

New or insufficiently known African Crane Flies. III.
(Diptera: Tipulidae)

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(With 57 figures)

The preceding paper under this general title was published in *Studia Entomologica*, Vol. XV (n. s.), 1972. At this time I am discussing an unusually interesting series of Tipulidae that were collected in Nigeria by Dr. John Thomas Medler and Mrs. Jane Ann Medler who have added vastly to our knowledge of the fauna and flora of this country.

The great majority of the present materials was taken in the highlands of Southeastern State, Nigeria, at and near the Obudu Cattle Ranch, a resort at approximately one to three miles from the Cameroon border in the mountains that extend westward from Bamenda. These specimens were collected at an altitude of approximately 5,000 feet. Dr. Medler writes that while most of this area is grassland some very nice fringe forests persist along the watersheds. He has furnished me with a recent map that shows the Vegetation Ecological Zones of Nigeria (by J. R. Charter, Federal Department of Forest Research, Ibadan, 1970) that places the Obudu area in zone 7 A, in the *Moist Submontane Forest*, the single most characteristic plant indicator being *Syzygium guineense*. As would be expected the crane flies so far discovered at this station are in large part identical with materials that have been collected in the submontane sections of Cameroon, as shown by the earlier collections made by the late Jacob A. Reis and in materials presently being studied by me that were taken by Wolfgang Hartwig, to be preserved in the Zoologisches Forschungsinstitut, Bonn, West Germany. A further important reference that may be cited is D. R. Rosevear, Checklist and Atlas of Nigerian Mammals, Lagos, 1953. The work includes a chapter on vegetation and habitats (p. 9-37, with 40 plates showing habitats; 2 enlarged vegetational maps in color, and 239 small maps with the distribution of individual mammalian species).

Through the appreciated kindness of the collectors the materials here discussed are preserved in the Alexander Collection.

It may be noted that these specimens originally were preserved in alcohol but the species here considered have been mounted in canada balsam on microscope slides.

Tipulinae

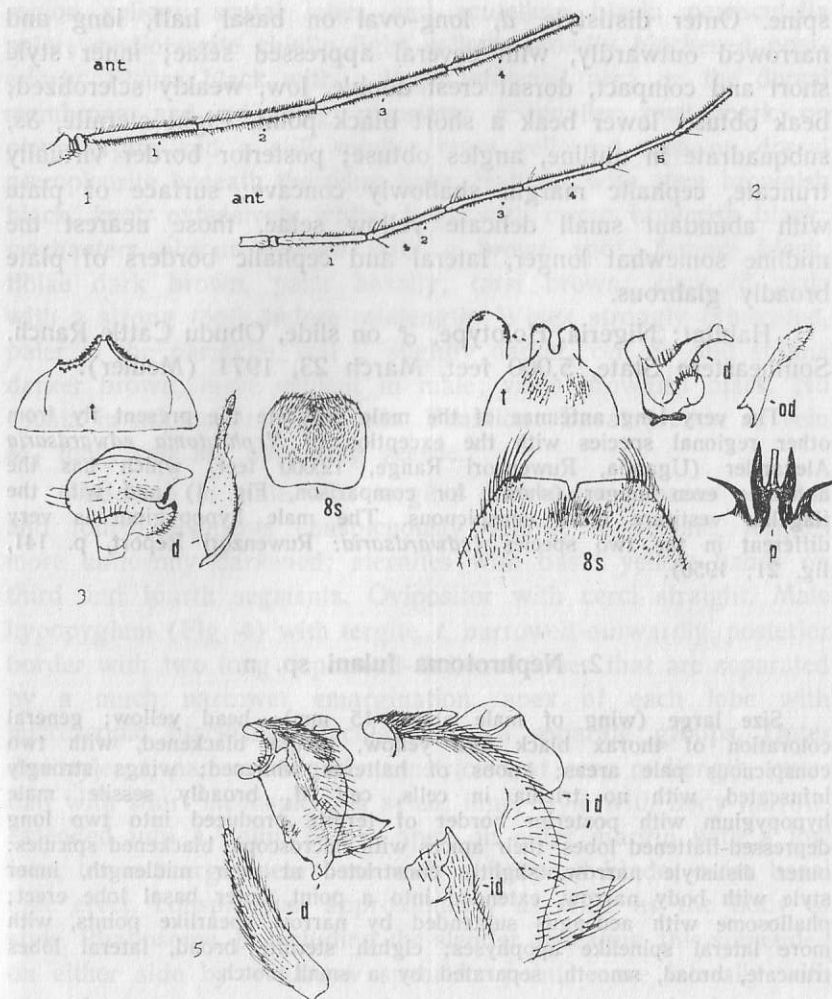
1. *Nephrotoma extensicornis* sp. n.

Size medium (wing of male 10.5 mm); general coloration yellow, mesonotal praescutum with three blackened stripes, abdomen yellow, proximal segments with lateral and posterior borders narrowly darkened; antenna of male elongate, slightly shorter than the wing, flagellar segments very long-cylindrical, with delicate very short erect setae; male hypopygium with posterior border of tergite medially produced, margin sclerotized, with microscopic spinoid setae; eighth sternite subquadrate, posterior border virtually truncate.

Male. Length, about 10 mm; wing 10.5 mm; antenna, about 10 mm. Frontal prolongation of head yellow, basal segment of palpus light brown, remainder yellow. Antenna of male (Fig. 2) very long, subequal to the body or wing; scape and pedicel light yellow, first flagellar segment brownish black, the remainder black; flagellar segments very long-cylindrical, the intermediates with a very slight basal enlargement that bears three unequal setae, the longest about one-fifth the length of segment; all segments with abundant very delicate erect setae that are about one-fifth the diameter of the segment; basal flagellar segment with scattered erect bristles over much of the length. Head chiefly yellow.

Pronotum yellowed. Mesonotal praescutum yellow with three blackened stripes, scutal lobes darkened; posterior sclerites of notum yellowed. Pleura chiefly yellow, slightly more darkened ventrally. Halteres with stem brownish yellow, knob pale yellow. Legs with coxae and trochanters yellow; femora yellow basally, apices brownish black, broadest on fore legs; tibiae light brown, tips narrowly darker, tarsi brownish black; claw strongly curved, at near midlength with a strong spine. Wings subhyaline, including the stigmal region, cell *Sc* slightly darker; veins light brown. No stigmal trichia. Venation: *Rs* oblique, subequal to basal section of *R*₄₋₅; cell *M*₁ broadly sessile, first section of *M*₂ about one-half to two-thirds *m*; *m-cu* near base of *M*₄.

Abdomen yellow, posterior and lateral borders of the more proximal segments narrowly brown; outer segments, including the hypopygium more uniformly light yellow. Male hypopygium



Figs. 1-5—Tipulinae. — Fig. 1. *Nephrotoma edwardsaria* Alexander; male antenna, proximal six segments. — Fig. 2. *Nephrotoma extensicornis* sp. n.; male antenna, proximal eight segments. — Fig. 3. *Nephrotoma extensicornis* sp. n.; male hypopygium. — Fig. 4. *Nephrotoma julani* sp. n.; male hypopygium. — Fig. 5. *Tipula (Acutipula) iyala* sp. n.; male hypopygium. — (Symbols, *ant*, antenna; *d*, dististyle; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *s*, sternite; *t*, tergite).

(Fig. 3) with tergite, *t*, transverse, posterior border on either side of midline narrowly sclerotized, curved gently outward, their mesal ends approximated near midline; surface with rows of microscopic blackened spinose setae, lateral end with a larger

spine. Outer dististyle, *d*, long-oval on basal half, long and narrowed outwardly, with several appressed setae; inner style short and compact, dorsal crest double, low, weakly sclerotized; beak obtuse, lower beak a short black point. Eight sternite, *8s*, subquadrate in outline, angles obtuse; posterior border virtually truncate, cephalic margin shallowly concave; surface of plate with abundant small delicate yellow setae, those nearest the midline somewhat longer, lateral and cephalic borders of plate broadly glabrous.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

The very long antennae of the male separate the present fly from other regional species with the exception of *Nephrotoma edwardsaria* Alexander (Uganda, Ruwenzori Range, 12,000 feet) which has the antennae even longer (shown for comparison, Fig. 1) and with the flagellar vestiture more conspicuous. The male hypopygium is very different in the two species (*edwardsaria*: Ruwenzori Report, p. 141, fig. 21; 1956).

2. *Nephrotoma fulani* sp. n.

Size large (wing of male about 15 mm); head yellow; general coloration of thorax black and yellow, pleura blackened, with two conspicuous pale areas; knobs of halteres whitened; wings strongly infuscated, with no trichia in cells, cell *M*₁ broadly sessile; male hypopygium with posterior border of tergite produced into two long depressed-flattened lobes, their apices with microscopic blackened spicules; outer dististyle narrow, slightly constricted at near midlength, inner style with body narrow, extended into a point, outer basal lobe erect; phallosome with aedeagus subtended by narrow spearlike points, with more lateral spinelike apophyses; eighth sternite broad, lateral lobes truncate, broad, smooth, separated by a small notch.

Male. Length, about 14-16 mm; wing, 12.5-14.5 mm; antenna, about 4-4.6 mm. Female. Length, about 21 mm; wing, 15 mm; antenna, about 3.1 mm. Head yellow, including the nasus; anterior vertex with a very small brown spot contiguous with eye, the latter with a narrow intensely blackened margin; occipital band not differentiated. Palpi brownish yellow. Antennae with scape and pedicel yellow, flagellum brown; in male segments with a slightly developed basal enlargement; additional to the normal verticils each segment with a single larger seta, subequal to or longer than the segment.

Pronotum black, paler laterally. Mesonotal praescutum yellow with three polished black stripes that greatly restrict the inter-

region yellow; scutal lobes and scutellum black, parascutella paler; mediotergite chiefly light yellow, broadly blackened posteriorly. Pleura black with a large whitened area on the dorsal membrane and adjoining pleurites; a smaller oval mark on pleurotergite and a still smaller more yellowed area on dorsal pteropleurite beneath the wing base. Halteres with stem brownish black, knob extensively white. Legs with coxae brownish black; trochanters obscure yellow with a brown spot; femora black, tibiae dark brown, paler basally; tarsi brown; claw of male with a strong tooth before midlength. Wings strongly infuscated, paler in the paratype, cell *C* slightly darker, cell *Sc* and stigma darker brown, more evident in male; veins brownish black. No trichia in stigma or outer cells. Venation: Basal section of vein *M*₂ long, cell *M*₁ appearing sessile.

Abdomen in male with tergites dark brown, bases of third and fourth segments conspicuously yellow, in female, tergites more uniformly darkened; sternites with basal yellow bands on third and fourth segments. Ovipositor with cerci straight. Male hypopygium (Fig. 4) with tergite, *t*, narrowed outwardly, posterior border with two long depressed-flattened lobes that are separated by a much narrower emargination, apex of each lobe with microscopic blackened spicules in two separate groups. Outer dististyle, *d*, narrow, slightly constricted at near midlength, outer half with short inconspicuous setae; inner style with body narrow, extended into a point, before apex on outer margin with a low lobe, lower margin near base with a flattened blade; outer basal lobe erect, conspicuous, approximately as wide as the body of style. Phallosome, *p*, including the slender aedeagus, this subtended on either side by a narrow spearlike point, more laterally with strongly curved apophyses that narrow into a slender spine. Eighth sternite, *8s*, broad, narrowed outwardly, posterior border with a small central notch, each lobe truncate apically, narrowly yellow, smooth; vestiture of plate abundant but small, including larger setae at outer apical angle and with a concentration of shorter setae at midline before the central notch. The structure of the various parts as described may be better understood by the detailed illustrations in the figure.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler). Allotype, ♀, with type. Paratopotype, ♂, September 1971.

The specific name, *fulani*, is that of a nomadic people of the savanna country of West Africa, including Nigeria. In its general

appearance most similar to *Nephrotoma kigeziana* Alexander (Uganda, Kenya) and *N. perlepida* Alexander (Uganda), differing from all regional species in the hypopygial structure, including the tergite, both dististyles, phallosome, and eighth sternite.

3. *Tipula (Acutipula) iyala* sp. n.

Size medium (wing of male about 20 mm); general coloration of dorsum of body brown, patterned with paler, pleura yellow with a broken longitudinal dark stripe along dorsal margin; legs yellowish brown, tips of femora darker brown; wings tinged with brown, costal border darker, especially cell *Sc* and the long narrow stigma; restricted pale brown clouds over *m-cu* and the anterior cord; second section of vein M_{1-2} strongly arcuated; abdominal tergites dark brown, sternites yellowed, hypopygium above dark brown; male hypopygium with apex of terminal lobe of tergite slightly emarginate, spiculose; outer dististyle narrow, inner style complex, especially the bifid beak and the dorsal crest, as shown.

Male. Length, about 18 mm; wing, 20 mm; antenna, about 4 mm. Frontal prolongation of head brown, nasus darker brown, elongate; palpi with proximal two segments dark brown, third light brown, fourth segment yellow. Antennae with scape and pedicel yellowed, flagellum brown, basal enlargements very small, slightly paler, longest verticils exceeding the segments. Head brown, indistinctly patterned with paler.

Pronotum dark brown. Mesonotal praescutum light brown, darker medially, lateral border with a longitudinal series of darker areas that form an interrupted stripe from the humeral region of praescutum backward, with further marks on the praescutum before the suture, on sides of scutal lobes and parascutella above the wing root, and a larger area on the katapleurotergite; scutum and scutellum brown; mediotergite more narrowly darkened on central part, the sides and the anapleurotergite yellowed. Pleura yellow. Halteres brown, base of knob vaguely paler. Legs with coxae and trochanters yellow; remainder of legs detached, one mounted on slide with femora yellowish brown, tips darker brown, tibiae similar, apices more narrowly darkened; tarsi brown, claw with a long spur at near midlength and a much smaller basal point. Wings tinged with brown, prearcular field and cell *Sc* slightly darker, stigma dark brown, long and narrow; restricted pale brown clouds over anterior cord and on *m-cu*, lacking at and near fork of *M*; veins dark brown. Macrotrichia on distal section of R_{4-5} , very restricted in number on M_1 . Venation: Much as in *langi*, especially the unusually arcuated second section of

vein M_{1-2} that forms the cephalic border of cell *1st M*₂; cells that include the stigma broader, vein R_{1-2} slightly longer.

Abdominal tergites dark brown, segments two to four with a small transverse yellow dash near base, with a comparable area on seventh tergite; eighth sternite broadly darkened on sides, enclosing a similar pale yellow spot; hypopygium dark brown, ventral sternite more yellowed. Male hypopygium (Fig. 5) with apical lobe of tergite spiculose, apparently slightly emarginate at apex (on slide mounted on side so the lateral view is presented). Dististyles, *d*, as shown; outer style narrow, more than four times the greatest diameter which is at near one-third the length; inner style with details as figured, beak bilobed, each lobe broadly obtuse or rounded at apex, beak flattened, the upper apical angle a small point; dorsal crest low, with dense appressed long retrorse setae, with a further glabrous plate that is extended outwardly; outer basal lobe very broad across base, subequal to the length of the lobe.

