

Aulacigaster stimmt auch der Bau des flachen, überall glänzenden und nirgends membranösen Gesichtes, das mit einer deutlichen Wölbung vor dem Mundrande abschließt, und die Chaetotaxie des Thorax besser überein.

Ich glaube daher, daß *Schizochroa* am nächsten mit *Aulacigaster* verwandt ist, und daß die vorhandenen Unterschiede, die ja keineswegs größer sind als sie in anderen Familien auftreten, nur deshalb so gewichtig erscheinen, weil morphologisch vermittelnde Arten nicht bekannt, vielleicht aber nur noch nicht aufgefunden sind.

Costa Rica, Farm Hamburg am Raventazon, 8. 3. 28 (5 ♂♂, darunter Holotypus, 4 ♀♀, sämtliche im Deutschen Entomologischen Institut; dazu 1 Exemplar, dessen Geschlecht nicht festzustellen ist).

East-African *Muscidae*

(Diptera)

(Ergebnisse der Deutschen Zoologischen Ostafrika-Expedition 1951/1952,
Gruppe Lindner, Stuttgart, Nr. 20)

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(With 10 Figures)

This collection consists of nearly 200 well preserved specimens collected mainly in Tanganyika¹⁾ by Dr. E. LINDNER, whom I wish to thank for entrusting it to me for study.

Of particular interest are the flies collected on Kilimanjaro since the Muscid fauna of this and other high mountains in Africa is still insufficiently known, despite the work of SPEISER, STEIN, SÉGUY, and, recently, VAN EMDEN.

Besides the usual abbreviations (see VAN EMDEN, 1941), $f_1 - f_3$ and $t_1 - t_3$ are used to indicate the femora and tibiae. In nomenclature of the male genitalia I follow ZUMPT & HEINZ (1950).

All holotypes have been returned to Dr. LINDNER for preservation in the Staatl. Museum für Naturkunde, Stuttgart.

My thanks are also due to Dr. F. VAN EMDEN, London, for a great deal of help and information and to Mr. D. J. W. ROSE, Salisbury, for the loan of types.

Subfamily *Lispinae*.

1. *Lispe leucospila* (Wied.), 1830
Ngaruka, 29. I—14. II. 1952, 2 ♂, 2 ♀.

This is a widespread and common species in Africa.

2. *Lispe* sp.
Ngaruka, 20. I—14. II. 1952, 1 ♀.

¹⁾ The locality-names will be found in the map of the Expedition-report "Zoo-safari" of Prof. E. LINDNER (E. Schweizerbartsche Verlagsbuchhandlung, Stuttgart, 1954).

This species is bigger than *leucospila*; it differs from *L. andrewi* Pater-son, 1953, and *L. irvingi* Curran in that the lateral abdominal stripe extends forward onto the second tergite. The mesonotal pattern separates it from the remaining members of the *leucospila* group.

3. *Lispe nivalis* Wied., 1830

Ngaruka, 29. I—14. II. 1952, 1 ♂.

Another common and widespread species in Africa.

4. *Lispe wittei* n. sp. (fig. 1)

Male:

Head: Face, facial ridge, parafacialia, buccae, anterior $\frac{1}{4}$ of upper occiput grey dusted; vertex thinly greyish-brown dusted; parafrontalia, and the lower half of occiput silvery-white; upper parafrontalia thinly brown dusted; frontal triangle goldenbrown, reaching ptilinal suture; antennae and arista dark; palpi mainly dark but with a narrow dorsal strip of lighter colour.

Head about 1.4 times the length in height, and 1.7 times the length in width; the frons projects at the antennal base by about the width of the third antennal segment; frons at the middle about 0.4 times the width of the head; the buccae are about 0.2 the height of an eye; parafacialia at narrowest point slightly narrower than the third antennal segment. The face is nearly parallel sided. Third antennal segment about twice as long as the second; arista not longer than the third segment, basally thickened, tapering abruptly after basal 0.6., and is sparsely haired (about five rays dorsally and 1—2 very short ones below), the total width being less than width of third antennal segment.

Parafacialia and parafrontalia finely haired. There are about six pairs of inclinate parafrontal setae of which about four are distinct; ocellars distinct, postverticals weak, inner and outer verticals present the former stronger; the usual pair of outwardly directed, reclinate orbitals present on each side.

Thorax: Thorax dark in ground, pleurae white-grey dusted, mesonotum and scutellum, except for humeral calli and notopleurae, shining

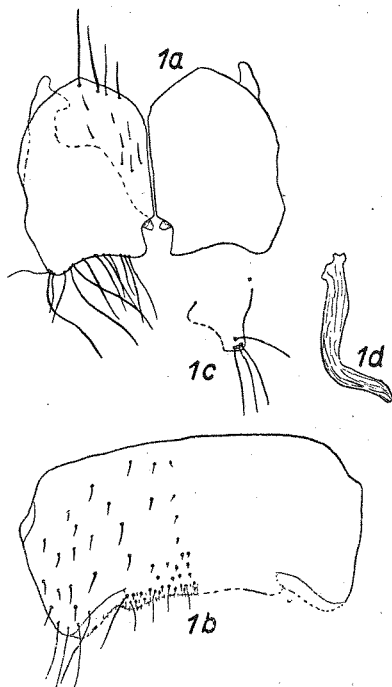


Fig. 1. *Lispe wittei* n. sp. Congo specimen. Male genitalia (drawn from a slide.) — a — cerci, posterior view, b — 4th sternite, c — paralobi, d — paramere

black with yellow-brown dust; an indistinct, undusted vitta runs through the *dc* rows. *dc* 2+4, the anterior two *post dc* small; *prsc acr* small but distinct; *ia* 2; *sa* 1, strong; humerals 2 strong; *npl* 2; scutellars 4 marginals; prostigmatic 1 strong and a dorsal and ventral hair; propleurals, one strong and one moderate; *stpl* 1+2; pteropleural tuft of about fifteen hairs; mesopleural row of seven of which three are strong, and two stronger hairs in the anterior dorsal corner as well as many hairs in the posterior dorsal half of the plate. Hypopleura with fine hairs above hind coxa as in some other members of the *nuba* group.

Legs all dark, except the basal $\frac{1}{4}$ of the tibiae; femora grey dusted, tibiae thinly so. f_1 with about 5 strong *pd* on apical $\frac{3}{4}$, about 3 *p* on basal $\frac{1}{4}$, and about 4—5 more or less distinct *pv* at the apex. t_1 with *pv* at $\frac{3}{5}$; f_2 with 2 strong *a* setae just before the middle, a strong *pd* at $\frac{5}{6}$ and a *pd* preapical; t_2 with *pd* at $\frac{3}{5}$ and a stronger *av* at $\frac{3}{4}$; f_3 with *ad* row of 10—12 setae, and an *av* preapical; t_3 with an *ad* at $\frac{3}{5}$ and a *pd* just before this, a strong *d* preapical, a strong *ad* beyond this, and a short, though strong, apical *a*; t_3 slightly curved in a dorso-ventral direction. Hind metatarsus strongly broadened, being almost twice the diameter of t_3 at the level of the *pd*, flattened and somewhat curved. It is armed with fine, apically curved hairs on the anterior surface and ventrally at base; *post* surface brushlike due to closely packed, short, reddish hairs. The metatarsus is much broader than in *cilitarsis* Loew.

Wings: weakly brown tinged; veins yellowish basally but brown more apically. *m* distinctly bent forward, therefore R_5 distinctly narrower at the apex than at middle. *m* divided up in the following proportions from the base of the discal cell to the apex: 1.0:1.02:1.32. *m—m* straight and oblique to 4th vein.

Squamae waxy white with pale yellow rims. Halteres yellow.

Abdomen: fairly stout, 1.6 times longer than broad; mainly densely white dusted but with broad, dark, dorsal pattern, which is, on the first two tergites, dark bluish grey with only a trace of brown dust, while on the last two tergites the pattern is more or less overlaid with brown dust. A weak median vitta present on tergites 2 and 3. 9th tergite is white dusted. All sternites are white-dusted with only very fine and short hairs. Tergites 1—3 with strong lateral marginal setae, and tergite 4 with a row of six *post* marginals.

Male genitalia: Of the *nuba* type, (fig. 1).

Length: 7.4 mm. Wing: 5.75 mm.

Female:

The female is similar to the male but lacks the modified hind metatarsus, and has an *av* seta beyond the *ad* on the hind tibia.

Length: 7.0 mm. Wing: 5.5 mm.

Variation observed:

It is apparent that the colour of the dusting of the mesonotum is variable since it may be almost brown-grey at times.

Holotype, a male, Kware near Moshi, leg. E. LINDNER, 27. XII. 1951 — 13. I. 1952.

