

**New or Insufficiently Known African Crane Flies. V.
(Diptera: Tipulidae)**

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(With 49 figures)

Dedication to Father Borgmeier

The entomological world was saddened from the death of Father Thomaz Borgmeier on May 11, 1975. I had known him for many years and was privileged to have been able to publish numerous papers on the family Tipulidae in the *Revista de Entomologia* (1931-1951) and its successor, *Studia Entomologica*, of both of which he had been the founder and editor over the many years. Additional to these accomplishments, Father Thomaz is recognized as having been an outstanding insect taxonomist and further was one of the very few such students who had gained recognition as being a leading authority in two major orders of insects, the Diptera and the Hymenoptera.

Mrs. Alexander and I had the great pleasure and privilege of having had Father Thomaz as our guest in Amherst during mid-April 1945 and we never have forgotten him and his many fine attributes. I am deeply indebted to Father Kempf for the opportunity to dedicate the present paper to the memory of Father Borgmeier in the present memorial volume of *Studia*.

Charles Paul Alexander

The preceding part IV of this series of papers was published in *Studia Entomologica*, volume 18, November 1975.

In the present paper I am continuing the discussion of the many species of crane flies that were collected in Nigeria by John Thomas Medler and Mrs. Jane Ann Medler. The importance of these rich materials was indicated in Part III and in Part IV of the present series of papers and these accounts may be consulted by other workers on African crane flies. The Medlers returned to the United States in August 1975, thus concluding their many years of collecting and study of the insect fauna of Nigeria. I wish to express my deep appreciation for the extensive series of Tipulidae that they secured and for the privilege of retaining the numerous types of the new species that they found.

Tipulinae

1. *Nephrotoma (Nephrotoma) kempfi* sp. n.

Size relatively large, wing of male about 18.5 mm; thorax blackened, patterned with yellow on the postnotum, mediotergite and pteropleurite; wings strongly darkened, cell M_1 petiolate; abdomen black, only the outer dististyles and internal organs of the hypopygium yellowed; male hypopygium with the small tergite polished black, the posterior border a very shallow saucer, on either side of midline with a low spinulose tubercle; outer dististyle long and slender; inner dististyle with outer basal lobe a powerful black spine; eighth sternite with a small slender yellow median lobe, posterior border with long incurved black setae.

Male. Length, about 15 mm; wing 18.5 mm; antenna about 5.5 mm. Frontal prolongation of head yellowed, darkened anteriorly; palpi with basal segment obscure yellow, second and third black, terminal segment darkened, basal half paler. Antennae with scape brownish yellow, pedicel brown, flagellum black; flagellar segments with a small basal enlargement; longest verticils slightly less than the segment. Head yellowed, patterned with brown.

Thorax polished black, with yellowed areas on anterior half of postnotal mediotergite, pteropleurite, and the anterior dorsopleural membrane. Halteres darkened. Legs with coxae and trochanters black; femora black, the bases of one pair narrowly more yellowed (all legs detached); claws at near midlength with a long spur. Wings strongly darkened, cell Sc and the stigma still darker brown; veins dark brown. Stigma with posterior portion with about 8 or 9 small trichia; outer end of cell R_5 with about 20 smaller trichia. Venation: Cell M_1 petiolate, the petiole about one-half m or slightly more.

Abdomen black, only the dististyles and outer parts of the phallosome obscure yellow. Male hypopygium (Fig. 1) with tergite, t , polished black, small, about one-third the length of the 8th sternite; transverse, posterior border a very shallow saucer, on either side of midline with a low tubercle provided with microscopic roughenings or spinules. Outer dististyle, od , long and very slender, surface with small inconspicuous setae, outer fourth very narrow; inner style, id , with beak slender, pale, lower beak very deep, blackened; dorsal crest with posterior end higher, outer basal lobe a powerful black spine (subfigure). Phallosome, p , about as shown; apophyses very

small, extended into hairlike points. Eighth sternite, *s*, broadest on basal half, narrowed outwardly; border convexly rounded, at midline with a small slender yellow lobe; setae of central posterior border long and conspicuous, black, curved strongly mesad to meet or cross at midline.

Habitat: Nigeria. Holotype, ♂, on slide, Obudu, Cattle Ranch, Southeastern State, August 19, 1973 (Medler).

I wish to dedicate this fly to the memory of Walter Kempf who capably edited *Studia Entomologica* following the death of Thomaz Borgmeier.

The present fly is most similar in general appearance to species such as *Nephrotoma (Nephrotoma) albonigra* Alexander, *N. (N.) mobukuensis* Alexander, *N. (N.) ruwenzoriana* Alexander, and *N. (N.) triquetra* Alexander, all from Uganda. These species differ chiefly in hypopygial structure, especially the tergite, eighth sternite and inner dististyle. The hypopygia of the various listed species have been illustrated in a paper by the writer discussing the African species (Ruwenzori Expedition, British Museum, 1956, p. 135-165, figs. 1-31).

The enlargement of the genus *Nephrotoma* to include the former genus *Scamboneura* Osten Sacken of the Oriental-Australasian regions was in an earlier paper (*Studia Entomologica*, 14: 271; 1971). In this it was indicated that the venation and hypopygial structures in the two groups are so similar that it was advisable to place them as subgenera in the older genus *Nephrotoma*, as is done here.

2. *Nephrotoma (Nephrotoma) flavofimbria* sp. n.

General coloration of head and pronotum orange, mesonotum yellow with a polished black pattern including three praescutal stripes; legs with coxae and trochanters orange, femora yellowed basally, tips black, more extensive on the fore pair; wings light brown, cell *Sc* and stigma darker; basal abdominal segments yellow, patterned with brown, segments six to eight uniformly blackened, hypopygium yellow; male hypopygium with apical third of the eighth sternite abruptly yellow, including a dense fringe of long incurved setae.

Male. Length, about 10.5-11 mm; wing 12.5-13 mm; antenna about 5.3-5.5 mm. Frontal prolongation of head and nasus orange, the latter tipped with long black setae. Antennae with scape and pedicel orange, flagellum black; flagellar segments moderately incised, the base and outer enlargement subequal in diameter, longest verticils about one-half the segment, shorter on the more proximal ones. Head orange; occipital brand poorly indicated, anterior end pointed.

Prothorax orange. Mesonotal praescutum orange-yellow with three polished black stripes, the lateral pair outcurved to the

margin; scutal lobes black, median region pale; scutellum yellowish brown; postnotum light yellow, posterior border of mediotergite pale brown, dorsal third of pleurotergite black, the remainder light yellow. Pleura with propleura and mesopleura orange, pteropleurite and meron yellow. Halteres with stem light brown, knob darker brown. Legs with coxae and trochanters orange; fore femora black, basal third yellowed, remaining femore yellow, tips rather narrowly blackened, more extensive in one paratype; tibiae light brown, tarsi darker brown to black; claw of male with an erect spine at near midlength. Wings light brown, cell *Sc* and stigma slightly darker brown; veins dark brown. Stigmal trichia varying from about six to twenty; outer end of cell *R*₅ with from ten to twenty. Venation: Cell *M*₁ in a single specimen varying from short-petiolate to narrowly sessile.

Basal five abdominal segments with tergites yellow, on the first including virtually the entire segment, two to five each with a major area at posterior border, anterior end more narrowed, not attaining the lateral border; subterminal segments blackened to form a broad ring involving segments six to eight; eighth sternite with outer third abruptly light yellow, remainder of hypopygium similarly yellowed. Male hypopygium (Fig. 2) with posterior border of ninth tergite, *t*, with two broad lobes separated by a shallow U-shaped emargination, outer lateral angle of lobe produced, margins of lobes with small black spinoid setae, about as shown. Outer dististyle, *od*, long and narrow, especially the outer third, setae short and inconspicuous; inner style, *id*, with lower margin of beak and much of lower beak blackened; outer basal lobe without blackened armature; dorsal crest low, gently elevated behind, posterior end precipitous or pointed. Eighth sternite, *s*, distinctive; dark brown, the outer third abruptly yellow, including abundant apical setae that curve mesad across the midline; median emargination with a conspicuous lobe that bears numerous smaller yellow setae. Phallosome, *p*, about as shown.

Habitat: Nigeria. Holotype, ♂, Obudu, Cattle Ranch, Southeastern State, August 17, 1973 (Medler). Paratopotypes, 2 ♂♂, March 23, 1971; August 7, 1973 (Medler).

The most similar regional species include *Nephrotoma* (*Nephrotoma*) *latispina* Alexander, Kenya; *N. (N.) freemani* Alexander, Uganda; and *N. (N.) subdentata* Alexander, Uganda, Urundi, Zaire, as discussed in the Ruwenzori Report, 1956, cited under the preceding species. The

present fly is most readily separated by hypopygial characters, including the distinctive eighth sternite, as described.

3. *Nephrotoma (Nephrotoma) idiocera* sp. n.

Size small (wing of male about 8 mm); general coloration of head and thorax orange, the praescutal stripes vaguely indicated, their outer ends slightly darker; legs with femora dark brown, tibiae and tarsi brownish black, claws small, simple; wings brownish yellow, costal border darker brown, stigma and outer radial field somewhat paler brown; antennae of male distinctive, elongate, nearly as long as the wing, the flagellar segments conspicuously binodose; abdominal segments yellow, banded with brown, including the posterior borders of both the tergites and sternites, subterminal sternites darker, outer two segments uniformly light yellow; male hypopygium with tergite virtually normal, posterior armature reduced; outer dististyle long and narrow, inner style with dorsal crest high, rounded, outer basal lobe not developed; eighth sternite large, posterior border with two very low broad lobes provided with relatively sparse long yellow setae; median emargination small, narrow, with reduced vestiture.

Male. Length, about 11 mm; wing 8 mm; antenna about 7.5 mm. Frontal prolongation of head short and stout, without nasus, yellow, pale brown; palpi very short, brown. Antennae (Fig. 12, ant.) with scape obscure yellow, pedicel light brown, flagellum black; structure of intermediate segments distinctive, elongate, binodose, the basal enlargement shorter and slightly more elevated than the outer swelling; scape and pedicel very short; proximal flagellar segment long-cylindrical, with dense erect pale setae and sparse longer strong erect black bristles; succeeding segments with erect pale setae, the basal enlargement with four long black setae, these progressively smaller and weaker on the outer segments; outer segments with the emargination gradually lost and becoming simple; terminal segment short. Head orange, vertical tubercle conspicuous, not emarginate; occipital brand large, nacreous brown.

Prothorax orange. Mesonotal praescutum orange with three vaguely indicated stripes, the cephalic end of the median area narrowly more blackened; lateral stripe with a paler brown area at outer end, this attaining the margin; a further linear more blackened dash on outer cephalic part of each scutal lobe; scutum with lobes brownish orange, median area narrowly yellow; scutellum brownish orange; postnotal mediotergite clear light yellow, the pleurotergite more reddish orange. Pleura yellow, sternopleurite more reddened. Halteres with stem obscure

yellow, remainder broken. Legs with coxae and trochanters yellow; femora dark brown, bases broadly yellowed; tibiae and tarsi brownish black; claws small, simple. Wings (Fig. 7) brownish yellow, costal border darker brown, including cells *C* and *Sc*, the slightly more extensive outer margin of radial field paler brown, including the stigma and all of cells R_1 and R_2 ; apical border and outer ends of both Anal cells paler brown. Longitudinal veins beyond the general level of the cord with macrotrichia, lacking on veins that comprise cell *1st M*₂ that are pale and inconspicuous; stigmal trichia sparse, two or three in number. Venation: *Rs* slightly longer than basal section of R_{4+5} ; cell M_1 with petiole about one-third *m*; *m-cu* some distance before fork of *M*; cell *1st M*₂ rectangular, nearly three times as long as broad.

Abdominal segments yellow, banded with brown, including the posterior borders of both tergites and sternites, darker and more extensive on the intermediate and outer sternites, segments eight and nine uniformly light yellow. Male hypopygium (Fig. 3) with ninth tergite, *t*, virtually normal for this genus; posterior border subtransverse, the projecting lateral lobes small, median notch inconspicuous, each lobe with two groups of unusually small spinoid setae, arranged about as shown. Outer dististyle, *d*, long and narrow; inner style, *id*, small, dorsal crest high and rounded, lower beak broad, shallowly bilobed, blackened; outer basal lobe undeveloped, with about five long setae. Gonapophysis, *g*, outwardly dilated into a pale oval blade, near base on outer margin with a slender erect spine. Eighth sternite, *s*, large, only slightly modified; posterior border with two very low broad lobes that are provided with relatively sparse long yellow setae; median emargination small, narrow, with reduced vestiture.

Habitat: Holotype, ♂, Zaire, Eala, December 1934 (J. Ghesquiere); Congo Museum.

The present fly is quite distinct from other regional species in the elongate antennae of the male, with the flagellar segments distinctive, as described and figured. By my key to the regional African species of the genus (Ruwenzori Report, 1956, p. 136, 142) the fly runs to *Nephrotoma (Nephrotoma) edwardsaria* Alexander, of Uganda, which similarly has very long antennae in the male but with these quite different in conformation from those of the present fly, the individual flagellar segments very long, straight and slender, with the basal enlargements small to scarcely indicated.

4. *Nephrotoma (Nephrotoma) mabelana* sp. n.

Size large (wing of male about 15 mm); head yellow; mesonotum chiefly black, restrictedly patterned with yellow, pleura chiefly yellow; wings infuscated, cell Sc and the stigma darker brown; no trichia in

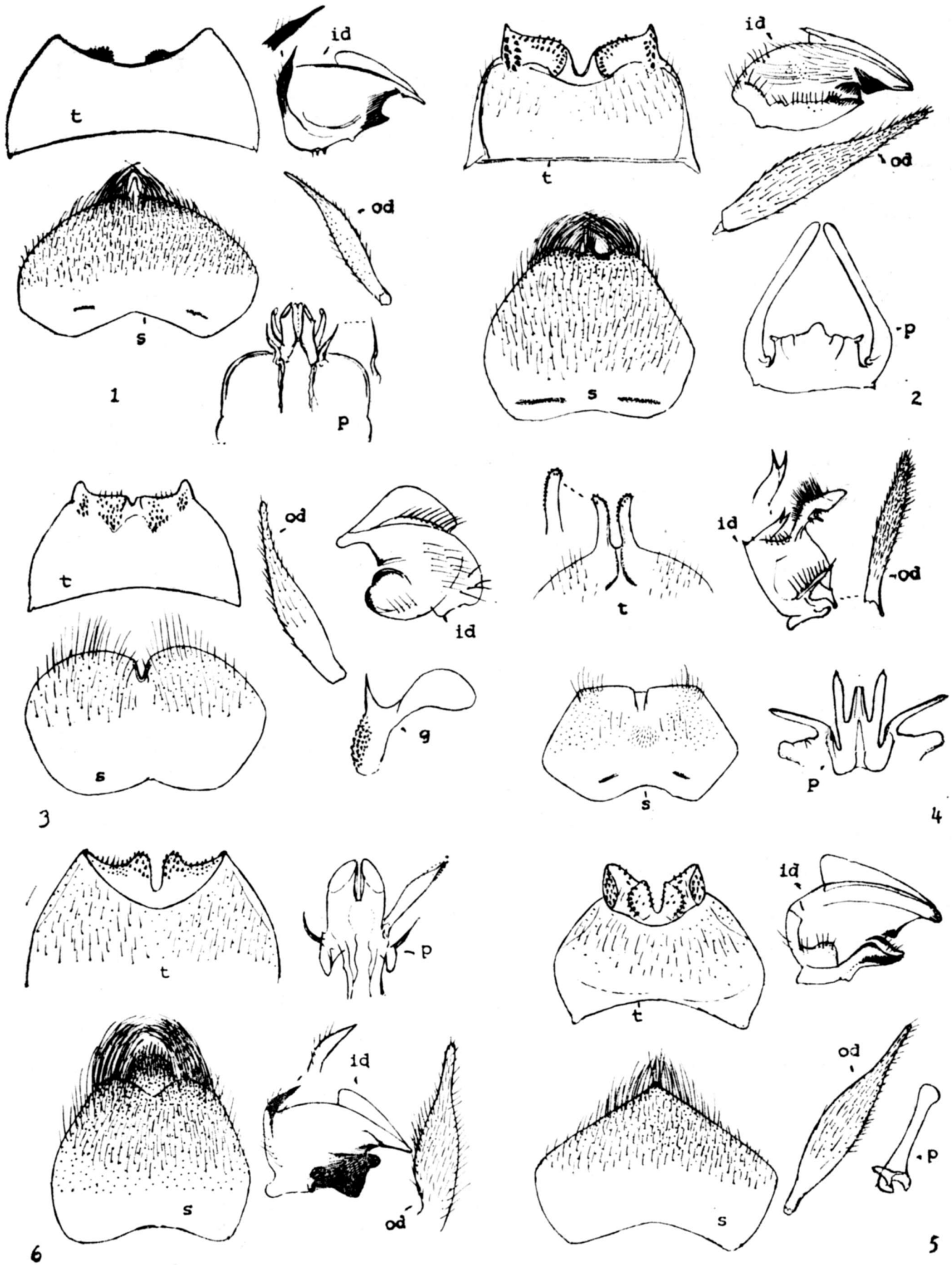


Fig. 1. *Nephrotoma (Nephrotoma) kempfi* sp. n.; male hypopygium. — Fig. 2. *Nephrotoma (Nephrotoma) flavofimbria* sp. n.; male hypopygium. — Fig. 3. *Nephrotoma (Nephrotoma) idiocera* sp. n.; male hypopygium. — Fig. 4. *Nephrotoma (Nephrotoma) mabelana* sp. n.; male hypopygium. — Fig. 5. *Nephrotoma (Nephrotoma) mambila* sp. n.; male hypopygium. — Fig. 6. *Nephrotoma (Nephrotoma) megacantha* sp. n.; male hypopygium. — (Symbols, Male hypopygium, *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *s*, 8th sternite; *t*, 9th tergite).