Habitat: Nigeria. Holotype, ♂, on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

The specific name, *iyala*, is that of a native Nigerian race of people. By my key to the Tropical African species of *Tipula* (Ruwenzori Report, p. 165-169; 1956) this fly runs to *Tipula (Acutipula) langi* Alexander, of Zaire (Belgian Congo), differing in details of coloration and structure. In the reference cited above (page, 177, fig. 41) the hypopygium of *langi*, the simple apex of the ninth tergite, is shown.

Limoniinae

Limoniini

4. *Limonia (Afrolimonia) discobolodes* sp. n.

Size medium (wing of male 11 mm); general coloration of body dark brown, abdominal tergites conspicuously patterned with yellow; legs with femora yellowed, tips broadly dark brown; wings yellow, conspicuously patterned with brown, *Rs* very long, exceeding its branches in length; a supernumerary crossvein in cell *1st A*, as in *Discobola*; male hypopygium with rostral prolongation of the ventral dististyle long extended, at base with two long spines from a common tubercule, accessory lobule with two very long setae.

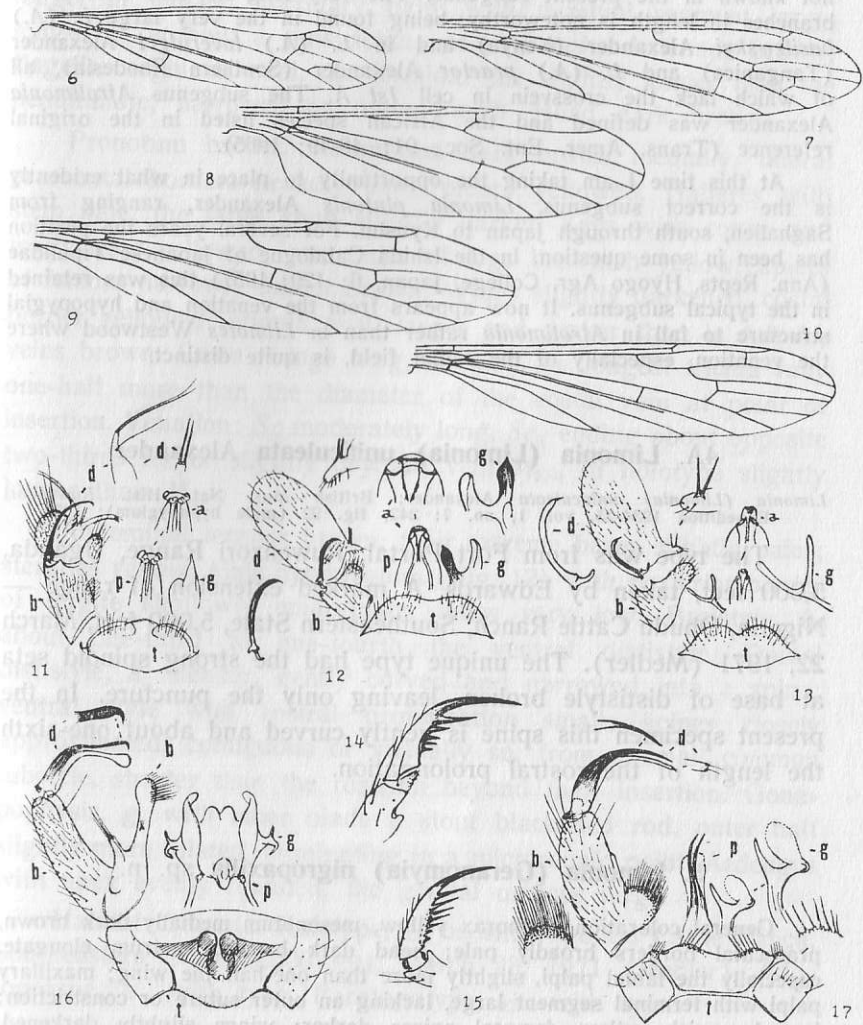
Male. Length, about 12 mm; wing, 11 mm; antenna, about 2.3 mm. Rostrum and palpi dark brown. Antennae with scape and pedicel dark brown, flagellum paler brown; proximal flagellar segments short-oval, with short abrupt apical pedicels, outer segments longer, the terminal slender segments with long setae.

than the penultimate; each flagellar segment with a very long dorsal verticil, approximately twice the segment or more. Head dark brown.

Pronotum brown, laterally variegated with yellow. Mesonotal praescutum dark brown with longitudinal yellow stripes, posterior sclerites dark brown. Pleura dark brown, ventrally, including the bases of coxae, narrowly brownish black. Halteres with stem yellow, knob dark brown. Legs with coxae as described; trochanters light brown, posterior pair darker; femora brownish yellow, tips broadly dark brown, preceded by vaguely paler yellow ring; tibiae and basitarsi obscure yellow, tips narrowly brown, remainder of tarsi brown; claw long and slender, very gently curved, at near midlength with a strong spine, with a few more basal spinules. Wings (Fig. 6) yellow, conspicuously patterned with brown, including major areas at arculus, origin of *Rs*, tip of *Sc*, cord, and outer end of cell *1st M*₂, with further longitudinal seams on certain veins, including especially *R*₄₋₅, *M* and *Cu*; posterior wing margin narrowly seamed with brown; veins in the ground areas yellow, in the patterned parts brown. Venation: *Sc*₁ ending shortly before the fork of the very long *Rs*, the latter longer than either of its branches; cell *1st M*₂ irregular in outline, *m* short and straight, basal section of *M*₃ long and arcuated; *m-cu* shortly before fork of *M*; a supernumerary crossvein near outer end of cell *1st M*₂, as in the subgenus *Discobola*.

Abdominal tergites with disk yellow, laterally and at both ends margined with brown, sternites yellowed; male hypopygium dark brown. Male hypopygium (Fig. 11) with tergite, *t*, transverse, posterior border convex, the narrow central part slightly more extended. Basistyle, *b*, with ventromesal lobe elongate, the outer two-thirds separated from the glabrous base by a constriction, provided with long setae. Dorsal dististyle, *d*, very long and slender, gently curved, outwardly narrowed very gradually into a decurved spine; ventral style with about two-thirds the area of the basistyle, body oval, beak long-extended, at base with two long straight spines from a common tubercle; accessory lobule at base of beak a long narrow tubercle tipped with two very long setae that exceed the tubercle in length. Phallosome, *p*, with the gonapophyses and aedeagus as figured, the latter with the genital apertures produced laterad.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).



Figs. 6-17 — Limoniinae. — Fig. 6. *Limonia (Afrolimonia) discobolodes* sp. n.; venation. — Fig. 7. *Limonia (Geranomyia) toxeres* sp. n.; venation. — Fig. 8. *Antocha (Orimargula) schmidi* Alexander; venation. — Fig. 9. *Orimarga (Orimarga) bifimbriata* sp. n.; venation. — Fig. 10. *Orimarga (Orimarga) biclavata* sp. n.; venation. — Fig. 11. *Limonia (Afrolimonia) discobolodes* sp. n.; male hypopygium. — Fig. 12. *Limonia (Geranomyia) nigropaxilla* sp. n.; male hypopygium. — Fig. 13. *Limonia (Geranomyia) taleola* sp. n.; male hypopygium. — Fig. 14. *Antocha (Orimargula) minuscula* Alexander, claw of male. — Fig. 15. *Antocha (Orimargula) minuscula* Alexander, claw of male. — Fig. 16. *Orimarga (Orimarga) biclavata* sp. n.; male hypopygium. — Fig. 17. *Orimarga (Orimarga) bifimbriata* sp. n.; male hypopygium. — (Symbols, Male hypopygium: *a*, aedeagus; *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *p*, phallosome; *t*, ninth tergite).

Limonia (Afrolimonia) discobolodes is distinguished from all regional species by the venation, especially the supernumerary crossvein in cell *1st A*, a normal character in the subgenus *Discobola* Osten Sacken but

not known in the present subgenus. The very long *Rs* that exceeds its branches in length is noteworthy, being found in the very large *L. (A.) basilewskyi* Alexander (Kenya) and in *L. (A.) loveridgei* Alexander (Tangania) and *L. (A.) praetor* Alexander (Southern Rhodesia), all of which lack the crossvein in cell 1st A. The subgenus *Afrolimonia* Alexander was defined and the African species listed in the original reference (Trans. Amer. Ent. Soc., 91: 48-49; 1965).

At this time I am taking the opportunity to place in what evidently is the correct subgenus, *Limonia plutonis* Alexander, ranging from Saghalien, south through Japan to Kyushu. For several years the position has been in some question. In the Ishida Catalogue of Japanese Tipulidae (Ann. Repts. Hyogo Agr. College, Japan, 6: 129; 1957) this was retained in the typical subgenus. It now appears from the venation and hypopygial structure to fall in *Afrolimonia* rather than in *Libnotes* Westwood where the venation, especially of the radial field, is quite distinct.

4A. *Limonia (Limonia) uniaculeata* Alexander

Limonia (Limonia) uniaculeata Alexander; British Mus. Nat. Hist. Ruwenzori Expedition 1934-35, vol. 1, no. 7: 242, fig. 92 (male hypopygium); 1956.

The type was from Fort Portal, Ruwenzori Range, Uganda, 5,000 feet, taken by Edwards. A marked extension of range — Nigeria, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler). The unique type had the strong spinoid seta at base of dististyle broken, leaving only the puncture. In the present specimen this spine is gently curved and about one-sixth the length of the rostral prolongation.

5. *Limonia (Geranomyia) nigropaxilla* sp. n.

General coloration of thorax yellow, mesonotum medially dark brown, praescutal borders broadly pale; head dark brown; rostrum elongate, especially the labial palpi, slightly more than one-half the wing; maxillary palpi with terminal segment large, lacking an outer suture or constriction; legs brownish yellow, femoral apices darker; wings slightly darkened, costal border yellow, stigma oval, brown; costal fringe long, Sc_1 ending about opposite two-thirds *Rs*; male hypopygium with posterior border of tergite shallowly emarginate; gonapophysis with inner blade stout, blackened, outer half slightly more dilated, apex a microscopic point; aedeagus with apex evenly rounded, not produced.

Male. Length, excluding rostrum, about 5-6 mm; wing, 5-6.5 mm; rostrum, about 3.3-3.5 mm. Female. Length, excluding rostrum, about 7 mm; wing, 6.8 mm; rostrum, about 4 mm; antenna, about 1.35 mm. All types on slides in balsam. Rostrum brown, very long, especially in the male holotype, slightly exceeding one-half the remainder of body; labial palpi very long, nearly twice the length of the labrum in male, about one-half

longer in female; maxillary palpi with terminal segment large, long-oval, without a constriction, as in *taleola*. Antennae brown; flagellar segments oval, the terminal one slightly longer than the penultimate, narrowed on outer fourth. Head dark brown.

Pronotum brown. Mesonotum dark brown medially, lateral praescutal borders broadly pale; pleura yellowed. Halteres with stem pale, the large knob slightly darker. Legs with coxae and trochanters yellowed; remainder of legs brownish yellow, apices of femora narrowly darker brown. Wings slightly darkened, costal border yellowed; stigma oval, larger and darker than in *taleola*; veins brown. Costal fringe long, in male the longest trichia fully one-half more than the diameter of the costal vein at point of insertion. Venation: *Sc* moderately long, Sc_1 ending about opposite two-thirds *Rs* or slightly beyond; vein M_{3-4} in holotype slightly longer than M_4 .

Abdominal tergites brown, their extreme bases slightly paler; sternites yellow. Male hypopygium (Fig. 12) with posterior border of tergite shallowly emarginate, lobes very low. Basistyle, *b*, about one-third to one-fourth the ventral dististyle. Dorsal dististyle, *d*, slender, gently curved and narrowed into a spine; ventral style with rostral prolongation small; spines closely approximated, contiguous or virtually so, from a small common tubercle, shorter than the rostrum beyond their insertion. Gonapophysis, *g*, with inner blade a stout blackened rod, outer half slightly more dilated, terminating in a microscopic point. Aedeagus with apex evenly rounded, the genital orifices large.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler). Allotopotype, ♀, with type. Paratopotype, ♂, with type.

Limonia (Geranomyia) nigropaxilla is generally similar to *L. (G.) taleola* sp. n., and a few others that are listed under that species. It differs in the diagnostic features listed, especially the maxillary palpi, pattern of the femora, and the hypopygial structure, including the gonapophyses.

6. *Limonia (Geranomyia) taleola* sp. n.

General coloration of thorax yellow, head dark brown; rostrum relatively short, labial palpi about one-half longer than the labrum; legs brownish yellow; wings grayish yellow, prearcular and costal fields light yellow, stigma small, very pale brown; male hypopygium with posterior border of tergite broadly emarginate; rostral spines closely approximated at bases; gonapophysis, *g*, with inner blade pale appearing

as a narrow parallel-sided rod, the basal extension narrow, generally similar to the blade; aedeagus with central part of apex slightly produced.

Male. Length, excluding rostrum, about 5 mm; wing, 6 mm; rostrum, about 2.6 mm; antenna, about 1 mm. **Female.** Length, excluding rostrum, about 6 mm; wing, 6 mm; rostrum, about 2.8 mm; antenna, about 1.1 mm. Rostrum brown, moderately long, as shown by measurements, about one-half the remainder of body; labial palpi about one-half longer than the labrum; maxillary palpi with outer segment large, narrowed outwardly, with a nearly complete suture beyond two-thirds the length to appear segmented. Antennae brown; flagellar segments oval. Head dark brown.

Thorax almost uniformly yellow, the notum slightly darker. Halteres pale. Legs almost uniformly brownish yellow, femora not evidently patterned. Wings grayish yellow, prearcular and costal fields light yellow; stigma small, oval, very pale brown; veins pale brown. Costal fringe of male relatively long, the trichia in region of stigma about equal to the thickness of vein C at that point. Venation: *Sc* long, *Sc*₁ ending shortly before fork of *Rs*; vein *M*₃₋₄ slightly longer than *M*₄.

Abdominal tergites brownish yellow, sternites clearer yellow. Male hypopygium (Fig. 13) with tergite, *t*, transverse, posterior border with a broad V-shaped emargination. Basistyle, *b*, about one-third to one-fourth the ventral dististyle. Dorsal dististyle, *d*, gently curved into an acute spine; ventral style with apex of rostral prolongation obtuse; rostral spines placed close together, longer than the rostrum beyond them. Gonapophysis, *g*, distinctive, inner blade pale, appearing as a narrow parallel-sided rod, apex obtuse, basal extension narrow, in length and shape much like the blade. Aedeagus with central part of apex protruding beyond the genital orifices.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler). Allotopotype, ♀, with type. Paratopotype, ♀, with type.

Certain other African members of the subgenus are generally similar to the present fly, including *Limonia* (*Geranomyia*) *macrops* (Alexander), of the Gabon, Cameroun and Nigeria, and *L. (G.) mashonica* (Alexander), of Rhodesia. The various species differ most evidently in hypopygial characters, in the present fly including the very distinctive gonapophyses.

7. *Limonia* (*Geranomyia*) *toxeres* sp. n.

