durban (*F. Muir*) differs from the following species owing to its greater size (6.5 mm.) and more obscure wings, with distinct vena spuria and dark stigma.

It seems to be a widely distributed species, very different from *argenteus* of Walker and Loew.

118. *Eumerus serratus*, sp. n.

♂ ♀. Length of the body 5 to 5.5 mm.

Very closely allied to the preceding, but smaller and distinguished by the absence of the silvery abdominal pubescence, the white lunulæ being as distinct as usual.

Head pure black, not purplish blue as in the preceding; frons of male shining, with erect dark hairs towards the vertical triangle and a few paler ones above the antennæ, much constricted in the middle, but the eyes not actually touching, merely close together for a short distance; frons of female of uniform width, strongly shining, smooth, with short grey hair and a more or less distinct transverse band of whitish dust below the middle; ocelli forming an equilateral triangle; occiput rather prominent above, with long white hairs behind the ocelli; eyes of male bearing short pale hair, those of the female almost bare; face shining, flat, densely covered

with minute, short, whitish hair; antennæ reddish yellow, the third joint rather broad, hatchet-like, with the upper border darkened throughout its whole length; arista inserted near the base, black and bare; opening of buccal cavity rather broad, but short and almost circular. Thorax shining black, somewhat purplish in the male, finely punctate, clothed in the male with dense and long silvery hair as in *paulæ*, and with similar but sparser hair on the pleuræ; in the female the thorax is only thinly covered with short hair, and is adorned with two distant white stripes on the fore part. Squamulæ and halteres whitish, those of the male pure white, the squamulæ white-fringed. Scutellum shining black, bluish in the male, clothed with erect grey hair, the hind border broad, elevated, and bearing very long black spines, less numerous but stronger than in *Paragus serratus*. Abdomen as broad as the thorax, with parallel sides, black, but in the male at the base with a bluish and at the tip with a purplish sheen; the white lunulæ of the second to the fourth segments are well marked, but small, very oblique, and widely separated in the middle; hair very short, only at base long and whitish; genitalia of male of the type of those of *paulæ*, but not so prominent. Legs shining black, with white hair; all the tibiæ at base and the tarsi pale yellow; hind tarsi strong, broad, infuscated, with a yellowish ring at the end of each joint; hind femora simple, not thickened, bearing only a few strong bristles below near the tip; hind tibiæ strong, club-shaped, those of male with distinct but not dense silvery pubescence, which is wanting on the proximal two-thirds of the first basal joint. Wings entirely hyaline, strongly iridescent, with black veins, but less distinct vena spuria; stigma hardly infuscated at base; the two outward bends of the apical cross-vein each bear an appendix.

Type ♂ and *type* ♀ from Salisbury, Mashonaland (*G. A. K. Marshall*). The female can scarcely be distinguished from that of preceding species, except by its smaller size and darker wings.

119. *Eumerus maculipennis*, sp. n.

♀. Length of the body 5.5 to 6 mm.

Allied to the two preceding species, but at once distinguished by the yellow spots on the second abdominal segment and the infuscations of the wings.

As I have seen only females, which are very like those of *serratus*, I will here simply state the differences. The size is a little larger; the scutellar spines are less prominent; the second abdominal segment, instead of the usual lunules, bears on each side a broad yellow spot, which forms a transverse band, interrupted in the middle and not reaching the sides. Wings with yellow stigma and distinct vena spuria; the infuscations are on the small cross-vein, at the præfurca, and on the two apical cross-veins.

Type ♀ and two additional specimens from Oshogbo, S. Nigeria, x.-xii. 1910 (*Dr. T. F. G. Mayer*).

This species is nearly allied to the recently described *E. bequaerti*, Herné-Bazin (1913), and very probably corresponds to the unnamed specimens recorded from Basoko by the author on p. 78 of the work in question; it differs in being smaller, in having much broader yellow abdominal spots, which besides are of a triangular shape, and in the infuscated cross-veins.

120. *Eumerus armipes*, sp. n.

♂. Length of the body 7 mm.

This species is distinguished from any of its congeners at present known, owing to the presence of a very strong spine near the base of the hind femora.

Head black; vertical triangle very long and narrow, shining, pollinose only in the anterior angle, clothed with erect grey hairs; ocelli forming an equilateral triangle, which, however, extends far forwards and is distant from the vertex; occiput prominent above, white pollinose near the eyes; frontal triangle and face clothed with very dense white pollen and minute white pubescence; eyes quite bare except for the presence of a few hairs below, in contact for a distance shorter than the frontal triangle; antennæ short,



Fig. 18.—*Eumerus armipes*, sp. n., ♂.
Left hind leg from inner side, $\times 15$.

dark yellowish, the third joint small, subquadrate, with a black bare arista at the base. Thorax shining æneous, punctate, with very short grey pubescence, which is a little longer on the pleuræ; on the middle of the back there are two distant parallel stripes of white pollen extending beyond the suture, but not reaching the scutellum. Scutellum long, with sharp hind border, which is black and bears short tubercles; in the middle it is almost as bare as the thorax. Squamulæ pure white and white-fringed; halteres yellowish. Abdomen very narrow, with parallel sides, narrower than the thorax, of a black colour with æneous and dark purplish reflexions; second to fourth segments with equal pairs of broad lunulæ, not very oblique and approaching one another in the middle; pubescence very short, except at the base; genitalia rounded, not bilobate, concealed. Legs black, with short pale

pubescence; base of tibiæ, front and middle trochanters, base of middle femora and base of front and middle tarsi yellow; hind femora swollen, clothed with very short hair, shining æneous, the basal spine very strong and long, blunt and black; at the tips the hind femora are without an appendix, but bear a double series of strong spines; hind tibiæ club-shaped, clothed with very short hair; hind tarsi slightly thickened. Wings greyish hyaline, with black veins and black stigma; vena spuria distinct; apical cross-vein bearing three stumps, two directed outwards and one inwards; lower corner of the discal cell bearing an appendix.

Type ♂, a single specimen from Durban, 1902 (*F. Muir*).

121. *Eumerus scaber*, sp. n.

♂. Length of the body 8 mm.

A dark purplish, very deeply punctate species, which is closely allied to the following, but has a narrower yellow hind border to the scutellum and less distinct abdominal lunulæ.

Head purplish black, with the occipital border strongly produced above and clothed with short black hair; posterior orbits silvery-white pollinose below and clothed with white hair; vertical triangle narrow and elongate, shining black, clothed with short black hair, but its anterior extremity whitish pollinose and pale-haired; front ocellus occupying a forward position, the ocellar triangle not being equilateral; frontal triangle very small, shining bluish, with a small median depression, almost bare; face thinly pollinose and sparsely clothed with white hair; eyes almost bare, in contact for a distance a little longer than the frontal triangle; antennæ short, black, the third joint rounded. Thorax purplish black, very strongly punctate and therefore but little shining, almost bare, its yellowish dust distinct only on the sides and behind; pleuræ with white hairs; no distinct longitudinal stripes on the back. Scutellum like the thorax, its hind border not sharply produced, narrowly yellow and minutely granulate. Squamulæ pale yellowish like the halteres. Abdomen as broad as the thorax and similarly punctate, rather short and of the same colour; on the sides it bears a white pubescence; the lunulæ are scarcely distinguishable, on the second and third segments they are indicated only by a rather deep furrow, which is whitish pollinose. Genitalia reddish, very much developed, projecting as a yellow tubercle, fringed with hair on each side, towards the middle of the belly. Legs short, shining black, with very short whitish pubescence; front coxæ dark brown; trochanters, knees, and all the tarsi yellow; hind femora thickened, but without apophysis below at the tip, provided only with two rows of short spines, the external more developed; hind tibiæ clothed with short hair like the tarsi. Wings greyish hyaline, with dark stigma, and distinctly infuscated in the middle below the stigma to the fourth vein and from the præfurca to the end of the second vein; veins black; vena spuria quite distinct; apical cross-vein with two stumps; inferior angle of the discal cell with the rudiment of a stump.

Type ♂, a single specimen from Obuasi, Ashanti, West Africa 11. xi. 1907, "caught in bush" (*Dr. W. M. Graham*).

122. *Eumerus feæ*, *Bezzi* (1912).

Readily distinguishable, owing to the breadth of the yellow margin of the scutellum and to the narrowness of the frons of the female; thoracic stripes and abdominal lunulæ well marked.

This species, recently described by me from Fernando Po and the French Congo, seems to be widely distributed in West Africa. A male and three females from Obuasi, Ashanti, "caught on bush and flowers," vii.-xi. 1907 (*Dr. W. M. Graham*); a female from Oshogbo, S. Nigeria, 20-30. ix. 1910 (*Dr. T. F. G. Mayer*); a female from Ibadan, S. Nigeria (*Capt. Leslie*); and a male from Zomba, Nyasaland (*Dr. H. S. Stannus*). The last-mentioned specimen has the antennæ, face, and smaller genitalia reddish; it probably belongs to a distinct species.

123. *Eumerus axinecerus*, *Speiser* (1910).

