

LXXX. - Diptera Tipulidae

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The present report considers the crane-flies that were taken by M. P. BASILEWSKY, Conservateur and Chief of the Entomological Section of the Musée Royal de l'Afrique Centrale, and by M. N. LELEUP, members of the Mission Zoologique I.R.S.A.C. to East Africa in 1957. The materials were taken in Kenya and Tanganyika and add greatly to our previous knowledge of this region. Types and representatives of all species are returned for inclusion in the Musée Royal de l'Afrique Centrale, Tervuren, with duplicates being preserved in my personal collection of *Tipulidae*. I am greatly indebted to M. BASILEWSKY for this further opportunity of studying the crane-flies that he has taken on his expeditions to the Congo and East Africa.

TIPULINAE

Ctenacroscelis brunneus basisproductus ALEXANDER, supposition.

Ctenacroscelis brunneus basisproductus ALEXANDER; Ann. Natal Mus.. 15: 2, fig. 3 (♂ hypopygium); 1960.

The above subspecific reference appears to be correct but in the absence of the male sex cannot be affirmed. The subspecies was described from Portuguese East Africa and Southern Rhodesia.

Uganda : Bugiri, 1400 meters, at light, August 5-8, 1957 (BASILEWSKY-LELEUP).

Tanganyika : Marangu, Kilimanjaro, versant S.E., 1600-1750 meters, July 13-20, 1957 (BASILEWSKY-LELEUP).

Nephrotoma MEIGEN

Pales MEIGEN; Nouv. Class. Mouch., p. 14 (nom. nud.); 1800.

Nephrotoma MEIGEN; Illiger's Mag., 3: 262; 1803.

Pachyrrhina MACQUART; Hist. Nat. Ins., Dipt., 1: 88; 1834.

Nephrotoma is one of the largest and most characteristic genera of crane-flies in the Ethiopian region, being particularly well represented in eastern

and southern Africa. The most recent summaries and keys to the species are included in various papers by the writer.

- ALEXANDER, C. P. — Ruwenzori Expedition 1934-35 (London), vol. 1, no. 7: 135-165, figs. 1-31; 1956 (Tropical Africa).
— Mém. Inst. Scient. Madagascar, (E) 8: 289-298, 5 figs.; 1957 (Réunion).
— Mém. Inst. Scient. Madagascar, (E) 11: 216-230, 8 figs.; 1959 (Madagascar).
— Tipulidae, in South African Animal Life (Lund); 1963 (in press) (South Africa).

Species from Tropical Africa not included in the Ruwenzori report, above cited, are as follows :

- Nephrotoma carinata* (MANNHEIMS); Stuttgarter Beitr. Naturkunde, no. 6: 10-11, fig. (♂ hypopygium), as *Pales*; 1958 (Ngaruka).
Nephrotoma citreiceps SPEISER; Wien. Ent. Zeitg, 40: 92-93; 1923 (Congo: Lake Tanganyika).
Nephrotoma eburata (MANNHEIMS); Opuscula Zoologica, no. 14: 1-2, fig. (♂ hypopygium); as *Pales*; 1958 (Tanganyika).
Nephrotoma graueri SPEISER; Wien. Ent. Zeitg, 40: 89-91; 1923 (Congo: Urundi).
Nephrotoma incristata (MANNHEIMS); Stuttgarter Beitr. Naturkunde, no. 6: 1-10, fig. (ant, ♂ hypopygium), as *Pales*; 1958 (Tanganyika).
Nephrotoma monopsellia SPEISER; Wien. Ent. Zeitg, 40: 91-92; 1923 (Congo: Lake Tanganyika).
Nephrotoma nigrimana (MANNHEIMS); Stuttgarter Beitr. Naturkunde, no. 6: 11-12, fig. (♂ hypopygium), as *Pales*; 1958 (Tanganyika).

From an examination of the type, the species *Pachyrhina bistrispunctata* SPEISER, hitherto referred to this genus, has been shown by MANNHEIMS [Stuttgarter Beitr. Naturkunde, no. 6: 6-7, fig. 8 (wing); 1958] to belong to the genus *Tipula*, subgenus *Acutipula* ALEXANDER.

***Nephrotoma angusticrista*, sp. n.**

General coloration yellow, conspicuously patterned with dark brown; three praescutal stripes, the lateral pair broadly outcurved to margin; antennal scape and pedicel obscure yellow, flagellum light brown; occipital brand conspicuous; legs yellowish brown, femoral tips not darkened; wings tinged with yellow, prearcular and costal fields more saturated; stigma brown, with numerous trichia; cell M_1 very broadly sessile; abdomen yellow, tergites two to six with a broken series of median brown spots, lateral borders narrowly paler brown, a narrow brown subterminal ring; inner dististyle of hypopygium with both beak and lower beak very deep; outer basal lobe a stout black spine; dorsal crest very low and relatively short; appendage of ninth sternite short, apex virtually truncate.