cells; cell M_1 broadly sessile; abdomen with basal five segments extensively yellow, their apices blackened, segments six and seven black, outer segments brownish black and yellow, male hypopygium with posterior border of tergite semicircular, with two narrow blades; inner dististyle with beak long-oval, outer margin with a dense brush of long yellow setae; outer basal lobe subtriangular, produced into a rod that terminates in two spines; eighth sternite broadest before midlength, apex with two low truncated lobes, vestiture short and sparse.

Male. Length, about 16 mm; wing 15 mm; antenna about 5 mm. Frontal prolongation of head yellowed; palpi pale brown, second segment darker. Antennae relatively short, as shown by measurements; scape yellow, pedicel and flagellum dark brown; flagellar segments subcylindrical, the basal enlargements small; verticils shorter than the segments. Head brownish yellow.

Pronotum above dark brown, more yellowed on sides. Mesonotal praescutum chiefly brownish black, humeral region restrictedly yellow; posterior sclerites of notum brownish black, parascutella, sides of mediotergite and lower half of pleurotergite yellowed. Pleura yellow. Halteres brown. Legs with coxae and trochanters yellow, remainder of legs dark brown. Wings strongly infuscated, cell Sc and stigma dark brown; veins still darker brown, especially the more anterior ones, Cu , and the outer radial branches. Stigma and wing cells without trichia. Venation: Sc_2 and origin of Rs in alignment, the latter subequal to the basal section of R_{4+5} ; cell M_1 broadly sessile; basal section of M_2 about two-thirds the oblique m .

Abdomen with tergites bicolored, yellow and dark brown, the latter including the apices; the yellow and brown pattern subequal on segment two, the dark color progressively reduced outwardly, on fifth tergite not reaching the lateral angles; proximal two sternites light yellow with narrow brown areas on posterior borders, smallest on second segment; sternites three and four clear yellow, the posterior incisure narrowly darkened; segments six and seven black; segment eight variegated brownish black and yellow; sternites with more than the outer half yellow, tergites chiefly dark, the lateral borders and a smaller apical central spot yellowed, ninth segment yellowed. Male hypopygium (Fig. 4) with ninth tergite, t , semicircular in outline; posterior border rounded, at summit with two slender erect lobes or narrow blades that are slightly broader than the median interspace, inner margins and apex of lobes with microscopic blackened pegs. Outer dististyle, od ,

unusually long and narrow; inner style, *id*, complex in structure, as shown, including a long-oval beak with the base or neck narrowed, outer margin of the enlarged part with a dense group of long yellow setae, lower margin of neck with a small erect rod; outer basal lobe complex, subtriangular, the inner angle produced into a narrow rod that divides into two spines (subfigure). Phallosome, *p*, with straight blackened rods subtending the shorter aedeagus, the apophyses as shown, the outer ends produced into a yellow rod. Eighth sternite, *s*, broadest before midlength, the apex with two very low truncate lobes that are separated by a shallow median emargination, vestiture of lobes pale, short and sparse.

Habitat: Nigeria. Holotype, ♂, on two slides, showing the wings and body; Obudu, Cattle Ranch, Southeastern State, 5000 feet, August 19, 1973 (Medler).

This attractive species is named for Mabel Marguerite Alexander, my dear wife and co-worker on the Tipulidae, co-author of the Neotropical and Oriental Catalogues. For a record of the numerous other species of crane flies that have been named in her honor, see Transactions of the American Entomological Society, 96: 318; 1970. The majority of these species are named *margarita*, using the middle given name, as above.

The only approximately similar regional species is *Nephrotoma* (*Nephrotoma*) *fulani* Alexander (Studia Entomologica, 17: 386-388, fig. 4, male hypopygium; 1974) from the same general locality. The two flies are most readily told by their hypopygial structure, especially the different tergite and inner dististyle, as shown.

5. *Nephrotoma* (*Nephrotoma*) *mambila* sp. n.

Mesonotum chiefly black, variegated by yellow on the mediotergite and pteropleurite; legs brownish black; wings pale brown, the stigma and cells *C* and *Sc* darker brown; abdominal tergites two to four brown, each segment with a yellow discal area, this decreasing in size on the outer segments; male hypopygium with tergite terminating in two large flattened convoluted blades that are provided with small black spicules; inner dististyle with dorsal crest conspicuous, outer basal lobe without blackened armature; eighth sternite with posterior half broadly triangular, terminating in a very small obtuse point, the vestiture sparse.

Male. Length, about 12 mm; wing 12 mm; antenna about 5.5 mm. Frontal prolongation of head brownish yellow; palpi brown. Antennae with scape brown, proximal end narrowly yellowed; pedicel obscure yellow; flagellum brown, segments cylindrical with slightly developed basal enlargements, verticils short, less than one-half the segment. Head chiefly yellowed.

Thorax chiefly black, anterior two-thirds of posnotal mediotergite and the pteropleurite yellow. Halteres not apparent on slide mount. Legs with coxae and trochanters black; remainder of legs brownish black; claws with a small point at near midlength. Wings pale brown, prearcular field, cells C and Sc, and the stigma darker brown: veins dark brown. Stigma with about twelve trichia, with from about twelve to twenty slightly longer ones in outer end of cell R_5 . Venation: R_s short, only slightly longer than the basal section of R_{4+5} ; cell M_1 short-petiolate, about one-third to one-fourth m ; $m-cu$ before the fork of M .

Abdomen distinctively patterned with yellow and brown; basal tergite uniformly brown; tergites two to four brown, with a discal yellow area, tergites five to nine brown; proximal sternites brown, sternites two to four chiefly yellow, narrowly margined laterally and posteriorly with brown, outer sternites more uniformly brown. Male hypopygium (Fig. 5) generally as in *tricincta*, differing in details. Ninth tergite, t , yellow, terminating in two large convoluted flattened blades separated by a U-shaped emargination, the blades with relatively sparse blackened spicules, as shown. Outer dististyle, od , long and slender, the distal fourth narrow, vestiture yellow, relatively inconspicuous; inner style, id , with dorsal crest conspicuous, precipitous posteriorly; outer basal lobe small, entirely yellow and without spines; lower beak scoop-like, formed by two blackened blades. Eighth sternite, s , broad, posterior half broadly triangular, terminating in a very small obtuse point; vestiture sparse, longer and more conspicuous along apical border.

Habitat: Nigeria. Holotype, ♂, mounted on slide, Obudu, Cattle Ranch, Southeastern State, 5200 feet, August 7, 1972 (Medler).

The name, *mambila*, is that of a native Nigerian tribe of this region.

The most similar species is *Nephrotoma* (*Nephrotoma*) *tricincta* Alexander, of Southeast Africa (Nyasaland, Mozambique). The general structure of the hypopygium is much the same, differing in details. The conformation of the 8th sternite is characteristic of a small group of allied species, reaching an extreme in *N. (N.) triquetra* Alexander, of Uganda. There are significant differences in coloration, particularly the thorax and abdomen.

6. *Nephrotoma (Nephrotoma) megacantha* sp. n.

Pronotum, mesonotum and thoracic pleura chiefly polished black, with conspicuous yellow areas on anterior two-thirds of mediotergite and on the pteropleurite and pleurotergite; head orange; halteres and legs black; claws of male with a spine; wings infuscated, prearcular and costal fields darker, cell M_1 shortpetiolate; abdomen black, proximal segments with the narrow bases gray pruinose; male hypopygium with apex of tergite a shallow saucer bearing two spiculose lobes; inner dististyle with a powerful black spine at the outer posterior angle; eighth sternite large, with a small terminal lobe, all with very long conspicuous setae.

Male. Length, about 15 mm; wing 12.8 mm; antenna about 5.5 mm. Palpi brownish black. Frontal prolongation of head above orange yellow, very lightly gray pruinose, the outer end and relatively short nasus blackened, the latter tipped with black setae. Antennae with scape yellowed, narrowly darkened at apex, pedicel dark brown; flagellum black. Head orange with a darkened area on anterior vertex adjoining the eye; occipital brand pale brown, triangular, anteriorly narrowed to a slender point.

Pronotum and cervical sclerites blackened. Mesonotal praescutum uniformly polished black, humeral region very restrictedly yellow, more conspicuous on the lateral projection of the pronotal scutellum; posterior sclerites of notum polished black, anterior two-thirds of mediotergite yellow. Pleura black, with a light yellow Y-shaped area on the pteropleurite and pleurotergite, with a smaller marking on the dorsal meron, all such areas confluent or virtually so. Halteres blackened, extreme base of stem dull orange. Legs with coxae and trochanters black; remainder of legs brownish black, femoral bases narrowly yellowed; claws of male with an erect spine at near midlength. Wings infuscated, cell C darker, prearcular field, cell Sc , and the stigma still darker; veins dark brown. Stigma with two small trichia, outer end of cell R_5 with about a dozen. Venation: R_s and basal section of R_{4+5} subequal; cell M_1 short-petiolate, this about one-fourth to one-third m ; $m-cu$ at or close to the origin of vein M_4 .

Abdomen black, proximal segments basally narrowly more pruinose; hypopygium with tergite blackened. sternites and pleurites paler brown, styli and internal structures yellowed. Male hypopygium (Fig. 6) with ninth tergite, t , transverse, posterior border with a low saucer that includes two lobes separated by a narrow notch, the lobes with relatively sparse

spinules and setae. Outer dististyle, *od*, long and slender, especially the outer fourth; inner style, *id*, with dorsal crest elongate, sloping gradually almost to apex of style; lower beak entirely blackened, unusually deep, outer lobe a powerful black spine. Phallosome, *p*, with very slender delicate pale spines that appear to represent gonapophyses. Eighth sternite, *s*, very large, sheathing, gradually narrowed outwardly, apex with two rounded lobes bearing very long strong black setae that are directed mesad, in the emargination with a large yellow lobe bearing numerous shorter yellow setae.

Habitat: Nigeria. Holotype, ♂, Obudu, Cattle Ranch, Southeastern State, August 17, 1973 (Medler).

By my key to the regional species of *Nephrotoma* in the Ruwenzori Report, 1956, cited earlier in this paper, the present fly is most similar to various species described from Uganda, including *Nephrotoma (Nephrotoma) albonigra* Alexander, *N. (N.) mobukensis* Alexander, and *N. (N.) triquetra* Alexander, all having the hypopygial details quite distinct from the present fly, especially the enlarged blackened spine on the inner dististyle, as described and figured.

7. *Tipula (Acutipula) tigon* sp. n.

Size large (wing of female 28 mm); head with palpi brownish black, terminal segment almost entirely light yellow; antennae yellow; legs with femora brownish yellow, tips narrowly dark brown; tibiae brownish yellow, tarsi black; wings brownish yellow, restrictedly patterned with darker brown, especially over the anterior cord in bases of cells R_3 and R_5 and over veins *m-cu* and distal section of Cu_1 ; R_s long and straight, about one-half longer than R_{2+3} ; cell 1st M_2 large, petiole of cell M_1 and *m* subequal.

Female. Wing about 28; antenna about 4 mm; maxillary palpi about 5.5 mm. Frontal prolongation of head brownish yellow, restrictedly more darkened laterally at base; nasus elongate. Palpi with three proximal segments and extreme base of fourth brownish black, remainder of latter light yellow. Antennae yellow throughout, shorter than the palpus, as shown above; flagellar segments slightly shorter than their verticils. Head brownish yellow; anterior vertex relatively narrow.

Legs with femora brownish yellow, tips narrowly dark brown; tibiae brownish yellow, tarsi black; claw of female small, simple. Wings (Fig. 8) brownish yellow, restrictedly patterned with brown at and near cord, cell *Sc* light brown; stigma with outer end brown, proximal half whitened, delimited by a pale vein-like element (in figure indicated by dots); a darkened

cloud in extreme bases of cells R_3 and R_5 , at cord, $m-cu$ and the distal section of Cu , more conspicuously darkened on both sides of the veins; veins brownish black, in prearcular and costal fields paler brown. Costal trichia very abundant, short; more scattered black trichia on veins Sc , R and R_1 ; vein R_{4+5} with scattered trichia, more numerous at near midlength; sparse trichia on vein M_{1+2} , with a few on m . Venation about as shown; Rs long and straight, about one-half longer than the gently arcuated R_{2+3} ; R_2 nearly one-third R_3 ; cell $1st M_2$ large; m and petiole of cell M_1 subequal; cell M_4 broad; distal section of Cu_1 and $m-cu$ subequal, the latter shortly before the fork of M_{3+4} .

Outer abdominal segments brownish yellow. Cerci and hypovalvae relatively short, subequal in length and diameter.

Habitat: Nigeria. Holotype, ♀, mounted on slide, Obudu, Cattle Ranch, Southeastern State, March 23, 1971 (Medler).

The specific name, *tigon*, is that of a native people of Nigeria. The fly is most readily told from other large-sized regional members of the subgenus by the details of coloration of the antennae, palpi and wings, and in the venation. The most similar of such species include *Tipula (Acutipula) bantu* Alexander, Zaire; *T. (A.) angolana* Alexander, Angola; and *T. (A.) urundiana* Alexander, Urundi. The male of the present fly when discovered should provide further distinctive characters.

8. *Tipula (Acutipula) yoruba* sp. n.

Size large (wing of male 23 mm); head dark brown; antennae short, flagellar segments with very small verticils; mesothorax medium brown, praescutum and scutum patterned with dark brown; legs brownish yellow to light brown, femoral tips darker brown; wings light brown, cell Sc and stigma dark brown; Rs short, about one-half R_{2+3} ; male hypopygium with tergite only slightly narrowed distally, apex with a small rounded emargination, the lobes low; basistyle with a group of very long delicate setae; outer dististyle narrow, inner style long and stout, apex expanded into a subrectangular blackened head, on its face with two curved spines, at bases approximated to appear like an anchor; base of style with modified lobes; eighth sternite unmodified.