General coloration of thorax yellow, the pronotum and praescutum with a central brown stripe, scutal lobes darkened; scutum and scutellum with very abundant dark setae, postnotum glabrous; legs with femora and tibiae brownish black, tarsi paler brown; wings very weakly tinted, with a conspicuous brown pattern, including seven larger costal areas, the interspaces with restricted paler brown spots; fourth and fifth costal darkenings confluent posteriorly to form a U-shaped area in the stigmal region; a darkened spot at end of vein *2nd A*; *Sc* long, *m-cu* some distance before fork of *M*; abdominal tergites light brown, sternites yellowed; ovipositor with cerci small, needle-like.

Female. Length, excluding rostrum, about 7.5 mm; wing, 6.8 mm; rostrum, about 4 mm; antenna, about 1.3 mm. Rostrum elongate, brownish black, labial palpi pale on proximal half, broadly blackened outwardly. Antennae with scape and pedicel brownish black, flagellum paler brown; flagellar segments oval, the outer ones slightly longer, apex of terminal segment strongly narrowed; flagellar vestiture short, verticils weak, shorter than the segments. Head dark brown.

Pronotum yellowed, narrowly darkened medially. Mesonotal praescutum yellow with a single central dark brown stripe, widened behind, nearly reaching the suture; each scutal lobe with a single brown area, scutellum brown; mediotergite chiefly dark brown, lateral borders broadly yellow. Setae of praescutal interspaces very small and sparse; scutum and especially the scutellum with very abundant long dark setae, postnotum glabrous. Pleura yellowed, propleura brown. Halteres with stem yellowed, with numerous long setae, knob large, darker. Legs with coxae and trochanters yellow; femora and tibiae brownish black, femoral bases very narrowly paler; tarsi paler brown or yellowish brown; claw with outer spine stout, straight, basal spinules small, progressively reduced. Wings (Fig. 7) very weakly tinted, with a conspicuous dark brown pattern that is chiefly costal, the areas subtended by clearer subhyaline borders; darkened costal pattern including a small prearcular spot, with seven major costal areas beyond, the interspaces with inconspicuous paler brown clouds, the major darkenings slightly narrowed behind; first area reaching *Cu*, second and third scarcely reaching *M*, the latter at origin of *Rs*; fourth darkening at end of *Sc*, and fifth at stigma extended posteriorly, converging behind to form a major U-shaped area; sixth and seventh darkenings post-stigmal, ending abruptly at *R*₄₋₅, broader than the ground interspaces; in cells *C* and *Sc* the interspaces broader than the darkened areas, each with a vague

pale brown cloud additional to the costal pattern; additional brown seams over cord, at outer end of cell *1st M*₂ and as a conspicuous seam at end of vein *2nd A*; veins yellow in the ground, slightly darker in the patterned areas, including microscopic marginal dots at ends of longitudinal veins *M*₁₋₂, *M*₃, *M*₄ and *1st A*. *Rs* and veins of outer radial and medial fields with trichia. Venation: *Sc* long, *Sc*₁ ending shortly before level of fork of *Rs*, *Sc*₂ slightly longer, placed near its tip; cell *1st M*₂ long, nearly equal to the distal section of vein *M*₁₋₂; *m-cu* from about one-half to three-fifths its length before the fork of *M*.

Abdominal tergites light brown, sternites yellowed. Ovipositor with cerci small, needle-like; hypovalvae short and stout.

Habitat: Nigeria. Holotype, ♀ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

By my key to the Tropical African species of the subgenus *Geranomyia* (Ruwenzori Report, p. 199-200; 1956), the present fly runs to species such as *Limonia (Geranomyia) errana* (Alexander), of Zaire and the closely allied *L. (G.) ornatrix* (Alexander, of Cameroon, both of which differ in venational details and especially in wing coloration, lacking the darkened area on vein *2nd A* and with the brown costal pattern entirely different. The specific name of the present fly is suggested by the bow shaped darkening at the stigmal region of the wing.

8. *Antocha (Orimargula) sparsissima* sp. n.

Size medium (wing of male about 4 mm); general coloration of head and thoracic dorsum brown, pleura yellowed, anepisternum dark brown; legs light brown, terminal tarsal segment with an epicondyle, claw with a single elongate spine and four shorter more basal ones; wings with trichia of veins reduced in number.

Male. Length about 4.5-5 mm; wing, 4-4.2 mm; antenna, about 1-1.2 mm. Rostrum and palpi yellowish brown, outer two segments of latter short, subequal. Antenna of holotype brown; flagellar segments oval, terminal smaller than the penultimate; verticils short; paratypes with flagellar segments slightly longer than in the holotype but apparently the same species. Head dark brown.

Cervical region dark brown. Pronotum brownish yellow. Mesonotum chiefly dark brown, more intense on anterior half of praescutum. Pleura yellowed, anepisternum with a brown area. Halteres pale. Legs light brown; terminal tarsal segment with epicondyle present, claw (Fig. 14) with the outer spine long, with four smaller more basal spines, the outermost about one-

fourth the size of the major spine; basal three spines virtually equal in size or the more basal insensibly smaller. In *minuscula* (Fig. 15) the claw has the spines long and slender, the outermost about one-half or less larger than the one immediately below, the remainder progressively smaller. The relative proportions of the claw spines is best shown by the figures. Wings with trichia of veins reduced in number, occurring on outer ends of veins *R*₃, *R*₄₋₅, *M*₁₋₂ and *M*₃, placed on the outer two-thirds of the element or less.

Abdomen light brown, subterminal two segments darker brown.

Habitat: Nigeria. Holotype, ♂ on slide, Bida, North West State, September 1, 1970 (Medler). Paratypes, 3 males on one slide, Ile-Ife, Western State, July 1970 (Medler); ♂, Obudu Cattle Ranch, 5,000 feet, March 23, 1971 (Medler).

The armature of the terminal tarsal segment in *Orimargula*, including the presence or absence of the epicondyle and the number of spines on the claw provide strong specific characters, as was summarized in a paper by the writer (The Entomologist, May 1967: 124-127; 1967). In this report the 15 Ethiopian species known to that date were listed and the tarsal characters indicated. The species above named as *minuscula* was described as a subspecies of *quadrispinosa* Alexander, of Angola, but apparently represents a distinct species (The crane flies of Angola. Das publicações culturais da companhia de diamantes de Angola, No. 66: 11-44, 41 figs.; July 15, 1963).

8A. *Antocha (Olimargula) schmidi* Alexander

Antocha (Orimargula) schmidi Alexander, Bull. de l. I.F.A.N., 20, Ser. A, No. 1: 126-127; 1958.

Type from Guinea (as French Guinea), Souapiti, May 1-15, 1955 (Fernand Schmid). One male, Ile-Ife, Western State, Nigeria, December 29, 1970 (Medler). The Nigerian specimen agrees closely with the type except for a slight difference in the apex of the aedeagus that may be the result of differences in position in mounting on slide. The species is best told from other regional members of the subgenus by the trichiation of the wing veins, there being abundant trichia on all longitudinal veins virtually to the wing base, being absent on the narrow bases of veins *M* and *Cu*₁. In the present specimen there are or two such trichia on crossvein *r-m* and *m-cu*, not present in the type. The nature of trichiation of the veins was not discussed in the original characterization of the species. The venation is shown (Fig. 8).

9. *Orimarga (Orimarga) biclavata* sp. n.

Size large (wing to 6 mm); general coloration of mesonotum brown, pleura more yellowed; legs brown; wings very slightly darkened, veins light brown; male hypopygium large and complex, tergite with disk of central section produced into two rounded lobes that are directed dorsad; basistyle with an elongate arm on mesal face at base, apex with a brush of long pale yellow setae, base of arm with a narrow lobe tipped with a pencil of long yellow setae; outer dististyle sinuous, outer half very slender, tip darkened, inner style with apex dilated.

Male. Length, about 6-6.5 mm; wing, 5.5-6 mm; antenna, about 1.1-1.2 mm. Female. Length, about 7 mm; wing, 6 mm; antenna, about 1.4 mm. Rostrum brownish yellow; palpi dark brown, terminal segment nearly twice the penultimate. Antennae dark brown, scape very slightly paler; flagellar segments suboval with truncated ends, terminal segment oval, about one-half the penultimate. Head dark brown.

Pronotum brownish yellow. Mesonotum brown, pleura more yellowed, darker anteriorly. Halteres with stem yellow, knob pale brown. Legs with coxae and trochanters yellow; remainder of legs brown, femoral bases narrowly more yellowed; claws small, strongly curved. Wings (Fig. 10) very slightly darkened, prearcular and costal fields more yellowed; veins light brown. Trichia on longitudinal veins beyond general level of midlength of *Rs* and *m-cu*, lacking on *Cu* and the Anals. Venation: *Sc*₁ ending opposite or shortly before fork of *Rs*, *Sc*₂ from about one-half to subequal to *Sc*₁; free tip of *Sc*₂ faintly preserved, more basad than in *mashonensis*; basal section of *R*₄₋₅ relatively short, nearly twice *m-cu*.

Abdomen brown, hypopygium darker brown. Male hypopygium (Fig. 16) large, structure distinctive. Tergite, *t*, large the mid-section conspicuous, elevated into two circular more darkened lobes, posterior border without groups of setae, as in *bifimbriata*. Basistyle, *b*, long and slender, base of mesal face with an elongate arm, its apex more dilated, inner face with dense long pale yellow setae; stem at near midlength with a microscopic tubercle, base produced into a narrow lobe, at apex with a pencil of long yellow setae, the longest slightly exceeding the lobe. Dististyles, *d*, terminal, narrow, united at bases, outer style broader on basal half, outer part very slender, apical spine very short, decurved; inner style subequal in length, stouter, apex more dilated, broadly obtuse. Phallosome, *p*, as shown, massive, central body terminating in two low rounded lobes; apophyses longer, appearing as flattened blades.

Habitat: Nigeria. Holotype, ♂ on slide. Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22-23, 1971 (Medler). Allotopotype, ♀, on slide with type. Paratopotypes, 10 ♂♂, on slides.

The most similar described species is *Orimarga (Orimarga) mashonensis* Alexander, of Rhodesia (Mashonaland), differing in the coloration of the body and wings, and in slight details of venation. The male sex of this species remains unknown to me and presumably will show further distinctions in the hypopygium. Other described regional species include *O. (O.) brevicula* Alexander of Angola, and *O. (O.) monilis* Alexander, of Cameroon, both differing evidently in venation, with veins *R*₁₋₂ and *R*₂ subequal and with *R*₂ and *r-m* in transverse alignment or virtually so. The species next described, *O. (O.) bifimbriata* sp. n., is very distinct in the structure of the male hypopygium.

10. *Orimarga (Orimarga) bifimbriata* sp. n.

Size large (wing of male about 6 mm); antennae relatively long, about 1.5 mm.; general coloration of mesonotum brown, pleura yellowed; legs brown; wings yellowed, veins only slightly darker; *Rs* relatively long, veins *R*₁₋₂ and *R*₂ subequal; male hypopygium large and complex; tergite dorsally not elevated, posterior border of central section with low lobes provided with strong setae; basistyle with a low lobe on mesal face at base, outer margin with about 50 long yellowed setae; outer dististyle broad at base, thence narrowed and curved very gradually into a long blackened spine, inner style slightly longer, outer third narrow, including the apex.

Male. Length, about 6.5 mm; wing, 6 mm; antenna, about 1.5 mm. Rostrum light yellow, palpi brown, first segment paler basally. Antennae slightly longer than in *biclavata*, dark brown; flagellar segments suboval, progressively smaller outwardly. Head dark brown; eyes large, posterior vertex narrow.

Pronotum brownish yellow. Mesonotum almost uniformly brown, pleura yellowed. Legs with coxae and trochanters yellow; remainder of legs brown. Wings (Fig. 9) yellow, veins only slightly darker. Venation: *Sc*₁ ending shortly before fork of the long *Rs*; free tip of *Sc*₂ faintly preserved; veins *R*₁₋₂ and *R*₂ subequal, the latter slightly more distad than *r-m*; basal section of *R*₄₋₅ about two and one-half times *r-m*.

Abdominal tergites brown, sternites and hypopygium slightly paler. Male hypopygium (Fig. 17) large, distinctive. Tergite, *t*, broad, the length at midline about one-fifth the width, narrower than in *biclavata*, as shown; cephalic border of the central section straight, the dorsum of this section not elevated, as in *biclavata*; posterior margin with a small elevation on either side at junction.

of the lateral and central sections of the plate, this with sparse delicate setae, as shown; more mesad on central section the margin with a low but larger lobe that is provided with a row of about six strong setae. Basistyle, *b*, moderately stout, at base of mesal face with a low lobe, its apex with a group of about 50 long yellow setae, their apices slightly curved. Dististyles, *d*, terminal, only shortly united basally, outer style broad, curved and narrowed very gradually into a long blackened spine, as shown, not sinuous and decurved as in *biclavata*; inner style slightly longer, outer third narrowed, not expanded at apex as in *biclavata*. Phallosome, *p*, as shown, much more narrowed, including the paired central region of the aedeagus and the dististyle apophyses. The hypopygial structure of the two species here described may be most readily understood by the figures provided.

Habitat: Nigeria. Holotype, ♂ on slide. Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler).

While being similar in size and general appearance to *Orimarga* (*Orimarga*) *biclavata* sp. n., the present fly is entirely different in hypopygial structure, as described and figured for the two species. The most similar previously described regional species is *O. (O.) mashonensis* Alexander, of Rhodesia, as discussed under the preceding species.

Lechriini

10A. *Xenolimnobia camerounensis* Alexander

Xenolimnobia camerounensis Alexander, Rev. Zool. Afr., 14: 167, 171-173, fig. 6 (antenna male), fig. 7 (venation male), fig. 8 (male hypopygium); 1926.
Xenolimnobia camerounensis Alexander, British Museum (Natural History), Ruwenzori Expedition 1934-35, 1, no. 7: 257; 1956.

Type, male, Edea, Cameroon, September 13, 1923 (J. A. Reis).

Allotype, female, described herewith.

Generally as in the type male, differing in the larger size (length about 4 mm; wing, 3.8 mm); slightly more blackened wings, and in sexual characters.

Wings (Fig. 18) differing from male in slight features of the outer radial field, especially the approximation and short fusion of veins R_1 and costa, obliterating the short apical vein shown in the figure of the type male, as cited, the vein presumably representing vein R_1 . Antennae with proximal two flagellar segments united, the third less evidently fused, succeeding segments distinct; verticils of proximal flagellar segments relatively short, on outer segments much longer than the segments.

Ovipositor (Fig. 23) generally as in the subgenus *Xipholimnobia* Alexander, the cerci, *cer*, very long and slender, sinuous, longer than the hypovalvae, *hyp*, the latter narrowed to their tips, with several very long pale setae.

The ovipositor of *Trichoneura* (*Xipholimnobia*) *terebrina* (Alexander) of Cameroon is shown for comparison (Fig. 24). In this both the cerci, *cer*, and hypovalvae, *hyp*, are excessively lengthened, nearly straight, the latter being the longer and lacking setae such as are found in *Xenolimnobia*.

Allotype, female, on slide, Obudu Cattle Ranch, Southeastern State, Nigeria, March 23, 1971 (Medler).

10B. *Trichoneura (Ceratolimnobia) munroi* (Alexander)

Ceratolimnobia munroi Alexander, Ann. Mag. Nat. Hist., (9) 5: 469-471; 1920.
Ceratolimnobia (Ceratolimnobia) munroi Alexander, South African Animal Life, 10: 346; 1964.