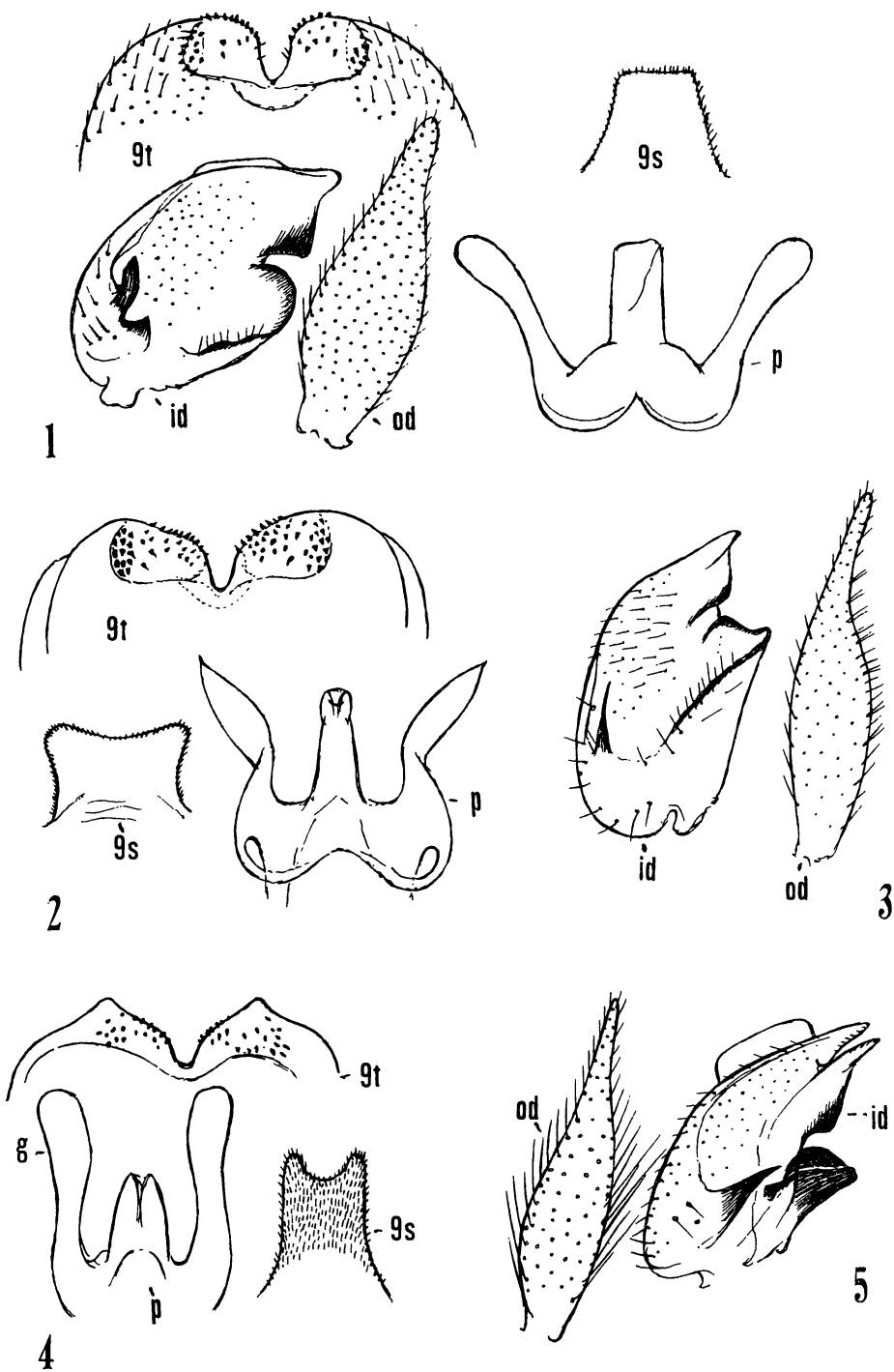


Fig. 1. - *Nephrotoma angusticrista*, sp. n.; male hypopygium.
 Figs. 2, 3. - *Nephrotoma latissima*, sp. n.; male hypopygium.
 Figs. 4, 5. - *Nephrotoma quincunx euryglossa*, subsp. n.; male hypopygium.
 (Symbols: *d*, dististyle; *g*, gonapophysis; *p*, phallosome; *s*, sternite; *t*, tergite).

Male. — Length about 13.5 mm. ; wing 13.6 mm. ; antenna about 5.7 mm.

Described from an alcoholic specimen. Frontal prolongation of head obscure yellow ; nasus very long, with long black setae ; palpi with basal segments brown, terminal segment paler, especially outwardly. Antennae with scape and pedicel obscure yellow ; flagellum light brown, the bases of segments not darker ; verticils shorter than the segments. Head yellow, darker on posterior vertex and beneath ; occipital band conspicuous, black, anterior end pointed ; genae with long setae.

Pronotal scutum light yellow, the sides and the propleura more infuscated. Mesonotal praescutum with the restricted ground obscure yellow, disk with three broad brown stripes, the lateral pair outcurved to margin ; scutal lobes dark brown, median region yellow ; scutellum yellow with a small brown central spot, parascutella darkened ; mediotergite light yellow, sides somewhat darker, pleurotergite yellow, katapleurotergite behind the halteres more darkened ; vestiture of notum almost lacking, a few small setae on scutellum. Pleura yellow, variegated with brown on anepisternum and ventral sternopleurite, posterior pleurites less evidently patterned. Halteres brownish yellow, base of knob weakly darkened, apex whitened. Legs with fore coxae weakly darkened, remaining coxae more yellowed ; trochanters yellow ; femora yellowish brown, tips scarcely darker ; tibiae and tarsi yellowish brown ; claws toothed. Wings tinged with yellow, preaculular and costal fields slightly more saturated ; stigma small, brown ; veins pale brown, more yellowed in brightened parts. Stigmal trichia abundant, about 30 in number ; about 10 trichia in outer end of cell R_3 . Venation : Cell M_1 , very broadly sessile ; m-cu shortly before fork of M_1 .