Male. Length about 22 mm; wing 23 mm; antenna about 2.6 mm. Type preserved in alcohol, mounted in balsam; body coloration described in general terms only. Frontal prolongation of head and palpi dark brown, the incisures of the latter pale. Antennae small, shorter than the palpi, 12-segmented; proximal flagellar segments cylindrical, the outer ones long-oval to oval, terminal segment slender; verticils of segments unusually small, only about one-third the segments. Head dark brown.

Pronotum light brown. Mesonotal praescutum light brown, with three dark brown stripes, scutal lobes similarly darkened; scutellum and postnotum light brown, mediotergite darker posteriorly. Pleura yellowed, mesopleura patterned with dark brown. Halteres small, brown. Legs with coxae and trochanters brownish yellow; femora light brown, tips darker brown; tibiae and tarsi brownish yellow; claws of male long and slender, with an acute basal spine and a subequal stouter point at near one-third the length. Wings light brown, cell C and prearcular field yellowish brown; cell Sc and the small stigma dark brown; a very narrow brown seam over the anterior cord, the enclosed veins appearing stout; remaining veins dark brown to brownish black. Costal trichia very small, abundant. R_s short, about one-half R_{2+3} , R_2 short, about one-third R_3 ; petiole of cell M_1 and m subequal; $m-cu$ shortly beyond two-thirds M_{3+4} .

Abdominal tergites light brown, sternites more yellowed, outer segments, including the eighth sternite, dark brown. Male hypopygium (Fig. 13) with ninth tergite, t , only slightly narrowed distally, apex broad, with a small rounded emargination, the lobes low; tergal vestiture short and abundant, as shown. Basistyle, b , on mesal face with a group of very long setae, the extensive posterior ones directed cephalad. Outer dististyle, d , narrow, apex obtuse, vestiture short; inner style, d , distinctive, as shown, long and stout, the blackened apex slightly enlarged into a subrectangular head, on face with two strong curved black spines that appear anchor-like; other armature about as shown; outer basal lobe with long erect yellow setae. Eighth sternite unmodified. Phallosome, p , a straight daggerlike point, the base more dilated.

Habitat: Nigeria. Holotype, ♂, mounted on two slides, Ile-Ife, Western State, August 1974 (Medler). Paratype, ♂, Fashola, Cattle Station, Western State, October 22, 1974 (Medler).

The specific name, *yoruba*, is that of a regional native people.

Other large-sized regional members of the subgenus (wing of male 20 mm or more) include *Tipula* (*Acutipula*) *angolana* Alexander, Angola; *T. (A.) fulani* Alexander, Nigeria; *T. (A.) gaboonensis* Alexander, Gabon, Cameroon; *T. (A.) langi* Alexander, Zaire; *T. (A.) tigon* sp. n., Nigeria; and *T. (A.) urundiana* Alexander, Zaire, all with the male antennae and hypopygial characters quite distinct from those of the present fly. The antennae, as described, differ from other members of the subgenus in the very reduced vestiture of the flagellar segments, but it appears advisable at the present time to place the fly in *Acutipula* until more is known about it and allies.

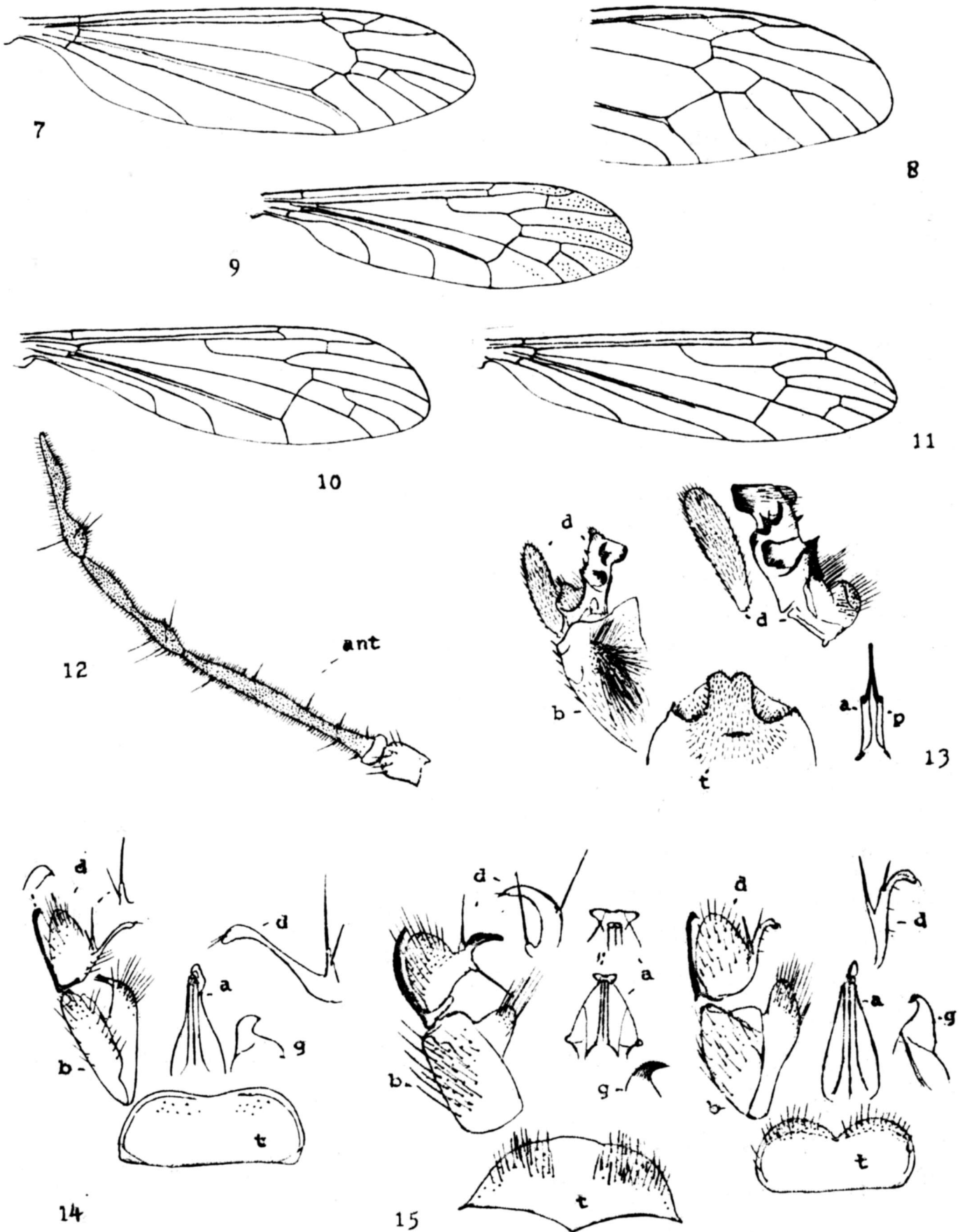


Fig. 7. *Nephrotoma (Nephrotoma) idiocera* sp. n.; venation. — Fig. 8. *Tipula (Acutipula) tigon* sp. n.; venation. — Fig. 9. *Limonia (Achyrolimonia) perarcuata* sp. n.; venation. — Fig. 10. *Limonia (Achyrolimonia) recurvans* (Alexander); venation. — Fig. 11. *Limonia (Afrolimonia) abuduensis* sp. n.; venation. — Fig. 12. *Nephrotoma (Nephrotoma) idiocera* sp. n.; male antenna. — Fig. 13. *Tipula (Acutipula) yoruba* sp. n.; male hypopygium. — Fig. 14. — *Limonia (Achyrolimonia) perarcuata* sp. n.; male hypopygium. — Fig. 15. *Limonia (Achyrolimonia) atrichoptera* Alexander; male hypopygium. — Fig. 16. *Limonia (Achyrolimonia) recurvans* (Alexander); male hypopygium. — (Symbols, *ant*, antenna; male hypopygium, *a*, aedeagus; *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *p*, phallosome; *s*, 8th sternite; *t*, 9th tergite).

Limoniinae

Limoniini

9. *Limonia (Achyrolimonia) perarcuata* sp. n.

General coloration of head and thorax black, praescutum chiefly yellow; antennae black, first flagellar segment abruptly white, flagellar verticils very long; legs brownish black, claws with a single very long basal spine; wings whitened, with an extensive very conspicuous brown pattern; sparse trichia in outer wing cells; Anal veins strongly arcuate, cells *Cu*, *1st A* and *2nd A* at margin nearly equal in extent; abdomen chiefly orange, ninth segment and hypopygium black; male hypopygium with ventromesal lobe of basistyle terminating in a lobule; ventral dististyle with rostral prolongation a long slender rod, in the axil at its base with a long tubercle tipped with a long straight spinoid seta, with a shorter seta at near midlength of the tubercle.

Male. Length, about 6 mm; wing 6 mm; antenna about 1.3 mm. Rostrum and palpi brown, the latter short, terminal segment elongate. Antennae with scape and pedicel brownish black first flagellar segment abruptly white, with a slender basal and a short stouter apical pedicel; remaining segments black, segments two and three subglobular, with short apical pedicels; four to six more oval, the remaining segments long, the terminal one longest, about one-third more than the penultimate; all flagellar segments with long verticils, including one very long bristle, the longest on segments near midlength of the organ, this fully two and one-half times the segment. Head black.

Thorax black, mesonotal praescutum chiefly yellow, the sides darker. Halteres brown. Legs with coxae and trochanters light brown; remainder of legs brownish black, femoral bases more yellowed, especially the posterior pair; claws long and very slender, near base with a single very long slender slightly curved spine. Wings (Fig. 9) with the ground whitened, cells *M*₄, *Cu*₁ and *1st A* clouded with pale brown; a very heavy and conspicuous dark brown pattern that is about equal in degree to the ground color; cell *C* chiefly brown, pale at either end, outer part of cell *Sc* more extensively whitened; bases of cells *R* and *M* extensively brown, the arculus narrowly whitened; outer two-thirds of wing with the brown pattern more extensive, subreticulate, with outer ends of veins brown, more elongate and conspicuous on the posterior ones; a subreticulated brown pattern from the base of *Rs* to the wing apex, interrupted by

subequal ground areas, the largest of these on the outer third of cell M , cell M_4 chiefly pale; veins brown, slightly paler in the ground areas. Sparse trichia in cells Sc_1 to M_4 , distributed about as figured. Venation: Sc long, Sc_1 shortly before outer end of Rs , Sc_2 near its tip; R_2 far retracted, less than one-half the gently arcuated R_{1+2} ; cell $1st\ M_2$ subequal to distal section of M_{1+2} ; $m-cu$ close to fork of M ; distal ends of Anal veins very strongly arcuate, the cells unusually broad, as shown, cells Cu , $1st\ A$ and $2nd\ A$ along posterior border subequal in extent.

Abdominal tergites orange, sternites slightly more yellowed; ninth segment and hypopygium abruptly black. Male hypopygium (Fig. 14) with the tergite, t , transverse, posterior border very slightly emarginate, lobes very low, cephalic margin nearly straight; setae very sparse, with about ten on each lobe. Basistyle, b , with setae of outer face very sparse and weak, mesal face with a row of about six strong setae; ventromesal lobe large, terminating in a small lobule that is tipped with several setae, margin of lobe on outer portion with very long setae. Dorsal dististyle, d , a long slender nearly straight rod, the apex slightly dilated, terminating in a microscopic point; ventral style small, its area less than one-half that of the basistyle; rostral prolongation a long slender rod, in the axil at its base with an elongate tubercle tipped with a very long spinoid seta, with a shorter straight bristle at near midlength of the tubercle. Gonapophysis, g , darkened, mesal-apical lobe stout, terminating laterally in a small point. Aedeagus, a , with penis tubes contiguous.

Habitat: Nigeria. Holotype, ♂, on slide, Owena, Forest Reserve, Western State, September 1974 (Medler): east of Ile-Ife, between Ondo and Akure.

Other Ethiopian species of *Achyrolimonia* having the wings heavily patterned somewhat as in the present fly include *Limonia* (*Achyrolimonia*) *leucocnemis* Alexander, Nigeria, Zaire; *L. (A.) pothos* Alexander, Tanzania; *L. (A.) potnia* Alexander, Rhodesia; and *L. (A.) recedens* (Alexander), Cameroon, all differing among themselves in coloration of the body and wings and in hypopygial characters. In the present fly the wing characters of trichia in the outer cells and the venation of the Anal field should be emphasized.

9 A. *Limonia* (*Achyrolimonia*) *atrigoptera* Alexander

Limonia (*Limonia*) *atrigoptera* Alexander; Rev. Zool. Bot. Afr., 19: 342-343; 1930.
Limonia (*Metalimnobia*) *atrigoptera* Alexander; British Mus. Nat. Hist. Ruwenzori Expedition 1934-35, vol. 1, n° 7: 203; 1956 (in key).

Holotype, a ♀, was from Kasai, Zaire. The present materials are from Obudu, Cattle Ranch, Southeastern State, Nigeria, September 1, 1974, Medler, and from Owena, Forest Reserve, Western State, Nigeria, September 1974 (Madler).

The male hypopygium is shown (Fig. 15). In the type female and in most specimens of the present series the femora are uniformly blackened but in one female from Obudu these are distinctly ringed with yellow. Trichia in the wing cells reduced in numbers, especially in the stigmal region, in cases to one or two trichia, with scattered punctures in cells Sc_1 to R_5 in the type and other specimens.

Limonia (Achyrolimonia) oligotricha Alexander and *L. (A.) trichoptera* Alexander likewise belong to this subgroup of *Achyrolimonia*, all distinguished from typical members of the subgenus in the conformation of the apex of the aedeagus in these species, as shown in the figures. See *L. (A.) perarcuata* Alexander (Fig. 14) and *L. (A.) recurvans* Alexander (Fig. 16).

9 B. *Limonia (Achyrolimonia) recurvans* (Alexander)

Dicranomyia recurvans Alexander; Bull. Mus. Hist. nat. (Paris). 1919, n° 7: 609-610; 1919.

Limonia recurvans Alexander; British Mus. Nat. Hist. Ruwenzori Expedition 1934-35, vol. 1, n° 7 (in key), 204; 210 (wing); 1956.

Holotype, ♀, Los Islands, Isle of Tamara, Guinea.

Allotype, ♂, on slide. Rostrum very short, brown; palpi with proximal segments reduced, the terminal one very long, dark brown. Antennae with scape dark brown, pedicel abruptly whitened, flagellum light brown; proximal two or three segments short-oval, the outer segments progressively oval to more elongate, with very long verticils the longest about two and one-half times the segment; terminal segment elongate, narrowed outwardly, about one-third longer than the penultimate. Head dark brown.

Thorax chiefly dark brown, restrictedly brightened on posterior postnotum and pleura. Halteres with stem pale, knob large, dark brown. Legs with coxae dark brown; trochanters brownish yellow; femora light brown, paler basally; tibiae light brown, bases narrowly whitened, more evident in the holotype; tarsi pale brownish yellow, outer tarsal segments brown; claws slender, strongly curved, with a long subappressed spine at near midlength and a more powerful darkened basal spine. Wings (Fig. 10) whitened, with a very abundant dark brown pattern that includes major areas at origin of R_s ; an X-shaped figure completely crossing the wing from the end of Sc and vein R_2 in costal region to the ends of veins M_4 and Cu at posterior border, together with large marginal spots at ends of all veins, those at posterior border larger; numerous small brown dots especially in cells C and M , more sparse elsewhere. No trichia in wing cells as in *perarcuata*. Venation: R_{1+2} long, subequal to last section of R_1 ; crossvein m oblique to very gently arcuated; cell $2nd A$ long and relatively narrow. For pattern the figure of the wing in the Ruwenzori Report above cited may be consulted.