The type was from Eastern Transvaal. Other previous records include Southern Rhodesia and Southwest Africa (Omutati Kaokoveld). The following record greatly extends the range of this interesting fly.

Nigeria. Ile-Ife, Western State, July 1970 (Medler).

Hexatomini

11. *Paradelphomyia (Oxyrhiza) marginipuncta* sp. n.

General coloration of head and thorax dark brown; antennae brown, proximal two flagellar segments light yellow; wings broad, yellow, restrictedly patterned with brown, including conspicuous apical seams on all longitudinal veins from R_3 to 2nd A, inclusive; male hypopygium with outer dististyle at apex trispinous, inner style with a low basal lobule; gonapophysis subquadrate, the inner apical angle extended into a short spine.

Male. Length, about 6.5 mm; wing, 6 mm; antenna, about 1.25 mm. Rostrum and palpi dark brown. Antennae with scape and pedicel brown, proximal two flagellar segments light yellow, remainder brown; flagellar segments elongate, verticils of the more basal ones long, exceeding twice the segments. Head dark brown.

Thorax brown, pronotum and humeral region of praescutum paler. Legs with fore coxae brown, remaining coxae and all trochanters yellowed; remainder of legs broken. Wings (Fig. 19) broad, coloration yellow, restrictedly patterned with brown,

including seams at origin of R_s , cord, outer end of cell $1st M_2$, Sc_2 , and fork of R_{2-3-4} ; longitudinal veins R_3 to $2nd A$ with relatively extensive dark brown seams, including the veins. Relatively sparse trichia in stigmal area and in outer ends of cells R_2 to M_3 . Venation: Sc_1 ending shortly before fork of R_s ; $m-cu$ shortly beyond midlength of M_{3-4} .

Abdomen brown, proximal tergites with posterior borders paler, basal sternites pale, darker laterally; segments seven to nine, including hypopygium, dark brown. Male hypopygium (Fig. 25) with outer dististyle, d , slender at base, dilated outwardly, with two unequal apical spines, with a further straight erect peg on ventral margin; inner style with a low basal lobule. Gonapophysis, g , as figured, appearing as a subquadrate yellow plate, inner apical angle extended into a short spine.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

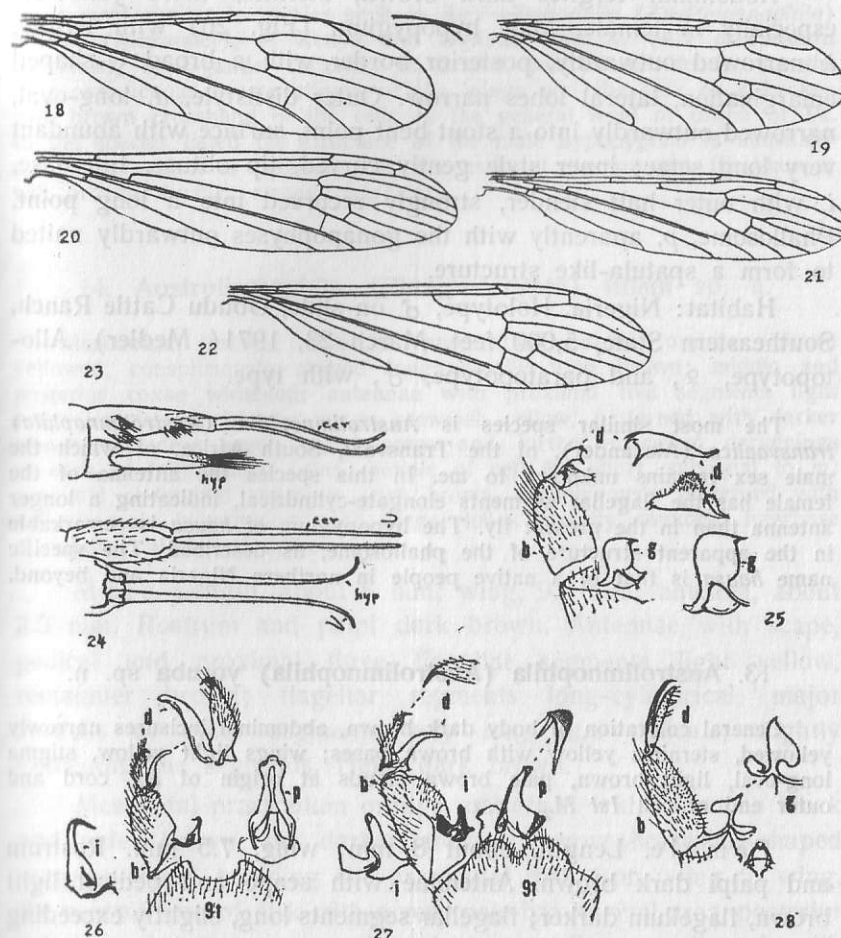
Other regional members of the genus that have the wing pattern generally as in the present fly include *Paradelphomyia (Oxyrhiza) annulipes* Alexander, of Mozambique, and *P. (O.) paucimacula* Alexander, of Zaire (North Kivu), differing in details of body coloration and in the pattern and shape of the wings.

12. *Austrolimnophila (Austrolimnophila) hausa* sp. n.

Head dark brown; mesonotum brownish yellow, scutum and scutellum darker; wings almost uniformly fulvous brown, stigma large, oval, slightly darker brown, veins light brown; cell M_1 with petiole short, subequal to m ; abdominal tergites brown, sternites more yellowed; male hypopygium with interbase narrowed into a long point, gonapophyses apparently united outwardly to form a spatula.

Male. Length, about 10-11 mm; wing, 8.5-10 mm; antenna, about 2.0-2.1 mm. Female. Length, about 10 mm; wing, 10 mm. Rostrum obscure yellow, palpi brown. Antennae of moderate length, brown throughout; flagellar segments in male elongate, the intermediates with long verticils, a few considerably longer than the segment. Head dark brown.

Pronotum and mesonotal praescutum chiefly dark brown in male, more yellowed in female. Pleura brown in male, more yellowed in female. Halteres brown, knob slightly darker. Legs with coxae and trochanters yellow, apices of the latter dark brown; remainder of legs brownish black. Wings (Fig. 20) almost uniformly fulvous brown to medium brown, the large oval stigma slightly darker brown; veins light brown. Venation:



Figs. 18-28 — Lechriini, Hexatomini. — Fig. 18. *Xenolimnobia camerounensis* Alexander; venation. — Fig. 19. *Paradelphomyia (Oxyrhiza) marginipuncta* sp. n.; venation. — Fig. 20. *Austrolimnophila (Austrolimnophila) hausa* sp. n.; venation. — Fig. 21. *Austrolimnophila (Phragmocrypta) fulani* sp. n.; venation. — Fig. 22. *Austrolimnophila (Austrolimnophila) yoruba* sp. n.; venation. — Fig. 23. *Xenolimnobia camerounensis* Alexander; ovipositor. — Fig. 24. *Trichoneura (Xipholimnobia) terebrina* (Alexander); ovipositor. — Fig. 25. *Paradelphomyia (Oxyrhiza) marginipuncta* sp. n.; male hypopygium. — Fig. 26. *Austrolimnophila (Austrolimnophila) hausa* sp. n.; male hypopygium. — Fig. 27. *Austrolimnophila (Phragmocrypta) fulani* sp. n.; male hypopygium. — Fig. 28. *Pseudolimnophila (Calolimnophila) subprinceps* Alexander; male hypopygium. — (Symbols, ovipositor: *cer*, cercus; *hyp*, hypovalvae; *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *i*, interbase; *p*, phallosome; *t*, ninth tergite).

R_s slightly arcuated at origin; Sc_2 shortly beyond midlength of R_{2-3-4} ; petiole of cell M_1 short, subequal to m or very slightly longer; cell $1st M_2$ relatively narrow, slightly widened outwardly, with $m-cu$ at near three-fifths the length.

Abdominal tergites dark brown, sternites more yellowed, especially in female. Male hypopygium (Fig. 26) with tergite, *t*, narrowed outwardly, posterior border with a broad U-shaped emargination, lateral lobes narrow. Outer dististyle, *d*, long-oval, narrowed outwardly into a stout bent point, surface with abundant very long setae; inner style gently curved, tip obtuse. Interbase, *i*, with outer half slender, strongly recurved into a long point. Phallosome, *p*, apparently with the gonapophyses outwardly united to form a spatula-like structure.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler). Allotopotype, ♀, and paratopotype, ♂, with type.

The most similar species is *Austrolimnophila (Austrolimnophila) transvaalica* (Alexander), of the Transvaal, South Africa, of which the male sex remains unknown to me. In this species the antenna of the female has the flagellar segments elongate-cylindrical, indicating a longer antenna than in the present fly. The hypopygium of *hausa* is remarkable in the apparent structure of the phallosome, as described. The specific name *hausa* is that of a native people in northern Nigeria and beyond.

13. *Austrolimnophila (Austrolimnophila) yoruba* sp. n.

General coloration of body dark brown, abdominal incisures narrowly yellowed, sternites yellow with brown bases; wings light yellow, stigma long-oval, light brown, pale brown clouds at origin of *Rs*, cord and outer end of cell *1st M*₂.

Female. Length, about 8 mm; wing, 7.5 mm. Rostrum and palpi dark brown. Antennae with scape and pedicel light brown, flagellum darker; flagellar segments long, slightly exceeding the longest verticils. Head dark brown.

Pronotum yellowish brown to light brown. Mesonotum dark brown, pleura somewhat paler brown. Halteres light brown, apex of the large knob slightly paler. Legs with coxae yellowed, trochanters darker; remainder of legs broken. Wings (Fig. 22) light yellow, prearcular and costal fields somewhat clearer yellow; stigma long-oval, light brown; still paler brown clouds at origin of *Rs*, cord and outer end of cell *1st M*₂; veins light brown. Venation: Cell *1st M*₂ rectangular; *m-cu* at near two-fifths *M*₃₋₄.

Abdominal tergites dark brown, incisures narrowly yellow, sternites yellowed, bases brown. Ovipositor with cerci slender, very gently upcurved to the acute tips.

Habitat: Nigeria. Holotype, ♀ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler).

In the female sex, and especially in the wing pattern, the present fly is most similar to species such as *Austrolimnophila (Austrolimnophila) diffusa* (Alexander), of Kenya and Uganda, and *A. (A.) praepostera* Alexander, of Uganda, differing in certain colorational details, as the long conspicuous brown stigma of the wings and the lack of a broken pale brown crossband in the cells at the general level of origin of *Rs*. In the species listed the structure of the male hypopygium is unusually distinctive and it is believed that the male of the present fly likewise will provide further strong characters.

14. *Austrolimnophila (Phragmocrypta) fulani* sp. n.

Mesonotum brown, disk of praescutum chiefly orange; pleura yellowed, conspicuously striped longitudinally with brown; middle and posterior coxae whitened; antennae with proximal five segments light yellow, remainder brown; wings brownish yellow, patterned with darker brown, including seven costal areas and further marginal darkenings at ends of longitudinal veins; petiole of cell *M*₁ short, subequal to *m*; proximal abdominal segments dark brown, conspicuously patterned with yellow; male hypopygium with tergal lobes broadly rounded, interbase a compact blackened spike.

Male. Length, about 8 mm; wing, 9.5 mm; antenna, about 2.3 mm. Rostrum and palpi dark brown. Antennae with scape, pedicel and proximal three flagellar segments light yellow, remainder brown; flagellar segments long-cylindrical, major verticils of outer segments very long and delicate, slightly exceeding the segments. Head dark brown.

Mesonotal praescutum orange, patterned with brownish black and paler brown, the darker area a narrow horseshoe-shaped marginal band outlining the praescutal disk from wing to wing, the central area of disk with a very pale brown oval area, posterior sclerites of notum more uniformly brown. Pleura yellowed, with four longitudinal light brown lines, the most dorsal immediately below the dorsopleural membrane, beneath this a second line from cervical region through the mesepimeron; third darkened line including the base of fore coxa and as broken spots on dorsal sternopleurite and on mesopleural suture; fourth line including the ventral sternopleurite and narrow bases of the otherwise clear white middle and hind coxae. Halteres light brown. Legs with coxae as described; trochanters brown; remainder of legs broken. Wings (Fig. 21) with anterior fourth of ground brownish yellow, the remaining ground slightly darker brown; a conspicuous brown pattern, including about seven costal areas that are much smaller than the interspaces, first area over the supernumerary crossvein in cell *Sc*, second at origin of *Rs*, not reaching *M* behind;

third area at fork of *Sc*, fourth and fifth united to form an elongate stigma, posteriorly their ends produced caudad to vein *R*₄; outer two costal areas at ends of veins *R*₃ and *R*₄, vein *R*₅ undarkened; remaining longitudinal veins with smaller marginal clouds; disk with very narrow and inconspicuous brown seams over cord, outer end of cell 1st *M*₂ and fork of *M*₁₋₂; vein *Cu* and the narrow cell *Cu*₁ behind with a series of confluent brown clouds; veins yellow or brownish yellow in the ground, darker in the patterned areas. Venation: A supernumerary crossvein in cell *Sc*, as in the subgenus; *Rs* long, strongly angulated to slightly spurred at origin; petiole of cell *M*₁ short, subequal to or only slightly longer than *m*; *m-cu* beyond midlength of *M*₃₋₄.

Abdomen dark brown, proximal six segments conspicuously patterned with yellow, including the bases and narrow apices of the tergites and larger and more conspicuous areas on the sternites, outer segments uniformly dark brown. Male hypopygium (Fig. 27) with tergite, *t*, large, slightly narrowed posteriorly, border with two broadly rounded lobes that are separated by a smaller U-shaped emargination. Interbase, *i*, a compact blackened spike from an enlarged base. Dististyles, *d*, as figured, outer style with abundant small setae, a few on outer margin near base long and conspicuous; inner style subequal in length, its outer half narrowed.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

The subgenus *Phragmocrypta* Alexander of *Austrolimnophila* (Ruwenzorii Report, p. 265; 1956) includes four previously known species, all from East Africa, Uganda south to Rhodesia. These species are *A. (P.) albocoxalis* Alexander (Rhodesia), *A. (P.) gyldenstolpei* Alexander (Zaire), *A. (P.) maumau* Alexander (Kenya), and *A. (P.) recessiva* Alexander (Uganda). All of these differ from the present fly in details of coloration, wing venation, and details of the male hypopygium. The unusually short petiole of cell *M*₁ of the wings in the present fly should be noted.

14A. *Pseudolimnophila (Calolimnophila) subprinceps* Alexander

Pseudolimnophila (Calolimnophila) subprinceps Alexander, *Studia Entomologia*, 15: 406-407, fig. 18 (venation); 1972.

Type, female, from Ngel Nyaki, Northeastern State, Nigeria, 5,000 feet, March 31, 1970 (Medler).

Male. Length, about 8 mm; wing, 8.5 mm; antenna, about 2.2 mm. Characters generally as in the female. Male hypopygium (Fig. 28) with apex of outer dististyle, *d*, narrowed and decurved

into a slender spine, lower margin of style below the spine with sparse microscopic points. Outline of gonapophysis, *g*, about as shown; it is possible that this structure might be interpreted as being an interbase rather than as an apophysis since the lateral basal arm is connected with the cephalic end of the basistyle. Aedeagus very short and stout.