Distinguished by its antennæ and fore legs being red, and by the abdomen being more or less red at the sides near the base. In my table of 1912 I placed this species among those in which the abdomen is black; usually, however, the red colour, as described by the author is quite distinct; it seems to be distinguished from *lunatus* owing to the colour of the legs, in which only the knees are reddish.

A pair from Durban, Natal (*F. Muir*).

124. *Eumerus quadrimaculatus*, *Macquart* (1855).

I refer with some doubt to this species two males from Blantyre, Nyasaland Protectorate, 20. iv. 1910 (*Dr. J. E. S. Old*). The species represented by the specimens before me seems to be allied to the foregoing, and is very different from that recorded under the same name by Prof. Hervé-Bazin, *Rev. Zool. Afric.* iii. 1913, p. 78. Except for the fact that the femora are rather swollen, I should have referred the present specimens to *E. bequaerti*, H.-B.

125. *Eumerus triangularis*, *Hervé-Bazin* (1913).

A very distinct species owing to its very broad and flattened, almost glabrous hind legs, its entirely bare eyes, and the peculiar shape of the second antennal joint.

The shape of the hind legs in this species is similar to that seen in *erythrocerus*; the front ocellus is distant from the other two ocelli; the second antennal joint is prolonged as a long lamella on the inner side of the last joint, much as in the species of *Ptecticus* or of *Syntormon*; the abdomen is rather elongate and narrow, even

narrower than the thorax in the middle; hind femora greatly thickened, but flat, provided below near the end with a long and sharp plate which bears on its margin 8-10 very strong spines; hind tibiæ flattened, almost bare, shining.

A male from Durban, 5. x. 1902 (*F. Muir*); a female from Salisbury, Mashonaland (*G. A. K. Marshall*); another male from Chirinda Forest, S. Rhodesia, x. 1905 (*G. A. K. Marshall*). The type of the species was obtained in Belgian Congo.

126. *Eumerus obliquus*, *Fabricius* (1805).

Easily recognisable owing to its short and broad body, to the hind margin of the scutellum being clothed with grey hair and not sharply produced, to the length of the hair on the eyes, the great distinctness of the three pairs of abdominal lunulae, and the strongly incrassate and very hairy hind tibiæ.

Distributed throughout the Ethiopian Region. A male and three females from Obuasi, Ashanti, West Africa, 24. vi. 1907, "caught on flowers" (*Dr. W. M. Graham*); a female from Ayeze, S. Nigeria, 9. iv. 1911 (*Dr. A. Connal*); a female from Kambi, Uganda, iv. 1904 (*Capt. E. D. W. Greig*); a female from British East Africa (*C. S. Betton*), and another from British Central Africa (*Dr. J. E. S. Old*); a male from Durban, Natal, 24. x. 1902 (*F. Muir*).

Genus 23. **AMPHOTERUS**, nov.

A strange insect, showing venation and scutellum of *Eumerus*, but with quite simple hind femora, and having the head and antennæ of *Microdon*. It differs from any other Syrphid genus yet known by the shortness of the first antennal joint and by the elongation of the second, which is much longer than the third. I was at first inclined to consider this insect as an aberrant *Microdon* with shortened first antennal joint; but on account of the venation I now think it better to regard it as a *Eumerus* with elongated second antennal joint. This connecting form between *Eumerus* and *Microdon* is a very interesting novelty; the discovery of its larva will probably explain the question.

Body dull, strongly chitinized, deeply punctate. Head a little broader than the thorax; eyes bare, shining, with equal facets, widely separated in the male, but with the inner angles approaching each other, and with the usual transverse furrow between the angles; face broader than the frons, gently convex, comparatively narrow, without furrows; opening of buccal cavity very small; proboscis but little prominent; antennæ longer than the face and pendulous; first joint exceedingly short, scarcely noticeable below the lunula; second joint very long, thin, almost bare; third joint elongated, broader than the second and a little more than half its length; arista very thin, bare, rather long, inserted rather far from the

base; ocelli rather distant, arranged in an equilateral triangle; pubescence of frons and face rather long. Thorax subquadrate, with short pubescence; scutellum semicircular, unarmed, its hind border sharp and produced as in *Eumerus*. Abdomen as broad as the thorax, with parallel sides; second and third segments almost of equal size, fourth more than twice as long as the third. Legs short and not robust; hind femora quite simple, neither thickened, incurved, dentate, nor spinose; tarsi very thin, not expanded nor flattened. Wings with venation very like that of *Eumerus*; no cross-vein between the ends of the auxiliary and first longitudinal veins; third vein without a stump; small cross-vein situate beyond the middle of the discal cell; apical cross-vein bent in the middle as in *Eumerus*, and at this point with a stump directed outwards; lower corners of the subapical and of the discal cells rounded off and each bearing a stump; vena spuria distinct; postical cross-vein with its upper end exactly on a level with the middle of the subapical cell.

Type: the following new species:—

127. *Amphoterus cribratus*, sp. n.

♂. Length of the body 10 mm., of the antennæ 2·5 mm.

A stout fly of a dark colour, with very strongly punctate body, simple legs, and long pendulous antennæ.

Head black; the dark hairs on the frons erect; face grey-dusted and yellowish-haired; antennæ and arista entirely black; proboscis

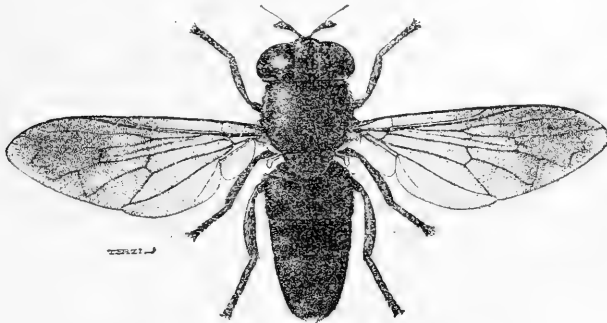


Fig. 19.—*Amphoterus cribratus*, sp. n. ♀. ×4.

black. Thorax and scutellum black, very strongly punctate, with short yellowish pubescence, which is a little longer on the anterior half of the pleuræ. Abdomen black, punctate like the thorax, with some pale erect hairs at the base and on the sides; its pubescence is short, yellowish, and denser towards the sides, while at the end of the fourth segment it is abundant and almost of a golden colour;

second and third segments each with a somewhat distinct median band of grey pollen, narrowly interrupted in the middle and broader towards the sides; fourth segment with several of these bands, one after the other, but not very distinct. Genitalia black, with yellow pubescence; belly black. Legs entirely black, the femora sparsely clothed with pale hairs and the tibiæ with short yellowish pubescence; all the tarsi very thin, not flattened; first joint of hind tarsi simple; hind legs more robust than the anterior ones, but not thickened and entirely simple. Wings greyish hyaline, with brown veins and yellowish stigma; there is a broad infuscated pubescent patch from the small cross-vein to the tip of the wing, extending below to the lower corner of the discal cell.

Type ♂, a single specimen from British East Africa, collected by *T. J. Anderson*.

(Genus 24. **CHRYSOTOXUM**, *Meigen* (1803).

This genus seems to be very poorly represented in the Ethiopian Region.

128. **Chrysotoxum continuum**, sp. n.

♂. Length of the body 13 mm.

Closely resembling *Chr. intermedium*, *Meig. (italicum, Rond.)*, but distinguished by having the dark costal band on the wings less developed, and differing from any other European or North American species known to me in having the yellow lateral stripe on the thorax not interrupted at the suture.

In the Second Part of my 'Ditteri Eritrei' (1908) I considered the present species as an Ethiopian form of *intermedium*; but I now think it better to regard it as a distinct species, the only member of its genus known from the Ethiopian Region. The female is to be found in the Museum of Florence, and another specimen in that of Budapest.

There is no necessity for a detailed description, the species being almost like *intermedium*. The first two joints of the antennæ are perhaps a little longer; dorsum of thorax more shining, especially behind; the yellow lateral stripe is not interrupted, and is of equal width from the shoulders to the postalar callus; pleuræ with the same spots as in *intermedium*; scutellum yellow, with the same pellucid spot. Abdominal pattern the same, the yellow bands being, however, a little narrower as in all the specimens examined. Legs and wings the same, but the latter only faintly infuscated along the fore border, lacking the usual dark band near the end.

Type ♂ and two additional specimens from Nairobi, East Africa Protectorate, 5. v. 1911; another male specimen from 13 miles north of M'bagori's Village, towards Meru, East Africa Protectorate, 13. xi. 1911, all collected by *Mr. T. J. Anderson*.

Genus 25. **MICRODON**, *Meigen* (1803).

In the case of this genus the collection includes very many interesting species, the majority of which are strikingly coloured, while some appear to mimic various species of Hymenoptera. The differences in structural characters are so pronounced that separation into minor genera seems to be necessary; this, however, is not easy, because the shape of antennæ is very variable and shows gradual transition to the extreme forms; the scutellum also gradually passes from the armed to the unarmed form.