Abdomen black, membrane and apices of segments two to seven whitened to produce narrow bands, outer two segments uniformly darkened. Male hypopygium (Fig. 16) with the tergite, t , transverse, posterior border with broadly rounded lobes with thickened margins,

setae relatively sparse, short. Basistyle, *b*, having the ventromesal lobe with very long setae, body of style with setae short and sparse. Dorsal dististyle, *d*, a slender straight rod, the small apex with a lateral point; ventral style relatively small, its area about two-thirds that of the basistyle; rostral prolongation elongate, gently curved, with two separate spines, the basal one from a long tubercle, the slightly shorter and stouter outer spine at near one-third the length of the prolongation from a very small to scarcely evident tubercle. Gonapophysis, *g*, with mesal-apical lobe short, narrowed to a short blackened point. Aedeagus, *a*, with penis tubes contiguous, their apertures subterminal, the apex an obtuse lobe.

Allotype, ♂, on slide, Ile-Ife, Western State, Nigeria, August 1974 (Medler).

10. *Limonia (Afrolimonia) obuduensis* sp. n.

General coloration of thoracic dorsum brown, sides more yellowed; legs with femora brownish yellow with a broad dark brown subterminal ring; wings whitened, with a restricted brown pattern that is restricted to the veins; a complete darkened band from stigma to termination of vein *Cu*; *Sc* long, *Sc*₁ about opposite five-sixth the length of *Rs*; cell *1st M*₂ large, *m-cu* at fork of *M*; abdomen yellow, segments three to seven each with a narrow transverse brown band on proximal half; ovipositor with cerci small, very slender.

F e m a l e. Length, about 8.5 mm; wing 9 mm. Rostrum and palpi dark brown, terminal segment of latter slender, about one-half longer than the third segment. Head dark brown.

Pronotum dark brown, paler laterally. Mesonotal praescutum dark brown medially, posterior sclerites of notum brown. Pleura yellowed, variegated with pale brown. Halteres brown, knob large. Legs with coxae and trochanters yellow; femora brownish yellow with a broad dark brown subterminal ring, the narrow apex clear light yellow; tibiae and tarsi light brown. Wings (Fig. 11) with the ground whitened, cells *C* and *Sc* light yellow; a restricted brown pattern, with major areas at *h* and arcular region, origin of *Rs*, and the stigma, the last confluent with a broad seam at vein *R*₂₊₃ and the cord; more restricted darkenings at tip of *Sc* and the outer end of cell *1st M*₂, apex of vein *2nd A* darkened; narrow brown seams in outer radial and medial veins; extensive seams at outer two-thirds of vein *Cu* with smaller ones at ends of Anal veins; other small washes in cells *M* and *Cu*; costal cell with about seven or eight small brown dots; veins yellow in the ground, brown in the patterned areas. Venation: *Sc* long, *Sc*₁ about opposite five-sixth *Rs*, *Sc*₂ longer, near the apex; cell *1st M*₂ large, outer medial cells

relatively small; M_{3+4} more than twice M_4 ; $m-cu$ at or close to fork of M , subequal to distal section of Cu_1 .

Abdomen yellow, segments three to seven inclusive with a narrow transverse brown band on proximal half of each segment, outer two segments yellow. Ovipositor with cerci very slender, needlelike, much smaller than the hypovalvae.

Habitat: Nigeria. Holotype, ♀, on slide, Obudu, Cattle Ranch, Southeastern State, August 7, 1973 (Medler).

Other generally similar Ethiopian species with a comparable wing and leg pattern include *Limonia (Afrolimonia) ditior* Alexander, Uganda, Tanzania, Mozambique, Rhodesia; *L. (A.) irrorata* (Enderlein), Uganda, Rhodesia, Transvaal; and *L. (A.) nyasaensis* (Alexander), Nigeria, Malawi, Rhodesia, all differing among themselves chiefly in the wing pattern.

11. *Limonia (Afrolimonia) trunculata* sp. n.

Head blackened; thorax yellow, pronotum and praescutum medially brownish black; femora yellow, with a broad nearly terminal blackened ring; wings yellow with a very sparse dotted brown pattern in the cells before cord; $m-cu$ shortly before fork of M ; male hypopygium with tergite on posterior border nearly truncate, the plate gradually narrowed anteriorly to appear semicircular; dorsal dististyle very slender, apex bent into a spine.

Male. Length, about 8 mm; wing 9.5 mm; antenna about 1.7 mm. Rostrum and palpi brownish black, terminal palpi segment slender. Antennae brownish black; flagellar segments oval, outer ones, especially the terminal, elongate; verticils relatively short, only slightly exceeding the segments. Head blackened.

Pronotum above brownish black, sides yellowed. Mesonotum yellow, praescutum with a central black stripe on nearly the anterior half. Pleura yellowed. Halteres with stem brownish yellow, knob brown. Legs with coxae and trochanters yellow; femora yellow with a broad nearly terminal blackened ring; tibiae obscure yellow, tips more narrowly darkened; tarsi obscure yellow, outer segments brownish black; claw long and slender; outermost spine long, the more basal ones progressively smaller. Wings yellow with a very sparse dotted brown pattern that includes the cells before cord, the outer radial and medial cells almost without spots; veins brown. Venation: Sc_1 ending about opposite two-thirds Rs , Sc_2 slightly longer; outer radial branches moderately decurved; cell 1st M_2 slightly less than cell 2nd M_2 ; $m-cu$ shortly before the fork of M .

Abdomen yellowed, proximal tergites slightly darkened medially. Male hypopygium (Fig. 19) with the tergite, *t*, distinctive in outline, posterior border nearly truncate, the plate broadest on outer fifth, gradually narrowed to appear semicircular anteriorly; posterior margin with a row of five very long setae removed from the border, the outermost slightly smaller. Basistyle, *b*, with ventromesal lobe relatively small, the apex and lower margin with very long setae, the longest exceeding the lobe. Dorsal dististyle, *d*, slender, very gently curved, tip strongly bent into an acute spine; ventral style smaller than the basistyle, narrowed outwardly, the outer margin and apex with very long setae; accessory lobule long and slender, with a single very long terminal seta; rostral prolongation long and slender, spines elongate, placed close together at base. Gonapophysis, *g*, triangular in outline, extended caudad into a long spine. Aedeagus, *a*, terminating in two outspread knobs.

Habitat: Nigeria. Holotype, ♂, on slide, Ile-Ife, Western State, August 1974 (Medler).

Generally similar species include *Limonia* (*Afrolimonia*) *nyasaensis* (Alexander), Malawi, Rhodesia; *L. (A.) oligospilota* Alexander, Ethiopia, Kenya, Zaire; *L. (A.) omnifulva* Alexander, Rhodesia; *L. (A.) poecila* (Alexander), Ghana; and *L. (A.) rhanteria* (Alexander), Uganda, Kenya, Zaire, Tanzania, Nigeria, all differing among themselves in details of coloration of the body, wings and legs, and in hypopygial structure, especially the outline of the ninth tergite and apex of the aedeagus. The most similar species appears to be *nyasaensis* which has the hypopygial details most as in the present fly.

12. *Limonia* (*Eurhipidia*) *citricolor* sp. n.

Size small (wing of male 4 mm); head dark brown; antenna of male with flagellar segments long-bipectinate; thorax and abdomen almost uniformly yellow; knobs of halteres brownish black; wings subhyaline, stigma large, oval, dark brown; male hypopygium with dorsal dististyle slender, slightly expanded outwardly, terminating in a spine; rostral spines of ventral dististyle relatively long, at summit of a small tubercle near base of prolongation.

Male. Length, about 3.5 mm; wing 4 mm; antenna about 1.2 mm. Rostrum small, obscure yellow; palpi black. Antennae (male) with flagellar segments one to nine long-bipectinate, outer three segments simple, terminal segment long, subequal to the combined preceding two segments; branches of first flagellar segment only slightly longer than the segment; longest branches at midlength of flagellum, the outer two slightly shorter; each

branched segment with two very long setae near bases of the branches. Head dark brown.

Pronotum and cervical sclerites yellow. Mesonotal praescutum and scutal lobes light brown, posterior sclerites more yellowed. Pleura orange yellow. Halteres with stem pale, knob brownish black. Legs with coxae and trochanters yellow; remainder of legs broken. Wings subhyaline, costal border slightly more yellowed; stigma large, oval, dark brown. Certain veins beyond cord with trichia, including R_3 , R_{4+5} , outer section of M_{1+2} and M_3 . Venation: Sc_1 ending opposite origin of Rs , Sc_2 retracted; cell M_2 open by atrophy of m ; $m-cu$ shortly beyond fork of M .

Abdomen light yellow. Male hypopygium (Fig. 20) with the tergite, t , transverse, posterior border very slightly emarginate. Dorsal dististyle, d , slender, slightly expanded outwardly, apex extended into a spine; ventral style with rostral prolongation short and stout, apex obtuse; rostral spines two, relatively long, placed at summit of a small tubercle near base of prolongation. Aedeagus, a , terminating in two lobes.

Habitat: Nigeria. Holotype, ♂, Benin, Nigerian Institute Oil Palm Research, NIFOR, Middle Western State, April 1, 1975 (Medler).

The present fly is quite distinct from other African species of the subgenus *Eurhipidia* in the general yellow body coloration, darkened wing stigma, and in details of structure of the male antenna and hypopygium. The subgenus *Eurhipidia* Alexander (Trans. Amer. Ent. Soc., 91: 53-58; 1965) includes relatively numerous species in the Oriental and Ethiopian regions, including Madagascar.

***Limonia (Lasiolimonia)* subgen. n.**

Closest to *Tricholimonia* Alexander, differing especially in hypopygial characters, including both the aedeagus and gonapophyses. Femora yellow, with four narrow dark brown bands that are subequal to their interspaces.

Type of subgenus: *Limonia (Lasiolimonia) tigripes* Alexander (Cameroon, Nigeria). Other included species- *L. (L.) oligotricha* Alexander, Zaire, Uganda; *L. (L.) marlieri* Alexander, Zaire. The hypopygium of the three included species are figured- *oligotricha* (Fig. 21); *marlieri* (Fig. 22); *tigripes* (Fig. 23).

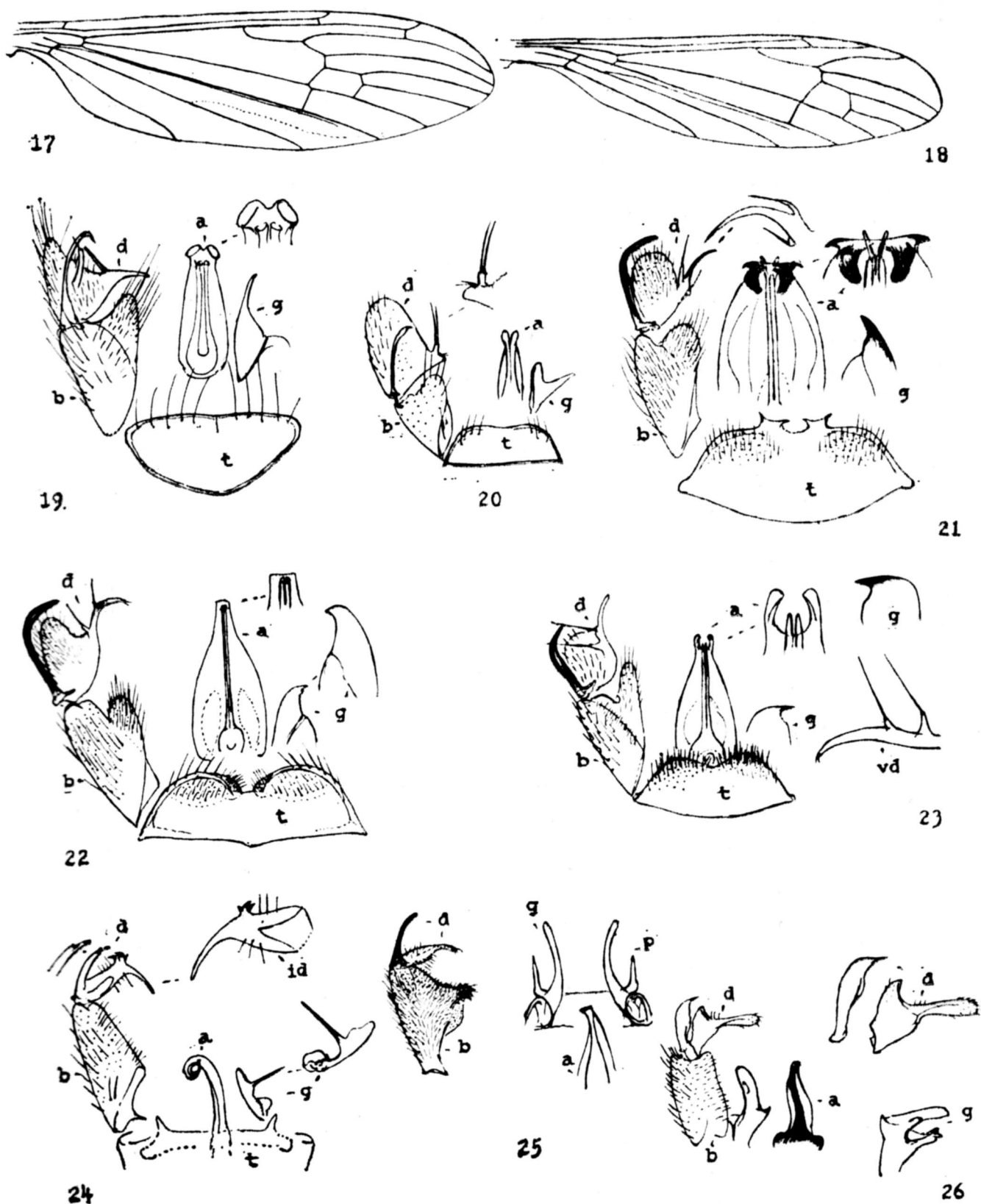


Fig. 17. *Dicranoptycha ibo* sp. n.; venation. — Fig. 18. *Helius (Helius) medleri* sp. n.; venation. — Fig. 19. *Limonia (Afrolimonia) trunculata* sp. n.; male hypopygium. — Fig. 20. *Limonia (Eurhipidia) citricolor* sp. n.; male hypopygium. — Fig. 21. *Limonia (Lasiolimonia) oligotricha* Alexander; male hypopygium. — Fig. 22. *Limonia (Lasiolimonia) marlieri* sp. n.; male hypopygium. — Fig. 23. *Limonia (Lasiolimonia) tigripes* Alexander; male hypopygium. — Fig. 24. *Helius (Helius) medleri* sp. n.; male hypopygium. — Fig. 25. *Helius (Helius) morosus* (Alexander); male hypopygium. — Fig. 26. *Dicranoptycha ibo* sp. n.; male hypopygium. — (Symbols, Male hypopygium, a, aedeagus; b, basistyle; d, dististyles; g, gonapophysis; id, inner dististyle; p, phallosome; t, 9th tergite; vd, ventral dististyle).

13. *Limonia (Lasiolimonia) marlieri* sp. n.

Male. Wing 14-15 mm. Legs generally as in the other members of the subgenus, especially in the four relatively narrow

dark brown femoral bands. Wings with the ground light yellow, patterned with pale brown in virtually all cells excepting *C*, *Sc* and *R*; darker brown areas at fork of *Rs* and beyond the arculus in the bases of cells *M* and *Cu*; paler brown washes in cells, larger and occupying most of the area in cells beyond cord and in the cubital and anal fields; small dark brown spots at origin of *Rs* and over *Sc*₂; veins comprising the cord and outer end of cell *1st M*₂ very narrowly seamed with dark brown; veins dark brown, paler in the yellowed ground areas. Abundant small trichia in stigma and in outer ends of cells *Sc*₂ to *M*₃ inclusive, arranged in linear groups, more abundant and conspicuous than in the other members of the subgenus. Legs generally as in other allied species, especially the four relatively narrow dark brown femoral bands.

Male hypopygium (Fig. 22) with the dististyles, *d*, much as in the other species. Gonapophyses, *g*, terminating in a flattened gently curved blade; aedeagus, *a*, distinctive; apex narrowed, truncate. It should be noted that the position and angle of the spines of the rostral prolongation as mounted on microscope slides may vary in different individuals.