Paratype, a male, same data as the type, (S. A. I. M. R.).

Other material: 2 ♂, 4 ♀, May-ya-Moto, Parc National Albert, Belgian Congo, leg. G. F. DE WITTE, 15. XI. 1934.

1 ♀, Kamande, S. Lake Edouard, leg. L. LIPPENS, 1. X. 1935.

This species is named after Dr. G. F. DE WITTE who caught the first specimens seen by me. On receiving Dr. LINDNER's material I found two more perfectly preserved males which are more suitable for types.

This is the first Ethiopian species of the *nuba* group found to possess dark palpi. Besides this character, it differs from *L. barbipes* Stein and *L. cilitarsis* Loew, the other two species with modified hind metatarsi, in the following respects:

From *barbipes* males it differs by having two median setae on t_2 , in not possessing the strong ventral thorns on f_2 , in the different form of the hind metatarsus; the females differ from the *barbipes* females in the absence of the median *av* seta of f_3 .

From *cilitarsis* males it differs in the shape of the hind metatarsus; from both sexes of *cilitarsis* by the colour of the palpi.

The male genitalia distinguished it from these species.

5. *Lispe niveimaculata* Stein, 1906

Ngaruka, 29. I.—14. II. 1952, 1 ♀.

This species should not, I believe, be placed in the genus *Xenolispa* Malloch. I have examined the type of MALLOCH's genus and have found that the structure of the male genitalia and fourth sternite is so different from the corresponding structures in *niveimaculata* as to deny any close relationship between the two species. Should it be considered desirable that the present species be classified in a separate genus, the name *Progymnaspis* Enderlein, 1934, with this species as type, is available.

A remarkable character of *niveimaculata* is the variability in the colour of the palpi, which are either yellow or black. I know of no other species of *Lispe* s. l. in which the colour of the palps varies.

Subfamily *Muscinae*^{*}

Tribe *Muscini*

6. *Musca cuthbertsoni* Patton, 1936

Msingi, 13.—21. II. 1952, 1 ♀.

Usangi, Pare Mountains, 5. VI. 1952, 1 ♂.

Torina, 4.—18. III. 1952, 1 ♂.

Ngaruka, 29. I.—14. II. 1952, 2 ♀.

The status of this form is at present difficult to assess despite recent breeding experiments (Peffly, 1953; Saccà, 1953). For the time being, however, it may be considered a good species.

7. *Musca sorbens* Wied., 1830

Kware, near Moshi, 27. XII.—13. I. 1953, 1 ♂, 1 ♀; 17.—21. I. 1952, 1 ♂. Msingi, 1.—19. V. 1952, 1 ♂; 3.—17. VI. 1952, 1 ♀.

8. *Musca ventrosa* Wied., 1830

Dar-es-Salaam, 11.—20. XII. 1951, 2 ♀.

9. *Musca fasciata* Stein, 1910

Mugango, L. Victoria, 19.—25. III. 1952, 1 ♀.

Torina, 4.—18. III. 1952, 1 ♀.

Dar-es-Salaam, 11.—20. XII. 1951, 1 ♀.

10. *Musca conducens* Walk., 1859

Torina, 4.—18. III. 1952, 1 ♀.

Dr. LINDNER informs me that this species was a source of great annoyance to the members of the expedition on the plains.

11. *Musca tempestatum* (Bezzi), 1908

Torina, 4.—18. III. 1952, 1 ♂.

L. Jipe, 20.—23. V. 1952, 1 ♀.

This is another species which irritated the expedition members.

12. *Musca* (*Biomyia*) *lindneri* n. sp. (fig. 2)

Male:

Head: Parafacialia, facial ridge, and parafrontalia below the narrowest point of the frons silver-white dusted; face and buccae thinly white dusted when seen from above, and dark when seen from below. Upper occiput, vertex and parafrontalia above narrowest part of the frons glossy black; lateral occipital areas thinly dusted; antennae and palpi dark.

Head about 1.6 times wider and 1.4 times higher than long. Profile of the usual *Musca* type. Frons narrow, about one tenth of the head width at the narrowest point (about as wide as the anterior ocellus); the narrowest point occurs at about midway between the vertex and the ptilinal suture. Buccae 0.09 times the height of an eye; parafacialia a little more than half as wide as the third antennal segment. Eyes very distinctly long-haired, and the anterior facets distinctly enlarged. Arista long plumose with about 7 rays above and 5 below. Proboscis slender.

Parafrontalia armed with about 16 pairs of long, fine, inclinate setae which reach the level of the ocelli, and which decrease in strength and length towards the ocelli; ocellars present, quite short, not longer than the adjacent parafrontals; postverticals weak but a strong vertical present at each upper eye corner. Buccae haired.

Thorax: Shining black in ground; pleurae, especially sternopleurae and most of mesonotum, thinly grey dusted. Thicker white dust occurs on the humerae and notopleurae, a weak area above the *sa*, and on a median vitta which is distinct on the presutural area back to the second *prst dc* and which extends and broadens out in front of the scutellum where the dust is thinner; remainder of *post* area and scutellum weakly brownish-grey dusted. Scutellum, in post view, has the sides and disc at base, and the apex free from dust.

dc, 2 + 4; *prsc acr* distinct; *ph*, 1; *prst*, 1; humerals, 4; *pra* very distinct; *sa*, 2; *ia*, 1; *pa*, 3 (the middle one strong); scutellars, 2 marginal pairs and a distinct discal pair in front of the apical marginals. Hair of mesonotum erect and soft but much more sparse and stiffer than in *M. lasiophthalma* Thom. *stpl* 1 + 2, mesopleura with a small anterodorsal seta and 5 — 6

distinct setae in the post row; prostigmatal weak with an even weaker seta above it and several hairs; propleurals 2, propleural depression bare. Anterior spiracle brown, more or less surrounded by grey dust. Pteropleura haired, suprasquamal ridge quite bare.

Legs: Totally dark. *t*₁ with a *p* at $\frac{2}{3}$; *f*₂ with about 4 small *pv* in basal half, and a *v* row of short setae ending in about 3 stronger preapicals; *t*₂ with 2 *pd*, the weaker at $\frac{1}{3}$ and the other at $\frac{2}{3}$; *f*₃ with a row of strong *ad* setae, 2—3 preapical *av*; *t*₃ with a postmedian *av* and an *ad* just basad of it.

Wings: Slightly smoky, membrane fine haired all over. Veins, subcostal sclerite, costal scale brown. All veins bare. Anterior crossvein at 0.52 of discal cell. *m* with a distinct dip after the bend; *m—m* slightly sigmoid, oblique relative to 4th vein (fig. 2). Squamae smoky except for the connecting area, and the borders somewhat lighter in colour. Halteres with the knob yellow.

Abdomen: Dark in ground except for the lateral margins of tergites 2 and 3 and a little of the ventral post edge of tergite 1; ventral part of tergite 3 is also more or less darkened. Sternites are dark. Some dust is present on the last three tergites, especially the last which has, however, a median vitta free from dust.

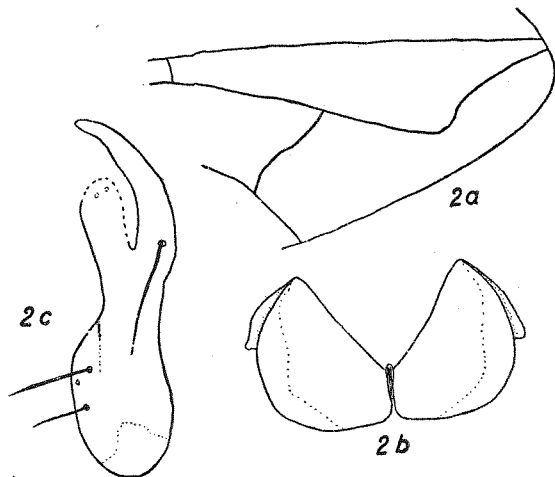


Fig. 2. *Musca lindneri* n. sp. — a — apex of wing, b — cerci (drawn from a slide), c — paramere

Lateral marginal setae are present on all tergites and the fourth tergite bears an apical row of not very strong setae as well as some fairly strong erect, discal hairs, which do not fall into a regular row.

Length: 4.8 mm. Wing: 4.0 mm.

Holotype, male, Ngerengere, leg. E. LINDNER, 23. XII. 1951.

Paratypes, none.

This species would key at either *interrupta* Walker or *conducens* Walker in EMDEN's (1939) key, depending on whether the hairy eyes or the p seta of t_1 is suppressed.