Abdominal tergites yellow, segments two to six with a broken median series of broadly triangular brown spots, their anterior ends pointed ; lateral tergal borders narrowly but continuously paler brown ; posterior border of sixth segment narrowly darkened ; seventh and eighth segments extensively darkened, eighth sternite with posterior border broadly yellow, the median line very narrowly so ; sternites yellow, lateral borders narrowly brown, pleural membrane very extensive, pale ; hypopygium yellow. Male hypopygium (fig. 1) with the tergal lobes, $9t$, subcircular in outline, each with about 25 to 30 blackened spicules, arranged as shown. Outer dististyle, od , relatively short, especially the narrowed apex. Inner dististyle, id , with both beak and lower beak very deep, blackened ; dorsal crest relatively short and very low, terminating some distance before apex of beak ; outer basal lobe a stout black spine, with a more basal blackened flange. Phallosome, p , with gonapophysis slightly expanded at outer end ; no basal spine. Appendage of ninth sternite, $9s$, short, broadest at base, narrowed to the nearly truncate apex ; surface with very abundant pale setulae.

Holotype, alcoholic ♂, Olkokola, Mt. Meru, Tanganyika, 2500-2600 meters, July 3-8, 1957 (BASILEWSKY-LELEUP).

Nephrotoma angusticrista is most similar to species such as *N. subdentata* ALEXANDER, differing evidently in the hypopygial structure, especially the inner dististyle and appendage of the ninth sternite.

***Nephrotoma chaetopyga* ALEXANDER**

Nephrotoma chaetopyga ALEXANDER; Ann. Mag. Nat. Hist., (9) 2 : 98-99; 1921.

Nephrotoma chaetopyga ALEXANDER; Ann. Mus. Congo, Tervuren, Zool., 36 : 269; 1955.

Nephrotoma chaetopyga ALEXANDER; Ruwenzori Exped., 1934-35, Tipulidae, 1, no. 7 : 141, figs. 7, 10 (♂ hypopygium); 1956.

Known from Kenya and Urundi.

Kenya : Molo, Mau Escarpment, 2,150-2,200 meters, April 11-12, 1957 (BASILEWSKY-LELEUP).

***Nephrotoma euthynota*, sp. n.**

General coloration yellow, patterned with black; praescutum with three polished black stripes, lateral pair straight; postnotum and pleura yellow, restrictedly patterned with darker; femora yellow, tips narrowly blackened, the amount subequal on all legs; wings ochre yellow throughout, stigma not or scarcely differentiated; more whitened oblitative areas before stigma and across fork of *M*; stigmal trichia sparse, lacking in cell *R*₅; abdomen yellow, tergites one to seven with a broken median series of brown spots, with a narrow continuous lateral stripe.

Female. — Length about 13.5-14 mm.; wing 13 mm.

Described from alcoholic specimens. Frontal prolongation of head yellow. Dorsum vaguely darker; nasus elongate, with long black setae; palpi with proximal two segments brown, outer segments paler, especially the elongate terminal one. Antennae with scape and pedicel yellow, flagellum black. Head light yellow; occipital band pale brown, broadly triangular, only slightly longer than broad.

Pronotum light yellow, weakly darkened laterally and on propleura. Mesonotum yellow, praescutum with three polished black stripes, lateral pair straight, with a vague paler darkening opposite anterior end; scutal lobes extensively blackened; scutellum and parascutella light yellow, the former vaguely darkened on central part; mediotergite light yellow, posterior third more reddish brown. Pleura pale yellow, vaguely patterned with darker, more heavily so on meron and ventral sternopleurite. Halteres yellow. Legs with coxae yellow, extreme bases of fore and middle pairs weakly darkened; trochanters yellow; femora yellow, tips narrowly blackened, the amount subequal on all legs; tibiae brownish yellow, tips more gradually and broadly darkened; tarsi black. Wings ochre yellow throughout, stigma not or scarcely differentiated; veins medium brown, more whitened in oblitative areas before

stigma and across fork of *M*. Stigmal trichia few, none in cell *R*₅. Venation : Cell *M*₁ sessile.

Abdomen yellow, tergites one to seven with a broken median series of brownish black triangular spots, with additional continuous lateral stripes ; terminal segments light yellow. Ovipositor with cerci long and slender, tips subacute.

Holotype, alcoholic ♀, Olkokola, Mt. Meru, Tanganyika, versant N.E., 2.500 - 2.600 meters, July 3-8, 1957 (BASILEWSKY-LELEUP). *Paratopotypes*, 2 ♀ ♀.

By my key to the Tropical African species of the genus (Ruwenzori Exped., 1934-35, Tipulidae, pp. 135-139; 1956) the present fly runs to *N. ochripennis* ALEXANDER, of Kenya. This latter fly differs in coloration of the body, pattern of legs and wings and in coloration of the abdominal tergites. Attention is directed to the straight lateral praescutal stripes, femoral pattern, and lack of a wing stigmal spot in the present fly.

Nephrotoma latissima, sp. n.