Habitat: Holotype, ♂, Zaire, Mont Muhi, Riviere Isale, Itombwe, North Kivu, July 29-31, 1955 (G. Marlier).

The species is named in honor of the collector, G. Marlier, of the Institut pour la Recherche Scientifique en Afrique Centrale (I.R.S.A.C.). Type in the Musee Royal du Congo Belge, Tervueren.

13 A. *Limonia* (*Lasiolimonia*) *tigripes* Alexander

Limonia (*Metalimnobia*) *tigripes* Alexander; Proc. R. Ent. Soc. London, ser. B, 17: 18-19; 1948.

Type, female, Mimbomimbo, Cameroon, January 31, 1938 (J. A. Reis).

Allotype, ♂, Length about 9 mm; wing 9 mm; antenna about 2.4 mm. Characters generally as in the type female, differing in hypopygial details. Wings with trichia of cells greatly reduced in numbers, the holotype female with about 10, the allotype male with only 4 or 5 such trichia in the stigmal region; cells *R*₃ and *R*₅ similarly reduced in number, the former cell with a row of about 25 trichia on the outer third.

Male hypopygium (Fig. 23) with the phallosome, including both the aedeagus, *a*, and the gonapophyses distinctive. Aedeagus very broad basally, outwardly gradually narrowed, apex laterally produced into conspicuous lobes; penis tubes contiguous, apices protruding. Gonapophyses, *g*, very broad, the narrow blackened apex produced laterad into a small spine.

Allotype, ♂, Obudu, Cattle Ranch, Southeastern State, August 19, 1973 (Medler).

The leg pattern in this fly and the other members of the subgenus presently known, as listed under the subgenus, is unusually striking and noteworthy, especially the yellow femora with four narrow brown rings that are subequal in area to the yellow interspaces, the outer dark ring the narrowest.

14. *Helius (Helius) medleri* sp. n.

General coloration of the entire body yellow; rostrum short, about one-half the antenna or remainder of head; halteres and legs clear yellow to brownish yellow; wings yellow, prearcular and costal fields clearer yellow, stigma lacking; veins of and beyond the cord with trichia; radial branches strongly divergent, cell R_3 at margin very broad, more than two and one-half times cell R_2 ; cell *1st* M_2 rectangular, longer than vein M_4 ; *m-cu* at or shortly beyond the fork of M ; male hypopygium with inner dististyle at midlength of outer margin with a small cluster or crown of three blackened spines, the larger ones curved; outer dististyle at apex unequally bifid, the subterminal spine acute; phallosome with apex of aedeagus coiled; gonapophysis with a long straight marginal spine.

Male. Length, about 6.5-6.8 mm; wing 5.5-5.7 mm; rostrum about 0.4-0.45 mm; antenna about 0.9-1.0 mm. Rostrum short, about one-half the antenna or the remainder of head, light yellow, including the palpi. Antennae brown; proximal flagellar segments oval, the outer ones progressively smaller; segments subequal in length to their verticils. Head brownish yellow.

Thorax uniformly light yellow. Halteres with stem yellow, knob very slightly darker. Legs with coxae and trochanters light yellow; femora pale brown, bases narrowly paler; remainder of legs pale brownish yellow. Wings (Fig. 18) yellow, prearcular and costal fields clearer light yellow, stigma not indicated; veins light brown. Longitudinal veins beyond cord and origin of R_s with trichia, more sparse on the elements comprising cell *1st* M_2 . Venation: Branches of R_s divergent outwardly, cell R_3 at margin very wide, more than two and one-half times cell R_2 ; cell *1st* M_2 rectangular, longer than vein M_4 ; *m-cu* at or shortly beyond fork of M .

Abdomen chiefly yellow, posterior borders of the more proximal segments broadly pale brown. Male hypopygium (Fig. 24) as shown. Basistyle, *b*, without a tubercle on mesal face.

Outer dististyle, *d*, slender, pale, narrowed gradually to the darkened unequally bifid apex, apical point obtuse, subterminal spine acute; inner style distinctive, basal half broader, apex a slender decurved rod, outer margin at near midlength with a tubercle tipped with three blackened points, two being larger and decurved. Phallosome with aedeagus, *a*, coiled at apex; gonapophysis, *g*, dilated at base, apex more narrowly expanded, margin at near midlength with a long straight spine that is about one-half longer than the apex beyond it.

Habitat: Nigeria. Holotype, ♂, Benin, Nigerian Institute Oil Palm Research, NIFOR, Middle Western State, April 1, 1975 (Medler). Paratopotype, ♂, mounted on slide.

This interesting species is named in honor of Dr. John Thomas Medler, discoverer of many new and interesting Nigerian crane flies. It is readily told from other regional species by the hypopygial structure, especially the inner dististyle, as described. All other species lack the marginal cluster of spines occurring in the present fly.

14 A. *Helius (Helius) morosus* (Alexander)

Rhamphidia morosa Alexander; Ann. Mag. Nat. Hist., (9) 6: 23-24; 1920.

Type, female, Sierra Leone, October 1904 (Major F. Smith); British Museum (Natural History).

The male sex was unknown. A specimen from Erin-Odo, Western State, Nigeria, February 20, 1970 (J. T. Medler) is described as allotype.

Allotype, ♂, Length about 9 mm; wing 7 mm; rostrum and antenna about 1 mm. Characters generally as in the holotype female, as described. Rostrum and antennae subequal in length, about one-half longer than the maxillary palpi. Antennae with the basal flagellar segment suboval, succeeding segments progressively longer, subequal to their longest verticils; terminal segment cylindrical, about one-fifth longer than the penultimate.

Male hypopygium (Fig. 25) most as in *submorosus* in the conformation of the basistyle and dististyles, differing evidently in the phallosome. Basistyle, *b*, with mesal face extended into a long lobe provided with numerous strong setae. Outer dististyle, *d*, a nearly straight blackened rod, tip simple. Phallosome, *p*, with the gonapophyses, *g*, distinctly bifid, including a longer inner arm and a shorter more pointed lateral extension; aedeagus, *a*, simple.

The most similar species is *Helius (Helius) submorosus* (Alexander, 1921), known from Cameroon and Nigeria. This has the hypopygium generally as in the present fly, differing in details, especially of the phallosome, including the simple gonapophyses. In *submorosus* the rostrum is shorter than in the present fly, about two-thirds the length of the antenna.

15. *Dicranoptycha ibo* sp. n.

Size large (wing of male 9.5 mm); prothorax and anterior third of praescutum light yellow, remainder of thorax chiefly brown; abdominal segments bicolored, dark brown, bases of segments yellow, subterminal segments darker brown, hypopygium yellow; legs yellow, extreme tips of femora brown; wings light brownish yellow, cells *C* and *Sc* clear light yellow, including the veins; *Rs* and cell *1st M*₂ short; male hypopygium with outer dististyle narrow, terminating in an acute spine.

Male. Length, about 9 mm; wing 9.5 mm. Rostrum and palpi light brown. Antennae with scape and pedicel brown, flagellum more yellowed; flagellar segments shorter than their longest verticils. Head light brown.

Prothorax and anterior third of praescutum light yellow, remainder of mesonotum and the mesopleura almost uniformly brown; scutellum yellow, narrowly, darkened medially; pleurotergite yellow; mediotergite chiefly brown, vaguely patterned with yellow. Legs yellow, extreme tips of femora brown. Wings (Fig. 17) light brownish yellow, cells *C* and *Sc* clear light yellow, including vein *Sc*; no stigmal darkening; remaining veins pale brownish yellow. Longitudinal veins beyond general level of cord with abundant trichia, basad of cord the veins with the exception of *C* and *R* glabrous or virtually so. Venation: *Rs* short, slightly less than three times the basal section of *R*₄₊₅; cell *1st M*₂ short-rectangular, about one-third the distal section of *M*₁₊₂; *m-cu* shortly beyond fork of *M*.

Abdominal segments bicolored, dark brown, bases of proximal segments yellow, broader on the sternites; outer segments more uniformly infuscated, segments six to eight darker brown, their posterior borders very narrowly yellow; hypopygium yellow. Male hypopygium (Fig. 26) with outer dististyle, *d*, small, narrow, terminating in an acute spine; inner style with basal half dilated, outer margin produced into a lobe, outer half of style a paddlelike blade, its apex obtuse. Gonapophysis, *g*, complex, as shown, the outer part a long flattened pale blade. Aedeagus, *a*, short, darkened, the outer sheath conspicuous.

Habitat: Nigeria. Holotype, ♂, on slide, Ile-Ife, Western State, July 1973 (Medler).

Dicranoptycha ibo is named for a regional native people. It is most similar to *D. luteipes* Alexander, differing in the coloration of the body and legs, the wings, and in hypopygial differences, especially the dististyles.

Hexatomini

16. ***Pseudolimmophila (Calolimmophila) subimperita*** sp. n.

Size medium (wing of female 9.5 mm); general coloration of mesonotal praescutum cinnamon brown, with darker brown pattern, posterior sclerites of notum paler brown; pleura brownish black, vaguely lined with paler; halteres brownish black; legs with fore coxae brownish black, remaining coxae white, their bases narrowly brownish black; femora brownish yellow, tibiae and tarsi clear yellow; wings light brown, extensively patterned with darker brown, including series of small brown spots in the subcostal and cubital fields; cell *R* at margin more than one-half as extensive as cell *R*₂; abdominal tergites dark brown, sternites uniformly paler brown.

F e m a l e. Length, about 10 mm; wing 9.5 mm. Rostrum brown; palpi black, all segments subequal in length. Antennae with scape brown, darker laterally, pedicel brownish yellow; flagellum broken. Head very strongly narrowed posteriorly; vertex light grayish brown; anterior vertex with a darkened spot between the eyes; posterior vertex with a linear pale brown area, narrowed behind.

Pronotal scutum obscure yellow with a median triangular darker area, scutellum pale yellow. Mesonotal praescutum cinnamon brown, anterior border with a semicircular brown area, the ends obtuse, disk broadly cinnamon, lateral borders pale yellow; on anterior half with a submarginal brown area, broader behind, with two small subcircular marks at suture; central area with a very delicate capillary line; scutum light brown, each lobe with a pale brown spot behind the suture, lateral borders more yellowed; scutellum broad, pale brown; mediotergite cinnamon brown, posterior border more yellowed. Pleura chiefly brownish black, vaguely lined with paler. Halteres brownish black. Legs with fore coxae brownish black, remaining coxae white, their bases narrowly brownish black; trochanters whitened; femora brownish yellow, tibiae and tarsi clear yellow, outer two tarsal segments light brown. Wings (Fig. 27) light brown, extensively patterned with darker brown, ground color of anterior border restrictedly yellowed; series of small brown spots in subcostal field and behind vein *Cu*₁, with larger darkened areas at origin of *Rs*, fork of *Sc*, and the large stigma; costal cell with three dark marks before origin of *Rs*, slightly smaller than the interspaces, beyond *Rs* the cell with three smaller brown areas; vein *Cu* with about ten brown marks that

are more extensive than the interspaces; paler brown areas at ends of all longitudinal veins, smaller at the wing apex; stigma large, brown; cells with paler brown clouds; veins brown, blackened at cord and adjoining veins. Venation: R_s angulated at origin, base of R_{2+3+4} arcuated; cell R_3 at margin more than one-half as extensive as cell R_2 ; petiole of cell M_1 short, about one-half the second section of vein M_{1+2} .

Abdominal tergites dark brown, sternites uniformly paler brown. Ovipositor with cerci very long and slender, outer ends slightly upcurved.

Habitat: Nigeria. Holotype, ♀, Ikoya, Western State, January 1975 (Medler).

The most similar regional species is *Pseudolimmophila (Calolimmophila) imperita* Alexander, of the Cammeroon, differing especially in details of coloration of the thoracic dorsum and the wings and in the venation.

17. *Pilaria perelongata* sp. n.

Size small (wing of male about 4.6 mm); general coloration of thorax brownish yellow, pleura clearer yellow; antennae of male very long, approximately four-fifths the length of the wing; flagellar segments with abundant erect long setae over their entire length; halteres black; legs dark brown; wings medium brown, stigma long and narrow, its posterior border with a linear row of six trichia; vein Sc_1 ending about opposite three-fourths R_s ; cell M_1 subequal to its petiole; abdomen dark brown; male hypopygium having the outer dististyle with outer end slightly dilated, apex a slender decurved spine; inner style relatively narrow; gonapophyses appearing as curved blades that are unequal on the two sides.

Male. Length, about 5 mm; wing 4.6 mm; antenna about 3.5 mm. Rostrum light brown, palpi darker brown, terminal segment slightly less than the combined second and third segments. Antennae (Fig. 30) with scape yellowed, remainder dark brown; antenna very long, about four-fifths the length of wing; flagellar segments very long-cylindrical, with abundant erect long setae over the entire length, with a still longer subbasal bristle on outer face; terminal segment small, about one-fourth the penultimate, with two long terminal bristles. Head dark brown.

Thoracic dorsum uniformly brownish yellow, pleura clearer yellow. Halteres black. Legs with coxae and trochanters yellow; fore and middle legs present, hind legs missing; legs dark brown, tarsi not or scarcely brightened. Wings (Fig. 28) medium brown,

stigma long and narrow, darker brown, extreme posterior border with a linear row of six trichia; prearcular field more whitened; veins brown. Longitudinal veins beyond general level of origin of *Rs* with trichia, lacking on *Cu*; very sparse scattered trichia over almost the entire length of vein *1st A*. Venation: *Sc*₁ ending about opposite three-fourths *Rs*, *Sc*₂ near its tip; *Rs* in longitudinal alignment with *R*₂₊₃₊₄; *R*₂₊₃ shorter than *R*₂; cell *M*₁ subequal to its petiole; *m-cu* at near midlength of *M*₃₊₄.

Abdomen dark brown, outer segments darker. Male hypopygium (Fig. 33) with the tergite, *t*, slightly produced posteriorly into a very low broad lobe, margin straight. Dististyles, *d*, about as shown; outer style, *od*, slightly dilated at outer end, apex a slender decurved spine; inner style, *id*, relatively narrow, broadest at midlength. Gonapophysis, *g*, appearing as curved blades, the right hand one larger and stouter than the left. Aedeagus, *a*, relatively short.

Habitat: Nigeria. Holotype, ♂, Ikoya, Western State, January 1975 (Medler).

The most similar regional species is *Pitaria sordidipes* Alexander, of Nigeria, where the male sex still is unknown to me. It differs from the present fly in the dark chestnut brown mesonotum and the brownish black abdominal tergites, as well as in venational details. All other African species where the male sex is known differ in the short antennae with quite different flagellar vestiture.

18. *Medleromyia destituta* sp. n.

General coloration of thoracic dorsum medium brown, without stripes, pleura uniformly yellowish brown; legs brownish black, tarsi chiefly white; wings strongly darkened, veins blackened; no modified setuliferous pocket in cell *R*₃, at least in the female sex; vein *R*₃ moderately curved, cell *R*₂ broad; abdominal tergites dark brown, sternites obscure brownish yellow.

F e m a l e. Length, about 8.5 mm; wing 7.5 mm. Rostrum obscure yellow; palpi black. Antennae with only the scape and pedicel preserved, black. Head dark brown to brownish black, restrictedly yellow behind the antennal fossae; anterior vertex broad.

Prothorax very small in relation to size of head, brown. Mesonotal praescutum and scutum almost uniformly medium brown, without stripes or other pattern; pseudosutural foveae elongate, transverse, virtually concolorius; no tuberculate pits;

scutellum and posnotal mediotergite darker brown, pleurotergite paler brown. Pleura almost uniformly yellowish brown, without pattern. Halteres slender, black. Legs with coxae and trochanters yellowish brown to obscure yellow; femora and tibiae brownish black; proximal part of basitarsi broadly blackened, outer end and remainder of tarsi white. Wings (Fig. 29) strongly darkened, stigma darker brown, long and narrow, restricted to vein R_{1+2} ; all veins blackened. No modified setuliferous pocket in cell R_3 as in *nigeriana*. Venation: Vein R_3 less strongly curved, cell R_2 correspondingly broader.