The prst dc of p seta of t_1 separate it from *interrupta* (and *lasiophthalma*

Thom.), while the hairy eyes separate it from both *conducens* and *liberia* Snyder. From *vitripennis* Meigen it can be distinguished by the p seta of t_1 and by the dark wing veins, as well as by the fact that all the wing cells are haired.

The male genitalia (fig. 2) indicate that it falls into PATTON's „*sorbens* group“ (PATTON 1932).

It is possible that this is the species recorded from Kenya by SÉGUY (1938) as *vitripennis*; it may also be the species mentioned by VAN EMDEN (1939), under *Musca conducens*, from the Chyulu Hills, Kenya.

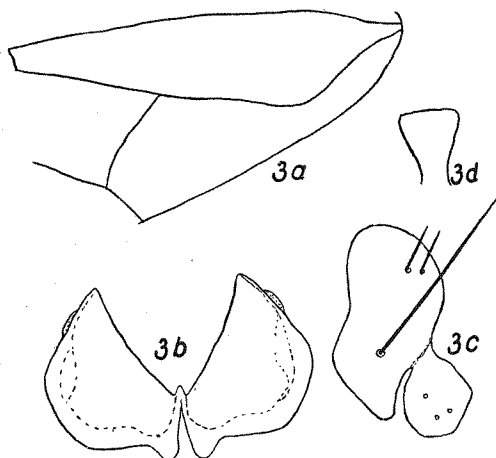


Fig. 3. *Musca afra* n. sp. — a — apex of wing, b — cerci (drawn from a slide), c — paramere, d — apex of spine (dorsal view)

13. *Musca* (*Biomia*) *afra* n. sp. (fig. 3)

Male:

Head: Face, parafacialia and lower $\frac{2}{3}$ of parafrontalia white dusted, upper parafrontalia and vertex only thinly dusted. Palpi and antennae dark.

The head is 1.7 times as high and 2.25 times as wide as long. The frons at the narrowest point is about 0.1 of the head width; parafacialia are about 0.5 the width of the third antennal segment; buccae about 0.14 times the height of one eye.

Parafrontalia beset with about 15 pairs of inclinate setulae, of which only the first pair is at all strong, the others being long erect fine; ocellars, which are as long as the inclinate parafrontals, present, as are a weak pair of post verticals and a strong vertical at each upper eye corner.

Thorax: Black in ground colour. Mesonotum with a „*sorbens* type“ pattern — a broad white dusted median vitta which reaches the base of the

scutellum where it is widest; on each side area of white dust extending from behind the humerae and passing between the *npl* and the *prst* and back between the *ia* and *sa*; the scutellum with two dusted areas which leave the median and lateral parts shining black. Pleurae thinly dusted, most densely on *stpl* and near the anterior spiracles.

dc 2 + 4 of which the anterior 2 pairs of *post dc* very weak; *prsc* *acr* very distinct, and an extra setulae present on each side between the *cr* and the last *dc*; 2 very distinct *ia*; 2 strong *pa*; 1 strong *sa* and a short distinct *pra*; 3 strong humerals. 1 prostigmatal surrounded by about 5 hairs; propleural depression bare, propleura with 1 strong seta and 2—3 distinct setulae; anterior thoracic spiracles white; *stpl* 1 + 2; mesopleura with about 7 setae in the vertical row of which 6 are strong.

Legs: All dark. *t*₁ bare at middle; *f*₂ with 2 *a* at about $\frac{2}{5}$, 2 *pd* preapical and about 5 distinct setae before them, a very distinct *pv* at $\frac{1}{4}$ and 1—2 weaker ones basad of it, and an *av* $\frac{1}{4}$; *t*₂ with 3 small but distinct *pd* or *p* setae; *f*₃ with a complete *ad* row, 2 strong *av* just before the *av* preapical, an isolated *av* at $\frac{1}{4}$, and an isolated *pv* at $\frac{1}{4}$; *t*₃ with about 7—8 short *ad* in a row ending at about $\frac{1}{2}$, 1—2 *av* just beyond the middle. All tarsi simple.

Wings: Weakly brown tinged, veins basally yellowish and distally brown, basicostal scale yellowish; all cells completely haired. Anterior cross-vein at 0.57 of discal cell; *m-m* slightly concave and somewhat oblique relative to 4th vein; 4th vein without a dip after the bend (fig. 3). Lower squama waxy white, weakly smoky and with a white rim, upper squama transparent, connecting area opaque white. Halteres yellow.

Abdomen: Widest at the posterior margin of the first segment, thereafter tapering regularly to the apex. First segment wholly dark, second and third yellow with a broad, dark median vitta and broad, dark areas along the posterior margins, and the fourth tergite wholly dark. In posterior view the last 3 tergites are heavily dusted at the sides, leaving only the median vitta and the posterior margin of each segment undusted. The lower margins of each of the first three tergites yellow. The second and third sternites yellowish, while the other two are dark. Some posterior lateral setae are present on each of the first three tergites, and the fourth is armed with the usual apical row.

Male genitalia: (fig. 3). The cerci are somewhat atypical in that they possess median, nipple-like productions.

Length: 4.8 mm. Wing: 4.2 mm.

Female:

Head: Similar to male head in shape. Parafacialia 0.8 width of third antennal segment; fronto-facial stripe dilates from the vertex to the antennal base and from there more sharply; frons at vertex 0.29 as wide as the head. Parafrontalia dilate from vertex to the antennal base and bear a regular

row of fine hairs, about 9 fine inclinate setae, and, opposite the first ocellus, a pair of outwardly directed reclinate setae; the ocellars stronger than most of the inclinate parafrontals, strongly divergent; weak postverticals, but inner and outer verticals strong.

Thorax: Pattern on mesonotum similar to that of the male but the dusting is denser. The anterior two *post dc* even weaker than in the male.

Wings: Lower squama waxy white — not at all smoky.

Abdomen: Black in ground, except for the lower extremes of the first tergite which are narrowly yellow; sternites two and three somewhat yellowish. The dorsum of the abdomen shows the following pattern of dusting when viewed from behind; first tergite without dusting, second and third tergites each with two large lateral anterior spots on each side to the undusted median vitta; these 8 spots particularly sharply defined in some views; last tergite wholly dusted except for a median vitta which dilates behind. All dusting is greyish.

Length: 4.7 mm. Wing: 4.2 mm.

Holotype: ♂, Torina, leg. E. Lindner, 4.—18. III. 1952.

Paratypes: 2 ♀♀, same data as the holotype.

Other material: 1 ♀, Kware, near Moshi, 27. XII. 1951 — 13. I. 1952.

This species traces to *sorbens* in VAN EMDEN's (1939) key, but it can be distinguished from that species as follows:

Males:

Second and third abdominal tergites with dark posterior bands; anterior two pairs of *post dc* weak absent; parafacials narrow, about half the width of third antennal segment; 4th wing vein without a dip after the bend *afra* n.

Second and third abdominal tergites without dark posterior bands; first two pairs of *post dc* very distinct; parafacials about as wide as the third antennal segment; 4th wing vein with a distinct dip after the bend *sorbens* Wiedemann.

Females:

Parafacialia not as wide as the third antennal segment; parafrontalia with but a single row hairs; the first two pairs of *post dc* very weak to absent; thoracic vittae fused even in front of the suture; 4th wing vein without a dip after the bend *afra* n. sp.

Parafacialia distinctly wider than the third antennal segment; parafrontalia with many hairs which do not fall into regular rows; all *post dc* distinct; thoracic not fused in front of the suture; 4th wing vein with a distinct dip after the bend *sorbens* Wiedemann.

14. *Musca (Eumusca) lusoria* Wied., 1830

Ngaruka, 29. I.—14. II. 1952, 1 ♂, 1 ♀.

Msingi, 9. VI.—17. VI. 1952, 1 ♂.

15. *Musca (Eumusca) gabonensis* Macquart, 1855
Kware, 17.—21. I. 1952, 1 ♂.

16. *Orthellia nudissima* (Loew), 1852
Kware, near Moshi, 17. XII.—13. I. 1952, 1 ♂, 2 ♀.
Torina, 4.—18. III. 1952, 1 ♂.
Usangi, Pare Mountains, 5. VI. 1952, 1 ♀.
Msingi, 15.—21. II. 1952 & 1.—19. V. 1952, 2 ♀.

This is probably the most widespread of the African *Orthellia* species.

17. *Orthellia albigena* (Stein), 1913
Usangi, Pare Mountains, 25. V.—8. VI. 1952. 2 ♀.
Msingi, 1.—19. V. 1952, 1 ♀.

This species is almost if not quite as widely distributed as the previous species.

18. *Orthellia aurantiaca* (Villeneuve), 1916
Torina, 4.—18. III. 1952, 1 ♀.
Kware, 17.—21. I. 1952, 1 ♀.