General coloration of thorax yellow, praescutum with three polished black stripes ; scutellum and mediotergite yellow ; pleura citron yellow, very inconspicuously variegated by more whitened areas ; antennal flagellum brownish yellow ; occipital brand very small, scarcely differentiated ; tips of femora blackened, more extensively so on fore legs ; wings with cells *Sc* and *Cu* narrowly darkened ; abdomen yellow, posterior borders of tergites two and three with broad black bands, tergites four and five with these more reduced, subterminal segments black, forming a broad ring ; inner dististyle of male hypopygium without a dorsal crest ; outer basal lobe a long black spine ; appendage of ninth sternite very broad, the width exceeding the length.

Male. — Length about 11 mm. ; wing 10.5 mm ; antenna about 4.5 mm.

Female. — Length about 14 mm. ; wing 12.5 mm.

Described from alcoholic specimens. Frontal prolongation of head uniformly light yellow ; nasus elongate, tufted with long black setae, these short elsewhere on dorsum ; palpi yellow, terminal segment elongate. Antennae with scape and pedicel yellow, flagellum a trifle darker brownish yellow to yellowish brown ; segments feebly incised, longer than the verticils. Head light yellow ; occipital brand elongate-triangular, very small and indistinct, scarcely differentiated from the ground.

Pronotum light yellow. Mesonotal praescutum yellow, with three polished black stripes, lateral pair straight but with a large more brownish black oval area at anterior end to appear outcurved ; scutum yellow, each lobe with two confluent black areas ; scutellum and mediotergite light yellow, anterior border of parascutella and the anapleurotergite darkened ; mesonotum glabrous, including the praescutum and mediotergite, scutellum with microscopic setulae. Pleura and pleurotergite citron yellow, very inconspicuously variegated by

more whitened areas, including the dorsopleural region ; dorsal anepisternum, most of mesepimeron and the katapleurotergite pale. Halteres yellow, knob whitened. Legs with coxae and trochanters light yellow ; femora blackened, the bases narrowly yellowed, on fore legs including about the proximal third, middle and hind femora with yellow bases more extensive ; tibiae and tarsi black ; claws of male toothed. Wings brownish yellow, prearcular field and cell C clearer yellow, cell Sc and a narrow seam in cell Cw darker brown ; stigma large, oval, darker brown ; a cloud over anterior cord and at the wing tip ; veins brown. Stigma with about 10 to 12 trichia, apex of cell R_3 with four or five. Venation : Cell M_1 broadly sessile ; *m-cu* just before fork of M_4 .

Abdomen of male yellow, patterned with black ; first tergite with a basal spot, tergites two and three with broad posterior bands, tergites four and five with these areas more restricted, especially the latter ; segments six to eight black, forming a conspicuous subterminal ring ; sternites and hypopygium orange. In the allotype female the dark areas on tergites two and three broadly triangular, not forming complete bands as in the male ; segments six and seven with a black subterminal band, more broken and less evident in the paratype female. Male hypopygium (figs. 2, 3) with the tergal lobes. *9t*, rounded, not produced ; spicules of either lobe about 30 in number, several being extended into hairlike points. Outer dististyle, *od*, narrow, apical third strongly attenuated. Inner dististyle, *id*, with apex of beak relatively slender, unblackened, more basally beneath smooth, black ; lower beak black ; outer basal lobe a long slender black spine. Phallosome, *p*, with gonapophysis short and broad, tip pointed ; no basal spine. Appendage of ninth sternite, *9s*, unusually broad, its width exceeding the length ; apex gently emarginate, forming broad lobes ; surface with abundant short yellow setulae.

Holotype, alcoholic ♂, Bunduki, Uluguru Mts., Tanganyika, 1.300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP). *Allotype*, alcoholic ♀, Marangu, Kilimanjaro, Tanganyika, versant S.E., 1.600 - 1.750 meters, July 13-20, 1957 (BASILEWSKY-LELEUP). *Paratopotypes*, 1 ♂, 1 ♀, with the holotype ; *paratypes*, 1 ♂, 1 ♀, Marangu, 1.800 - 2.200 meters, région bocagère et zone des cultures, July 20-27, 1957 (BASILEWSKY-LELEUP).

The most similar regional species is *Nephrotoma incristata* (MANNHEIMS), which likewise has no dorsal crest on the inner dististyle of the male hypopygium, differing in details of coloration and in the quite different outline of the appendage of the ninth sternite. This structure in the present fly is broader than long, representing the extreme condition as known in the local fauna.

Nephrotoma nigritana (MANNHEIMS)

Pales nigritana MANNHEIMS ; Stuttgarter Beitr. Naturkunde, no. 6 : 11-12, fig. (♂ hypopygium) ; 1958.

The types were from Pare, Tanganyika, 1.800 meters, collected in June 1952 by Erwin LINDNER.

Tanganyika : Bunduki, Uluguru Mts., moyenne Mgeta, 1.300 meters, April 30 - May 11, 1957. (BASILEWSKY-LELEUP); id., Gorge de la Mungula, 1.500 meters, May 1-6, 1957; « forêt transition, dans l'humus » (BASILEWSKY-LELEUP).

The male hypopygium agrees closely with that of the type except that the blackened spine of the outer basal lobe of the inner dististyle bears a still smaller lateral spinule on outer face. Gonapophysis small, appearing as a narrow blade that is shaped like a boomerang, with a slender basal spine of almost the same length. In some specimens the wings of the female are uniformly darkened, in others the centers of many cells conspicuously pale, including *R*, *M*, *Cu*, *Anals*, and less evidently *M*₃ and *M*₄.