Of the generally accepted genera, *Ceratophya*, *Myxogaster*, and *Rhopalosyrphus* are exclusively American, and therefore need not be considered here. In the collection, however, there is a mutilated specimen from the Cape which closely resembles *Myxogaster* or *Rhopalosyrphus*, but has two small spines on the scutellum; Dr. J. C. H. de Meijere, again, has described three Oriental species (*respiformis*, *indicus*, and *olyneroides*), which exhibit the characters of the genera mentioned, while in each case the scutellum is unarmed.

The recently described genus *Paramicrodon*, de Meijere, 1913, which occurs in New Guinea, has short antennæ and an unarmed scutellum, and is distinguished by the absence of a stump on the third vein.

Of the generic names relegated to synonymy, *Chymophila* proved to have been applied to a *Microdon* with the head of a *Conops* glued upon it; *Dimeraspis* was bestowed upon a true North-American *Microdon* not far removed from the European forms, but with an unarmed scutellum; *Mesophila* is merely a *nomen nudum*, which also applies to a North-American species of true *Microdon*, with bilobed scutellum; *Ubristes* was bestowed upon a Neotropical species, and, although its characters were not clearly defined, it was possibly meant to include South-American forms with an unarmed scutellum; *Omegasyrphus* also includes American forms with narrow abdomens, the second segment of which exhibits a very peculiar sculpture.

As stated above, the Ethiopian forms before me exhibit a great many structural variations, the existence of which renders it necessary to institute new genera; for the present, however, it seems better to divide the species in question into anonymous groups, since some of the names mentioned above can perhaps be applied to them. I have introduced only two new generic names for two very striking forms, one of which is allied to *Eumerus* and has been described above.

The following is a table for the distinction of the Ethiopian groups of the genus *Microdon*, s. l., with the addition of the two new genera:—

- 1 (14) Middle cross-vein situate on the basal third of the discal cell; third longitudinal vein provided with the usual peculiar stump in the subapical cell; a distinct cross-vein uniting

- the tips of the auxiliary and the first vein; subapical cross-vein not bent towards its middle and with no stump at that point; first antennal joint more or less elongate, almost exceeding the second in length.
- 2 (13) Third antennal joint bare, more or less elongate; arista developed as usual; face without furrows, or these only slightly developed.
- 3 (4) Abdomen narrow and stalked, the second segment being very much constricted towards its middle, and there much narrower than the thorax; thorax and legs bare; scutellum with two spines GROUP I.
- 4 (3) Abdomen not stalked, mostly very broad, and at least as broad as the thorax.
- 5 (12) Third antennal joint as long as or shorter than the first, pendulous; second joint well developed, sometimes almost as long as the third; eyes of male with a prominent angle in the middle of the frons, slightly convergent; thorax and head with a very short pilosity.
- 6 (7) Antennæ very short and thick, the third joint ovate, as long as the first; smallish, short species, with almost rounded abdomen; scutellum deeply emarginate at end; ocelli distant; legs and thorax rather pilose GROUP II.
- 7 (6) Antennæ of the ordinary length, the third joint shorter than the first, which is usually thin.
- 8 (9) Scutellum with strong spines; ocelli distant; legs and thorax pilose; short, rounded, rufous species, very much resembling the European ones GROUP III.
- 9 (5) Scutellum rounded, without spines, neither dentate nor emarginate; ocelli in contact with each other, forming a single tubercle; legs bare; rather elongate species, usually of considerable size, and often very striking in coloration.
- 10 (11) Body almost cylindrical, brown and blackish coloured, very strongly punctate; third antennal joint rather short; second abdominal segment depressed in the middle and produced on each side; first joint of hind tarsi greatly swollen GROUP IV.
- 11 (10) Body not cylindrical, the abdomen being usually broader than the thorax even if elongate, its second segment not produced on each side or only very rarely; punctuation slighter and coloration more striking; first joint of hind tarsi not or not so much swollen; third antennal joint usually elongate GROUP V.
- 12 (5) Third antennal joint enormously elongate, erect, 4 to 5 times as long as the first; second joint very short, almost rudimentary; eyes of male with scarcely any trace of a prominent angle and very widely separate; ocelli distant; thorax, head, and legs clothed with long hair. GROUP VI.

- 13 (2) Third antennal joint four times as long as the first, feathered, clothed with long and soft hairs on its inner and outer sides; arista rudimentary, represented by a very short stump; eyes very widely separate, without prominent angle in the middle of the frons; face with oblique furrows; ocelli rather distant; scutellum rounded; legs bare *Ptilobacterum*, gen. nov.
- 14 (1) Middle cross-vein situate beyond the middle of the discal cell; third longitudinal vein without a stump; no distinct cross-vein connecting the tips of the auxiliary and first veins; subapical cross-vein bent towards its middle and there provided with an outwardly directed stump; first antennal joint very short, hardly visible, the second greatly elongate, longer than the third; ocelli distant; frons of male contracted towards the middle; scutellum rounded; body cylindrical, strongly punctate; legs almost bare *Amphoterus*, gen. nov.

GROUP I. (*illucens*, sp. n.).

There is only a single specimen, without a head; notwithstanding this, I think it better to name it, as it is very strongly differentiated and is reminiscent of the American genus *Myxogaster*, which, however, lacks the stump on the third vein. The recently described *M. acantholepidis*, Speiser (1913), perhaps belongs here, but seems to have a sessile abdomen.

129. *Microdon illucens*, sp. n.

♂. Length of the body (without head) 8 mm.

A slender elongate species, very distinct owing to the abdomen being pedunculate and to the presence of two thin and short but well-developed spines on the scutellum.

Head wanting. Thorax subquadrate, black, strongly punctate, and consequently dull, with very short grey pubescence; shoulders shining yellowish; pleuræ towards the middle with a vertical broad band of silvery shining thick pubescence; the upper extremity of this band emits a small transverse band, which runs along the suture and across the back, being interrupted in the middle; a similar but less well-developed band is to be observed in front of the scutellum, and before this band is a triangular deep black spot. Scutellum strong, convex, rounded behind, punctate and coloured like the thorax; the two small, short, yellow spines are placed rather low down, and are slightly curved upwards. Metanotum shining black. Squamulæ white, very small, with bare margins;

halteres yellow. Abdomen black, punctate, with short, sparse, silvery pubescence; first segment entirely black, as broad as the scutellum; second greatly constricted in the middle, black, with a yellowish pellucid streak on each side, leaving in the centre a thin black median line, which is dilated into a triangle behind, the yellow streaks being therefore abbreviated forwards and reaching the hind border on the sides; third segment black, reddish towards the hind border, where there is a transverse band of silvery pubescence; fourth entirely dark reddish, longer than the third, with a broad black spot on each side at the base; genitalia red, concealed; belly red. Legs short and thin; coxæ and femora black, the two anterior pairs partly reddish, the hind pair with yellow knees;



Fig. 20. —*Microdon illucens*, sp. n., ♂.
Abdomen, $\times 9$.

four anterior tibiæ reddish, with white pubescence; hind tibiæ white on the basal, black on the apical half; all the tarsi reddish yellow, with a small black spot on the underside of each joint; claws with black tips; hind tarsi not dilated. Wings hyaline, rather narrow, without stigma and with normal black veins; the two apical cross-veins and the well-developed stump are all parallel; lower corner of the subapical cell with short appendix, that of the discal cell with none.

Type ♂, a single specimen from Cape Ceira, Mozambique, Portuguese East Africa, 3. vi. 1904 (*F. Muir*).

GROUP II. (*brevicornis*, *Loew*).

This group is composed of short rounded species, with short antennæ and emarginate scutellum; they are not very different from the typical species and have the thorax and scutellum similarly

clothed with hair. The frons of the male is very narrow, and in both sexes frons and face are comparatively narrow, the face being constricted below. There is a rather pronounced sexual dimorphism, the female being usually of larger size and differently coloured.

Some Oriental species also seem to belong to this group, e. g. *simplicicornis*, de Meijere, from Java, and *grageti*, *limbinervis*, and *novæ-guinææ*, de Meij., from New Guinea.

The collection includes specimens of the following species:—

- 1 (2) Femora black, narrowly yellow at the end alone; the female with deep blue body and strongly infuscated wings; abdomen of the male more or less yellow at the base only *brevicornis*, Loew.
- 2 (1) Femora yellow, more or less black above towards the base; the female with æneous, slightly bluish body, and not infuscated wings; abdomen of the male almost entirely yellow *testaceus*, Walk.

130. *Microdon brevicornis*, Loew (1858).

A well-known species, originally described from Caffraria, and subsequently recorded from Assinie and Belgian Congo in West Africa, and from Usambara and Kilimandjaro in East Africa. The male, which is very different from the female, has recently been described by Prof. Hervé-Bazin in Rev. Zool. Afric. iii. p. 100 (1913).

Two males from Obuasi, Ashanti, W. Africa, 12 & 14. vi. 1907, "caught on leaf" and "on stick on damp path" (*Dr. W. M. Graham*); a female from same locality and collector, 15. vi., "caught in bush"; two females from Freetown, Sierra Leone, W. Africa, 21. viii. and 12. ix. 1899 (*E. E. Austen*).

131. *Microdon testaceus*, Walker (1857).

A stout rounded species, in the male sex closely resembling the preceding, but distinguished by the different coloration of the legs and by the very different appearance of the female.