These females have the abdomen golden-brown with faint blue reflections, whereas the typical from South Africa has a yellow abdomen with no trace of blue reflections.

19. *Orthellia aureopyga* Malloch, 1923
Ngorongoro, 28. II. 1952, 2 ♀.

These specimens agree perfectly with MALLOCH's original description and with VAN EMDEN's additional notes (EMDEN 1939).

20. *Orthellia racilia* (Walker), 1849
Ngaruka, 28. I.—14. II. 1952, 1 ♂.

This species runs to *O. racilia* in SNYDER's 1951 key, and this determination was kindly confirmed by Dr. VAN EMDEN.

21. *Pyrellia spinthera* Bigot, 1878
Ngaruka, 29. I.—14. II. 1952, 2 ♀.

22. *Morellia nilotica* (Loew), 1856
Mugango, Lake Victoria, 18.—25. III. 1952, 1 ♂.

23. *Stomoxys calcitrans* (Linné), 1758
Usangi, Pare Mountains, 25. V.—8. VI. 1952, 1 ♀.
Msingi, 3.—17. VI. 1952; 13.—20. II. 1952, 3 ♀; 1.—19. V. 1952, 1 ♀.
Ngaruka, 29. I.—14. II. 1952, 1 ♂.
Kware, near Moshi, 27. XII.—13. I. 1952, 1 ♂.

24. *Stomoxys taeniata* Bigot, 1887
Msingi, 1.—19. V. 1952, 1 ♂.

25. *Stomoxys varipes* Bezzi, 1907
Ngerengere, 23. XII. 1951, 1 ♀.

26. *Stomoxys nigra* Macquart, 1851
Kisangara, 31. XII.—1. I. 1952, 1 ♀.
Kware, near Moshi, 17.—21. I. 1952, 1 ♂.
27. *Stomoxys bilineata* Grünberg, 1906
Msingi, 18. V. 1952, 1 ♀.

Subfamily *Anthomyiinae*

28. *Anthomyia fasciata* Walk., 1857
Kware, near Moshi, 27. XII.—13. I. 1952, 1 ♂, 2 ♀.
29. *Anthomyia griseobasis* Malloch, 1924?
Msingi, 22.—28. I. 1952, 1 ♀.

The specimen before me differs rather markedly from the South African specimens and may belong to a new species. In the absence of a male, however, I do not care to go further than stating the main differences from the typical form.

The costal spine is better developed, almost attaining the length of *r-m*; the *prst* spots are rather small so that they only reach the second *prst dc* on a narrow extension; there is no brown mark around the bases of the orbital setae. Arista short plumose, total width about $\frac{1}{2}$ width of 3rd antennal segment.

30. *Emmesomyia maculithorax* (Stein), 1913
Kibo West, 2800 m., 17.—22. IV. 1952, 3 ♀.

Dr. VAN EMDEN kindly identified this and the following species.

31. *Emmesomyia longipes* Emden, 1941
Marangu, 24. V.—8. VI. 1952, 1 ♀.

This species was described from the male only.

32. *Hylemyia cilicrura* (Rondani), 1866
Mombasa, Kenya, 9. XII. 1951, 1 ♀.

33. *Hylemyia ventralis* (Stein), 1914
Makoa, 22.—23. II. 1952, 1 ♂.

34. *Hylemyia salti* Emden, 1951
Kibo West, 3500—4500 m., 23.—30. IV. 1952, 3 ♂, 2 ♀.

Dr. VAN EMDEN kindly identified this specimen.

35. *Hylemyia flavibasis* (Stein), 1903
Makoa, 22.—23. II. 1952, 1 ♀.
Ngerengere, 23. XII. 1951, 2 ♀.

Subfamily *Fanniinae*

36. *Fannia perpulchra* Bezzi, 1908
Makoa, 22.—23. II. 1952, 1 ♀.

Subfamily *Coenosini*ae

37. *Coenosia heterocnemis* Emden, 1940

Kibo West, 3500—4500 m., 23.—30. VI. 1952, 1 ♂, 3 ♀.

These specimens agree in all respects with EMDEN's original description (EMDEN, 1940) as well with the later drawing of the male genitalia (EMDEN, 1951b). This record also confirms EMDEN's record of this species from Kilimanjaro.

38. *Coenosia melanomeros* Emden, 1951

Kibo West, 3500—4500 m., 23.—30. IV. 1952, 2 ♂, 3 ♀.

These specimens agree in all respects, including the male genitalia, with EMDEN's description.

The fact that this form occurs side by side with the previous one demonstrates quite clearly that they cannot be regarded as subspecies, a fact which is confirmed by the differences in the male genitalia as well as in several external features (see below).

39. *Coenosia cryptica* n. sp. (fig. 4)

This species resembles *heterocnemis* so closely that it is only necessary to add the following proportions and a drawing of the male genitalia (fig. 4):

Females (3 specimens of each species measured).

Species	Frons at vertex/head width.	Buccae/eye height.	Parafacial width/width of 3rd Ant. segment.	Divisions of vein <i>m</i>
<i>cryptica</i>	0.35	0.14	0.30	1.18 : 1.0 : 1.88
<i>heterocnemis</i>	0.45	0.29	0.50	1.46 : 1.0 : 2.54
<i>melanomeros</i>	0.45	0.25	0.44	1.70 : 1.0 : 2.90

Males (1 specimen of each species measured).

Species	Frons at vertex/head width.	Buccae/eye height.	Parafacial width/width of 3rd Ant. segment.	Divisions of vein <i>m</i>
<i>cryptica</i>	0.36	0.17	0.2	1.11 : 1.0 : 1.90
<i>heterocnemis</i>	0.45	0.24	0.5	1.43 : 1.0 : 2.49
<i>melanomeros</i>	0.46	0.26	0.6	1.56 : 1.0 : 2.57

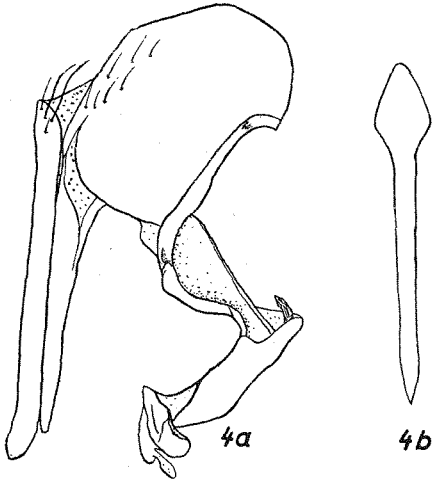


Fig. 4. *Coenosia cryptica* n. sp. Male genitalia (drawn from dry preparation). - a - lateral view, b - posterior view of cerci

Holotype, a male, Kibo West, 2800 m., leg. E. LINDNER, 17.—22. IV. 1952.

Paratypes, 3 females, same data as the holotype.

40. *Caricea inaequivitta* (Malloch), 1922

Ngorongoro, 28. II. 1952, 2 ♀.

Usangi, Pare Mountains, 5. VI. 1952, 1 ♀.

Ngerengere, 23. XII. 1951, 1 ♀.

The basal $\frac{1}{3}$ of f_1 of the females from Ngorongoro is yellow, whereas the remaining specimens have only very narrow basal areas of yellow. The female from Usangi has the posterodorsal part of the mesopleura grey, only the area just behind the spiracle being darkened. All the specimens have a weak extra *stpl* between the posterior pair.

41. *Caricea atroapicata* Malloch, 1922

Msingi, 1.—19. V. 1952, 3 ♀; 9.—17. VI. 1952, 3 ♂, 1 ♀; 22.—28. I. 1952, 1 ♀.

Ngorongoro, 28. II. 1952, 2 ♀.

The two females from Ngorongoro would trace to *atroapicata strigaria* (Curran) in EMDEN's (1940) key, and to *strigaria* in CURRAN's (1935) key. The abdominal pattern is, however, apparently less extended than in EMDEN's specimens.

Of the specimens which key out at *atroapicata* s. str., one female has the black dorsal area of f_1 extending past the mid-point and has, besides, the mid and hind coxae somewhat darkened and might, therefore, be determined as *strigaria* although the yellow base of f_1 is more extensive than in that subspecies.

From MALLOCH's description the impression is gained that the male of typical form has the same or similar thoracic and abdominal markings as has the female; in the males before me, however, both of these patterns strongly reduced, so much so that the males would be determined as *natalia* in MALLOCH's (1922) key, were it not for the other characters given. The lateral thoracic vittae are quite absent in one male and very weak in the other two, and the median vitta is weak in all cases. The abdomen has distinct paired spots and median vitta on the last three segments in one ♂, distinct spots and vitta on segments 2 and 3, and vitta on segment 4 on another ♂, while on the third ♂ spots and vitta are present on the last two segments, but only the vitta and an indication of spots is present on segment 2. VAN EMDEN (1940) noted in the key that the pattern is at times indistinct.