Nephrotoma quincunx (SPEISER)

Pachyrhina quincunx SPEISER; Kilimanjaro-Meru Zool. Exped., 1905-1906, 10 Diptera, 4 Orthorapha Nematocera, pp. 62-63; 1909.

Nephrotoma quincunx quincunx ALEXANDER; Ruwenzori Expedition, 1934-35, 1, no. 7: 135; 1956.

Pales quincunx MANNHEIMS; Stuttgarter Beitr. Naturkunde, no. 6: 8, fig. (♂ hypopygium); 1958.

Tanganyika : Olkokola, Mt. Meru, Tanganyika, versant N.E., 2.500 - 2.600 meters, July 3-8, 1957 (BASILEWSKY-LELEUP).

MANNHEIMS, in the above cited reference, has redescribed SPEISER's types and has provided figures showing the male hypopygium of the designated lectotype. He has discussed certain discrepancies in SPEISER's description as they pertain to abdominal coloration, indicating that in the type series the coloration of the abdomen is predominantly yellow. In the present specimen there are certain differences in such coloration, the second through fifth segments being light yellow with the posterior borders of each segment narrowly black, more extensive on the tergites, very narrow on sternites four and five; hypopygium blackened, styli yellow. Such specimens approach the condition found in *Nephrotoma quincunx medioscalaris* subsp.n., and it is possible that they do not belong to typical *quincunx*. MANNHEIMS's description and figure of the male hypopygium of the lectotype of *quincunx* should be consulted.

Nephrotoma quincunx euryglossa, subsp. n.

Male. — Length about 12-13 mm.; wing 13 mm.; antenna about 6 mm.

Female. — Length about 16 mm.; wing 14 mm.

Described from alcoholic specimens. Differs in coloration from the typical race as follows: Antennae black, pedicel light brown. Vertical tubercle broadly light yellow, entire. Thorax with whitened pattern more extensive, including the anterior two-thirds of mediotergite, dorsopleural membrane, katapleurotergite and adjacent part of pteropleurite. Wings somewhat broader than in typical *quincunx*, more strongly brownish yellow, with whitened streaks in

centers of cells *2nd M*₂, *M*₃ and the Anals. Abdomen with tergites two to six clear yellow, the posterior borders rather narrowly but abruptly blackened, the lateral margins more narrowly so; sixth sternite chiefly black, segments seven and eight black. In the female, segments two to seven similarly patterned, the outer segments almost uniformly yellow. Male hypopygium (figs. 4, 5) with the tergite, *9 t*, transverse, posterior border with a broad U-shaped emargination, lateral lobes each with about 25 blackened spicules. Outer dististyle, *od*, elongate, the proximal three-fifths broad, the remainder narrowed; setae of dilated part elongate, some virtually as long as the diameter of the style. Inner dististyle, *id*, with beak feebly sclerotized, on slide appearing weakly bifid, probably an abnormal condition; ventral margin of beak and the lower beak obtuse, smooth, blackened; dorsal crest low, shorter than in typical *quincunx*; outer basal lobe a blackened spine; vestiture of style sparse. Gonapophysis, *g*, weakly dilated on outer half, almost hyaline, apex broadly obtuse; no basal spine. Ligula of ninth sternite, *9s*, broader than in the typical race, the length at midlength about twice the width; apex with a broad U-shaped emargination, the lateral lobes conspicuous; surface, including the lobes, with dense short setulae. Eighth sternite with posterior border truncate, vestiture not conspicuous or forming tufts, central area of margin without setae.

Holotype, alcoholic ♂, Mt. Oldeani, Tanganyika, versant Est, 2,350 - 2,500 meters, June 6-9, 1957 (BASILEWSKY-LELEUP). *Allotopotype*, alcoholic ♀. *Paratopotypes*, 3 alcoholic ♂♂.

It appears probable that the present fly eventually will be considered as representing a valid species rather than being a subspecies of *quincunx* as is done here.

Nephrotoma quincunx medioscalaris, subsp. n.

Described from alcoholic specimens. Agreeing closely with the typical subspecies in the coloration of the head and thorax, differing in the abdominal pattern and in slight details of the male hypopygium.

Abdominal segments two to five light yellow, the posterior borders of both tergites and sternites brownish black, the latter narrower; hypopygium yellowed. Male hypopygium with the tergal lobes more pointed, the spicules small and scattered, about 25 in number. Beak of inner dististyle entire. Appendage or ligula of ninth sternite narrower than in *euryglossa*, the length more than two and one-half times the median width; apical emargination variable, in cases shallow.

Nephrotoma quincunx euryglossa subsp. n., has the abdominal pattern much as in the present fly, differing in the broader, darker colored wings, and in the details of the male hypopygium, including the more numerous tergal spicules (more than 30 on either side) and the broader ligula of the

ninth sternite. Both of these races have the trichia of stigma and outer end of cell R_5 few in number.

Holotype, alcoholic ♂, Olkokola, Mt. Meru, Tanganyika, versant N.O., 2,500 - 2,600 meters, July 3-8, 1957 (BASILEWSKY-LELEUP). *Paratopotypes*, 2 alcoholic ♂♂.

Tipula (Acutipula) uluguruensis, sp. n.