Allotype, male, Obudu Cattle Ranch, Southeastern State, Nigeria, 5,000 feet, March 23, 1971 (Medler).

15. *Limnophila (Afrolimnophila) hartwigi* sp. n.

General coloration dark brown, posterior sclerites of notum and the pleura pruinose; antennae of male relatively long, nearly one-third the body or wing; legs obscure yellow to light brown, tips of tibiae narrowly brownish black; wings with the very restricted ground whitened to pale yellow, with six pale brown crossbands, the fourth at the cord; *Rs* close to *R*₁, cell *R*₁ acutely narrowed at base; male hypopygium with outer dististyle blackened beyond base, narrowed to the acute tip; gonapophysis long and narrow, not or scarcely dilated outwardly.

Male. Length, about 9 mm; wing, 9 mm; antenna, about 2.8 mm.

Holotype, male, dry specimen. Rostrum and palpi black. Antennae relatively long, black, extreme bases of pedicel and proximal flagellar segments narrowly and vaguely yellowed; flagellar segments with dense short erect setulae, verticils dorsal, shorter than the segments. Head light brownish, orbits gray; posterior vertex laterally with conspicuous long black setae, directed laterad.

Pronotum small, brown, pretergites narrowly yellow. Mesonotal praescutum with three confluent light brown stripes, laterally light gray; scutum brown, posterior sclerites dark brown, light gray pruinose. Pleura brown, sparsely pruinose. Halteres with stem light brown, knob dark brown. Legs with coxae brownish gray; trochanters yellow; femora obscure yellow, vaguely more darkened at tips; tibiae light brown, apices very narrowly brownish black; basitarsi light brown, outer segments black; claws simple. Wings (Fig. 29) with the very restricted ground whitened, costal interspaces light yellow; a very extensive pale brown crossbanded pattern, including six bands, one at the cord, three others more basal, with two in the outer cells; first band at arculus, second and third broadly united in cells *M* and *Cu*; the band at cord broadest, extending from vein *R* to the posterior margin, leaving a microscopic yellow spot in cell 1st *M*; ground line separating

the fourth and fifth darkened bands very narrow but entire; outer dark band apical in position or nearly so, virtually confluent with a yellow spot at apex of cell R_4 ; veins brown. Longitudinal veins beyond general level of origin of R_s with trichia, including most of $2nd\ A$ but lacking on $1st\ A$. Venation as shown; R_s close to R_1 , cell R_1 acutely narrowed at base; R_{2-3-4} shorter than basal section of R_5 ; cell M_1 slightly shorter than its petiole; $m-cu$ at near two-fifths M_{3-4} .

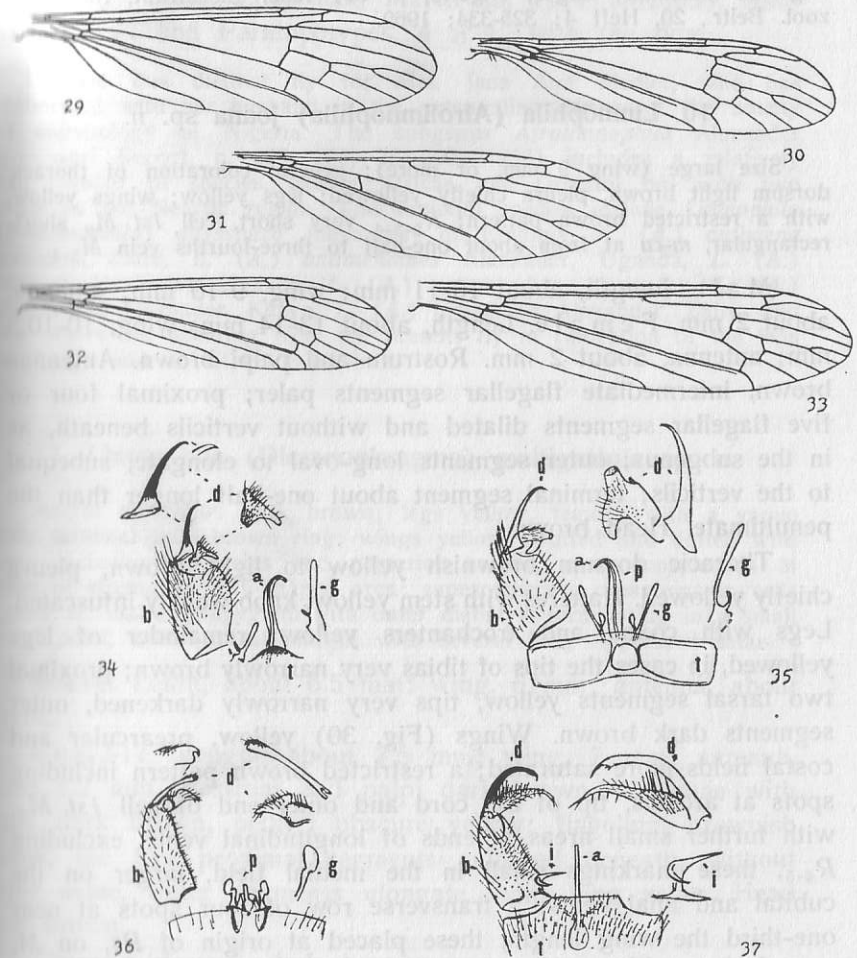
Abdominal tergites dark brown, proximal sternites pale brown, margins darker. Male hypopygium (Fig. 34) with median area of posterior border of tergite, t , semicircular in outline, smooth. Basistyle, b , with unusually long setae on both the outer and mesal faces, the longest outer ones to about three-fourths the length of the outer dististyle. Dististyles, d , as shown; outer style blackened, narrowed very gradually to the gently curved acute tip; inner style produced into a narrow beak, the posterior angle less produced, with long setae. Gonapophysis, g , a slender straight rod, tip rounded. Aedeagus strongly decurved at apex, as in the subgenus.

Allotype, female, on slide. Length, about 7.5 mm; wing, 7 mm; antenna, about 2 mm. Antenna moderately elongate, as shown by the measurements; proximal seven segments of flagellum without ventral verticils, remaining segments with very long verticils that exceed the segments. Ovipositor with cerci slightly longer than the hypovalvae, appearing as slender gently upcurved blades, apices narrowly obtuse.

Holotype, ♂, Refugio, Fernando Poo, West Africa, altitude 1992 meters, December 21, 1962 (Wolfgang Hartwig). Allotype, ♀ on slide, Obudu Cattle Ranch, Southeastern State, Nigeria, 5,000 feet, March 23, 1971 (Medler). Holotype in the Zoologisches Forschungsinstitut, Bonn, Germany; allotype in Alexander Collection.

This attractive fly is named for the collector of the type specimen, Mr. Wolfgang Hartwig, who made very important collections of zoological specimens, including numerous Tipulidae. These later were placed with the late Dr. Bernhard Mannheims for identification and preparation of a report but this plan was made impossible through the death of this outstanding student of the Tipulidae and Blepharoceridae (Born July 12, 1909; died January 25, 1971; see obituary account by G. Niethammer, Bonn zool. Beitr., 22: 1-3, portrait; 1971). Shortly before his death Mannheims placed this series of West African Tipulidae in my hands for further study and completion of a paper concerning them, a work that is still in progress.

The species is readily told from all other members of the subgenus by the structure of the antennae unusually attractive wing pattern and



Figs. 29-37 — Hexatomini. — Fig. 29. *Limnophila (Afrolimnophila) hartwigi* sp. n.; venation. — Fig. 30. *Limnophila (Afrolimnophila) joana* sp. n.; venation. — Fig. 31. *Limnophila (Dicranophragma) multiguttula* sp. n.; venation. — Figs. 32, 33. *Pilaria albopostica* sp. n.; venation, 32, male, 33, female. — Fig. 34. *Limnophila (Afrolimnophila) hartwigi* sp. n.; male hypopygium. — Fig. 35. *Limnophila (Afrolimnophila) joana* sp. n.; male hypopygium. — Fig. 36. *Limnophila (Dicranophragma) multiguttula* sp. n.; male hypopygium. — Fig. 37. *Pilaria albopostica* sp. n.; male hypopygium. — (Symbols, male hypopygium: a, aedeagus; b, basistyle; d, dististyles; g, gonapophysis; i, interbase; p, phallosome; t, ninth tergite).

in details of the male hypopygium. The African species of *Afrolimnophila* Alexander are listed under the next species in this paper. The occurrence of many species of plants and animals at high altitudes on Fernando Poo and again in the Cameroon Mountain area of the Cameroon-Nigeria border is well known. References provided herewith are of interest in

the case of the present fly. Rosevear, D. R. Checklist and atlas of Nigerian mammals, Lagos, Nigeria, p. 32; 1953. Eisentraut, M. Bonn. zool. Beitr., 20, Heft 4: 325-334; 1969.

16. *Limnophila (Afrolimnophila) joana* sp. n.

Size large (wing 9 mm. or more); general coloration of thoracic dorsum light brown, pleura chiefly yellowed; legs yellow; wings yellow, with a restricted brown pattern; R_{2-3-4} very short, cell *1st M*₂ short-rectangular, *m-cu* at from about one-half to three-fourths vein M_{3-4} .

Male. Length, about 10-11 mm; wing, 9-10 mm; antenna, about 2 mm. Female. Length, about 13-14 mm; wing, 10-10.5 mm; antenna, about 2 mm. Rostrum and palpi brown. Antennae brown, intermediate flagellar segments paler; proximal four or five flagellar segments dilated and without verticils beneath, as in the subgenus; outer segments long-oval to elongate, subequal to the verticils; terminal segment about one-half longer than the penultimate. Head brown.

Thoracic dorsum brownish yellow to light brown, pleura chiefly yellowed. Halteres with stem yellow, knob weakly infuscated. Legs with coxae and trochanters yellow; remainder of legs yellowed, in cases the tips of tibiae very narrowly brown; proximal two tarsal segments yellow, tips very narrowly darkened, outer segments dark brown. Wings (Fig. 30) yellow, prearcular and costal fields more saturated; a restricted brown pattern including spots at arculus, tip of *Sc*, cord and outer end of cell *1st M*₂, with further small areas at ends of longitudinal veins, excluding R_{4-5} , these markings small in the medial field, larger on the cubital and anal veins; a transverse row of four spots at near one-third the wing length, these placed at origin of *Rs*, on *M*, beyond midlength of vein *1st A* and tip of *2nd A*; still other small marks at arculus and on *R* before origin of *Rs*; stigmal region yellowed, demarked by small brown areas at tip of *Sc* and over R_2 ; veins yellow, brown in the patterned parts. Venation: R_{2-3-4} very short, subequal to basal section of R_5 or shorter; cell M_1 subequal to or longer than its petiole; cell *1st M*₂ short-rectangular, *m-cu* at from one-half to about three-fourths M_{3-4} .

Abdominal tergites light brown, sternites more yellowed, segment seven more infuscated. Male hypopygium (Fig. 35) with the united tergite and sternite, *t*, narrow, with characteristic thickened margins and paired central structures. Dististyles, *d*, as figured. Gonapophysis, *g*, long and narrow, paddlelike. Aedeagus, *a*, recurved at apex, as in the subgenus.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler). Allotopotype, ♀, and Paratopotypes, 4 ♂ ♀, with the type.

I name this distinct fly for Mrs. Jane Ann Medler, who has collaborated with her husband in the outstanding survey of the botany and entomology of Nigeria. The subgenus *Afrolimnophila* Alexander (Ruwenzori Report, p. 279, 280, 284-290; 1956) includes a relatively small number of species, chiefly African and Oriental but with two species in the Nearctic region. The regional species include *Limnophila (Afrolimnophila) abyssinica* Alexander, of Ethiopia, *L. (A.) antimena* Alexander, Zaire, *L. (A.) antimenoides* Alexander, Uganda, *L. (A.) dichroica* Alexander, Uganda, *L. (A.) namwambae* Alexander, *L. (A.) vansomereni* Alexander, Kenya, *L. (A.) urundiana* Alexander, Zaire, and some others, all differing from the present fly in coloration of the legs and wings and in other characters.

17. *Limnophila (Dicranophragma) multiguttula* sp. n.

General coloration dark brown; legs yellow, femora with a vague nearly terminal pale brown ring; wings yellow, spotted and dotted with brown including all veins and posterior border, most conspicuous in region of stigma as a V-shaped area; supernumerary crossveins in cells R_3 and M ; male hypopygium with outer dististyle terminating in a small curved point, outer apical margin with several long appressed setae.

Male. Length, about 6.5 mm; wing, 6 mm; antenna, about 1 mm.

Female. Length, about 7.5 mm; wing, 7 mm; antenna, about 1.2 mm. Rostrum and palpi dark brown. Antennae with scape dark brown, pedicel obscure yellow; flagellum brownish yellow, the five proximal segments enlarged beneath, without major setae, outer segments elongate, with long setae. Head dark brown.

Thoracic dorsum dark brown, praescutum with a darker central stripe. Pleura light brown, variegated with darker. Halteres with stem whitened, knob pale brown. Legs with coxae dark brown on outer faces; trochanters yellow, narrowly brown at apex beneath; remainder of legs yellow, femora with a vague darker nearly apical ring, outer two tarsal segments brown. Wings (Fig. 31) not dilated in either sex; yellow, with an abundant brown spotted pattern, including scattered marks on all longitudinal veins and along posterior margin in both Anal cells; a larger V-shaped darkened area in stigmal region, including marks at fork of *Sc* and over fork of R_{2-3-4} , anteriorly extended to costa, posteriorly narrowed and extended to fork of *M*, on costal border with a narrow ground area between the arms of the V; smaller

and less conspicuous markings at origin of *Rs* and ends of outer radial veins; veins yellow, brown in the darkened portions. Venation: As shown; *Sc* ending just beyond level of fork of *Rs*; cell M_1 subequal to its petiole; *m-cu* beyond midlength of M_{3-4} ; a yellow supernumerary vein in cell R_3 ; a long, slightly oblique crossvein at near one-third *M*; in female with a short spur from vein *Cu* jutting into cell *M*.

Abdominal tergites dark brown, proximal sternites in male slightly patterned, margins brown, disk yellow, the area of the latter areas progressively smaller on outer segments, outer four segments uniformly darkened. Male hypopygium (Fig. 36) as shown. Outer dististyle, *d*, terminating in a small curved point, outer margin back from tip with several long appressed setae. Phallosome, *p*, with gonapophyses conspicuously dilated, oval, longer than the small aedeagus.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler). Allotopotype, ♀, with type.

There now are known three species in the subgenus *Dicranophragma* Osten Sacken that have a supernumerary crossvein in cell *M* of the wings in addition to the normal one in cell R_3 . All of these are African, besides the present fly being *Limnophila* (*Dicranophragma*) *diploneura* Alexander, of Uganda, and *L. (D.) sesquivena* Alexander, of Zaire. All three species are quite distinct in the pattern of the wings and in details of leg coloration and hypopygial structure.

18. *Pilaria albopostica* sp. n.

General coloration of body dark brown, pleura and proximal abdominal sternites yellowed; antennae of male relatively long, slightly less than one-half the wings; legs dark brown, posterior tarsi with exception of the terminal segment snowy white; wings light brown, *m-cu* at near two-thirds to three-fourths M_{3-4} .