The general ground colour is much more grey in the males than in the females.

The males possess the fine hairs on the anterior margin of the hind tarsus as mentioned by MALLOCH in the original description.

42. *Caricea simulans* n. sp. (fig.)

I have, through the kindness of Mr. D. J. W. ROSE, been able to compare this material with CURRAN's holotype of *C. cuthbertsoni* and with another male of the same species from Salisbury. (fig. 5).

The main difference in external appearance lies in the more distinct pattern of thorax and abdomen in the Tanganyika material, and, despite Curran's clear statement to the contrary, in the absence of preapical spots on the dorsum of the mid and hind femora in the Rhodesian material, whereas the present material possess very distinct marks in these positions. *C. cuthbertsoni* does, however, possess a brown preapical mark on the *av* surface of f_2 . In other respects the external characters of the two species are similar. The most striking difference lies in the male genitalia. In the new species the paralobi are more or less straight, long and slender (fig. 5), while in *C. cuthbertsoni* Curran they are short, sharply bent and broad (fig. 6).

Holotype, a male Msingi, leg. E. LINDNER, 9.—17. VI. 1952.

Paratypes, 1 ♀, Msingi, 9.—17. VI. 1952; 1 ♀, Msingi, 30. III.—13. IV. 1952.

43. *Caricea punctigera* (Stein), 1918

Msingi, 22.—28. I. 1952, 2 ♀.

Torina, 4.—18. III. 1952, 1 ♂, 1 ♀ (?).

The pair from Torina is aberrant as they possess yellow antennae and not the dark antennae of the typical form. They may represent a new species but are no more than a variety in Dr. VAN EMDEN's opinion.

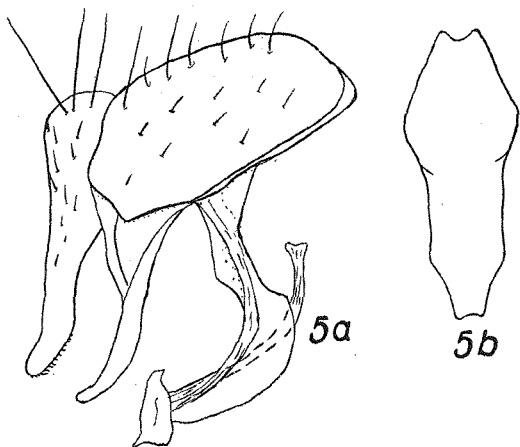


Fig. 5. *Caricea simulans* n. sp. Male genitalia (drawn from a dry preparation). a — lateral view, b — posterior view of cerci

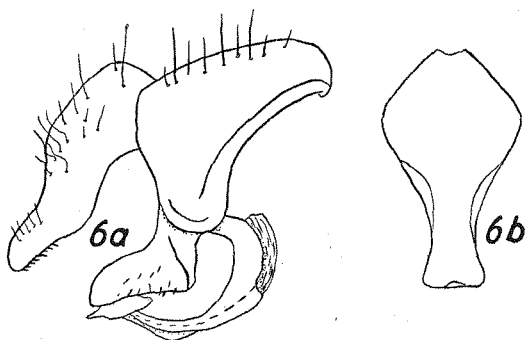


Fig. 6. *Caricea cuthbertsoni* (Curran). Male genitalia (drawn from a dry preparation). — a — lateral view, b — posterior view of cerci

44. *Caricea strigipes* (Stein), 1921

Msingi, 9.—17. VI. 1952, 1 ♀.

I have, through the kindness of Dr. H. K. MUNRO, been able to study CURRAN's holotype of *Coenosia ethelia* and have found that it is a synonym of the present species and not of *exigua* as stated by VAN EMDEN, (1940) (n. syn.).

45. *Caricea humilis multimaculata* Adams, 1905

Msingi, 9.—17. VI. 1952, 1 ♀.

Kware, near Moshi, 27. XII.—13. I. 1951, 1 ♀ (♂), abdomen missing,

46. *Caricea poecilotarsis* Emden, 1940

Msingi, 1.—19. V. 1952, 1 ♀.

Since VAN EMDEN described this species from the male only, I will give a few notes on the female.

Third antennal segment 3 times longer than broad, not surpassing the lower margin of the eye. The postsutural band on the mesonotum abuts against the suture only at the median line; from there to the *dc* rows it is narrowly separated from the suture, but at the *dc* rows there occurs a definite step which increases the area of pale dust in front of the transverse band. The median abdominal vitta runs over the last three tergites but is interrupted over the apical $\frac{1}{4}$ of tergite 2; it is broader at the anterior margin of each tergite than behind. The apical $\frac{1}{2}$ of tergite 4 bears paramedian spots and not a band as in the male. f_3 bears 4 *av* setae and not three as in the male. The tarsi of the fore legs are not „soled“ and are unmodified, although ventrally the first 4 segments are apically pale.

47. *Caricea canifrons* (Stein) 1913

Usangi, Pare Mountains, 25. V.—8. VI. 1952, 1 ♀.

The frons of this female measures 0.28 of the head width at the antennal base and 0.32 at the vertex. The parafrontalia are fairly distinctly pale dusted, especially in front. It agrees well with VAN EMDEN's (1940) description of the female except that I cannot detect a slight dilatation of the frons above the second inclinate frontals. The species was described by STEIN from Arusha-Ju, Tanganyika.

Dr. VAN EMDEN kindly checked this determination.

48. *Caricea niveifrons* (Stein), 1913

Msingi, 1.—19. V. 1952, 1 ♀.

Marangu, 24. V.—8. VI. 1952, 1, ♂ (?).

The male, which is in poor condition as it is somewhat teneral, is aberrant since it possesses distinct ocellar setules.

49. *Caricea rebmanni* Speiser, 1924

Kibo West, 2800 m., 17.—22. IV. 1952, 1 ♀.

Marangu, 24. V.—8. IV. 1952, 1 ♀.

Dr. VAN EMDEN confirmed this determination.

50. *Caricea attenuicornis* Malloch, 1922

Pare Mountains, 1700—2000 m., 2.—6. VI. 1952, 1 ♂.

51. *Caricea vittata* (Wied.), 1830

Ngerengere, 23. XII. 1951, 1 ♂.

52. *Lispocephala miki* (Strobl), 1893

Ngerengere, 23. XII. 1951, 2 ♀.

53. *Atherigona* spp.

Msingi, 1.—19. V. 1952, 1 ♀.

Ngaruka, 29. I.—14. II. 1952, 1 ♀.

Makoa, 22.—23. II. 1952, 1 ♂.

Kware, near Moshi, 27. XII.—13. I. 1952, 2 ♀♀.

The females of this difficult genus cannot be determined with certainty.

54. *Atherigona* (*Atherigona*) *tetrastigma* n. sp. (fig. 7)

Male:

Head: 1.24 and 1.25 times broader and higher than long. First two segments of the antennae yellow, third segment dark but for a little yellow at base and measuring 2.25 times as long as broad.

Face, parafacialia and buccae yellow, remainder of head dark in ground. The lower occiput golden dusted, occiput between verticals and neck glossy black as are the parafrontalia at their anterior-most end. Interfrontalia entirely dull black. Ocellar triangle somewhat grey dusted.

Four pairs of inclinate parafrontal setae; inner and outer verticals, postverticals and ocellars well developed. Arista very short-haired. Vibrissae black.

Thorax: Mesonotum and scutellum dark with grey dust and three barely discernible vittae. Humerae and pleurae yellow.

dc 2 + 4 prostigmatal very weak with an even weaker hair; 2 propleurals and one very fine hair.

Wing: 2.8 mm long. 4th vein divided as follows, 1.0:1.5:2.3. 3rd and 4th veins converge slightly towards the apex. Veins and haltere yellow.

Legs: Legs yellow to golden except for the darkened apical half of *t*₁ and dark fore tarsus.

*t*₂ with a small postmedian *pd*; *t*₃ with small postmedian *ad*, *pd*, and *av*.

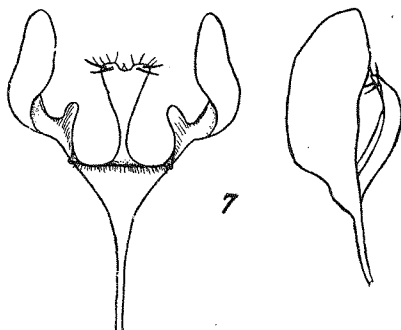


Fig. 7. *Atherigona tetrastigma* n. sp.
Male trifoliate process

Abdomen: Yellow with two pairs of round spots, one each on tergites 2 and 3. Hypopygial prominence absent; trifoliate process as in fig. 7, with the stalk yellow and the process dark.