Size large (wing of male 23 mm.); general coloration yellow, praescutum with four yellowish brown stripes that are narrowly bordered by black; pleura yellow, unpatterned except for a narrow line over the dorsal part; femora obscure yellow, tips broadly blackened, claws toothed; wings faintly tinged with brown, cell Sc darker; abdomen yellow, sides of tergites narrowly lined with brown, subterminal segments blackened; male hypopygium with tergite produced into a narrow median lobe, its tip shallowly divided into two obtusely rounded blades, outer end provided with numerous very small blackened spicules; outer dististyle elongate, margins inrolled; inner style entirely pale, including two flattened blades, the outer one smaller.

Male. — Length about 25 mm.; wing 23 mm.; antenna about 4.1 mm.

Described from an alcoholic specimen. Frontal prolongation of head light yellow, dorsal surface with abundant short black setae; nasus elongate; palpi with three basal segments black, incisures pale, terminal segment yellowed, its extreme tip darkened, elongate, about one-half longer than the other segments combined. Antennae with scape and pedicel yellow, flagellum black; flagellar segments moderately incised, shorter than the longest verticils. Head yellow; anterior vertex broad, about three times the diameter of scape.

Pronotum yellow, with an oval brown spot on either side of scutum. Mesonotal praescutum with four yellowish brown stripes that are narrowly bordered by black, obliterating the interspaces; scutum yellow, each lobe with two confluent yellowish brown areas that are bordered by black; scutellum yellow, parascutella narrowly lined transversely with brown, including the posterior border; mediotergite yellow, with an oval brown spot on either side of the broad median area. Pleura yellow, unpatterned except for a narrow and inconspicuous dorsal stripe, including small areas at the anterior spiracle and dorsal anepisternum, additional to the mark on the pronotum, as described. Halteres elongate, stem brownish black, base yellowed, knob infuscated basally, apex paling to dirty white. Legs with all coxae yellow; trochanters yellow; femora obscure yellow, tips broadly blackened, the amount subequal on all legs, on fore pair including about the outer ninth; tibiae yellowish brown, tips darkened; tarsi black; claws toothed. Wings faintly tinged with brown, cell Sc darker; stigma long, pale brown; a very narrow pale brown seam on $m-cu$; veins brown. Veins chiefly glabrous, the trichia including a scattered series on R_{4+5} nearly to base; a few on basal half of M_1 ; scattered trichia over virtually the whole length of M and proximal half of $1st A$; about five