The specimens before me answer well enough to the short description of Walker, and it seems advisable here to characterise the species more in detail.

♂. Length of the body 7 mm.

Head nearly spherical, of a shining green æneous colour; occiput concave, grey-dusted; frons relatively very narrow, the inner margins of the eyes angulate and converging a little before the middle of the frons, which at the same point exhibits a deep transverse furrow; hair on frons and occiput rather long, dark grey; ocelli widely distant from the vertex, situate almost in the middle of the frons, adjacent to each other, but not in contact:

eyes bare, of a shining dark brown colour, with facets almost equal in size; antennæ very short, black, the first joint clothed with black hair, as long as the third, which is oval; second joint about half the length of the third; arista short, as long as the third joint and situate near its base, black, not thickened; face narrow, somewhat constricted below, gently convex, clothed with white hairs, its ground-colour, however, being distinct; proboscis yellow, thick and prominent, with broad labella. Thorax and scutellum shining greenish æneous, finely punctate, clothed with rather long, erect, dark grey hair; on the hind part of the dorsum, before the scutellum, there are the characteristic spots margined with purple and blue; pleuræ partly dark yellowish, with longer hairs. Scutellum deeply emarginate behind, almost bidentate. Squamulæ rather large, white; halteres whitish. Abdomen much broader than the thorax, short and rounded, clothed with short hair; it is almost entirely yellow, only the sides and the fourth segment being more or less darkened; second, third, and fourth segments with the transverse bands of grey pubescence like those of *brevicornis*; the last segment is only twice as long as the third, and the divisions between segments are distinct. Genitalia dark yellow, pilosity white. Belly entirely yellow. Legs with rather long, pale pubescence; coxæ black; femora yellow, more or less darkened towards the base above; tibiæ whitish, with an ill-defined dark ring beyond the middle; tarsi short and broad, yellowish, the first joint of the hind tarsi not swollen. Wings greyish hyaline, with strong black veins, but without any infuscation; only the lower corner of the subapical cell bears an appendix.

♀. Length of the body 8 mm. Of larger size than the ♂; thorax and head blacker; frons and face broader, but the latter narrowed below; abdomen entirely blue-black, only the second segment being a little yellowish towards the sides; tibiæ broadly black at the end; wings greyish hyaline as in the male.

Two male specimens and a female from Durban, Natal, 1902 (*F. Muir*); Walker's type was also obtained at Durban.

GROUP III. (*obesus*, *Hervé-Bazin*).

This group consists of the typical species *deivus* and *mutabilis*; the thorax and legs are clothed with rather long hair; the frons is narrow in the male; the face is broad, and not constricted below; the antennæ are long, the first joint being thin and longer than the third, which is elongate.

The only addition to the group is the following species, which is allied to the two already mentioned.

132. *Microdon obesus*, *Hervé-Bazin* (1913).

A small, hairy species, not unlike the European *deivus*, but smaller and with stronger and longer spines on the scutellum.

Body very finely punctate. Frons rather short; ocelli not far

from the vertex and distant from each other; face twice as broad as the frons; jowls with a small circular pit on each side. Metanotum shining black, bare; squamulæ and halteres pale yellowish. Margins of abdominal segments distinct; genitalia black, clothed with white hair. Small cross-vein close to the base of the discal cell, almost in the same line as the cross-vein forming the distal boundary of the second basal cell; subapical and discal cells short, the lower corner of the former bearing an appendix.

A single male specimen from Uganda, Plains N.E. of Lake Edward, 3,200 feet, "in open," 15-16. x. 1911 (*S. A. Neave*). The type of the species was obtained in Belgian Congo.

GROUP IV. (*punctulatus*, *Wied.*).

The species belonging to this group are distinguishable from those of the following one by their smaller size and the cylindrical shape of body, the abdomen being not broader than the thorax and having the second segment depressed in the middle, and elevated and produced at the sides, rather like that of *Omegasyrphus*, but to a less extent. They also have a more strongly punctate body, the first joint of the hind tarsi greatly swollen, and are duller in colour, being blackish brown and dark reddish. The ocelli and legs show the same characters as in the following group, and the subapical and discal cells have their lower corners broadly rounded and without an appendix.

In the collection there are two species, the first of which I believe to be Wiedemann's species. The recently described *M. tarsalis*, Hervé-Bazin (1913), has the first joint of the hind tarsi similarly shaped, but cannot be placed in the present group on account of its hispinose scutellum. On the other hand, *cremastogastri*, *apis*, and *captum*, Speiser (1913), belong here, while *varius*, Walker, is probably a *Graptomyza*:

- | | |
|---|----------------------------|
| 1 (2) Third antennal joint black; wings strongly infuscated; abdomen in great part black; length 13 mm. | <i>punctulatus</i> , Wied. |
| 2 (1) Third antennal joint red like the others; wings greyish hyaline; abdomen in great part reddish; slender species 9 mm. in length. | <i>rugosus</i> , sp. n. |

133. *Microdon punctulatus*, *Wiedemann* (1824).

A male specimen from Durban, Natal (*J. P. Cregoe*), which I assume to belong to this species, as it answers well enough to the description, although Wiedemann gives a smaller size. In this specimen the frons is of a dark reddish colour, like the face; the third antennal joint alone is black; thorax on the sides of the dorsum and pleuræ above, as far as the scutellum, reddish; the second segment of the abdomen on each side, and the distal

extremity of the very elongate third segment, as also the genitalia, of a dark red colour; legs entirely red, only the hind tarsi being blackish.

There is a female from Durban (*F. Muir*), which has an entirely black head and a black second antennal joint; thorax and scutellum wholly black; abdomen black, with the third and fourth segments red on the base and at the tip; hind legs almost entirely black, as described by Wiedemann.

Length of body 14 mm., while Wiedemann gives only 7 mm.

134. *Microdon rugosus*, sp. n.

♂. Length of body 8 to 9 mm.

Very near the preceding species, but smaller and slender in shape, with entirely red antennæ and hyaline wings. The size of the present species corresponds better to that given by Wiedemann for *punctulatus*, but the antennæ and wings are different.

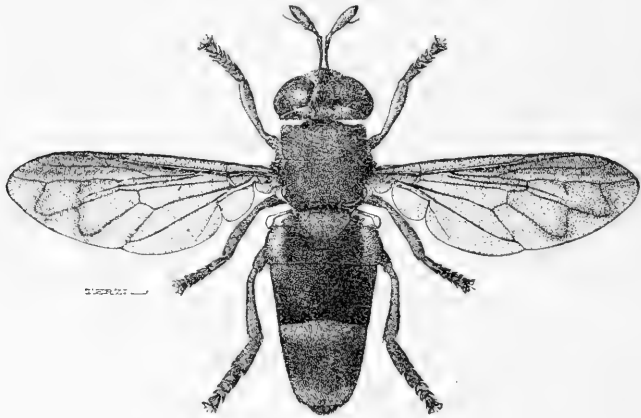


Fig. 21.—*Microdon rugosus*, sp. n. ♂. × 6.

Head black, strongly wrinkled, covered with short and sparse whitish pubescence, which does not conceal the ground-colour of the face; the frons, as far as the transverse furrow, and the upper border of the occiput near the vertex are red; the ocellar triangle and an area surrounding it are black and shining, the ocelli are very close together; eyes shining dark brown, with facets of equal size, rather near together in the middle of the frons owing to their prominent angles; antennæ rather long, entirely dark red, the first joint bare and thin, as long as the two following joints taken together; third joint oval, attenuated at the tip, with a very short but not thick reddish arista; face gently convex, not constricted below; opening of buccal cavity small; jowls with a small pit on

each side; proboscis retracted. Thorax subquadrate, wholly black, dull owing to being strongly punctate, though shining on the pleuræ beneath, with very short yellowish pubescence; scutellum semicircular, punctate like the thorax, but bare and somewhat shining, entirely red, with a simple, rounded hind border. Metanotum shining black, wrinkled towards the middle above. Squamulæ and halteres white. Abdomen elongate, with almost parallel sides, as broad as the thorax, but with the second segment a little dilated on each side, punctate and pubescent like the thorax; first segment black; second short, black in the middle, broadly red on the sides and narrowly red on the hind border; it shows a sculpture reminiscent of that of *Omegasyrphus*, but much less developed; third segment twice as long as the second, black, with the sides and hind border red; fourth twice as long as the third, red, with two more or less broad black spots on the sides; genitalia red; sometimes the second and third segments are wholly black, and the fourth has only the hind border black; belly black, with yellow hind borders to the first and second segments. Legs short and almost bare, red, with coxæ and femora near the base black or dark brown; first joint of hind tarsi strongly swollen, deep black like the following joints; claws red, with black tips. Wings greyish hyaline, with an elongate triangular dark spot towards the tip and on the costal border, formed by pubescence; veins strong and black, normal; subapical cross-vein strongly recurrent; external lower corners of subapical and discal cells much rounded and without an appendix.

Type ♂, and two additional specimens from British East Africa, M'bagori's Village, edge of Kenia Forest, 5,000 feet, 12. ii. 1911 (*T. J. Anderson*).