Male. Length, about 7-7.5 mm; wing, 6-6.5 mm; antenna, about 2.6-2.8 mm. Female. Length, about 8.5 mm; wing, 7-8 mm; antenna, about 2-2.1 mm. Rostrum and palpi dark brown. Antennae dark brown, scape slightly paler; in male elongate, slightly less than one-half the wing; flagellar segments elongate, somewhat more narrowed at either end; the more proximal segments with a single very long seta, the longest slightly exceeding the segment, verticils of outer segments progressively shorter, on the antepenultimate and penultimate segments shorter than the segment; terminal segment more slender, about one-half the

penultimate; female antennae shorter, flagellar segments nearly cylindrical, verticils of proximal segments exceedingly long, more than three times the segment. Head dark brown.

Pronotum yellowed. Mesonotum chiefly dark brown, praescutum darker, pleura yellowed. Halteres dark brown. Legs with coxae and trochanters brownish yellow; remainder of legs dark brown, posterior tarsi almost entirely snowy white, including all of the basitarsus, terminal segment dark brown. Wings (Figs. 32 ♂, 33 ♀) almost uniformly light brown, stigma slightly darker; veins dark brown. Stigma with a dorsal and a ventral row of trichia. Venation: Sc_1 ending shortly before fork of *Rs*, Sc_1 and Sc_2 subequal; R_2 and R_{2-3} subequal; cell M_1 about equal to or slightly longer than its petiole; *m-cu* at near two-thirds to three-fourths M_{3-4} .

Abdominal tergites and hypopygium dark brown, basal sternites light yellow. Male hypopygium (Fig. 37) with posterior border of tergite, *t*, slightly produced, margin truncate. Dististyles, *d*, as shown; outer style extended into a slender spine, at its base beneath with two or three microscopic spinules. Interbase, *i*, as shown, appearing as a straight pale spine, on outer margin with a smaller recurved spine. Aedeagus slender, straight.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler). Allotopotype, ♀, and paratopotypes, ♂ ♀, March 22-23, 1971.

The present fly is distinguished from all other presently known African species by the coloration of the legs, all other species that have white on the tarsi having the proximal ends of the basi tarsi darkened. For a discussion of the species known at the time, consult the Ruwenzori Report, p. 293; 1956. The presently known African species are *Pilaria brevitarsis* Alexander, of Kenya, *P. brevivena* Alexander, Uganda, *P. chionomera* Alexander, Zaire, *P. chionopoda* Alexander, Ethiopia, *P. sordidipes* Alexander, Nigeria, and *P. subalbipes* Alexander, Uganda.

19. *Elephantomyia* (*Elephantomyia*) *dikopos* sp. n.

Head dark brown; rostrum elongate, subequal to the body; mesonotum chiefly medium brown, pleura yellow, restrictedly patterned with brown; legs medium brown; wings light brown, stigma only slightly darker; *Rs* not in alignment with vein R_5 ; abdominal tergites dark brown, sternites more yellowed, subterminal segments uniformly darker, pleural region with oval more yellowed areas; male hypopygium with outer dististyle slender; phallosome with aedeagus short, gonapophyses strongly curved.

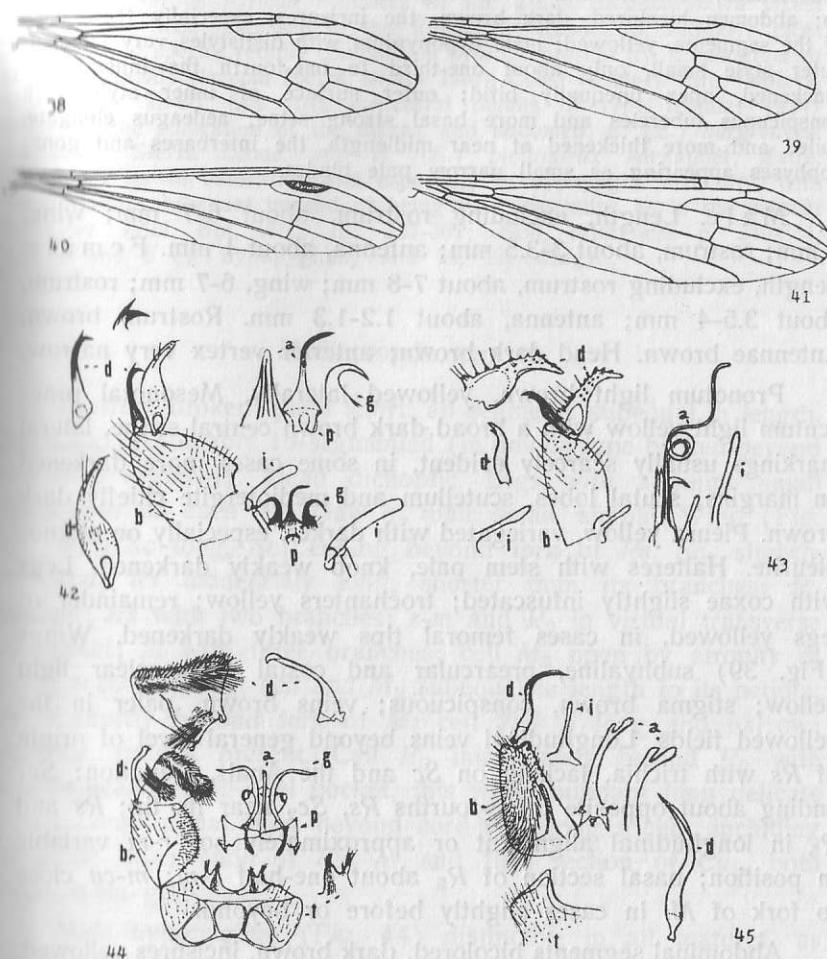
Male. Length, excluding rostrum, about 6 mm; wing, 6.5 mm; rostrum, uncertain, apex broken, about 5 mm; antenna, about 1 mm. Female. Length, excluding rostrum, about 8 mm; wing, 7 mm; rostrum, about 8 mm. Rostrum dark brown, subequal in length to body. Antennae dark brown; first flagellar segment enlarged, succeeding segments small, progressively longer outwardly; verticils of outer segments very long. Head dark brown.

Pronotum dark brown. Mesonotum chiefly medium brown, pleurotergite yellow. Pleura yellow, restrictedly patterned with brown. Halteres with stem yellow, knob weakly darkened. Legs with coxae and trochanters yellow; remainder of legs medium brown, femoral bases scarcely brightened; tibial spurs lacking. Wings (Fig. 38) medium brown, stigma only slightly darker than the ground; veins darker brown. Longitudinal veins beyond general level of origin of R_s with trichia. Venation: Sc long, Sc_1 in cases atrophied, Sc_2 longer; basal section of R_5 not in approximate alignment with R_s ; cell R_2 at margin more than three times as extensive as cell R_4 ; cell 1st M_2 rectangular, in cases subequal in length to vein M_4 , in others somewhat shorter; $m-cu$ shortly beyond fork.

Abdominal tergites dark brown, sternites more yellowed; subterminal segments uniformly darker, hypopygium more yellowed; intermediate segments having pleural region with large oval areas, appearing yellowed on slides, in dry material presumably pollinose. Male hypopygium (Fig. 42) with outer dististyle, d , slender, apex unequally bifid, the tip being a slightly stouter curved spine, the outer point straight; inner style longer, apical half slender. Phallosome, p , complex, the details as shown; lateral arms of ventral plate appearing as flattened yellow blades, tips obtuse.

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

The most similar regional species are *Elephantomyia* (*Elephantomyia*) *nitidithorax* Alexander, of Nigeria and Cameroon. and *E. (E.) schwetzi* Alexander, Zaire, as indicated in the earlier key to the African members of the genus (Ruwenzori Report, p. 299-300; 1956), distinguished among themselves chiefly by body coloration, including the thorax and abdomen. In *nitidithorax* the mesonotal praescutum is shiny black with the humeral region paler, abdominal tergites yellow, incisures narrowly infuscated; in *schwetzi* the praescutum is gray with three brownish black stripes, abdominal segments bicolored, the tergites with the basal rings black, the broader posterior margins paler, infuscated, with the outer angles obscure yellow.



Figs. 38-45 — Hexatomiini, Eriopterini (45). — Fig. 38. *Elephantomyia* (*Elephantomyia*) *dikopos* sp. n.; venation. — Fig. 39. *Elephantomyia* (*Elephantomyia*) *inaequistyla* sp. n.; venation. — Fig. 40. *Medteromyia nigeriana* gen. et sp. n.; venation. — Fig. 41. *Limnophilomyia nigeriensis* sp. n.; venation. — Fig. 42. *Elephantomyia* (*Elephantomyia*) *dikopos* sp. n.; male hypopygium. — Fig. 43. *Elephantomyia* (*Elephantomyia*) *inaequistyla* sp. n.; male hypopygium. — Fig. 44. *Medteromyia nigeriana* sp. n.; male hypopygium. — Fig. 45. *Limnophilomyia nigeriensis* sp. n.; male hypopygium. — (Symbols, male hypopygium: a, aedeagus; b, basistyle; d, dististyles; g, gonapophysis; i, interbase; p, phallosome; t, ninth tergite).

* Fig. 44. *Medteromyia nigeriana* sp. n.; male hypopygium.

20. *Elephantomyia* (*Elephantomyia*) *inaequistyla* sp. n.

Mesonotal praescutum light yellow with a broad dark brown central stripe, posterior sclerites of notum chiefly dark brown, pleura yellow, sternopleurite darkened; legs yellowed; wings subhyaline, stigma brown,

conspicuous, veins R_s and R_5 in longitudinal alignment or approximately so; abdomen bicolored, dark brown, the incisures, especially the apices of the segments, yellowed; male hypopygium with dististyles very unequal, outer style small, only about one-third to one-fourth the inner style, blackened, apex unequally bifid; outer surface of inner style with conspicuous tubercles and more basal strong setae; aedeagus elongate, coiled and more thickened at near midlength, the interbases and gonapophyses appearing as small narrow pale blades.

Male. Length, excluding rostrum, about 6-7 mm; wing, 6 mm; rostrum, about 3-3.5 mm; antenna, about 1 mm. **Female.** Length, excluding rostrum, about 7-8 mm; wing, 6-7 mm; rostrum, about 3.5-4 mm; antenna, about 1.2-1.3 mm. Rostrum brown. Antennae brown. Head dark brown; anterior vertex very narrow.

Pronotum light brown, yellowed laterally. Mesonotal praescutum light yellow with a broad dark brown central stripe, lateral markings usually scarcely evident, in some cases more darkened on margins; scutal lobes, scutellum and mediotergite chiefly dark brown. Pleura yellow, variegated with darker, especially on sternopleurite. Halteres with stem pale, knob weakly darkened. Legs with coxae slightly infuscated; trochanters yellow; remainder of legs yellowed, in cases femoral tips weakly darkened. Wings (Fig. 39) subhyaline, prearcular and costal fields clear light yellow; stigma brown, conspicuous; veins brown, paler in the yellowed fields. Longitudinal veins beyond general level of origin of R_s with trichia, lacking on Sc and the Anals. Venation: Sc_1 ending about opposite three-fourths R_s , Sc_2 near its tip; R_s and R_5 in longitudinal alignment or approximately so; $r-m$ variable in position; basal section of R_5 about one-half $r-m$; $m-cu$ close to fork of M , in cases slightly before or beyond.

Abdominal segments bicolored, dark brown, incisures yellowed, including the broad apices and narrower bases of the segments, more extensive on the sternites; subterminal segments uniformly dark brown. Male hypopygium (Fig. 43) with the dististyles, d , very unequal, the small outer style about one-third to one-fourth the inner, appearing as a blackened spike, apex very inconspicuously bifid, including the stouter apex and a small subapical point; inner style slightly curved, outer surface with conspicuous tubercles, base with a few long erect setae. Aedeagus very long, with a single coil at near midlength, narrowed beyond this. Both the interbases and gonapophyses are small narrow pale blades.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, March 23, 1971 (Medler). Allotopotype, ♀. Paratopotypes, 13 ♂ ♀, with types.

The numerous African members of the genus *Elephantomyia* Osten Sacken have been discussed in the Ruwenzori Report, p. 298-304; 1956. The following species require comparison with the present fly. *Elephantomyia (Elephantomyia) flaveola* Pierre, of the Ivory Coast (Encycl. Ent., Diptera, 1, fasc. 2: 79-80, figs. 1-5, structural details of type female; 1924) differs in the coloration of the thorax and abdomen. *E. (E.) hargreavesi* Alexander, Sierra Leone, and *E. (E.) pictithorax* Alexander, Zaire, likewise differ in coloration and especially in hypopygial structure, with the dististyles subequal instead of being very dissimilar as in the present fly (Rev. Zool. Bot. Afr., 19: 337-367; 1930, references p. 349-351, figs. 4 and 6 (♂ hypopygium) and 18, 19 (wing).

Medleromyia gen. n.

Rostrum broken; palpi short, all segments subequal in length. Antennae presumably 16-segmented (in unique type broken beyond the fifth segment). Head dichoptic. Legs with a single small tibial spur on each leg; claw of male small, simple. Wing (Fig. 40) with Sc long, Sc_1 ending beyond fork of R_s , Sc_2 slightly removed; R_s moderately long, shorter than its branches; R_2 present; R_s with two branches; $r-m$ and R_2 in virtual transverse alignment; M with three branches; cell M_2 open by atrophy of basal section of M_3 ; cell $2nd M_2$ subequal in length to its petiole; $m-cu$ shortly beyond fork of M ; cell $2nd A$ long and narrow; anterior arculus present. Cell R_3 immediately behind R_2 with a conspicuous long-oval pocket, this with abundant long delicate setae. Longitudinal veins beyond cord with long trichia, including also the outer ends of R_s , M and first section of Cu_1 , both Anal veins glabrous.

Male hypopygium (Fig. 44) distinctive in all features, as shown. Tergite, t , transverse, posterior border with a U-shaped emargination, on either side of which with two lobes, as described later under the species; internal scaffolding of tergal plate as shown. Basistyle, b , simple, about one-half the size of the tergite and slightly larger than the inner dististyle, its mesal face with dense setae. Outer dististyle, d , a long slender curved rod, base expanded, outer end very slightly dilated, tip acute; inner style a large suboval plate, provided conspicuously with setae, as figured. Phallosome, p , including the slender aedeagus and longer gonapophyses, g , the latter curved and divergent.

Type of the genus: *Medleromyia nigeriana* sp. n. Nigeria.

This unusually distinct and interesting fly is dedicated to John and Jane Medler who have worked together to add materially to our knowledge of the insect fauna of Nigeria including the Tipulidae. This is one

of the most puzzling crane flies that I have seen. In this venation it suggests members of the tribe Limoniini, as in the genera *Limonia* and *Antocha* but differs from members of this tribe in the presence of tibial spurs and especially in the entirely distinctive male hypopygium. Unfortunately the antennae of the unique type male are broken and the number of segments is uncertain but from other structural characters is assumed to be 16, as is normal for both tribes Hexatomini and Eriopterini, with exceptions occurring in both tribes. I am assigning the genus to the Hexatomini chiefly on the presence of tibial spurs and the venation. By my key to the subfamilies and tribes of the African Tipulidae (Ruwenzori Report, p. 132; 1956) the fly runs to *Elephantomyia* Osten Sacken, an entirely distinct genus. More material should settle the matter of correct position in tribes of this exceptional fly.