Length: 3.5 mm.

Holotype: male, Kware, near Moshi, leg. E. LINDNER, 27. XII.—13. I. 1952.

This species keys out at paragraph 13 of VAN EMDEN's (1940) key; from *laevigata* (Loew) and *bimaculata* Stein it can be distinguished by the absence of hypopygial prominence; the pale pleurae and 2 propleural setae will separate it from *hancocki* Emden and the abdominal pattern separates it from *haplopyga* Emden. From these and other species it is further distinguished by the structure of the trifoliate process.

55. *Atherigona laevigata* (Loew), 1852

Ngerengere, 23. XII. 1951, 1 ♂, 2 ♀.

Msingi, 9.—17. VI. 1952, 1 ♂.

Subfamily *Phaoniinae*

56. *Alluaudinella flaviceps* (Karsch), 1887

Msingi, 1.—19. V. 1952, 1 ♀.

This genus has usually been classified in the Muscinae but my studies have indicated that this is incorrect. The matter will be dealt with in detail elsewhere.

57. *Ochromusca trifaria* (Bigot), 1878

Msingi, 9.—17. VI. 1952, 1 ♂.

This genus is another which I have transferred from the Muscinae.

58. *Graphomyia eustolia* (Walker), 1849

Kware, near Moshi, 27. XII.—12. I. 1952, 1 ♀.

Another genus which is usually placed in the Muscinae.

59. *Ophyra capensis* (Wiedemann), 1818

Msingi, 1.—19. V. 1952, 3 ♀.

The common species of the genus in Africa.

60. *Hydrotaea* n. sp.

Kibo West, 2800 m., 17.—22. IV. 1952, 1 ♀.

I do not propose to describe this species from the female sex only.

61. *Spilogona obliquesignata* Emden, 1951

Marangu, 24. V.—8. VI. 1952, 1 ♀.

62. *Xenomyia edwardsi* Emden, 1951

Ngaruka, 29. I.—14. II. 1952, ♂, ♀, plur.

„Diese Art stellte sich in Anzahl auf einem algenbewachsenen, manchmal ganz untergetauchten großen Rundstein im Bach an einer Schattenstelle, zusammen mit Ephydriden ein.“ LINDNER.

63. *Limnophora translucida* Stein, 1913

Kware, near Moshi, 27. XII.—13. I. 1952, 1 ♂.

Moshi is the type locality of this species.

64. *Limnophora notabilis* Stein 1903

Ngaruka, 29. I.—14. II. 1952, 1 ♀.

A very common and widespread species in Africa.

65. *Limnophora obsignata* Rondani, 1866

Msingi, 1.—19. V. 1952, 1 ♀.

66. *Limnophora lindneri* n. sp. (fig. 8)

Male:

Head: Dark in ground, silver dusted on buccae, face, parafacialia and parafrontalia below the narrowest part of the frons; upper parafrontalia

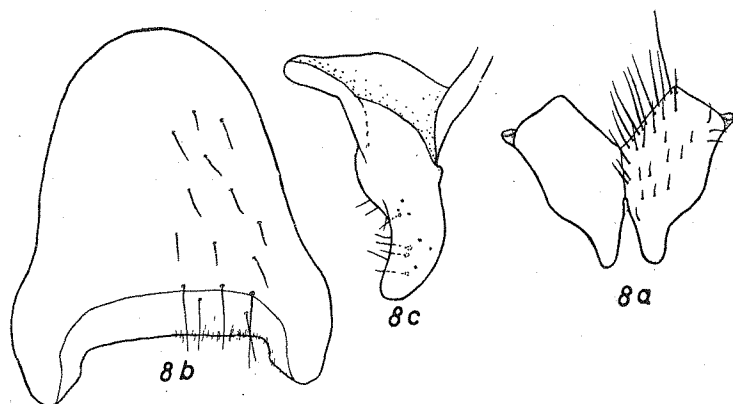


Fig. 8. *Limnophora lindneri* n. sp. Male genitalia (drawn from a slide). — a — cerci, b — 4th sternite, c — paralobus

very narrow, brownish dusted. Interfrontalia dull black, brownish from some points of view. Occiput thinly grey dusted. Antennae, palpi dark.

Head about 1.5 times higher than long; vibrissal angle and antennal angle produced. Frons at the narrowest point 0.08 of head width. Parafacialia as wide as the third antennal segment. Third antennal segment 2.6 times the length of the second. Arista very short haired, the longest being less than the basal diameter of the arista. Buccae $\frac{1}{4}$ height of an eye.

Below the narrowest part of the frons there are 7 pairs of inclinate parafrontal setae of which 3 are weak. A fine proclinate pair are present just in front of the ocellae. Inner and outer verticals, ocellars, and post verticals all present, and of these the inner verticals are strongest. Eyes very sparsely and shortly haired.

Thorax: Dark in ground colour; mesonotum, when seen from behind, grey dusted on the humeral calli, notopleura, on the outer side of the *prst*,

narrowly along the suture up to the *dc* line where a subtriangular area of dust runs forward to the second *prst dc*; also grey dusted behind the last two *post dc* except for a fairly broad median brown vitta, which is not elsewhere distinct. Remainder of the disc brown dusted. Apex of the scutellum thinly grey dusted, the rest brownish. Propleura, sternopleura, hypopleura, pteropleura and mesopleura below the anterior spiracle thinly grey dusted; upper part of the mesopleura brown dusted.

dc, 2 + 4, all distinct; *ia*, 1 distinct though weak; *sa*, 1; postalar, 2; *acr*, no distinct *prsc*, 2 *prst* rows of hairs and about 6 *post ph*, 1; *npl*, 2; 6 strong and 1 weak mesopleurals; *stpl*, 1 + 2, lower one 1.25 times nearer the posterior one than to the anterior one; about 18 hairs present in the *stpl* triangle; prostigmata, 2 and 3 hairs; propleura, 2 and 1 hair; prosternum haired along the lateral margins.

Wings: Brownish, somewhat more dark along anterior margin near base, as well as basally. Veins brown; *r-m* at 0.6 of the discal cell; *R*₅ at apex, 0.56 width at the widest point. Curve of *m* flattened out before the apex; *m-m* nearly straight and almost erect. Costal spine shorter than *r-m*. Upper and lower surface of *r*₅ each with 2 setules. Squamae translucent white with pale yellow borders and fringe. Halteres yellow.

Legs: All dark, only thinly dusted with grey. *f*₁ with *pd* and *pv* rows as well as a second *pd* row just below the more dorsal one, a *p* row of finer setae and numerous hairs on the *p* surface; *t*₁ with a submedian *p* seta; *f*₂ with 3 strong *v* setae in the basal half and a weaker one beyond them, which in turn is followed by a row of 13 weak setules extending to the apex; a *p* and *pd* preapical present; *t*₂ slightly curved, with a *pd* at about $\frac{1}{2}$; *f*₃ with about 13 *ad* setae along the entire length, 2 strong *av* on apical $\frac{1}{3}$, and 1 *pd* preapical; *t*₃ with an *ad* and *av*, the former at $\frac{1}{2}$, and the latter at $\frac{1}{2}$.

Abdomen: Tapering from the first segment, relatively slender. Colour dark with thin grey dust and paired spots of brown on first three segments, those on the second and third segments being subtriangular; an ill defined but quite broad median vitta, which broadens posteriorly, present on tergite 4. There are several long lateral setae present on each tergite; complete apical rows are present on the last two tergites, and a discal row of six setae is present on the fourth. The basiventral scale is bare. Male genitalia as in fig. 8.

Length: 7.7 mm. Wing: 7.0 mm.

Holotype: a male, Kibo West, 2800 m., leg. Dr. E. LINDNER, 17.—22. IV. 1952.

Other material: 2 ♀, same data as the holotype; 1 ♀ Kibo West, 3500—4500 m., 23.—30. IV. 1952.

It is with some doubt that I associate the three females with the male holotype, since all the females possess 2 + 3 *dc*. In all other respects they closely resemble the male. It is possible that the male is aberrant in this respect, and that 3 *post dc* is the normal complement for the species.

Female:

Head: 1.4 times higher than long, frons 0.31 head width at the vertex, the narrowest point. Frontal-facial stripe dilates evenly from the vertex to the apex of the second antennal segment, and then more strongly to lower margin of the eye. Frontal triangle not very distinct, almost reaches the ptilinal suture. Inner and outer verticals much stronger than in the male; 2 pairs of outwardly directed orbitals at the level of anterior ocellus. Parafrontalia with 4 strong inclinate setae a line of hairs; ocellars long, nearly reaching the ptilinal suture; postverticals distinct, diverging. Occiput grey dusted with a dark mark from neck to vertex.