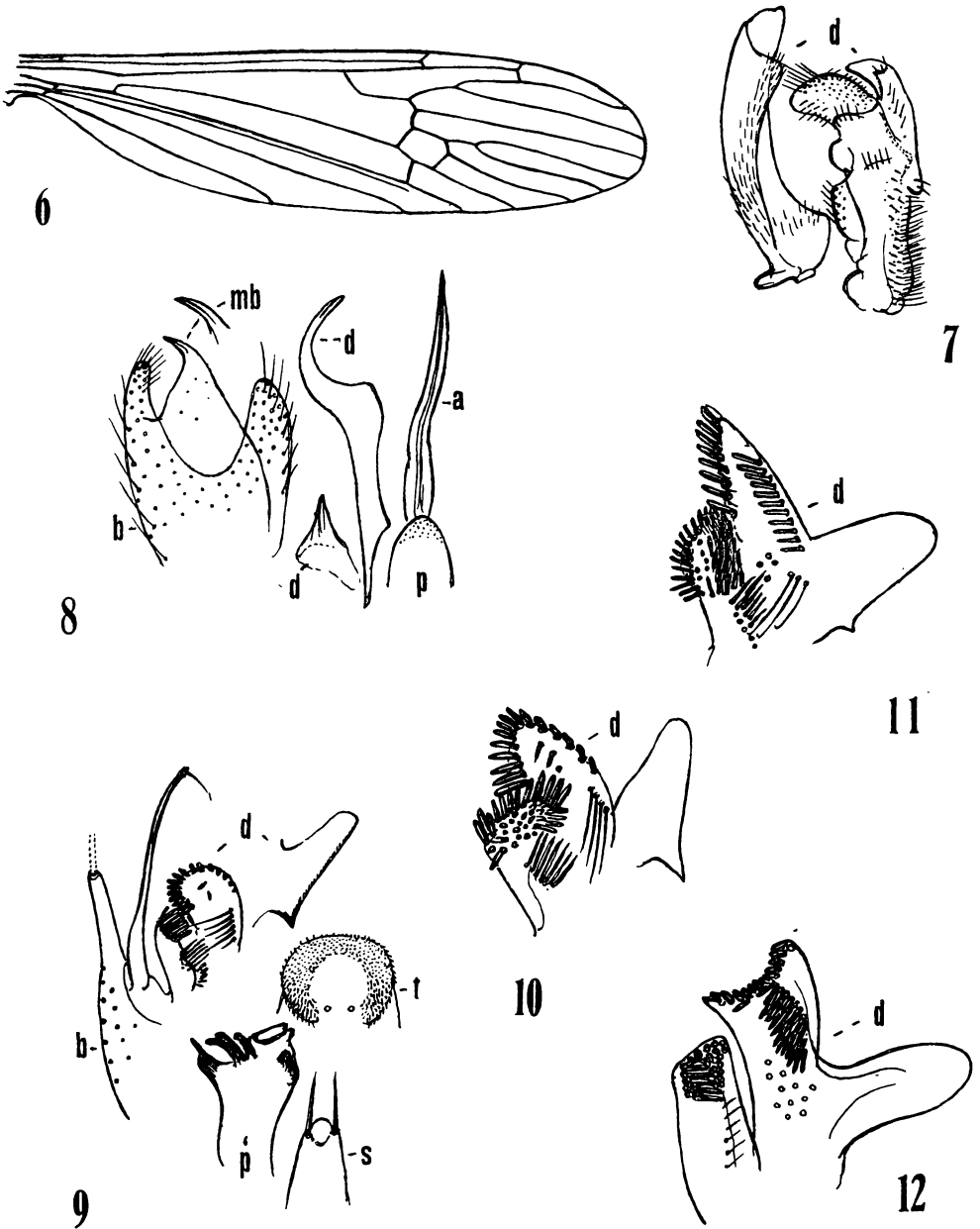


Fig. 6. - *Austrolimnophila (Austrolimnophila) leleupi*, sp. n.; venation.

Fig. 7. - *Tipula (Acutipula) uluguruensis*, sp. n.; male hypopygium.

Fig. 8. - *Molophilus (Molophilus) africanus* RIEDEL; male hypopygium.

Figs. 9, 10. - *Styringomyia acanthobasis*, sp. n.; male hypopygium.

Fig. 11. - *Styringomyia longituberculata* ALEXANDER; male hypopygium, dististyle.

Fig. 12. - *Styringomyia vittata* EDWARDS; male hypopygium, dististyle.

(Symbols: a, aedeagus; b, basistyle; d, dististyle; id, inner dististyle; mb, mesal lobe of basistyle; od, outer dististyle; p, phallosome; s, sternite; t, tergite)

at base of first section of *Cu*; no trichia on 2nd A. Venation : *Rs* straight, shorter than *m-cu*, subequal to R_{2+3} ; *m-cu* subequal to distal section of *Cu*; *m-cu* shortly before fork of M_{3+4} .

Abdomen yellow, tergites narrowly lined laterally with brown, on segments three to five, the streaks more arcuated over narrow gray lateral borders; extreme posterior margins of both tergites and sternites very pale brown; tergites six to eight and sternites seven and eight blackened to form a conspicuous subterminal ring; hypopygium brownish yellow. Male hypopygium (fig. 7) with the ninth tergite produced into a narrow median lobe, its apex shallowly split into two obtusely rounded blades, outer end provided with numerous very small blackened spiculose setae. Dististyle, *d*, distinctive, especially the outer style which is narrow, the tip obtuse and indistinctly emarginate, the edges appearing inrolled; setae of style small, pale, virtually restricted to the basal two-thirds. Inner style as figured, entirely pale, including two flattened blades, the outer one smaller, its apex acute.

Holotype, alcoholic ♂, Bunduki, Uluguru Mts., Tanganyika, moyenne Mgeta, 1,400 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

The most similar species include *Tipula (Acutipula) alphaspis* SPEISER, *T. (A.) ellioti* ALEXANDER, and *T. (A.) urundiana* ALEXANDER, all differing evidently in the body coloration and especially in the structure of the male hypopygium, particularly the dististyles.

Tipula (Oreomyza) aberdareica ulugurica, subsp. n.

Differs from typical *aberdareica* as follows : Frontal prolongation of head yellow above, including the conspicuous nasus, ventral half brownish black; palpi black, terminal segment brownish yellow, subequal in length to the remaining segments combined. Head above yellow. Pronotum clear yellow. Mesonotum yellow, the three praescutal stripes black, nearly confluent, interspaces darkened; median region of scutum and the scutellum yellow, parascutella darker; pleurotergite chiefly dark brown. Pleura yellow, anepisternum, ventral sternopleurite and meron more infuscated. Halteres clear light yellow, especially the knob. Legs with coxae and trochanters clear yellow, remainder of legs black. Wings of female fully developed. Abdomen light yellow, segments three to eight with bases black, involving nearly the proximal fourth of segment; outer segments orange.

Holotype, alcoholic ♀, Bunduki, Uluguru Mts., Tanganyika, 1,300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

The type of *aberdareica* ALEXANDER (Ruwenzori Expedition 1934-35, 1, no. 7 : 181-182, fig. 48 (♂ hypopygium); 1956) was from Mt. Kinangop, Aberdare Range, Kenya, 10,000 feet, collected in October 1934 by EDWARDS. In the present fly the somewhat peculiar abdominal pattern is much as in *aberdareica* and quite different from the condition found in other Ethiopian species of the *marmorata* group. The coloration of the head, pronotum and

halteres suggests that found in *T. (O.) chrysocephala* MANNHEIMS, which differs evidently in other colorational features, including the mesonotum, pleura and legs. When the male sex of the present fly is discovered it will very probably be found to represent a valid species. Members of the *marmorata* group are well represented in the mountains of eastern and southeastern Africa.

LIMONIINAE

LIMONIINI

Limonia (Limonia) basilewskyi, sp. n.

Allied to *praetor*; pronotum light yellow; mesonotal praescutum yellow, patterned with brownish black, including intermediate stripes that are confluent behind and marginal lateral areas; scutum and scutellum variegated with yellow and black; legs with trochanters black, femora light brown, tips blackened; wings light brown, restrictedly patterned with darker; R_{1+2} curved gradually to the margin; abdomen yellow, basal tergite and seventh and eighth segments black.