Abdominal tergites dark brown; sternites obscure brownish yellow, posterior borders of segments slightly more darkened, more conspicuous on the proximal segments. Ovipositor with cerci brown, apices paler, elongate, powerfully constructed, slightly upcurved to the nearly acute tip; hypovalvae reduced.

Habitat: Nigeria. Holotype, ♀, Ikoya, Western State, January 1975 (Medler).

Medleromyia destituta differs strikingly from the genotype *Medleromyia nigeriana* Alexander (Studia Entomologica, 17: 417-418; 1974) in the lack of a setuliferous pocket in cell R_3 of the wings and likewise in the details of coloration, including the strongly darkened wings with blackened veins. At the present time only a single specimen of each species is known, represented by the two sexes.

Eriopterini

19. *Limnophilomyia* (*Limnophilomyia*) *medleriana* sp. n.

Size small (wing of male about 6 mm); general coloration of entire body dark brown; antennae of male elongate, flagellar segments long-cylindrical, with abundant short setulae; legs brown, outer tarsal segments whitened; wings almost uniformly dark brown, cell M_2 apparently open by the atrophy of m ; male hypopygium with tergal lobes slender, sternum with a suboval median lobe, laterally with dense black spinules; basistyle with mesal face expanded, provided with abundant long yellowed setae; dististyle slender, outer fourth more narrowed, before apex of outer margin with a long erect spine, its tip gently curved; aedeagus with lateral spur short, pale.

Male. Length, about 5 mm; wing 6.2 mm. Rostrum and palpi dark brown. Antennae of male elongate (broken at tenth segment, remaining length 2,8 mm), dark brown; all flagellar segments long-cylindrical throughout, without basal enlargements; vestiture very abundant, short, the longest about one-fourth to one-fifth the diameter of segment. Head dark brown.

Thorax (as mounted in balsam on slide) almost uniformly dark brown. Halteres brown. Legs with coxae and trochanters yellowish brown; remainder of legs brown, tarsal segments

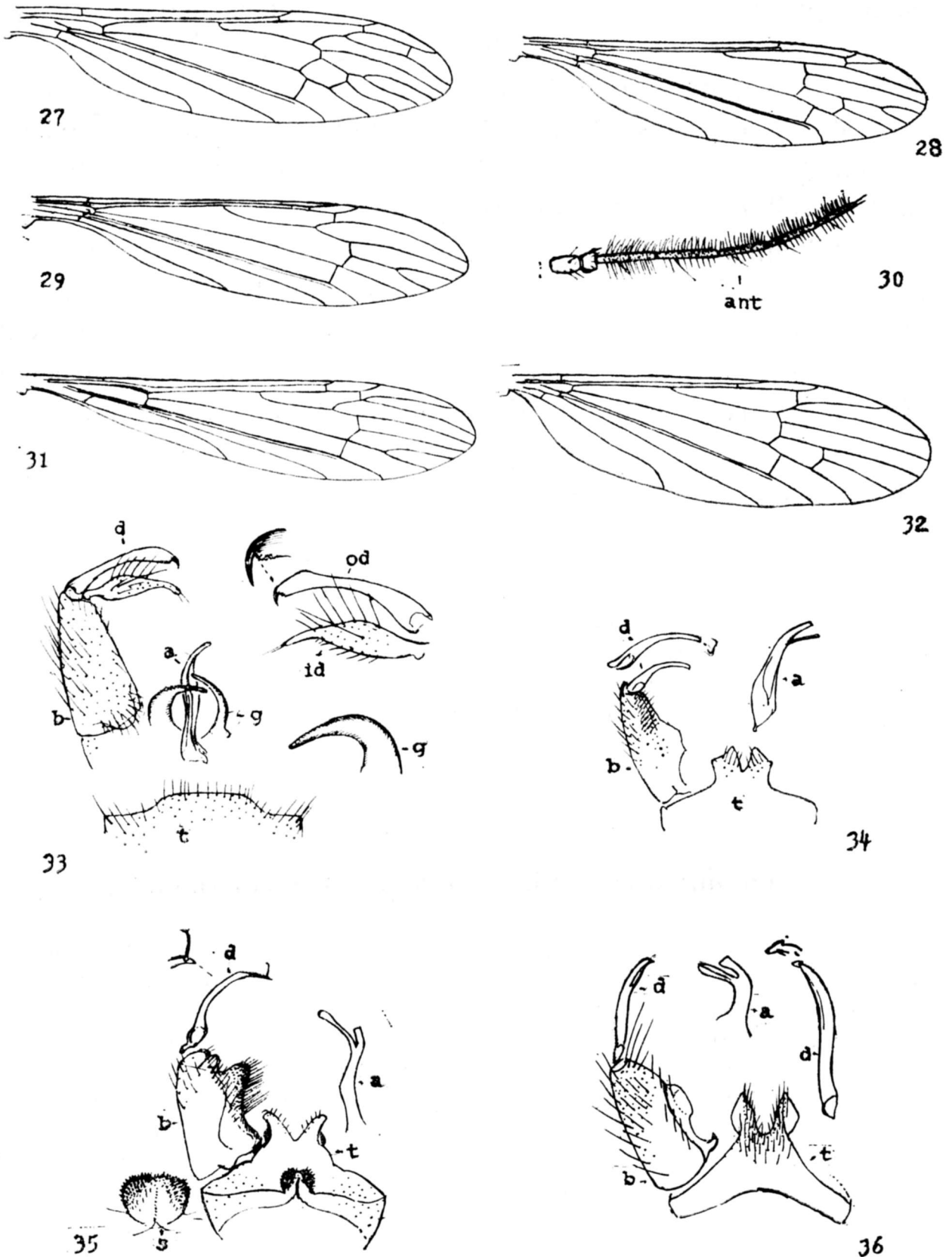


Fig. 27. *Pseudolimnophila* (*Calolimnophila*) *subimperita* sp. n.; venation. — Fig. 28. *Pilaria perelongata* sp. n.; venation. — Fig. 29. *Medleromyia destituta* sp. n.; venation. — Fig. 30. *Pilaria perelongata* sp. n.; male antenna, basal 7 segments. — Fig. 31. *Limnophilomyia* (*Limnophilomyia*) *nigripennis* sp. n.; venation. — Fig. 32. *Eugnophomyia stuckenbergiana* sp. n.; venation. — Fig. 33. *Pilaria perelongata* sp. n.; male hypopygium. — Fig. 34. *Limnophilomyia* (*Limnophilomyia*) *flavidula* sp. n.; male hypopygium. — Fig. 35. *Limnophilomyia* (*Limnophilomyia*) *medleriana* sp. n.; male hypopygium. — Fig. 36. *Limnophilomyia* (*Limnophilomyia*) *nigripennis* sp. n.; male hypopygium. — (Symbols, Male hypopygium, a, aedeagus; b, basistyle; d, dististyles; g, gonapophysis; p, phallosome; s, 9th sternite; t, 9th tergite).

whitened. Wings virtually uniform dark brown, costal region very slightly more darkened; veins brown. Longitudinal veins beyond general level of cord and R_s with trichia, including also a few on outer end of M . Venation: R_s in longitudinal alignment with basal section of R_5 , the latter more than one-half R_{2+3} ; R_2 at fork of R_{2+3+4} , R_{1+2} slightly exceeding the basal section of R_5 ; cell M_2 apparently open by atrophy of m (wings badly damaged on slide); $m-cu$ at fork of M .

Abdomen dark brown. Male hypopygium (Fig. 35) large. Tergite, t , with posterior border produced into two relatively narrow divergent arms, their apices narrowly obtuse, posterior border V-shaped. Sternite, s , narrow, median area with a distinctive structure (as shown, subfigure); transverse, suboval, outer lateral angles darkened, with abundant microscopic spinules. Basistyle, b , large, mesal face expanded, darkened, with abundant very long yellow setae; mesal face of body of style with a single row of long black setae, the outer ones smaller. Dististyle, d , about two-thirds as long as basistyle, appearing as a slender gently curved blade, outer fourth more narrowed, shortly before apex of outer margin with a long erect spine, its tip gently curved, the spine about twice as long as the apex beyond. Aedeagus, a , with lateral spur short, pale, the outer portion of the organ about three times as long, slender, apex slightly dilated.

Habitat: Nigeria. Holotype, ♂, on slide, Obudu, Cattle Ranch, Southeastern State, 5200 feet, September 1, 1974 (Medler).

This distinct fly is named for John and Jane Medler who have added greatly to our knowledge of the insects and flora of Nigeria. The species is best distinguished from other regional members of the genus by hypopygial characters, including the tergite, sternite, basistyle and dististyle.

20. *Limnophilomyia* (*Limnophilomyia*) *flavidula* sp. n.

General coloration of entire body yellow; antennae of male elongate, flagellar segments long-cylindrical, the vestiture short, less than the diameter of the segment; wings pale yellow, veins only slightly darker than the ground; male hypopygium with tergal lobes very broad, apices obliquely truncate; phallosome longer than the dististyle; aedeagus with arms subequal in length, the lateral one very slender.

Male. Length, about 6 mm; wing 6 mm. Types mounted on slides in balsam. Rostrum and palpi pale brown. Antennae

of male elongate (broken at seventh segment); flagellar segments long-cylindrical; vestiture dense and very delicate, very short to microscopic; longest setae about one-half to two-thirds the segment; antenna dark brown. Head yellowed.

Thorax and abdomen yellow to pale brownish yellow. Halteres and legs yellow, terminal tarsal segments slightly more whitened. Wings pale yellow, veins only slightly darker than the ground. Male hypopygium (Fig. 34) with lobes of ninth tergite, *t*, very broad, separated by a U-shaped emargination; apices of lobes obliquely truncate, with relatively few inconspicuous setae. Basistyle, *b*, with vestiture of outer face abundant but pale and inconspicuous, mesal face nearly glabrous. Dististyle, *d*, about one-half as long as basistyle, gently curved outwardly, apex subtruncate to very slightly emarginate. Aedeagus, *a*, longer than the dististyle, lateral arm unusually long and slender.

Habitat: Nigeria. Holotype, ♂, on slide, Obudu, Cattle Ranch, Southastern State, 5200 feet, September 1, 1974 (Medler).

Limnophilomyia (Limnophilomyia) flavidula is readily told by the yellow coloration of the body and wings, in antennal vestiture, and in the hypopygial structure, especially the tergal lobes, styli and phallosome.

21. **Limnophilomyia (Limnophilomyia) nigripennis** sp. n.

General coloration of body dark brown; antennae of male elongate, proximal segments of flagellum long-cylindrical, with long black verticils; wings strongly blackened, cell M_2 open by atrophy of *m*, *m-cu* at or close to fork of *M*; male hypopygium with tergal lobes broad and flattened, mesally with long black setae; mesal face of basistyle nearly glabrous; dististyle a slender blade, the apex a small point; aedeagus with arms unusually short and stout.

Male. Length, about 6 mm; wing 5 mm. Rostrum and palpi dark brown. Antennae of male elongate (broken at fourth segment), dark brown; proximal two flagellar segments long-cylindrical, with unusually long black setae, the longest nearly twice the diameter of segment. Head dark brown.

Thorax dark brown, apparently paler laterally. Halteres dark brown. Legs with coxae and trochanters brown; remainder of legs broken. Wings (Fig. 31) strongly blackened, especially in costal region, including cells *C* and *Sc* and the outer radial field in cells R_1 , R_2 and R_3 ; veins darker brown, with long

black trichia. Trichia on longitudinal veins behind *R*, including heavily light gray pruinose.

also the outer ends of *Rs*, *M* and the extreme outer end of *1st A*. Venation: *R*₂ shortly before the radial fork; cell *M*₂ open by atrophy of *m*; *m-cu* at or close to fork of *M*.

Abdomen dark brown throughout. Male hypopygium (Fig. 36) with the lobes of ninth tergite, *t*, appearing as broad flattened subtriangular blades, inner portions and posterior end of tergite with long black setae. Basistyle, *b*, with mesal face nearly glabrous, with only a few scattered setae. Dististyle, *d*, a slender blade, slightly wider on outer half, apex a very small point. Aedeagus, *a*, with both arms unusually short and stout, as shown.

Habitat: Nigeria. Holotype, ♂, on slide, Owena, Forest Reserve, Western State, September 1974 (Medler).

The present fly is distinct in the coloration of the body and wings and in the details of hypopygial structure, especially the dististyle and phallosome.

For discussions of the genus *Limnophilomyia* Alexander, see the two papers by the author, Ruwenzori Report, p. 335-338; 1956, covering the tropical African species, and South African Animal Life, 10: 402-405; 1964, treating the South African fauna.

22. *Eugnophomyia stuckenbergiana* sp. n.

Size large (wing 10 mm); entire body black, head above light gray pruinose; halteres black; legs with trochanters and femora yellow, tibiae and tarsi black; femora and tibiae with abundant very long and conspicuous erect setae; wings dark brown, with large white areas, including a narrow transverse band before cord; wing base not yellowed.

Male. Length about 10 mm; wing 10 mm; antenna about 4 mm. Female. Length about 11 mm; wing 10 mm; antenna about 4.5 mm. Rostrum black; palpi light brown. Antennae with scape yellow, darker above, pedicel light yellow; first flagellar segment yellow basally, outer half slightly darker, remaining segments dark brown to black, flagellar segments two and three slightly yellowed basally; flagellar segments long-oval, shorter than the longest verticils. Head black, the broad vertex

Thorax black, praescutum and scutal lobes highly polished, posterior sclerites of notum and the pleura slightly pruinose, median region of scutum paler. Pleura polished black. Halteres black. Legs with coxae black, trochanters abruptly yellow;

femora yellow, extreme tips blackened, more extensive on the posterior pair; tibiae and tarsi black; femora and tibiae with abundant long erect setae, these exceeding the diameter of the segments, on the yellow femora the setae somewhat paler than those on the darkened tibiae; tarsal vestiture shorter, especially on the outer segments; claws slender, simple. Wings (Fig. 32) dark brown, the base not yellowed, conspicuously patterned with white areas, as follows: a nearly complete band before cord, extending from R to posterior margin, narrowly interrupted by a seam along vein Cu ; basad of cord with major areas in cell R before origin of Rs ; marginal areas in both Anal cells, in $2nd\ A$ with a brown spot at near midlength; beyond cord the cells almost uniformly brown, with major white marginal areas in cells M_3 and M_4 ; small white markings near midlength of cells R_4 and $2nd\ M_2$, more conspicuous in the holotype; veins brown, slightly paler in the white band before cord. Venation about as shown for the allotype specimen; M_{3+4} subequal to M_4 ; vein R_2 at fork of R_{2+3+4} in holotype, in allotype slightly more distant, leaving a short element R_{2+3} .

Abdomen uniformly black, with abundant long erect black setae.

Habitat: South Africa. Holotype, ♂, Town Bush, Pietermaritzburg, Natal, November 1959 (Brian and Pamela Stuckenberg); type in Natal Museum, Pietermaritzburg. Allotopotype, ♀, with type.

This attractive species is named for Brian and Pamela Stuckenberg who have added materially to our knowledge of the Tipulidae of South Africa and Madagascar. The most similar species is *Eugnophomyia turneri* (Alexander), Rev. Zool. Bot. Afr., 19: 358-359, fig. 23 (wing); 1930, of Pondoland, Natal, which similarly has the femora yellowed and with the wing base darkened, as in the present fly. This is a smaller fly with the details of coloration and leg vestiture quite distinct from the present fly.

23. *Gonomyia* (*Lipophleps*) *boki* sp. n.