Thorax: Pattern similar to the male but dusting is more distinct. *dc*, 2 + 3.

Wings: Nearly hyaline, only slightly brown tinged. *r-m* at 0.53 of the discal cell. Costal spine shorter than the anterior cross vein.

Legs: as in the male except that f_2 has a row of 5 *a* setae in the basal half which increase in size to middle; below the last setae of this row another seta may be present. On t_3 the *av* and *ad* are closer together than on the male.

Abdomen: Stouter than in the male, tapering from the second tergite. A pair of rather small round spots on tergite 1; tergites 2 and 3 with paired brown subtriangular spots, and tergite 4 with a brown median vitta. Chaetotaxy as in the male but the apical row of tergite 3 may be interrupted and only four discal setae may be present on tergite 4.

Length: 7.7—8.0 mm. Wing: 7.5 mm.

In VAN EMDEN's key (EMDEN, 1951a) the females trace to paragraph 72, but do not agree with the characters of the hind femur given therein. If the 4 *post dc* of the male is neglected, it also traces to the paragraph. If the 4 *post dc* are given full value, the species will diverge at paragraph 62.

67. *Helina (Helina) proxima* (Stein), 1913

Usangi, Pare Mountains, 25. V.—8. VI. 1952, 1 ♂

Msingi, 15.—21. II. 1952, 1 ♀.

68. *Helina (Helina) pervittata* Emden, 1951

Ngorongoro, 28. II. 1952, 1 ♀.

This determination has been confirmed by Dr. VAN EMDEN. The specimen differs from the typical form by the presence of an infusate spot on the node of *r_s* and another on the base of *m*.

69. *Helina (Helina) coniformis* (Stein), 1903

Makoa, 22.—23. II. 1952, 1 ♀.

Ngaruka, 29. I.—14. II. 1952, 1 ♀.

Ngorongoro, 28. II. 1952, 1 ♂.

The male appears to belong to the dark form mentioned by VAN EMDEN (1951a). This dark form also occurs in South Africa, and it differs from the typical form in the width of the frons as well as in the colour differences

mentioned by VAN EMDEN. The present male, for instance has a frons which, at the narrowest point, is 0.06 of the head width, whereas the light coloured form has a frons which is about 0.12 of the head width; also the dark form has usually about 6 pairs of inclinate parafrontal setae as compared with about three in the light form (and as mentioned by STERN in his description). The cerci of the male genitalia are somewhat variable in shape but there is at least a tendency towards acuteness in the dark form and towards truncatedness in the light form. I do not propose to go further into this matter at the present time.

The females are of the light form.

70. *Helina (Helina) attenuata* n. sp. (Fig. 9)

Head: 1.31 times higher, and 1.58 times wider than long; fronto-facial angle prominent, vibrissal angle moderate; buccae 0.2 times the height of one eye; parafacialia a little wider than third antennal segment; frons at the narrowest point 0.17 times the head width. Arista plumose, about twice as wide as the third antennal segment.

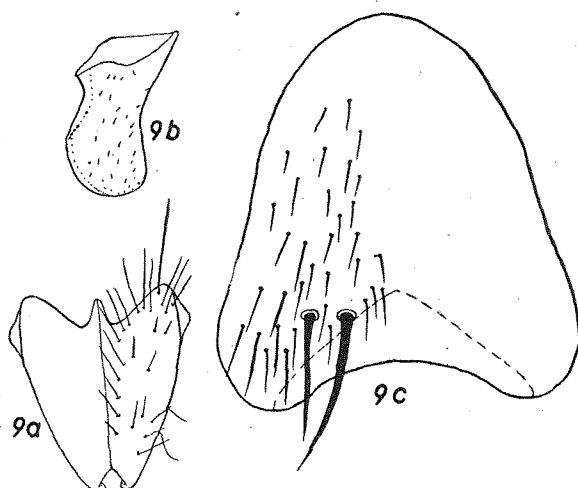


Fig. 9. *Helina attenuata* n. sp. Male genitalia (drawn from a slide). — a — cerci (somewhat compressed by cover slip), b — parabolus, c — 4th sternite

Occiput, buccae and face grey dusted; parafrontalia and parafacialia silver-white, the latter with dark reflections at and below the antennal base, and a dark near the vibrissal angle. Interfrontalia dark, matt, with weak grey dust when seen from in front. Antennae

dark, with the second segment grey dusted; palpi reddish yellow with black tips.

Parafrontalia with 3—4 inclinate setae in the anterior half of the frons, and no orbital setae; ocellars and inner verticals long, outer verticals and post verticals moderate.

Thorax: Largely dark in ground, but with the infra-alar bulla reddish yellow. Pleurae and mesonotum grey dusted, the latter with two narrow brown paramedian vittae which run between the *dc* rows and which extend backwards almost to the level of the second post *dc*; another brown vitta runs back from the *ph* and reaches the level of the last post *dc*; behind which is a brown spot on each side which extends to the pa

on each side; a third vitta which is short but broad runs back from the *prst*, through the *sa* on each side. Scutellum grey but for the two anterior-most corners which are brownish.

dc, 2+3, strong; *ia*, 2, the anterior one just behind the level of the 1st *post dc sa*, 2, but the post one very weak; no *pra*; *prsc acr* not distinguishable, about 5 rows of *prst acr* hairs and about 8 rows of *post acr* hairs; *npl*, 2; mesopleura with 4 strong and 3 weak in vertical row, and a distinct seta in the anterior upper corner; 1 strong prostigmatal as well as a lower weaker one and 3 hairs; propleurals, 1 strong and 2 weak; *stpl*, 2+2, all very distinct, and the postero-ventral one nearer the posterodorsal than to the antero-dorsal; hypopleura bare.

Wings: Veins red-brown; membrane hyaline except for yellowish suffusion anteriorly and at the base, and for dark spot on *r—m* and a dark suffusion along *m—m* which is most intense anteriorly. Costal spinules of nearly even length, costal spine nearly as long as *r—m*. *m*, after the base of discal cell, divided up as follows: 1.27:1.0:1.75. *r*₄₊₅ and *m* subparallel at the tip, not converging.

Squamae yellowish, with a golden border and fringe, halteres clear yellow.

Legs: Femora, tibiae and coxae yellow except for some small areas on the fore and hind coxae which are grey dusted; tarsi dark. Legs long and slender, unmodified. *t*₁ with a strong median *p* seta and 2—3 short, weak *ad* setae on apical half; *f*₂ with a row of long *a* setae terminating at $\frac{3}{5}$, 3 basal *v* setae of which the most basal is weak, *ad* preapical distinct as are 3 others situated between *p* and *pd*; *t*₂ with two strong *pd* setae, the more distal of which is at about the mid point; *f*₃ with *ad* and *av* rows, the latter with about 9 setae of variable length and irregular spacing, and is terminated in a strong *av* preapical; the *ad* row consists of about 6 strong setae and some weak basal ones; there are about 3 weak *pv* in the basal half and a few even shorter ones near the apex; there are also strong *a*, *p*, and *pd* preapicals; *t*₃ with 2 strong *ad*, 1 on either side of the mid point, and a strong *av* just beyond the more distal *ad*; there is a strong *ad* preapical, besides the *d*.

Abdomen: Slender, subconical, about 2.4 times longer than broad; grey dusted with paired, subtriangular brown spots on tergites 2 and 3, paired small round spots on tergite 1, and a fairly broad median vitta on tergite 4; lateral setae of tergites 3 and 4 with small brown spots at their bases. Strong lateral marginal and discal setae present on all segments; short apical marginals present on second tergite; 3rd and 4th tergites with strong apical and discal rows; first 3 sternites each with a strong pair of setae at the apex; 4th sternite with a pair of setae on each side, near together, just basal of the V-shaped excision. Male genitalia small, not protruding (fig. 9).

Length: 9.5 mm. Wing: 8.4 mm.

Holotyp: male, Kibo West, 2800 m, 17.—23. IV. 1952

This species traces to paragraph 17 in VAN EMDEN's (1951a) key; from *caesioides* (Bezzi) it differs in having all femora yellow throughout and in that the anterior postalar is nearer the level of the first *post dc* than to the level of the *sa*. From *pervittata* Emden it can be separated by the uniformly yellow femora, by the paramedian vittae reaching only the second *post dc*, and by the slender form of these vittae compared with *pervittata*. From *icterica* (Séguy) it can be distinguished by the presence of the anterior *post ia*.

The species is probably most closely related to *pervittata*.