GROUP V. (*inermis*, Loew).

This seems to be the most numerous and characteristic group of *Microdon* in the Ethiopian region. To it belong the larger and more strikingly coloured species, some of which are very strange and beautiful flies.

The characters of the group are: Body and legs almost bare, lightly punctate; ocelli in contact with each other and forming a tubercle; antennæ elongate, the third joint sometimes as long as the first; frons and face very broad, the face not narrowed below; abdomen broader than the thorax at the base, attenuate behind, conical rather than cylindrical in shape, the second segment simple (with one exception) and the fourth segment in the male greatly elongate, usually four or five times as long as the third; first joint of hind tarsi not or very little swollen.

Of the present group three species have already been described, viz. *inermis*, *æthiopicus*, and *erythros*, all of which I have included in the following table, although the two last are not represented in the collection:—

- 1 (2) Entirely black and elongate species, more than 20 mm. in length; antennæ and legs black, but the latter sometimes of a reddish colour in the male; abdomen elongate, the second segment produced on each side, very thinly punctate; third antennal joint half as long as the first *mydas*, sp. n.
- 2 (1) Less elongate species, not more than 18 mm. in length, the abdomen broader than the thorax at the base and conical, its second segment always simple; not entirely black, the abdomen, head, antennæ, or legs being red or yellow; third antennal joint about as long as the first.
- 3 (4) Abdomen black; head, antennæ, and legs wholly red *erythrocephalus*, sp. n.
- 4 (3) Abdomen yellow or red; antennæ black; head black or with the face alone yellow.
- 5 (8) Legs wholly black; face yellow; first and second antennal joints clothed with rather long hair; rather prominent species of larger size.
- 6 (7) Abdomen yellow; Eastern species *luteiventris*, sp. n.
- 7 (6) Abdomen red; Western species *erythros*, Bezzi.
- 8 (5) Legs wholly or mostly red or yellow; face black; first and second antennal joints almost bare; smaller and less pilose species.
- 9 (10) Hind legs partly black; the two first antennal joints of a dark reddish colour *æthiopicus*, Rond.
- 10 (9) Hind legs entirely red or yellow; antennæ entirely black.
- 11 (12) Abdomen and legs dark red; wings with a uniform bluish-black tinge; trochanters and pleuræ black; arista reddish *inermis*, Loew.
- 12 (11) Abdomen and legs pale yellowish red; wings infuscated along the veins alone; trochanters yellowish; pleuræ sometimes spotted with yellow; arista black *pallidus*, sp. n.

135. *Microdon mydas*, sp. n.

♂ ♀ Length of the body in the male 19 mm.; in the female 21 mm., excluding in each case the antennæ, which are 5 mm. long.

A wonderful dull black species of considerable size, resembling a *Mydas*, and exhibiting some of the characters of the preceding group, with which it forms a connecting-link.

The two sexes show remarkable differences in coloration. I will

describe the male first. Head black, moderately punctate, a little shining; towards the occiput there are some rather long, erect, black hairs; the frons shows very short black pubescence; its fore part and the face are covered with a distinct whitish pubescence; eyes dark brown, shining, with facets of equal size and with their prominent angles fairly close together; the transverse furrow in the middle of the frons is deep; ocelli close together, forming a round tubercle placed in the middle of a broad longitudinal furrow, which runs from the vertex above to the base of the antennæ, and there encloses a smooth shining black triangle. Antennæ very long, the first joint clothed with very short hair and as long as the last two joints taken together; second joint rather long; third joint short, only a little longer than half the length of the first; arista black, not thickened, as long as the third antennal joint, which is dull grey, while the first two joints are of a shining black

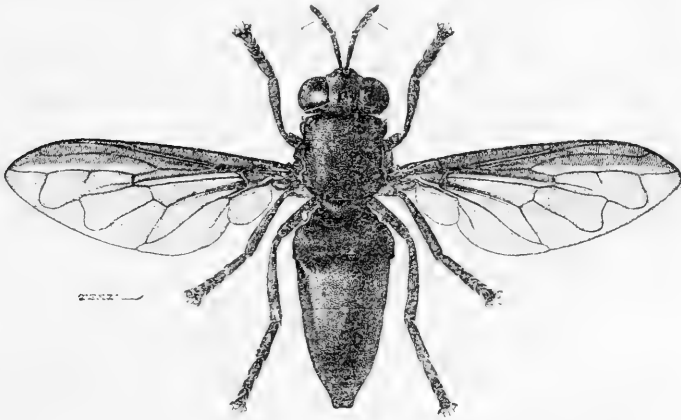


Fig. 22.—*Microdon mydas*, sp. n. ♀. × 2

colour. Opening of buccal cavity small; proboscis short, black. Thorax rectangular, minutely punctate, convex, entirely dull black, with a very small reddish spot on the shoulders; the thorax is bare, with sparse yellowish pubescence in front and on the pleuræ. Scutellum convex, semicircular, punctate like the thorax, pubescent only towards the sides, with a simple hind border; in the middle there are four rather distinct, parallel furrows, running from the base to the hind margin. Metanotum shining black, smooth; metapleuræ not punctate, with tiny transverse furrows. Squamula whitish, with black borders and short black fringes; halteres pale yellowish. Abdomen very elongate, with almost parallel sides, only a little attenuated behind, the second segment a little broader and produced at the sides; it is entirely black, even on the belly, only the last segment having a broad, dark red hind border; the whole abdomen is punctate like the thorax; pubescence very short and entirely

black, no distinct bands of pale hairs; third segment twice as long as the second, fourth three times as long as the third, all the sutures distinct; genitalia red, clothed with short yellowish hair. Legs almost bare, with black coxæ; femora and tibiæ of a very dark reddish colour, but the former blackened at base or at least at end; tarsi black or dark brown, the first joint of the hind tarsi slightly thickened; claws black, pulvilli dark brown; front tarsi very broad and flat, grey pollinose above. Wings long and broad, with a general shining brownish-yellow tinge and strong, black veins; lower outer corners of subapical and discal cells very much rounded and without stumps; alula, axillary lobe, anal cell, and middle part of the second basal cell in contact, with the fourth longitudinal vein almost hyaline.

The female (fig. 22) is very like the male, but of larger size and blacker in colour; the pubescence on the face is black, yellowish only towards the eyes and margin of the buccal cavity; eyes farther apart; occipital border less developed; thorax and scutellum with black pubescence; abdomen longer, entirely black, the fifth segment one-third as long as the fourth; legs entirely black; wings for the most part greyish hyaline, the dark tinge being limited to the fore border and not extending beyond the third longitudinal vein.

Type ♂, from Uganda Protectorate, Tero Forest, S.E. Buddu, 3,800 ft., 26 30. ix. 1911 (*S. A. Neave*); *type* ♀, from N.W. shores of Victoria Nyanza, 3,800-3,900 ft., 12 15. ix. 1911 (*same collector*). I think there can be no doubt that the female described belongs to the same species as the male.

136. *Microdon erythrocephalus*, sp. n.

♀. Length of body 13 to 14 mm., of the antennæ 4 mm.

A very distinct black species, with red head, antennæ, and legs, forming another addition to the extensive list of Ethiopian flies distinguished by their black or blue bodies and wings, which contrast with their red heads, like *Bromophila caffra*, Macq., *Clitodoca fenestralis*, Macq., *Platystoma ruficeps*, Enderl., etc.

Head very broad, entirely dark red, with short golden pubescence on the face, a small amount of similar pubescence on the central portion of the frons, silvery hair on the lower hind borders of the eyes, and with some white erect hairs on the lower part of the head; occipital border very broad at the vertex, *Stratiomyia*-like; transverse furrow in middle of frons distinct; ocelli aggregated into a small black dot, on either side of which there is a furrow, which anteriorly converges towards its fellow; a shorter furrow runs obliquely from the upper angle of each eye to the vertex; above the base of the antennæ there is a triangular smooth area of a blackish colour, which is connected by a furrow with the anterior extremity of the ocellar furrows; eyes shining black, comparatively small, and oval; opening of buccal cavity small; proboscis reddish, retracted; antennæ long, entirely red, the third joint paler than the

first two joints, which are almost bare, with very short black pubescence; third joint cylindrical, a little longer than the first, with a reddish and rather short arista, which is not thickened; second joint half as long as the first. Thorax and scutellum entirely black, and dull owing to being densely and coarsely punctate; the thorax is bare or has only a hardly visible black pubescence, while only the upper side of the sternopleura is whitish pollinose; metanotum shining black; hind part of meso-, ptero-, and metapleura smooth, not punctate, dull, with some faint furrows. Scutellum semicircular, rather small, like the thorax, with trace of a middle longitudinal furrow. Abdomen conical, broader than the thorax at the base and similarly punctate, dull, bare, with very short black pubescence; fourth segment one and a half times as long as the third, fifth half as long as the fourth, reddish on the hind border

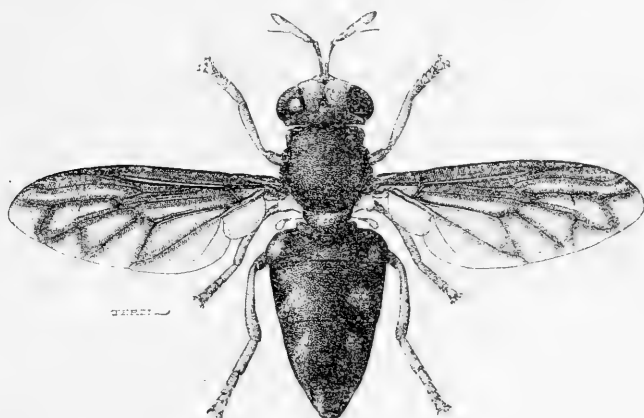


Fig. 23.—*Microdon erythrocephalus*, sp. n., ♀. × 3.

towards the middle; third, fourth, and fifth segment with two oblique stripes of white dust on each side, the outer being more distinct. Belly black; ovipositor reddish. Legs bare, with short yellowish pubescence on the tibiae, entirely red, except coxae and hind trochanters, which are black, and front and hind tarsi, which are somewhat infuscated; first joint of hind tarsi not swollen. Wings broad, blackish, with purplish reflexions, but with grey patches towards the middle of the cells of the posterior half, only black borders to the veins being sometimes present; subapical cross-vein strongly recurrent; stump on the third vein very long, subapical and discal cells with very much rounded lower outer corners, each of which is sometimes provided with a short stump.