21. *Medleromyia nigeriana* sp. n.

Head, thoracic dorsum and abdomen dark-brown; legs medium brown, outer tarsal segments gradually paling to yellow; wings tinged with brown, stigma small, inconspicuous; in cell R_3 posterior to the stigma a modified setiferous pocket; two outer radial veins (R_3 and R_{4-5}), cell M_2 open by atrophy of basal section of M_3 ; male hypopygium with tergite, inner dististyle and phallosome distinctive, as described and figured.

Male. Length, about 7 mm; wing, 7.2 mm; antenna, approximately 1.2 mm. (when entire). Rostrum broken; palpi short. Antennae in unique type broken beyond the fifth segment; coloration brown, proximal flagellar segments oval, longest verticils slightly exceeding the segments. Head dark brown.

Thorax brown, posterior sclerites of notum and the pleura paler. Legs with coxae and trochanters yellow; remainder of legs medium brown, outer tarsal segments gradually paling to yellow. Wings (Fig. 40) faintly tinged with brown, the small inconspicuous stigma slightly darker; a modified longitudinal pocket or fold in cell R_3 posterior to vein R_2 and the stigma, as described. Venation as discussed under the genus.

Abdominal tergites dark brown, sternites slightly paler. Male hypopygium (Fig. 44) as described under the genus, with further details as follows. Tergite, *t*, with two lobes on either side of the posterior emargination, placed at end of a slightly widened base, lateral lobe slender, tipped with about 12 stout setae that form a close tuft; inner lobe stouter, at base with a compact group of setae that extend outwardly on the lobe as a narrow line, terminating in an apical tuft of longer setae. Styli and phallosome as described under the genus.

Habitat: Nigeria. Holotype, ♂ on slide, Erin-Odo, Western State, October 9, 1971 (Medler).

Eriopterini

22. *Limnophilomyia nigeriensis* sp. n.

General coloration of body brown; antennae of male somewhat shorter than either the body or wing; legs brown, tarsi creamy white; wings darkened, cell M_2 open by atrophy of *m*; male hypopygium with dististyles and interbase slender; basistyle with outer face densely setiferous.

Male. Length, about 7.5 mm; wing, 7 mm; antenna, about 6.5 mm. Rostrum and palpi black. Antennae elongate, slightly less than either the body or wing; flagellar segments long-cylindrical, with dense suberect short dark setae, verticils short and sparse. Eyes of male very large, the reduced anterior vertex subequal in width to the diameter of a flagellar segment. Posterior vertex dark brown. Thorax on slide appearing almost uniformly light brown. Halteres brown. Legs with coxae and trochanters yellow, remainder brown, tarsi outwardly paling to creamy white; claw of male very small, smooth. Wings (Fig. 41) strongly darkened, costal border more evidently so; veins darker brown. Trichia on veins beyond cord, including also all of *Rs* and outer ends of basal veins. Venation: R_{1-2} about twice R_2 ; *Rs* in direct longitudinal alignment with R_5 ; *r-m* and basal section of M_{1-2} in alignment; cell M_2 open by atrophy of *m*; Anal veins convergent, cell *1st A* beyond base slightly narrowed.

Abdomen brown. Male hypopygium (Fig. 45) with lobe of tergite, *t*, small (in figure shown in lateral aspect, apparently short). Basistyle, *b*, on outer face with very abundant very long erect setae; interbase a slender straight rod, tip obtuse. Dististyle, *d*, long and slender, sinuous, narrowed gradually to the acute tip, outer third on outer margin with a low flange. Phallosome, *p*, including chiefly the long slender aedeagus, its apex unequally bifurcate.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, March 22, 1971 (Medler).

This is the first record of occurrence of the genus in West Africa. Other African species that have cell M_2 open, as in the present fly, include *Limnophilomyia edwardsomyia* Alexander and *L. niveipes* Alexander, of Uganda, and *L. matengensis* Alexander, of Tanzania, all differing among themselves chiefly in details of structure of the hypopygium.

23. *Trentepohlia (Trentepohlia) joana* sp. n.

General coloration of body brown; legs light yellow, outer two tarsal segments light brown; wings light yellow, including the prearcular

and costal fields, disk with a delicately reticulated pale brown pattern, more restricted in the basal cells.

Male. Length, about 7.5 mm; wing, 6 mm. Rostrum and palpi dark brown. Antennae broken beyond the fourth segment; scape and pedicel dark brown, flagellum yellowed. Head brown.

Pronotum light brown. Mesonotal praescutum darkened medially, more yellowed on sides; posterior sclerites of notum and the pleura darker brown. Legs with coxae brownish yellow; trochanters yellowed, all with a blackened point; remainder of legs light yellow, terminal two tarsal segments light brown. Wings (Fig. 46) long and narrow, light yellow, with a conspicuous delicately reticulated pale brown pattern; anterior markings darker brown; prearcular and costal fields clear light yellow; darkened pattern before cord restricted, appearing as very narrow transverse lines in cells R , R_1 and M , the mark at origin of R_s darker, reaching vein M behind; cell M with three dark areas; beyond the cord the brown pattern more extensive, including the paler stigmal area and a broad wash occupying the outer two-thirds of cell R_4 and the narrow anterior margin of cell R_5 ; other darkenings beyond the cord sparse, including two in cell R_3 and three each in cells R_5 and M_2 ; single areas in cells M_4 and $1st A$, lacking in cell Cu ; veins in the ground yellow, darker in the patterned parts. Venation: Cell R_3 large, vein R_4 long, ending shortly before wing apex; $m-cu$ and the fused R_5 plus M_{1-2} subequal; veins Cu_1 and $1st A$ united at their extreme apices.

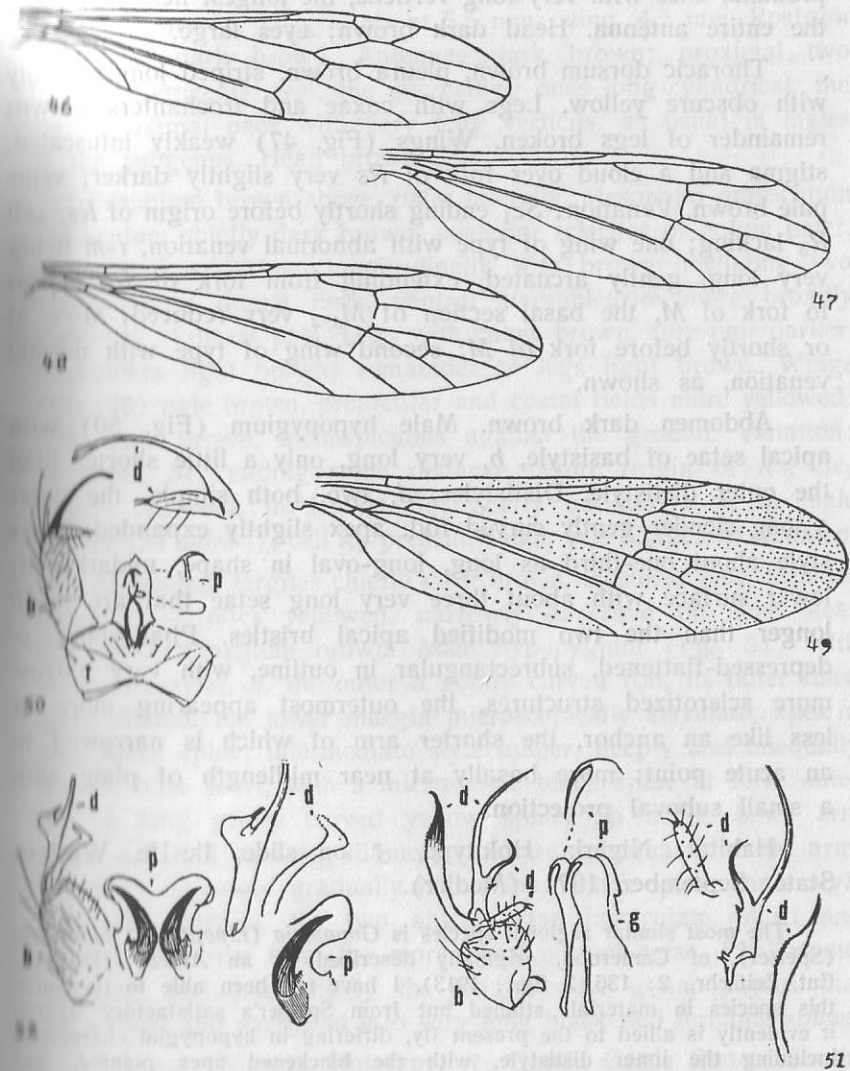
Abdominal tergites dark brown, sternites slightly paler.

Habitat: Nigeria. Holotype, ♂ on two slides, Obudu Cattle Ranch, Southeastern State, March 23, 1971 (Medler).

This unusually attractive crane fly is named in honor of the collector, Mrs. Jane Ann Medler. The most similar regional species is *Trentepohlia* (*Trentepohlia*) *jacobi* Alexander, of Cameroon which differs in all details of the wing pattern. *T. (T.) arachne* Alexander and *T. (T.) fenestrata* Alexander, both of Uganda, are less similar.

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

General coloration of body dark brown, thoracic pleura striped longitudinally with obscure yellow; wings with cell R_3 lacking, weakly infuscated, stigma very slightly darker; male hypopygium with two simple dististyles, the outer a long slender gently curved rod, inner style long-oval, undarkened, provided with very long ventral setae; phallosome a subrectangular depressed-flattened plate with distinctive modifications as described.



Figs. 46-52 — Eriopterini. — Fig. 46. *Trentepohlia* (*Trentepohlia*) *joana* sp. n.; venation. — Fig. 47. *Gonomyia* (*Lipophleps*) *ekiti* sp. n.; venation. — Fig. 48. *Gonomyia* (*Lipophleps*) *ibo* sp. n.; venation. — Fig. 49. *Trichotrimicra medleri* sp. n.; venation. — Fig. 50. *Gonomyia* (*Lipophleps*) *ekiti* sp. n.; male hypopygium. — Fig. 51. *Gonomyia* (*Lipophleps*) *ibo* sp. n.; male hypopygium. — Fig. 52. *Trichotrimicra medleri* sp. n.; male hypopygium. — (Symbols, male hypopygium: b, basistyle; d, dististyles; g, gonapophysis; p, phallosome).

Male. Length, about 2.8 mm; wing, 2.3 mm. Rostrum light brown, palpi darker. Antennae with scape and pedicel dark brown, flagellum paler brown; flagellar segments cylindrical, the

proximal ones with very long verticils, the longest nearly one-half the entire antenna. Head dark brown; eyes large.

Thoracic dorsum brown, pleura brown, striped longitudinally with obscure yellow. Legs with coxae and trochanters brown; remainder of legs broken. Wings (Fig. 47) weakly infuscated, stigma and a cloud over fork of *Rs* very slightly darker; veins pale brown. Venation: *Sc*₁ ending shortly before origin of *Rs*; cell *R*₃ lacking; one wing of type with abnormal venation, *r-m* being very long, gently arcuated, extending from fork of *Rs* almost to fork of *M*, the basal section of *M*₁₋₂ very reduced; *m-cu* at or shortly before fork of *M*; second wing of type with normal venation, as shown.

Abdomen dark brown. Male hypopygium (Fig. 50) with apical setae of basistyle, *b*, very long, only a little shorter than the outer dististyle. Dististyles, *d*, two, both simple, the outer a long slender gently curved rod, apex slightly expanded; inner style about one-third as long, long-oval in shape, undarkened; lower surface with about three very long setae that are much longer than the two modified apical bristles. Phallosome, *p*, depressed-flattened, subrectangular in outline, with very narrow more sclerotized structures, the outermost appearing more or less like an anchor, the shorter arm of which is narrowed to an acute point; more basally at near midlength of plate with a small suboval projection.

Habitat: Nigeria. Holotype, ♂ on slide, Ile-Ife, Western State, September 1971 (Medler).

The most similar regional species is *Gonomyia* (*Lipophleps*) *lamellaris* (Speiser), of Cameroon, originally described as an *Atarba* (Deutsch. Ent. Zeitschr., 2: 136, 2 figs.; 1913). I have not been able to recognize this species in materials studied but from Speiser's satisfactory figures it evidently is allied to the present fly, differing in hypopygial characters, including the inner dististyle, with the blackened apex pointed, and with the phallosome distinctive. The specific name, *ekiti*, is that of a native tribe.

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

Size medium (wing of male about 4.3 mm); general coloration brown, patterned with yellow, including conspicuous thoracic pleural stripes; legs light brown; wings pale brown, costal border narrowly more yellowed, veins pale brown, vein *Sc* short, cell *R*₃ small; male hypopygium with three dististyles, the intermediate one longest, deeply forked; gonapophysis long, curved, narrowed gradually into a very long blackened terminal spine.

Male. Length, about 5 mm; wing, 4.3 mm; antenna, about 1 mm. Female. Length, about 5.5 mm; wing, 4.5 mm. Rostrum and palpi dark brown. Antennae dark brown; proximal two flagellar segments oval, the succeeding ones long-cylindrical, the more proximal ones with very long verticils, as usual in males of the subgenus. Head brown.

Pronotum brown above, paler laterally. Mesonotal praescutum and scutum chiefly dark brown, posterior sclerites of notum paler. Pleura yellow, striped longitudinally with brown, including two narrow more dorsal lines, ventral sternopleurite more broadly darkened. Halteres pale. Legs with coxae brown, fore pair darker, trochanters light brown; remainder of legs light brown. Wings (Fig. 48) pale brown, prearcular and costal fields more yellowed; veins pale brown, inconspicuous against the ground. Venation: *Sc* short, *Sc*₁ ending some distance before origin of *Rs*, *Sc*₂ shortly removed, in female *Sc*₁ nearly one-half *r-m*, in male shorter (as shown); cell *R*₃ present, small, vein *R*₄ gently arcuated.

Abdominal tergites chiefly dark brown, incisures pale, broader laterally; sternites yellowed, narrowly darkened on sides near margin; hypopygium brown. Male hypopygium (Fig. 51) with three dististyles, *d*, the outer a gently curved rod, its outer third more dilated, the lower margin microscopically serrulate, apex a long black spine; intermediate style longer, deeply and unequally forked, base short, with a microscopic black spine at fork, outer arm a long gently curved yellow spine, tip acute, inner arm about one-half as long, diameter at base subequal to outer arm, sinuously narrowed gradually into a long black spine; inner style long and narrow, the two apical setae fasciculate, short and scarcely different from the more basal normal setae. Phallosome, *p*, large, including chiefly the long slender gonapophyses that are curved and narrowed into very long blackened terminal spines.

Habitat: Nigeria. Holotype, ♂, Obudu Cattle Ranch, South-eastern State, 5,000 feet, March 22, 1971 (Medler). Allotopotype, ♀, on slide with type.