71. *Helina* (*Idiopygus*) *quadruplex* (Stein), 1913

Ngerengere, 23. XII. 1951, 1 ♂.

This male belongs to the nominate form.

72. *Helina* (*Idiopygus*) *posterodorsalis* Emden, 1951

Kibo West, 3500—4500 m., 23.—30. IV. 1952, 2 ♂, 1 ♀.

Dr. VAN EMDEN kindly compared a male of this series with the type and confirmed the determination. The following notes on variation may be of interest: The anterior mesopleural does not approach the second notopleural in strength in the 2 males, although it is somewhat stronger than in the female. In the female 2 *p* setae are present on t_1 of both sides; the one male lacks *p* setae on both front tibiae, but one is present on the only front tibia present in the other male. One male has only 1 *ad* present on the only mid tibia present. t_3 in both males with only 1 *pd*, but the female has two on each side. The female has only one *av* present on t_3 and this only on one side. The tibiae and much of the femora are yellow in the female; the legs are dark in the males.

It will be apparent that there is considerable variation in the chaetotaxy of the legs in this species.

73. *Helina* (*Idiopygus*) *lindneri* n. sp. (fig. 10)

Male:

Head: 1.17 times higher and 1.35 times wider than long. Fronto-facial angle distinctly projecting, vibrissal angle only slightly produced. Frontal stripe very slightly converging to the upper inclinate orbital from where it diverges gently to the vertex. Frons at the narrowest point 0.26 of the head width. Parafacialia almost equal to the width of the third antennal segment. Buccae 0.33 of the height of the eye. Arista long plumose, total width being about 1.6 times the width of the third antennal segment.

Occiput, buccae, grey dusted; parafacialia, parafrontalia and face silvery white, but parafacialia with dark reflections at and below level of the second antennal segment. Interfrontalia dark with grey dust; frontal triangle indistinct. Antennae and palpi dark, the former with grey dusted second segment.

3 strong, inclinate parafrontal bristles; no reclinate orbitals; ocellars long and strong; 1 strong vertical on each side; postverticals moderate.

Thorax: Mainly dark in ground, but partly pale on pleurae, especially on the sterno-, ptero- and propleura; infra-alar bulla somewhat infuscate; scutellum marginally pale. Mesonotum and disc of scutellum yellow-grey dusted; 2 faint vittae present within the *dc* rows on the presutural area, and these are extended beyond the suture as brown vittae which reach

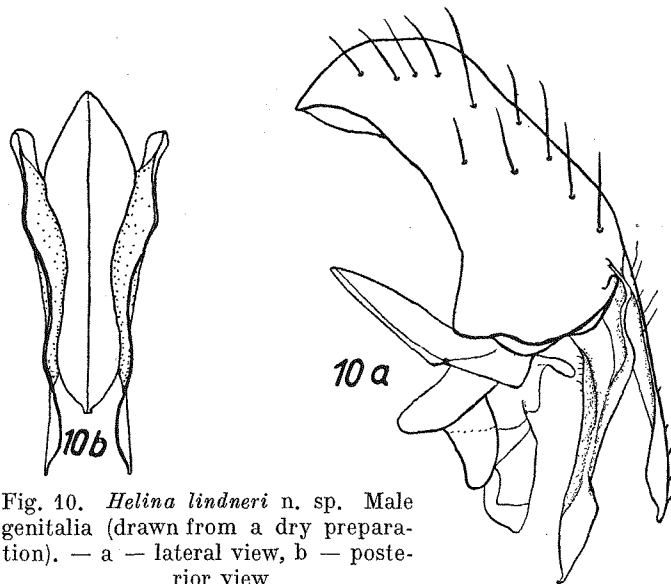


Fig. 10. *Helina lindneri* n. sp. Male genitalia (drawn from a dry preparation). — a — lateral view, b — posterior view

the second *post dc*. In some anterior views unpigmented vittae can be seen through the *dc* rows and down the midline of the presutural area.

dc, 2+3; *ia*, 2 distinct, the anterior one just in front of the *sa*; no *pra*. 1 strong and 1 weak propleural; prostigmata, 1 strong, 2 moderate and 3 fine hairs; *stpl*, 1+2, arranged in almost an isosceles triangle; sternopleura with a tuft of closely adjacent, backwardly directed setae at the apex; hypopleurae quite bare.

Wings: Mainly hyaline but with a dark spot on *r-m*, *m-m* suffused along its whole length, but especially at either end; there is a faint indication of a spot at the base of the discal cell, as well as a dark mark on the node of *r_s*. Veins pale. *m-m* almost straight, not at all sinuate. *m* with the following ratio of parts distal of the discal cell base: 1.08:1.0:1.56.

Squamae white with a very faint yellow tinge, and with a yellow border and fringe. Halteres yellow.

Legs: All tibiae and femora reddish yellow; coxae largely yellow.

t_1 without median setae but with rather long (of about $\frac{3}{4}$ tibial diameter) hairs. f_2 with an *a* row of 5 setae in basal half, an *av* row of which a median 1—2 setae are stronger, and a *pv* row of irregularly sized setae of which about 5 are very long; there are 3 *p*—*pd* and an *a* preapical setae. t_2 with 2 strong *pd*; hind trochanter with a tuft of black setules at the apex; f_3 curved, and the apical half is dilated; it is armed with an irregular *av* row of about 8 setae which increase in strength towards the apex, many long setae and hairs present on the *v* surface, an *ad* row of about 8 setae; a *pv* row is distinct only near the apex where it consists of 9—10 fine setae; *p*, *pd*, *a* and *ad* preapicals present. t_3 gently bowed with an apical ventral conical production with black stubble; 2 long, median *ad* setae; the *ad* preapical very well developed.

Abdomen: Tergites uniformly yellowish grey dusted without spots; 4th sternite yellowish in ground laterally dark grey dusted. Abdomen strongly curved with 4th sternite and genitalia very strongly developed; first three sternites very strongly reduced, since 4th sternite almost reaches the base of the abdomen; proportions of the abdomen are about 1.67 times longer and 1.33 times deeper than wide. Strong lateral setae present on all tergites; complete apical row on tergite three and complete discal and apical row on tergite 4. 5th tergite with long bristles. Genitalia as in fig. 10, 4th sternite deeply incised.

Length: 6.3 mm. Wing: 6.8 mm.

Holotype: a male, Kibo West, 2800 m., leg. Dr. E. LINDNER, 17.—22. IV. 1952.

This species keys out at *penicillata* in VAN EMDEN's (1951a) key. From this species it can easily be distinguished by the shape and colour of the abdomen, shape of the hind legs, and colour of the legs. The species is possibly closely related to *H. hypopygialis* although differing considerably in the armament of the legs (*hypopygialis*: t_1 with 2 *p* setae, t_2 with 2 *ad* and 2 *p* setae) or to species falling in the group separated off by paragraph 112; from almost all these it is distinguishable by possessing the anterior *post ia* and from *H. kirtipes metatarsalis* it is distinguishable by this bristle being situated in front of the *sa*, and by the secondary sexual characters of the male.

74. *Heina* (*Hebecnema*) *semiflava* (Stein), 1913

Marangu, 24. V.—8. VI. 1952, 1 ♀.

This specimen belongs to VAN EMDEN's *forma e* (EMDEN 1951a), since it has the femora, third antennal segment and halteres dark.

75. *Helina* (*Helinella*) *rufina* (Stein), 1906

Msingi, 22.—28. I. 1952, 1 ♂.

76. *Helina* (*Helinella*) *subsetosa* Curran, 1938

Msingi, 22.—28. I. 1952. 1 ♂.

77. *Helina (Euspilaria) trinubilifera* (Malloch), 1922

Kibo West, 2800 m., 17.—22. IV. 1952, 1 ♂.

78. *Helina (Euspilaria) punctifera* (Malloch), 1921

Msingi, 9.—17. VI. 1952, 1 ♀.

79. *Dichaetomyia pilifemur* (Stein), 1906

Ngorongoro, 28. II. 1952, 1 ♀.

This specimen has the infra-alar bulla beset with 3 fine black hairs.

80. *Dichaetomyia ovata* (Stein), 1918

Torina, 4.—18. III. 1952, 1 ♂, 1 ♀.

These two specimens are about 10 mm. long, have discal setae on tergite 4, f_3 armed in the female with 4—5 distinct setae at the apex of the *av* surface, while the male has 7 of these setae distinct on the apical half.

81. *Dichaetomyia albivitta*, (Stein), 1906

Msingi, 1.—19. V. 1952, 1 ♀.

82. *Dichaetomyia pallidula* Curran, 1938

Kware, near Moshi, 27. XII—13. I. 1952, 1 ♂, 1 ♀.

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