Type ♀, from Kasai near Kampala, Uganda, 30. viii. 1911 (*S. A. Neave*); another specimen from Western Ankole, Uganda, 4,500–5,000 ft., “open short grass country, with some bush,” 10–11. x. 1911 (*same collector*).

137. *Microdon luteiventris*, sp. n.

♂ ♀. Length of body in the male 14 mm., in the female 17 mm.; length of antenna 4·5 mm.

A broad and plump black species with bright yellow face and abdomen, and with longer pubescence than in the two preceding species.

This species seems to be very nearly allied to my *M. erythros*, from the Congo, which, however, has a bright red abdomen, like that of the Hymenopteron *Euaspis erythros*, Meun.

Male. Head black, the face yellow from the base of the antennæ to the margin of the buccal cavity, but the jowls are black; occiput, face, and a transverse band across the centre of the frons clothed with dense but short erect hairs of a pale yellowish colour; frons elsewhere clothed with black hair, but above the antennæ with a triangular, smooth and shining, bare area; frons very finely punctate; ocelli not so close together as in the other species; eyes shining black, with facets of equal size, the inner angle of the eyes somewhat convergent, the transverse furrow on the frons not very pronounced; face gently convex, very broad, broader below than above; jowls with a broad depression near the margin of the buccal cavity; antennæ black, first and second joints clothed with black hairs; third joint a little shorter than the first, with a black, thin, rather long arista; second joint less than one-third the length of the first; opening of buccal cavity small; proboscis yellowish. Thorax black, subquadrate, finely punctate, clothed with rather dense yellowish pubescence, which forms a broad band in front, another narrower one on the suture and a smaller one before the scutellum; the hind part of the dorsum is clothed with short black hair; pleuræ on the fore half with yellowish pubescence, on the hind half bare and smooth. Scutellum rather small, semicircular, with long, erect, yellowish hairs. Squamulæ black, the alar yellow-fringed, the thoracic black-fringed; halteres pale yellowish. Abdomen at base much broader than the thorax; the first segment is black, the other segments and the belly are yellow, with short yellowish pubescence on the sides, base, and end, and with black pubescence on the middle, where the surface is somewhat dull; genitalia yellow; abdomen very finely punctate; third segment twice as long as the second; fourth two and a half times as long as the third. Legs short and stout, entirely shining black, rather thickly clothed with black hair; claws black, pulvilli dark yellowish; tarsi broad and short, very shining above, especially the first joint of the hind tarsi, which is rather thick. Wings lightly infuscated, with strong black veins and sometimes with broad black borders along the veins; outer corners of subapical and discal cells rounded, and without appendices; stump on third vein long.

Female. Like the male, but broader, longer, and darker-coloured; head as in the male, with broader frons, and only on the occiput and on upper part with black hairs; hind occipital border less

developed; hair on thorax, scutellum, and pleuræ entirely black; alar squamula black-fringed like the thoracic; abdomen darkened towards the middle of the fourth and fifth segments, the sutures of the third, fourth, and fifth segments almost obliterated in the middle; legs as in the male; wings more blackened in mature specimens.

Type ♂, a single specimen from British East Africa, Yala River, southern edge of Kakumega Forest, 4,800–5,300 ft., 21–28. v. 1911 (*S. A. Neave*); *type* ♀, from Uganda Protectorate, Mount Kokanjero, S.W. of Elgon, 6,400 ft., 7–9. viii. 1911 (*S. A. Neave*); an additional female specimen from Uganda, Western Ankole, 4,500–5,000 ft., “in forest,” 12–14. x. 1911 (*S. A. Neave*).

138. *Microdon inermis*, Loew.

A black species, with black wings and dark red abdomen and legs.

I assume this specimen to belong to Loew's species, since it corresponds exactly to the description; the stump on the third vein is not wanting, as stated by Prof. Hervé-Bazin (*Rev. Zoolog. Afric.* iii. 1913, p. 98), but is long and well developed, as in the allied species. Pubescence very short; basal joints of the antennæ bare; ocelli close together. Loew's description was based on a male from Caffraria, and Hervé-Bazin has described a female from Katanga. The female is like the male; the frons and face are very broad, the latter with well-defined furrows running from the base of the antennæ to the jowls; sutures between the last abdominal segments obliterated towards the middle; halteres whitish yellow, not reddish as in the male; wings blue-black. There is no difference between the sexes in the colour of the pubescence on the head, thorax, and scutellum.

A male specimen from British East Africa, 13 miles north of M'bagori's Village, towards Meru, 13. ii. 1911 (*T. J. Anderson*); a female from M'bagori's Village, edge of Kenia Forest, 5,000 ft., 12. ii. 1911 (*same collector*).

139. *Microdon pallidus*, sp. n.

♂ ♀. Length of body 10–12 mm., of antenna 4 mm.

Very like the preceding species, but distinguished by its smaller size and the paler coloration of the abdomen, legs, and wings.

The two sexes are alike in coloration.

Head black, punctate, and dull, with very short yellowish pubescence; frons of the male contracted below the middle, and with a deep transverse groove connecting the inner angles of the eyes; frons of the female broad, and with a less distinct transverse groove; ocelli fairly close together; face without the distinct furrows seen in the preceding species; occipital border in the female, from the vertex to the jowls, of a dark reddish colour; head below clothed with long erect white hair; antennæ long, the first and the second segments clothed with short black hair; third joint shorter than

the first, with a thin black arista; second joint about one-third as long as the first. Thorax entirely dull black, punctate, with short yellowish pubescence; hind part of the pleuræ moderately shining, and exhibiting a series of narrow furrows; scutellum small, semi-circular, punctate, and pubescent like the thorax. Squamulæ white, with short white fringes; halteres pale yellowish. Abdomen including the ventral surface entirely of a pale tawny colour, finely punctate and dull; its pubescence is very short and yellowish; genitalia of the male and ovipositor of the female of the same colour as the abdomen; first segment slightly infuscated below the scutellum, second segment short, third twice as long as the second, fourth two and a half times as long as the third, fifth in the female as long as the fourth; the sutures are obliterated towards the middle, the oblique stripes of white dust on the sides are not very noticeable, and in the female are almost wanting. Legs entirely ochraceous, bare, and dull, only the coxæ are black; claws black, pale at the base. Wings greyish hyaline, with black veins, which have broad dark borders; venation normal.

Type ♂, a single specimen from Uganda Protectorate, Northern Buddu, 3,800 ft., 16-18. ix. 1911 (*S. A. Neave*); *type* ♀, a single specimen from Uganda Protectorate, between Jinja and Busia or M'bwago's, E. Busoga ("some forest") 3,800-4,000 ft., 28. vii.-1. viii. 1911 (*same collector*).

GROUP VI. (*villosus*, sp. n.).

This group is limited at present to a single species, which, however, is distinguished from any other by the very remarkable structure of the antennæ. The antennæ are also carried in a different manner; instead of being pendulous they are erect and curve outwards, as in certain *Laphriinæ* or in *Callicera*. The second antennal joint is rudimentary; the first is rather short; the arista is normal. The head and thorax are clothed with rather long hair; the scutellum is not armed with spines; the ocelli are wide apart; the venation is entirely normal.

The broad head of the male, the structure of the antennæ, and the way in which these organs are carried give to this species a very singular facies, and I was at first inclined to erect a special genus for it. But I think it better to include it for the present in *Microdon*, s. l., on account of the fact that, apart from the head, it shows no structural differences, and that the cephalic characters are also indicated in other species—for example, the North-American *M. pachystylum*, Will., which has a very broad frons in the male and a third antennal joint two and a half times as long as the first, but the third joint is not erect and is pendulous as usual. In the Javanese *M. vespiformis*, de Meij., the third antennal joint is nearly three times as long as the first, but is pendulous, and the second joint is short but well developed.