The Tropical African species of the genus *Gonomyia* have been treated in a key by the writer (Ruwenzori Report, p. 325-326; 1956). The present fly is most similar to species such as *Gonomyia* (*Lipophleps*) *unicornuta* Alexander, of Uganda, and less so to *G. (L.) liberiensis* Alexander, of Liberia and a few others. It differs from all such species in hypopygial structure, particularly the dististyles and phallosome. The specific name, *ibo*, is that of a native tribe.

26. *Trichotrimicra medleri* sp. n.

Size small (wing of male 3.5 mm); general coloration of body brown; antennae with scape and pedicel brown, flagellum paler brown, segments with very long verticils, the longest nearly four times the segment; wings light brown, veins slightly darker, virtually all cells with sparse small trichia; male hypopygium with outer dististyle forked at near midlength, inner style slender, pale, its apex bent laterad into a lobe; phallosome including two powerful darkened hornlike spines, placed above a more extensive depressed-flattened paler yellow plate.

Male. Length, about 4 mm; wing, 3.5 mm; antenna, about 0.8 mm. Rostrum light brown, palpi darker brown. Antennae with the enlarged scape and pedicel dark brown, flagellum lighter brown; first flagellar segment oval, succeeding ones more elongate, all with very long verticils that exceed the segments, the longest at near midlength of organ nearly four times the segment. Head brown.

Pronotum light brown. Mesonotum chiefly dark brown, pleura appearing somewhat paler brown. Halteres with stem pale, the large knob slightly darker brown. Legs with coxae and trochanters brown; remainder of legs broken. Wings (Fig. 49) light brown, veins poorly indicated, only slightly darker than the ground. Sparse small trichia in virtually all cells, their punctures small (position indicated by stippling in figure). Venation: R_2 about three times R_{2-3} and subequal to R_{2-3-4} ; cell $1st M_2$ small, nearly one-third vein M_4 ; $m-cu$ close to fork of M .

Abdomen brown. Male hypopygium (Fig. 52) with outer dististyle forked, the stem slender, at near midlength with a broad blade that is bent at an angle into a straight black spine; inner style shorter, slender, pale, at apex bent laterad into a lobe. Phallosome, p , distinctive, including two powerful darkened spines, contiguous at midline before midlength, the powerful outer parts divergent, the spines resting on a more extensive depressed-flattened pale yellow plate, its apex broadly emarginated to form conspicuous outer lateral lobes.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler).

I take great pleasure in naming this interesting fly for Dr. John T. Medler to whom much of our recent knowledge of the insects of Nigeria is due.

Trichotrimicra Alexander originally was placed as a subgenus of *Trimicra* Osten Sacken (Annals South African Mus., 18: 195; 1921) but with the accession of further species it was recognized as being a distinct group, at first as a subgenus of *Ormosia* Rondani, presently as a valid genus. The principal references that include this genus are

by Alexander — Ruwenzori Expedition, p. 343-346; 1956; Ann. Natal Mus. 11: 304-307; 1960; South African Animal Life, 10: 411-413; 1964. The species previously described are from South and East Africa and include *Trichotrimicra antilopa* (Alexander), *T. hirtipennis* (Alexander) and *T. tchaka* (Alexander), of Natal; *T. flavidella* Alexander, Kenya; *T. majuscula* Alexander and *T. subnuba* (Alexander), Uganda, and *T. vanstraeleni* Alexander, Rwanda. The discovery of the genus in Nigeria is of great interest. All known species are distinguished among themselves chiefly by hypopygial characters.

27. *Erioptera (Erioptera) badicincta* sp. n.

General coloration of thorax brownish yellow; antennae light yellow; eyes of male very large; wings brownish yellow, the small darkened stigma continued backward over the cord as a narrow band; male hypopygium with inner dististyle forked, the larger arm dilated outwardly, extended laterad into a spine; phallosome including inner and lateral apophyses, both terminating in blackened spines.

Male. Length, about 6 mm; wing, 5 mm; antenna, about 1 mm. Female. Length, about 5.5 mm; wing, 5 mm; antenna, about 1 mm. Rostrum yellow, palpi dark brown. Antennae light yellow; proximal two flagellar segments united to form a short fusion-segment, outer segments elongate, shorter than their verticils. Head brownish yellow, very large, especially the eyes of male that are contiguous; inner ommatidia larger than those of outer parts of eye.

Pronotum brownish yellow. Mesonotum brownish yellow, pleura apparently paler yellow. Halteres short, stem yellow, knob light brown. Legs with coxae and trochanters yellow, fore coxae more darkened; remainder of legs broken. Wings (Fig. 53) brownish yellow, prearcular and costal fields clearer yellow; stigma pale brown, very small, continued backwards as a similarly narrowed band over the cord; veins light yellow, cord somewhat darker. Venation: As in the subgenus; R_{2-3-4} about one-half longer than R_{2-3} ; vein $2nd A$ long and sinuous.

Abdomen brownish yellow, bases of tergites narrowly more yellowed, subterminal segments darker brown to form a vague ring. Male hypopygium (Fig. 55) with inner dististyle, d , forked at apex, one arm straight, its apex obliquely truncate, blackened, opposite arm larger, dilated outwardly, produced laterad into a long spine, surface of enlarged parts with numerous setae. Phallosome, p , including conspicuous inner and outer gonapophyses, shaped about as figured, both extended into a long blackened point, lateral pair (possibly representing an interbase) larger, dilated.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler). Allotopotype, ♀. Paratopotypes, ♂ ♀, on one slide.

The most similar species are *Erioptera (Erioptera) angusticincta* Alexander, of Zaire, and *E. (E.) cristata* Alexander, Kenya, all differing among themselves especially in the wing pattern and in hypopygial structure, including the inner dististyle and phallosome.

28. *Erioptera (Erioptera) parviclava* sp. n.

Generally as in *badicincta*, especially in coloration of the body, antennae and wing pattern; eyes of male smaller than in *badicincta*; legs uniformly yellow; abdominal tergites more evidently bicolored, bases yellowed, posterior borders broadly light brown; male hypopygium with outer arm of inner dististyle small, not larger than the base; gonapophyses distinctive.

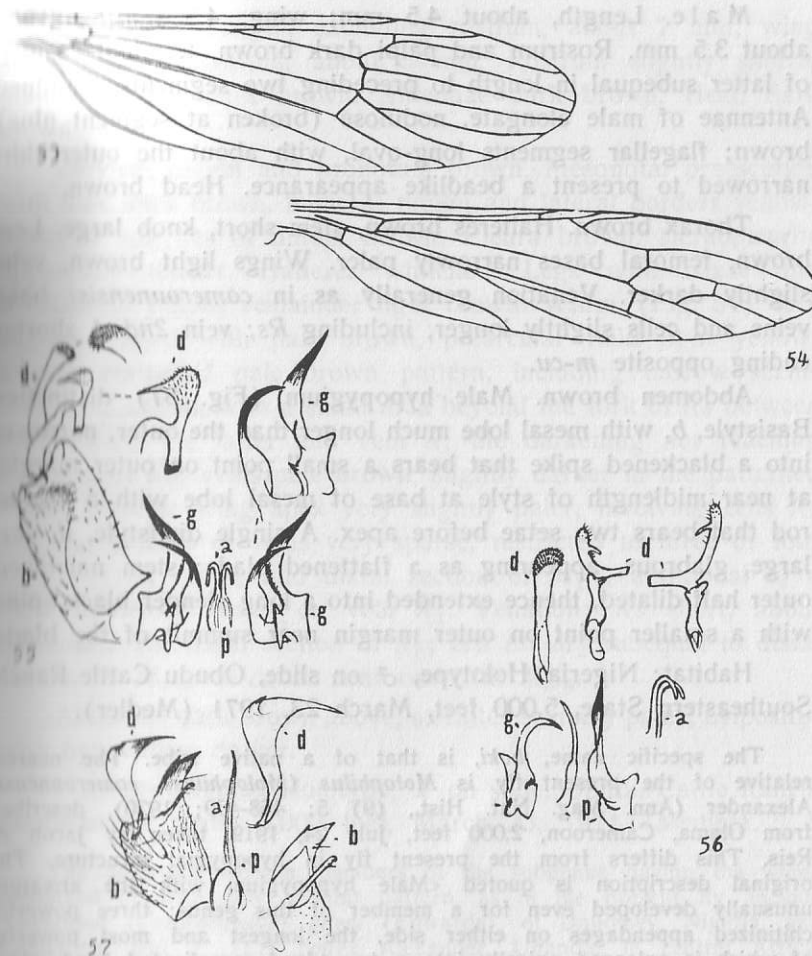
Male. Length, about 6.5 mm; wing, 4.8 mm; antenna, about 1.1 mm. Rostrum yellow, palpi dark brown. Antennae light yellow, much as in *badicincta*. Head brownish yellow to light brown; eyes of male relatively large but smaller than in *badicincta*.

Mesonotum chiefly brownish yellow, slightly darker posteriorly and on pleura. Halteres with knobs light brown. Legs with fore coxae brown, remaining coxae and all trochanters yellow; remainder of legs uniformly light yellow, including femoral apices. Wings yellow, the darkened pattern restricted to a narrow seam that extends from R_2 backwards over the cord, forming a very narrow, inconspicuous band; veins light yellow, cord slightly darker. Venation as in *badicincta*.

Abdominal tergites slightly bicolored, bases yellowed, posterior borders broadly light brown; subterminal segment more extensively darkened to form a narrow ring. Male hypopygium (Fig. 56) generally as in *badicincta*, differing in important details. Inner dististyle, *d*, with lower arm almost as in *badicincta*, outer arm much smaller than in other species, the diameter not greater than the basal part, vestiture sparse. Phallosome, *p*, with gonapophyses differently shaped, as figured.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 22, 1971 (Medler).

The type specimen of the present fly occurred with *Erioptera (Erioptera) badicincta* sp. n., which it much resembles in general features, as described. The smaller eyes and differences in the hypopygium, especially the inner dististyle and the phallosome, provide the chief distinctions between the two species.



Figs. 53-57 — Eriopterini. — Fig. 53. *Erioptera (Erioptera) badicincta* sp. n.; venation. — Fig. 54. *Toxorhina (Ceratocheilus) brevisector* sp. n.; venation. — Fig. 55. *Erioptera (Erioptera) badicincta* sp. n.; male hypopygium. — Fig. 56. *Erioptera (Erioptera) parviclava* sp. n.; male hypopygium. — Fig. 57. *Molophilus (Molophilus) boki* sp. n.; male hypopygium. — (Symbols, male hypopygium: *a*, aedeagus; *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *p*, phallosome).

29. *Molophilus (Molophilus) boki* sp. n.

Antennae of male elongate; general coloration of entire body brown; male hypopygium with basistyle apically produced into a broad blackened spike and a slender rod; dististyle single, very large, narrowed basally, broadest at near midlength, thence extended into a long slender black spine, with a smaller point on outer margin near summit of the blade.

Male. Length, about 4.5 mm; wing, 4.5 mm; antenna, about 3.5 mm. Rostrum and palpi dark brown, terminal segment of latter subequal in length to preceding two segments combined. Antennae of male elongate, nodulose (broken at segment nine), brown; flagellar segments long-oval, with about the outer third narrowed to present a beadlike appearance. Head brown.

Thorax brown. Halteres brown, stem short, knob large. Legs brown, femoral bases narrowly paler. Wings light brown, veins slightly darker. Venation generally as in *camerounensis*; basal veins and cells slightly longer, including *Rs*; vein *2nd A* shorter, ending opposite *m-cu*.

Abdomen brown. Male hypopygium (Fig. 57) distinctive. Basistyle, *b*, with mesal lobe much longer than the outer, narrowed into a blackened spike that bears a small point on outer margin; at near midlength of style at base of mesal lobe with a slender rod that bears two setae before apex. A single dististyle, *d*, very large, glabrous, appearing as a flattened blade; stem narrowed, outer half dilated, thence extended into a long slender black spine, with a smaller point on outer margin near summit of the blade.

Habitat: Nigeria. Holotype, ♂ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

The specific name, *boki*, is that of a native tribe. The nearest relative of the present fly is *Molophilus (Molophilus) camerounensis* Alexander (Ann. Mag. Nat. Hist., (9) 5: 468-469; 1920), described from Olama, Cameroon, 2,000 feet, July 24, 1919, taken by Jacob A. Reis. This differs from the present fly in hypopygial structure. The original description is quoted «Male hypopygium with the armature unusually developed even for a member of this genus; three powerful chitinized appendages on either side, the longest and most powerful of which is enlarged apically into a two-edged complicated head. «Unfortunately the hypopygium of this type was broken and lost and cannot be further described. It appears certain that of the three appendages above mentioned that two pertain to the basistyle, as in the present fly, and the third is the dististyle. I cannot reconcile this brief characterization with the hypopygium of the present fly.

30. *Toxorhina (Ceratocheilus) brevisector* sp. n.

General coloration of entire body dark brown, humeral and lateral borders of mesonotal praescutum yellowed; wings very pale brown, with a very restricted darker brown pattern, with marks at cord, outer end of cell *1st M*₂ and a small cloud beyond the fork of *Rs*, not involving the base of the latter vein; trichia of veins posterior to *R*₁ very sparse, restricted to outer ends of *R*₅ and distal section of *M*₁₋₂; *Rs* short, about one-fourth the basal section of *R*₅; cell *1st M*₂ subequal to distal section of *M*₁₋₂.

Female. Length, excluding rostrum, about 7 mm; wing about 6 mm; rostrum, about 5 mm. Rostrum slightly shorter than the wing, dark brown. Antennae dark brown. Head dark brown.

Cervical region and pronotum brown. Mesonotal praescutum with disk dark brown, humeral region and lateral borders yellow; posterior sclerites of notum brown. Pleura brown, sternopleurite apparently darker. Halteres whitened. Legs with coxae and trochanters yellow, remainder light brown. Wings (Fig. 54) very slightly tinged with pale brown, prearcular field light yellow; a very restricted pale brown pattern, including narrow seams over cord and *m*, with a small area beyond the fork of *Rs* between the fork of the latter and vein *R*, the darkening not reaching the base of *Rs*; veins pale brown, slightly darker in the patterned areas; extreme wing apex very slightly paler, involving cells *R*₄ and *R*₅. Trichia of veins very sparse, restricted to three of four at outer end of *R*₅ and distal section of *M*₁₋₂, additional to a more numerous series on vein *R*₁. Venation: *Rs* short, about one-fourth the basal section of *R*₅; cell *1st M*₂ subequal to distal section of *M*₁₋₂; *m-cu* at near one-fifth *M*₃₋₄.

Abdomen dark brown above, sternites scarcely paler; ovipositor with hypovalvae darker.

Habitat: Nigeria. Holotype, ♀ on slide, Obudu Cattle Ranch, Southeastern State, 5,000 feet, March 23, 1971 (Medler).

The described African members of the subgenus having the wings unmarked or with only a faint pattern, as in the present fly, include *Toxorhina (Ceratocheilus) gilesi* (Edwards), of Dahomey, Nigeria, and Cameroon, and *T. (C.) pollex* Alexander, Uganda, in central Africa, and *T. (C.) claripennis* Alexander and *T. (C.) drysdalei* Alexander, of Rhodesia, and *T. (C.) phaeoneura* Alexander, of Mozambique. The single most similar species is *drysdalei*. The present fly differs from all of the above in the wing pattern, venation, especially of the radial field, and the trichiation of the wing veins.