General coloration dark brown, restrictedly patterned with yellow; knobs of halteres darkened; legs with femora light brown, with a broad subterminal dark brown ring; wings light brown, costal field yellow, stigma darker brown, cell R_3 present; male hypopygium with two dististyles, the outer one a long slender rod, inner style shorter, about one-half as long, terminating in two straight blackened spines; phallosome complex, lateral arms produced into short blackened incurved arms, central projections longer, halter-shaped.

Male. Length about 5 mm; wing 4 mm. Rostrum and palpi dark brown. Antennae with scape and pedicel darkened above, paler beneath, flagellum light brown (outer segments broken). Head chiefly dark brown.

Pleura chiefly dark brown, pleura variegated with paler. Halteres with stem pale, knob brown. Legs with coxae and trochanters brown; femora light brown with a broad subterminal dark brown ring, about three times as extensive as the pale apex; tibiae light brown; tarsi broken. Wings (Fig. 37) light brown, stigma darker brown; costal field light yellow, more extensive before and beyond the stigma; cord vaguely seamed with pale brown; veins light brown. Venation: Cell R_3 present, small; vein R_3 short, about one-fourth R_4 ; *m-cu* shortly before fork of *M*.

Abdomen dark brown, vaguely paler laterally. Male hypopygium (Fig. 41) with two terminal dististyles, *d*, the outer a long slender rod that exceeds the basistyle in length; inner style about one-half as long, slightly stouter, apex forking into two straight blackened spines. Phallosome, *p*, complex, about as shown; lateral arms produced into short blackened incurved spines; central projections longer, appearing halter-shaped, the outer ends dilated. The inner structures, including aedeagus, are not figured.

Habitat: Nigeria. Holotype, ♂, on slide, Uhomora-Ora, Middle Western State, November 1974 (Medler).

The specific name, *boki*, is that of a native Nigerian people. Other regional species of *Lipophleps* that have cell R_3 of the wings retained and with the hypopygium having two dististyles, include *Gonomyia (Lipophleps) ekiti* Alexander, Nigeria, *G. (L.) noctabunda* Alexander, Kenya, Nyasaland, Transvaal, Cape Province, and *G. (L.) nyasae* Alexander, Nyasaland, all with the hypopygium quite distinct from the present fly, especially the inner dististyle and the phallosome.

24. *Gonomyia (Lipophleps) edo* sp. n.

Size very small (wing of male less than 3 mm); general coloration of body dark brown, pronotum and pleura patterned with white; halteres and legs black; wings pale brown, veins darker, Sc_1 ending shortly before origin of *Rs*; male hypopygium with three dististyles, the outer short, less than one-half the intermediate style, its apical half narrowed into a slender spine; phallosome terminating in two flattened yellow blades; lateral margin on both sides beyond midlength with a small black spine.

Male. Length about 3 mm; wing 2.8 mm. Rostrum, palpi and antennae black. Head brownish black, sparsely pruinose.

Pronotum whitened, the color continued backward along the sides to the wing root. Mesonotum brownish black, very slightly pruinose, sides of scutellum and parascutella obscure yellow. Pleura medium brown, with an obscure whitened longitudinal stripe from the fore coxae to base of abdomen, widened behind, including the dorsal sternopleurite and meron. Halteres black. Legs with the fore coxae darker, obscure yellow or brownish yellow; trochanters brownish yellow; remainder of legs brownish black. Wings (Fig. 38) almost uniformly pale brown throughout, veins slightly darker brown. Venation: Sc_1 ending shortly before origin of R_s , Sc_2 slightly removed; remainder of venation as shown; $m-cu$ at fork of M .

Abdomen dark brown, with vague narrow pale longitudinal lines. Male hypopygium (Fig. 42) with three dististyles, d , the outer, od , less than one-half the intermediate style, base oval, outer half narrowed into a long straight point; intermediate style, md , long and slender, slightly narrowed to the obtuse tip; inner style, id , oval, with strong setae, including the usual slightly longer pair of bristles. Phallosome, p , pale yellow, basal two-thirds broader, apex including two flattened yellow blades; lateral margin of style on either side with a small blackened spinous point.

Habitat: Nigeria. Holotype, ♂, on slide, Umuahia, East Central State, Cocoa Research Institute, near Bende, April 9, 1975 (Medler).

The specific name, *edo*, is that of a native Nigerian tribe. There are rather numerous generally similar regional members of the subgenus that differ from one another chiefly in hypopygial characters, these including *Gonomyia (Lipophleps) bata* Alexander, *G. (L.) ekiti* Alexander, *G. (L.) ibo* Alexander, *G. (L.) iyala* Alexander, and some few others.

25. *Gonomyia (Lipophleps) iyala* sp. n.

General coloration of thorax dark brown, variegated with pale; wings brownish yellow, prearcular and costal fields light yellow, stigma not differentiated, cell R_2 lacking; abdomen brown, male hypopygium with three dististyles, the intermediate one deeply divided, inner style slender, with scattered pale setae; phallosome at apex with two small pale delicate spines.

Male. Length about 4 mm; wing 3.3 mm. Rostrum and palpi brown, terminal segment of latter about one-half longer than the subtriangular penultimate segment. Antennae brown,

pedicel enlarged, about three times the scape; proximal flagellar segment dilated, the second stout, succeeding segments long-cylindrical, the proximal ones with the usual very long verticils. Head light brown.

Pronotum light brown. Mesonotum dark brown, especially the praescutum and scutum; pleura brown, slightly striped with pale. Halteres and legs broken. Wings (Fig. 39) with prearcular

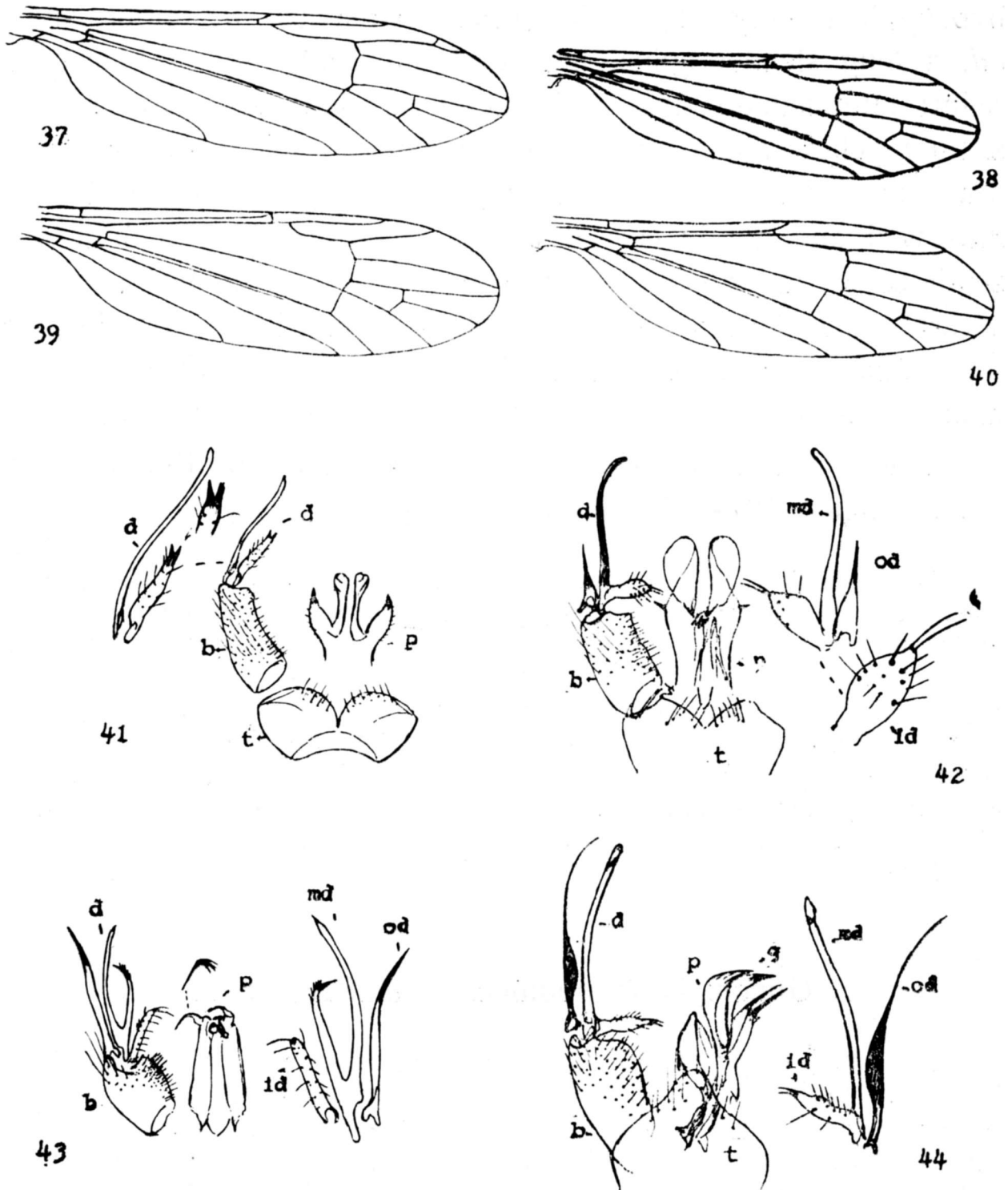


Fig. 37. *Gonomyia (Lipophleps) boki* sp. n.; venation. — Fig. 38. *Gonomyia (Lipophleps) edo* sp. n.; venation. — Fig. 39. *Gonomyia (Lipophleps) iyala* sp. n.; venation. — Fig. 40. *Gonomyia (Lipophleps) perattenuata* sp. n.; venation. — Fig. 41. *Gonomyia (Lipophleps) boki* sp. n.; male hypopygium. — Fig. 42. *Gonomyia (Lipophleps) edo* sp. n.; male hypopygium. — Fig. 43. *Gonomyia (Lipophleps) iyala* sp. n.; male hypopygium. — Fig. 44. *Gonomyia (Lipophleps) perattenuata* sp. n.; male hypopygium. — (Symbols, Male hypopygium, b, basistyle; d, dististyles; g, gonapophysis; id, inner dististyle; md, middle dististyle; od, outer dististyle; p, phallosome; t, 9th tergite).

and costal fields light yellow, remainder slightly darker brownish yellow, stigma not evident; veins brownish yellow. Longitudinal veins beyond cord with small trichia, lacking on *Cu* and the Anals. Venation: *Sc* short, *Sc*₁ ending before origin of *Rs*, *Sc*₂ near tip; cell *R*₂ lacking; outer branches of *Rs* divergent, cell *R*₃ at margin about three times as extensive as cell *R*₂; *m-cu* at fork of *M*.

Abdomen medium brown, including hypopygium. Male hypopygium (Fig. 43) with three dististyles, *d*; outer style, *od*, a long slender spine, narrowed outwardly into a blackened point; intermediate style, *md*, deeply divided, outer arm a very slender yellow spine, narrowed gradually to the acute tip, inner arm more than one-half as long, pale, outer end blackened, narrowed and gently curved into a point, provided with a few small setae; inner style, *id*, a simple straight rod or lobe, with several long delicate setae, especially along lower margin, the fasciculate terminal seta scarcely differentiated. Phallosome, *p*, massive, apex with two small pale delicate recurved spines.

Habitat: Nigeria, Holotype, ♂, on slide, Ile-Ife, Western State, August 1974 (Medler).

The specific name, *iyala*, is still another native Nigerian people. There are a few regional species that have the phallosome generally as in the present fly, differing especially in the dististyles. The most similar such species is *Gonomyia (Lipophleps) ibo* Alexander, a slightly larger fly that differs in the lack of cell *R*₂ of the wings and in the hypopygial details, especially the dististyles. The larger *G. (L.) calyce* Alexander, of the Ruwenzori Range, Uganda, has the venation and hypopygium generally as in the present fly, differing in details of the hypopygium (see Alexander, Ruwenzori Report, 1956, p. 331, fig. 156).

26. *Gonomyia (Lipophleps) perattenuata* sp. n.

Size small (wing of male 3.5 mm); general coloration of mesonotum light gray pruinose, scutellum whitened; pleura blackened with a narrow whitened longitudinal stripe; legs with femora dark brown, extreme tips whitened; wings pale brown, prearcular and costal fields pale yellow, disk with a pale brown pattern, cell *R*₃ lacking; male hypopygium with three dististyles, the outer and intermediate ones elongate, subequal in length, the outer style with distal half a very long slender spine; phallosome complex.

Male. Length about 4 mm; wing 3.5 mm. Rostrum and palpi black. Antennae brownish black, pedicel, dorsal surface of

scape and proximal two flagellar segments yellow; flagellar segments with very long verticils. Posterior vertex light yellow, central part extensively dark brown.

Dorsum of pronotum whitened, the pattern extended backward over the extreme borders of praescutum and dorsopleural region as a narrow whitened band to the wing root. Mesonotum black, light gray pruinose, scutellum abruptly whitened, its central basal part restrictedly blackened. Pleura blackened with a narrow white longitudinal stripe on the dorsal sternopleurite and meron extending from the fore coxae to below the base of halteres. Halteres with stem dark brown, knob chiefly whitened, with a darkened basal band. Legs with all coxae white; trochanters obscure yellow; femora dark brown; tarsi broken. Wings (Fig. 40) pale brown, prearcular and costal fields pale yellow; stigma and a seam over the cord very pale brown, on either side of cord with very vague pale areas, the cord somewhat darker; remaining veins pale brown. Venation: Sc_1 ending opposite origin of Rs , Sc_2 slightly removed; cell R_3 lacking; $m-cu$ variable in position, on one wing of type about one-third its length before fork, closer to fork on the other wing.

Abdomen pale brown, the segments vaguely striped longitudinally with darker brown and obscure yellow lines; hypopygium brown. Male hypopygium (Fig. 44) with three dististyles, d , the outer and intermediate ones unusually long, subequal in length; outer style, od , dilated on basal half, the outer end a long very slender spine; intermediate style, md , long and slender, the diameter subequal throughout; inner style, id , attached to base of intermediate style, relatively long, broadest at near midlength. Phallosome, p , complex, as shown, including a pair of flattened pale apophyses, widened distally, and a lower pair of apophyses that terminate in slender blackened points.

Habitat: Nigeria. Holotype, ♂, Ile-Ife, Western State, November 21, 1974 (Medler).

The most similar regional species is *Gonomyia (Lipophleps) milangensis* Alexander, which has the hypopygium somewhat as in the present fly but with all details distinct. The venation likewise is different, cell R_3 being present but small.

27. Erioptera (Erioptera) inusitata sp. n.

Head polished black, eyes of male very large; thorax yellow, patterned with brown and black, most intense on the posterior pleurites; wings light yellow, with a pale brown pattern before and beyond the cord; abdomen yellow, outer segments darker; male hypopygium distinctive, especially the basistyle and inner dististyle.

Male. Length about 6 mm; wing 5 mm. Head with mouthparts small, dark brown, palpus blackened. Antennae with scape and pedicel brown; flagellum broken. Head very large, upper parts polished shiny black; eyes gigantic, black; anterior vertex relatively broad.

Pronotum concealed by the massive eyes. Mesonotum polished yellow; praescutum medially, scutal lobes, scutellum, and central part of mediotergite polished pale brown. Pleura with propleura brownish yellow; mesopleura tinged with brown, especially ventrally, on anepisternum with a large whitened area that appears to represent a normal condition, beneath this narrowly darkened; posterior pleurites polished black, including the metapleura, meron slightly paler. Halteres with stem light yellow, knob brownish black. Legs with coxae and trochanters light yellow; remainder of legs broken. Wings light yellow, prearcular and costal fields more saturated yellow; disk with an extensive pale brown pattern that includes major subtriangular areas before and beyond the cord, the latter slightly more extensive; veins in the yellowed fields light yellow, slightly darker in the patterned areas.