140. *Microdon villosus*, sp. n.

♂. Length of the body 12 mm., of the antennæ 4 mm.

A rather hairy species, readily distinguishable owing to the structure and mode of carriage of its antennæ.

Head very broad, distinctly broader than the thorax, bronze-black, finely punctate, moderately shining, clothed with rather long, erect, yellowish hairs, which on the face show golden reflexions; frons very broad for a male, the shining black equally faceted eyes being rather small, and without distinct prominent angles towards the middle of frons; the transverse frontal furrow is, however, well marked; ocelli rather far apart, arranged in an equilateral triangle; face gently convex, as broad as the frons, becoming broader below; it is black in the middle, with a broad yellow border on each side; jowls with a small, broad, but shallow pit on each side; opening of buccal cavity small, the proboscis scarcely projecting. Antennæ erect, entirely black, the first joint shining and almost bare; second joint very small; third dull, curved, almost arched, thickened towards the middle, about four

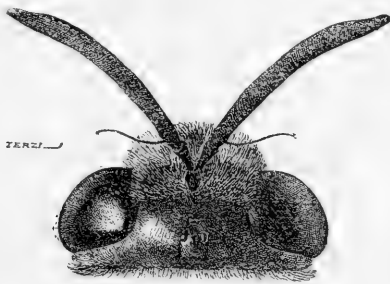


Fig. 24.—*Microdon villosus*, sp. n. Head of male. $\times 10$.

and a half times as long as the first; arista situate at base of third segment, of a dark yellowish colour, thin, about half the length of the third joint. Thorax shining aneous, very finely punctate, clothed on dorsum with rather long and dense bright reddish hair, which becomes yellowish on the pleura, the hind part of which is, however, bare as usual. Scutellum small, semicircular, shining black, clothed with long yellowish hair, with an unarmed hind border. Squamulae whitish, with yellow borders and rather long white fringes; halteres pale yellowish. Abdomen at base broader than the thorax, attenuated behind, conical, the second segment depressed in the middle, but not produced at the sides; third segment about as long as the second, fourth two and a half times the length of the third; all the sutures are distinct; the abdomen is black, dull, dark yellowish in the middle at the base, with a few rather long yellowish hairs on the sides at the base and on the hind border of the basal segments; on each side of the second and third segments there are two indistinct oblique stripes of yellowish pubescence;

genitalia dark yellowish brown, clothed with yellow hair; venter black, with rather long yellow hair on the hind borders of the segments. Legs æneous black, with rather long and dense, yellow and silky shining hair, chiefly on the tibiæ; claws black, pulvilli dark yellow-brown; tarsi not very broad, first joint of hind tarsi not thickened. Wings greyish hyaline, with a light yellowish tinge and yellow veins (the specimen is perhaps immature); lower outer corners of subapical and discal cells rounded and without appendices.

Type ♂, a single specimen from Uganda Protectorate, plains N.E. of Lake Edward, 3,200 ft., "in the open," 15-16. x. 1911 (*S. A. Neave*).

Genus 26. **PTILOBACTRUM**, nov.

Closely resembling a *Microdon* belonging to Group V., and with similar venation, but distinguished by the breadth of the head, by the face being furrowed, and by the unusual shape of the antennæ.

Head of male much broader than the thorax; eyes bare, shining black, very small, oval, with small equal-sized facets, without con-

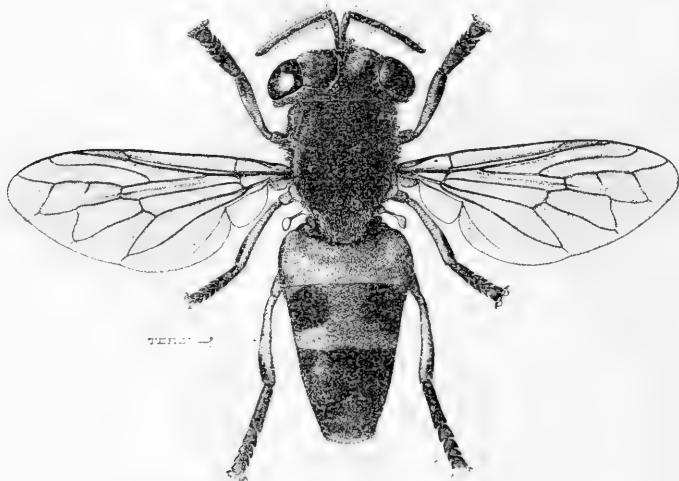


Fig. 25.—*Ptilobactrum neavei*, sp. n., ♀. ×4.

vergent angles in the middle of the frons; frons enormously broad, without a trace of the usual median transverse groove, but with a distinct furrow running from the upper corner of each eye to the ocelli; this furrow is perhaps homologous with the usual median transverse groove; face enormously broad, broader than long, prominent towards the middle, and provided with two broad furrow

running obliquely from the base of antennæ to the jowls, but not reaching the inferior corners of the eyes; these furrows seem to be adapted for the reception of the third antennal joints. Ocelli near together, but not in contact; opening of buccal cavity small, proboscis thin, somewhat projecting. Antennæ very peculiar; first joint shining black, comparatively short, almost bare; second very short, but distinct; third pendulous, extremely elongate, five times as long as the first, dark grey, clothed throughout its whole length with long, thin, soft hairs, which are arranged like feathers on the inner and outer sides; the base of the third joint is excavated on the outside, and at this point there is to be observed a very short rudiment of the arista; the extreme tip of the third segment is



Fig. 26.—*Ptilobactrum neavei*, sp. n.
Left antenna from outer side, $\times 12$.

bare, and ends obliquely. Pubescence on head, thorax, and scutellum rather long, but not dense. Scutellum simple, rounded. Abdomen conical, a little broader than the thorax at base, the second segment simple, the third a little longer than the second, the fourth twice as long as the third. Legs short and stout, almost bare. Wings with usual venation, the subapical cross-vein strongly recurrent, the lower outer angles of the subapical and dorsal cells acute and not provided with appendices, the stump on the third vein of moderate length, the small cross-vein situate on the basal third of the discal cell.

Type: *P. neavei*, sp. n.

In the North-American species, *M. pachystylum*, Will., referred to above, the arista is also very short—about a third of the length of the last antennal joint, which is, however, quite bare.

141. *Ptilobactrum neavei*, sp. n.

Length of body 13 mm.; length of the third antennal joint alone 4.5 mm.

A black species, with the second and third abdominal segments yellow, the third having on each side a broad round black spot.

Head black, punctate, moderately shining; frons near the eyes, and jowls partly of a dark yellowish colour; the dark yellowish hair along the vertex is very long and erect, while on the middle of the frons at the sides the hair is short; pubescence on face pale

yellowish, with silky reflexions; hair on the third antennal joint of a dark grey colour; rudiment of the arista reddish; proboscis pale yellow; head below clothed with long whitish hair. Thorax and scutellum entirely black, punctate, with rather long but slanting pale yellow pubescence; front part of the pleuræ with rather long, erect, whitish hair, hind part bare; scutellum semicircular, with a faintly marked median longitudinal furrow. Metanotum shining black. Squamulæ white, with short white fringes; halteres pale yellowish. First segment of the abdomen black, with a narrow yellow hind border on each side; second entirely yellow; third yellow, with a broad rounded black spot on each side, which reaches the fore border but not the sides; fourth black, with lateral borders narrowly yellow, and also bearing a triangular dark



Fig. 27.— *Philobactrum neavei*, sp. n., ♂.
Head in profile, $\times 7$.

yellow median spot at the distal extremity; abdominal pubescence very short, whitish, but black along the middle line; belly black, yellowish pubescent; genitalia black. Legs bare, the femora shining, the tibiæ whitish-dusted; coxæ and hind trochanters black; femora and tibiæ yellow, the latter with a blackish spot above at tip; tarsi broad and flat (especially the front pair), black, with yellowish pubescence; first joint of hind tarsi not thickened; claws black, pale at the base; pulvilli yellow. Wings hyaline, shining, with a faint pale yellowish tinge; veins yellow, more or less darkened outwards; vena spuria very faintly marked.

Type ♂, a single specimen from British East Africa, Upper Nzoia River, 5,100–5,400 ft., 5–7. vi. 1911, collected by *S. A. Neave*, in whose honour this strange and beautiful insect is named.

Genus 27. **CERIOIDES**, *Rondani* (1850).

Of this genus there are in the collection only six specimens, which, however, belong to five different species or varieties. The Ethiopian species of *Cerioides* at present known, some of which were very recently described in a valuable paper of Prof. Hervé-Bazin, number thirteen.

Those before me can be distinguished as follows :—

- 1 (6) Antennæ situate on a long petiole ; a strong cross-vein between auxiliary and first longitudinal veins at the end of the auxiliary ; kink in the third vein broad and flat (in all the species here considered without an appendix, which, however, is present in some other cases) ; postical cross-vein almost in the same line as the subapical one ; elongate species of considerable size, from 16 to 20 mm. in length, with a club-shaped abdomen, the distal extremity being expanded into an oval.
- 2 (5) Scutellum yellow ; thorax and abdomen with yellow or reddish spots or stripes ; antennæ and legs for the most part reddish.
- 3 (4) Pleuræ with a broad, oblique, bright yellow stripe ; face yellow with a median narrow brown stripe and a black stripe below on each side ; hind femora each with a rather narrow yellow spot *pulchra*, H.-B.
- 4 (3) Pleural stripe of a dark red colour, instead of bright yellow ; face red, with a broad yellow median stripe, which is bordered with black ; no black stripes on the face below ; hind femora each with a very broad yellow ring occupying more than half the length of the joints *nearvi*, sp. n.
- 5 (2) Scutellum black ; body of very large size and almost entirely black, without light markings ; antennæ and legs black, the femora slightly tinged with dark red towards the base *speiseri*, H.-B.
- 6 (1) Antennæ without petiole ; no cross-vein at end of the auxiliary vein ; kink in the third vein narrow and deep, without appendix ; postical cross-vein reaching the fourth vein almost opposite the kink, its upper end being therefore nearer the base of the wing than is the base of the subapical vein ; shorter species of smaller size, from 10 to 11 mm. in length, with a short and rounded abdominal club.
- 7 (8) Wings with an isolated dark spot on fore border near the apex ; third and fourth abdominal segments each with a narrow yellow band on the hind border ; hind femora yellow at the base *bezzii*, H.-B.
- 8 (7) Wings with a continuous dark fore border ; third and fourth abdominal segments with broad yellow hind borders ; hind femora not yellow at the base var. *marginalis*, n.

142. *Cerioides pulchra*, *Hervé-Bazin* (1913).

A beautiful species, very closely allied to *hopei*, Saund., but distinguished by having the lateral stripes on the thorax dark

reddish and less distinct, instead of broad and yellow, the first abdominal segment bright yellow with a black median spot, and a yellow ring on the middle of the hind femora. The dark costal border of the wings is not so black as in Saunders's figure, but pale brownish yellow and darkened towards the end, as stated in Saunders's description.

A single female specimen from Mid-Luangwa R., N.E. Rhodesia, 25. viii. 1910 (*S. A. Neave*), measuring 16 mm. in length, without antennæ. The type was obtained in Katanga.

143. *Cerioides neavei*, sp. n.

♂. Length of the body excluding the antennæ 16 to 17 mm.

Closely allied to *C. hopei* and to the preceding species, but distinguished by the face and the pleural stripes being red instead of bright yellow, by the facial stripe being broadly bordered with black, and by the broadly yellow hind femora. I think, however,

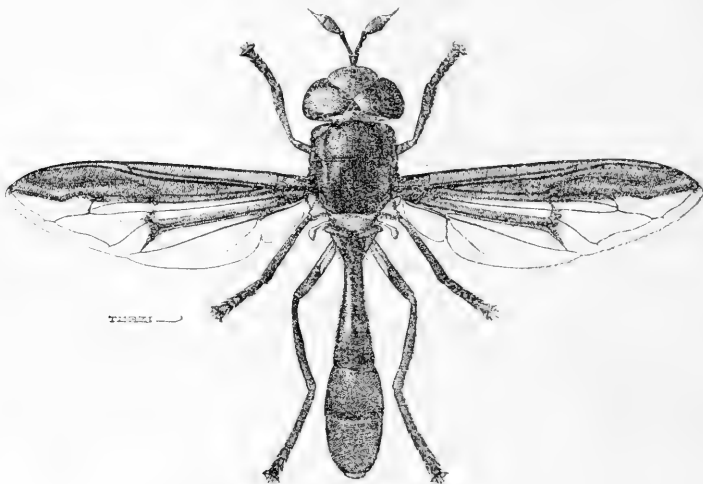


Fig. 28. - *Cerioides neavei*, sp. n., ♂. × 3.

that it is quite possible that the present and preceding species are only colour-varieties of *C. hopei*, Saunders; *C. ammophilina*, Speiser (1910), seems also to be a very closely allied species.

Head wholly red, passing to yellowish on the sides of the face; on the middle of face there is a yellow stripe, running from the base of the antennal petiole to the margin of the buccal cavity, but not reaching the latter; this stripe becomes broader towards the middle, and is bordered by black lines, which are brownish beneath; face below with no trace of black bands, which are likewise absent on the jowls; frontal triangle with an indistinct median longitudinal

yellowish stripe; eyes dark brown, bare, meeting at a point in the middle of the frons, with facets of equal size; ocelli close together, surrounded by a black spot; occipital upper border much produced, with a fringe of pale hair, which is continued below; frontal triangle clothed with short and soft white hair; face bare, lightly dusted with white pollen; proboscis black, with dark brown labella. Antennal petiole long and strong, of the same red colour as the head, antennæ dark red, first and second joints of almost equal length; third joint pale yellowish, shorter than the second, whitish-dusted, with a terminal thin, acute style. Thorax black, dull, with short dark grey pubescence; shoulders and lateral stripes from them to the scutellum dark red; pleuræ bare, the stripe which is yellow in *hopei* is here of a red, rather shining colour. Scutellum entirely yellow, narrowly reddish towards the base. Squamulæ dark yellowish, with short whitish fringes; halteres pale yellow. Abdomen elongate, the petiole being as long as the oval expanded portion; first segment bright yellow, with a quadrate dull black spot in the middle reaching the hind border, and with rather long pale hair; second reddish brown, with a yellow, somewhat indistinct longitudinal stripe on each side, black towards the hind border; third and fourth segments black, sparsely dusted with grey pollen, and clothed with very short black pubescence, the hind border of the third segment narrowly reddish towards the sides; genitalia red, clothed with short black hair; venter grey, clothed with short black hair. Coxæ of the four anterior legs dark red, the fore tibiæ above near the base each with a small and short yellow stripe, the tarsi slightly darkened; hind legs with brown coxæ, the femora narrowly blackish towards the base, and beyond the blackish area with a broad yellow ring, the apical third, the tibiæ, and the tarsi red. Wings with the costal border as far as the third vein of a yellowish-brown colour, becoming blackish at the tip; there is also a brown-yellowish border along the fifth longitudinal vein, dilated at the end and there extending over the apex of the second basal, and over the base of discal and third posterior cells; kink in third vein flat and broad, without appendix; subapical and postical cross-veins placed almost in the same line, with short appendices.

Type ♂, from Uganda Protectorate, Kafu River, between Hoima and Kampola, 3,500 ft., 29-31. xii. 1911 (*S. A. Neave*); an additional specimen, between Jinja and Busia or M'bwago's, E. Busoga ("some forest"), 3,800-4,000 ft., 28. vii.-1. viii. 1911 (*same collector*).

Named in honour of the collector, who has made so many important discoveries in the dipterous fauna of these Regions.

144. *Ceriodes speiseri*, *Hervé-Bazin* (1913).

A black species of very large size allied to *C. brunneipennis*, Lw., but at once distinguished by the almost entirely black antennæ and legs.

To the present species is also allied *C. congolensis*, *Bezzi*, a short

diagnosis of which, based on a ♀ from the Congo, was given by me in 1908. To separate *C. congolensis* from *C. brunneipennis* is not altogether easy, but the following are the distinctive characters: (1) the black costal border of the wings does not extend beyond the third longitudinal vein; (2) the face is of a pale yellow colour, with two thin brown lines forming a median band, which is somewhat dilated towards the middle; (3) there is no Λ -shaped stripe on the face. The antennæ and legs, however, are reddish as in *brunneipennis*, and the hind femora are also without the yellow spot on the upper side. As Prof. Hervé-Bazin has only described the male (from Katanga), I will give here some notes on the female.

Face very produced beneath; frons in front grey-dusted towards the middle; antennal petiole blackish brown above and reddish below; all three antennal joints of almost equal length; occipital border at vertex very prominent, but narrow. Abdomen entirely similar to that of the male, with a very long stalk and the distal portion expanded into an oval.

Type ♀, a single specimen from Uganda Protectorate, Doro or Duro Forest, Toro, 4,000–4,500 ft., 25–29. x. 1911 (*S. A. Neave*).

115. *Cerioides bezzii*, *Hervé-Bazin* (1913).

A small, short, very peculiar species, readily distinguishable owing to its sessile antennæ, to the singular venation and characteristic pattern of the wings, and to the abdominal club being rounded. It is very probable that the present species is the same as *C. divisa*, Walker.

A single female specimen from Salisbury, Mashonaland (*G. A. K. Marshall*); the type is from Elisabethville, Katanga.

Var. *marginalis*, var. n.

♀. Length of body 11 mm.

Coloration as in the preceding, but the yellow hind borders of the abdominal segments are broader; the hind femora have scarcely any yellow at the base; the wings have the costal border entirely dark brown, from the base of the marginal cell to the apex of the wing.

Type ♀, a single specimen from Uganda Protectorate, Budongo Forest, Unyoro, 3,400 ft., 11–15. xii. 1911 (*S. A. Neave*).

In these two forms (*bezzii* and *marginalis*) the vena spuria is thin, but strongly chitinized and deep black; the first abdominal segment shows at the base, in front of the halteres, two distinct but short spines, one on each side, which are less developed in the species of the first group.

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