Abdomen yellowed basally, outer segments, including the seventh and remaining ones, blackened, patterned with yellow, including the broad lobe of the ninth tergite; hypopygium with the styli chiefly yellowed. Male hypopygium (Fig. 45) with the tergite, *t*, extended into large outer lobes that are directed laterad, their apices with abundant short yellow setae. Basistyle, *b*, on mesal face at apex extended into an elongate lobe that terminates in a strong spine. Outer dististyle, *od*, straight, the apex a relatively small club with very abundant microscopic roughenings and reduced spinules arranged in very delicate parallel rows; inner dististyle, *id*, distinctive, base enlarged, divided into two arms that are longer than the base, the larger axial arm with the outer half expanded into a lobe, its apex with abundant inconspicuous pale setae; outer arm shorter, appearing as a long very slender spine that lies generally parallel to the axial arm. Phallosome with the apophyses, *g*,

appearing as long recurved spines, the acute tips black. Aedeagus, *a*, with the paired apical points strongly recurved, as in the subgenus.

Habitat: Nigeria. Holotype, ♂, Ile-Ife, Western State, March 9, 1975 (Medler).

Other regional members of the genus having the wing pattern generally as in the present fly include *Erioptera (Erioptera) angolana* Alexander, of Angola, *E. (E.) badicincta* Alexander, Nigeria, *E. (E.) bequaerti* Alexander, Zaire, and especially *E. (E.) megalops* Alexander, Nigeria, all differing conspicuously in hypopygial characters. Particular attention is directed to the basistyle and the inner dististyle of the present fly.

28. *Erioptera (Meterioptera) beninensis* sp. n.

Size small (wing of male 3 mm); general coloration of head and thorax chiefly gray; rostrum light yellow; wings gray, veins light brown; male hypopygium with inner dististyle dilated basally, with more than the outer half a long slender spine; phallosome with lateral apophyses produced into slender spines, inner apophysis smaller.

Male. Length about 3 mm; wing 3.2 mm. Rostrum light yellow, palpi black. Antennae broken. Head gray.

Cervical region blackened. Pronotum light gray. Mesonotal praescutum dark gray, humeral region yellowed; three poorly defined darker stripes; scutum gray, lobes scarcely darker; scutellum obscure yellow posteriorly, slightly more darkened in front; postnotal mediotergite light gray with a darker central line. Pleura brownish gray with a vague paler gray longitudinal stripe on pteropleurite and dorsal sternopleurite. Halteres with stem light yellow, knob brownish black. Legs with coxae and trochanters yellow; remainder of legs broken. Wings gray; veins light brown. Venation: R_{2+3+4} about one-half longer than basal section of R_5 ; *m-cu* close to fork of *M*; vein *2nd A* sinuous at about the outer three-fourths.

Abdomen brown, eighth segment darker. Male hypopygium (Fig. 46) with the dististyles, *d*, as shown; inner style, *id*, with base dilated, with more than the outer half a slender spine, the narrow blackened tip acute. Phallosome, *p*, with longer lateral apophyses acute at tips, inner apophyses short and broad, apices slender. Aedeagus, *a*, profoundly bifid.

Habitat: Nigeria. Holotype, ♂, Benin, Nigerian Institute Oil Palm Research, NIFOR, Middle Western State, April 1, 1975 (Medler).

Erioptera (*Meterioptera*) *beninensis* is most readily told from other regional members of the subgenus by the small size, gray wings, and especially the hypopygial structure, including the inner dististyle and gonapophyses. The most similar regional species is *E. (M.) nigrospica* sp. n., described in the present paper.

Meterioptera Alexander (Philippine Journ. Sci., 53: 462-463; 1934) was proposed as a subgenus but very possibly may be found to represent a valid genus, with strong characters in antennal structure, interpolated modified setae on the legs, and in the hypopygium. There are rather numerous species in the Oriental and Ethiopian regions.

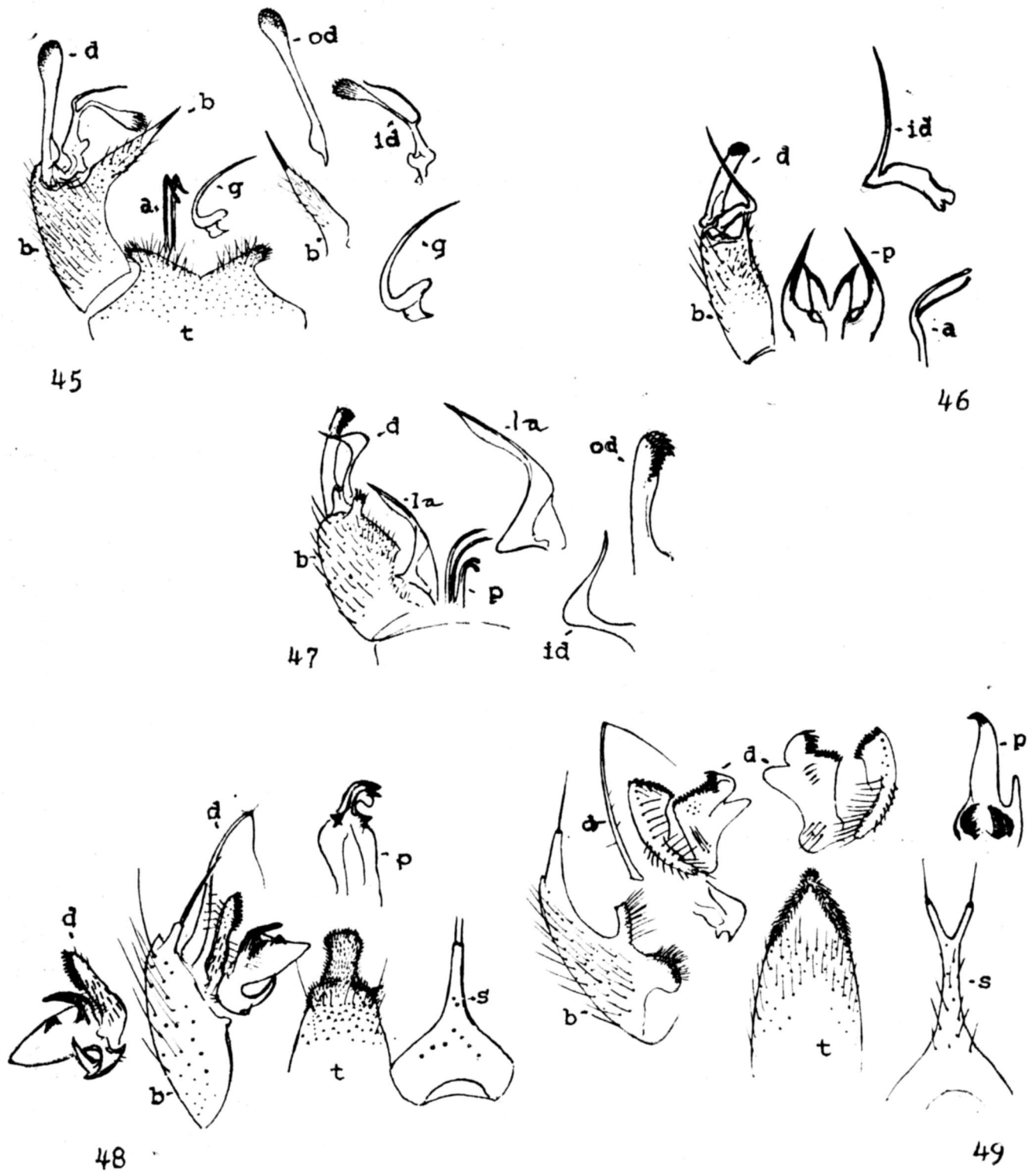


Fig. 45. *Erioptera* (*Erioptera*) *inuitata* sp. n.; male hypopygium. — Fig. 46. *Erioptera* (*Meterioptera*) *beninensis* sp. n.; male hypopygium. — Fig. 47. *Erioptera* (*Meterioptera*) *nigrospica* sp. n.; male hypopygium. — Fig. 48. *Styringomyia* *cerbereana* sp. n.; male hypopygium. — Fig. 49. *Styringomyia* *furcifera* sp. n.; male hypopygium. — (Symbols, Male hypopygium, a, aedeagus; b, basistyle; d, dististyles; g, gonapophysis; id, inner dististyle; od, outer dististyle; p, phallosome; s, 9th sternite; t, tergite).

29. Erioptera (Meterioptera) nigrospica sp. n.

Size small (wing of male about 3 mm); general coloration of head and thoracic dorsum on slide dark brown; wings brownish yellow, costal region clearer yellow; apical deflection of vein *2nd A* relatively long, including about the distal third of vein; male hypopygium with the lateral apophysis of phallosome dilated on outer half, the apex a blackened spine.

Male. Length about 3.5 mm; wing 3 mm. **Female.** Length about 4 mm; wing 3.3-3.4 mm. Mouthparts and palpi dark brown. Antennae in male 13-segmented, with ten segments beyond the basal fusion segment; in female with two segments involved in the fusion: verticils of intermediate segments elongate. Head brown.

Thoracic dorsum brown, pleura paler. Halteres yellowed. Legs with coxae and trochanters yellow; remainder of legs broken. Wings pale yellowish brown, costal region narrowly clearer yellow; veins pale brown. Venation: Apical deflected portion of vein *2nd A* relatively long, including about the distal third of the vein.

Abdomen dark brown. Male hypopygium (Fig. 47) about as figured, the most distinctive feature being the lateral apophysis, *la*, of the phallosome or interbase which has the outer half dilated beneath, the apex extended into an acute black spine.

Habitat: Nigeria. Holotype, ♂, on slide, Umuahia, East Central State, April 11, 1973. Allotopotype, ♀. Paratopotypes, 4 ♀♀, on slides (Medler).

The present fly is most readily told from other African members of the subgenus by hypopygial characters, especially the phallosome, as described. The most similar species in Nigeria is *Erioptera (Meterioptera) pergracilis* Alexander, with the lateral apophyses quite distinct.

Styringomyini

Styringomyini Alexander; Crane-flies of New York, Part II, Cornell University Agricultural Experiment Station, Memoir 38: 957-969; 1920.

30. Styringomyia cerbereana sp. n.

General coloration of entire body black, head, and praescutum more gray pruinose; legs black, posterior tarsi white, the outer segment darkened; wings strongly darkened, especially the anterior border of the radial field, with a darker cloud over *r-m*; cell *2nd M₂* sessile; male

hypopygium with tergite distinctive, narrowed outwardly, terminating in a broad lobe; sternite widened basally, outer half narrowed, with two slightly separated strong setae; inner lobe of dististyle and the aedeagus distinctive, as described.

Male. Length about 6-6.5 mm; wing 3.6-4 mm.

Female. Length about 6-6.2 mm; wing 3.4-3.6 mm. Head and appendages black, vertex vaguely more pruinose.

Thorax black, praescutum with a vague central gray line, scutal lobes extensively gray. Halteres and legs black, posterior tarsi whitened, terminal segment dark; middle tarsi with segments paler brown, bases narrowly more whitened. Wings strongly darkened, more intense on cephalic border of radial field; a large comparable darkening over *r-m*, especially in cell R_5 . Venation: Cell $2nd M_2$ narrowly to more broadly sessile; *m-cu* about its own length beyond the fork of *M*; vein $2nd A$ curved to the margin. Costal fringe of male relatively long, setae delicate.

Abdomen black. Male hypopygium (Fig. 48) with tergite, *t*, distinctive, terminating in a broad lobe that is further expanded at apex, surface with abundant erect delicate setulae. Sternite, *s*, broad basally, outer half strongly narrowed, apex entire, with two slightly separated strong setae. Basistyle, *b*, with an apical seta from a long basal tubercle. Dististyle, *d*, with outer arm slender, especially on outer two-thirds, at near midlength with about five delicate setae, outer vestiture weak and smaller; inner style with two separate arms, the outer one narrow, apex with a comb of about 20 closely approximated elongate denticles; inner lobe large, triangular in outline, outer margin with a long black basal lobe and a small obtuse triangular point on outer margin; at base of style with a strong yellow spine, curved outwardly, narrowed to a point, as shown. Phallosome, *p*, complex, terminating in two paired curved lobes, their outermost margins black.

Habitat: Nigeria. Holotype, ♂, on slide, Benin, Nigerian Institute Oil Palm Research. NIFOR, Middle Western State, April 1, 1975 (Medler). Paratopotypes, 7 ♂ ♀, with the type.

Styringomyia cerbereana is most similar to the following African species, *S. ingrami* Edwards, Gold Coast, Nigeria; *S. leucopeza* Edwards, Mozambique, Nyasaland, South Africa; *S. nigrisoma* Alexander, Zaire, Nigeria; *S. obscuricincta* Edwards, Gold Coast; *S. solocipennis* Enderlein, Madagascar; *S. spinistyla* Alexander, Cameroon, Zaire; and *S. stuckenbergi* Alexander, South Africa, Natal, differing from all in details of hypopygial structure, especially the tergite, sternite and dististyle.

31. *Styrgomyia furcifera* sp. n.

General coloration of head and thorax yellow, patterned with darker; proximal abdominal tergites brown, wings yellowed at base and anterior third, remainder light brown; a very restricted darker brown pattern, including chiefly a darkened cloud over *r-m*; cell *2nd M₂* petiolate, vein *2nd A* curved evenly to margin, without spur; male hypopygium with sternite narrowed into a long stem that forks into slender arms; dististyle with outer arm long, slender, with very sparse weak setae; phallosome a simple rod that terminates in a blackened point, near base with a pair of darkened winglike expansions and a slender pale rod directed outwardly.

Male. Length about 7 mm; wing 5.3 mm. Rostrum and palpi yellowish brown. Antennae with scape and pedicel light brown; flagellar segments brownish yellow, ends slightly paler. Head brownish yellow.

Thoracic dorsum brownish yellow, patterned with brown, the pleura more extensively yellowed. Halteres brownish yellow. Legs with coxae and trochanters yellow; remainder of legs broken. Wings with base and anterior third yellowed, remainder light brown; a very restricted slightly darker brown pattern, chiefly as a vaguely darkened cloud over *r-m*; veins on anterior part of wing yellowed, remainder brown, slightly darker on *r-m*, distal two-thirds of *Cu* and *2nd A*. Venation: Cell *2nd M₂* petiolate, the petiole (M_{1+2+3}) more than one-third the outer end of cell *1st M₂* (basal section of M_3); *m-cu* at near one-third M_{3+4} ; vein *2nd A* evenly curved to margin.

Abdominal tergites one to five brown, the posterior borders narrowly darker; segments six and seven with broad darker brown posterior borders; hypopygium yellow. Male hypopygium (Fig. 49) with tergite, *t*, long, apical fourth more narrowed, terminating in a small rounded knob, margin with very dense short orange setae. Sternite, *s*, broad basally, outwardly narrowed into a long stem, at outer end forking into slender arms, each tipped with a subequal black seta. Basistyle, *b*, with apical lobe bearing a subequal black spinoid seta; style at base on mesal face with two long lobes that bear numerous dark delicate setae. Dististyle, *d*, with three branches, the outer one a long slender arm bearing three microscopic short setae placed at intervals near midlength, with a slightly longer more basal seta nearer the base on outer margin; intermediate and inner styles about as figured, each with an apical marginal series of short blackened spines, arranged about as shown. Phallosome, *p*, with the main

body narrowed gradually into a blackened point, near base with a pair or darkened wing-like expansions, on margin with a slender pale rod, directed outwardly.

Habitat: Nigeria. Holotype, ♂, on slide, Obudu, Cattle Ranch, Southeastern State, September 1, 1974 (Medler).

Styringomyia furcifera is quite distinct from other generally similar regional species in the male hypopygial characters especially the sternite and phallosome. In the deeply forked sternite it is most similar to species such as *S. medleriana* Alexander, Nigeria; *S. serristylata* Alexander, Gabon; and *S. variegata* Edwards, Uganda, Tanzania, differing in other characters, including the dististyle and phallosome. The latter structure is more as in *S. fulani* Alexander, Nigeria, and *S. Obuduensis* Alexander, Nigeria, which otherwise are quite distinct in hypopygial features.