Male. — Length about 22 mm.; wing 27 mm.

Described from an alcoholic specimen. Rostrum and palpi black, the latter short. Antennae black, base of scape obscure brownish yellow; proximal flagellar segments oval, beyond the fifth becoming more elongate, the terminal one about one-half longer than the penultimate; longest verticils unilaterally distributed, subequal to the segments. Head black; eyes very large, the vertex correspondingly narrow; anterior vertex with short black setae, those of the posterior vertex much longer and stouter.

Pronotum light yellow. Mesonotal praescutum yellow, conspicuously patterned with brownish black, including broad intermediate stripes that are confluent and expanded anteriorly, lateral stripes marginal, the yellow interspaces very broad; scutal lobes black, median area and anterior angles light yellow; scutellum black, base medially more yellowed, parascutella restricted, pale; postnotum black. Pleura chiefly black, including the propleura, mesepisternum and posterior sclerites, mesepimeron yellowed, restrictedly patterned with brown along the dorsal margin; dorsopleural region pale. Mesonotum virtually glabrous, praescutum with small setae, especially on the anterior interspaces. Halteres with stem elongate, yellow, knob black. Legs with coxae yellow, middle pair with a darkened line on posterior part, anterior coxae weakly clouded with darker; trochanters small, blackened; femora light brown, tips broadly blackened; tibiae light brown, tips more narrowly and gradually blackened; tarsi black; claws relatively small, with about five teeth, the outer one longest, placed at near midlength of claw. Wings light brown, the prearcular and costal fields more yellowed; stigmal region pale brown, inconspicuous, enclosing narrow darker seams on R_2 and R_{1+2} ; elsewhere on disk with a restricted and inconspicuous brown pattern, including very small clouds at

arculus, origin of *Rs*, cord and axillary angle; a darkened seam in cell *M* adjoining vein *Cu* very narrow to scarcely apparent; veins light brown, darker in the patterned areas. Macrotrichia on veins beyond general level of origin of *Rs*, on *Sc* extending basad almost to level of arculus, lacking on 1st *A* and the broad bases of *M* and *Cu*, present on outer third of 2nd *A*. Venation: *Rs* long, slightly exceeding the distal section of R_{1+2} ; *Sc*₁ long, subequal to *m-cu*; free tip of *Sc*₂ barely evident as a pale line; R_{1+2} curved gradually to margin, not rectangularly bent as in *praetor*.

Abdomen yellow, the first tergite and seventh and eighth segments black, lateral margins of both tergites and sternites narrowly and weakly darkened; hypopygium yellow.

Holotype, alcoholic ♂, Molo, Mau Escarpment, Kenya, 2.150 - 2.200 meters, April 11-12, 1957 (BASILEWSKY-LELEUP).

I am very pleased to dedicate this conspicuous fly to the collector, my friend Mr. P. BASILEWSKY, who has added significantly to our knowledge of the Tipulidae of Africa. The species is most nearly allied to *Limonia* (*Limonia*) *praetor* ALEXANDER, of Southern Rhodesia, from which it differs most evidently in details of coloration and venation. *L.* (*L.*) *loveridgei* ALEXANDER, from the Rungwe Mountains, Tanganyika, is more distantly related.

***Limonia* (*Limonia*) *rhanteria* ALEXANDER**

Limnobia rhanteria ALEXANDER; Ann. Mag. Nat. Hist., (9) 6: 6-7; 1920.

Limonia (*Limonia*) *rhanteria* ALEXANDER; Ruwenzori Exped., 1934-35: Tipulidae, 1, no. 7: 240, fig. 199 (wing); 1956.

The types were from Uganda and Kenya.

Tanganyika: Mt. Oldeani, versant Est, forêt bambous, 2.350 - 2.500 meters, June 6-9, 1957 (BASILEWSKY-LELEUP). Marangu, Kilimanjaro, versant S.E., région bocagère et zone des cultures, 1.800 - 2.200 meters, July 20-27, 1957 (BASILEWSKY-LELEUP).

***Limonia* (*Limonia*) *rhizosema* SPEISER**

Limonia rhizosema SPEISER; Kilimandjaro-Meru Zool. Exped., 1905-1906, 10 Diptera, 4 Orthorapha Nematocera, pp. 49-49, fig. 6 (wing), fig 7 (♂ hypopygium); 1909.

Limonia (*Limonia*) *rhizosema* ALEXANDER; Rept. Harvard Afr. Exped., 2: 1007; 1930.

Limonia rhanthisa SPEISER; Wien. Ent. Zeitg, 40: 87-88; 1923.

The types were from Kibonoto, Kiboscho, Kilimanjaro, at an altitude of 3.000 meters.

Tanganyika: Marungu, Kilimanjaro, versant S.E., 1.600 - 1.750 meters, July 13-20, 1957; 1.800 - 2.200 meters, région bocagère, July 20-27, 1957 (BASILEWSKY-LELEUP).

Confusion that has resulted from the use of the names *rhizosema* SPEISER and *rhanthisa* SPEISER has been considered and discussed in the ALEXANDER reference given above.

***Limonia (Limonia) uniflava* RIEDEL**

Limnobia uniflava RIEDEL; Voy. Alluaud et Jeannel Afrique Orientale (1911-1912), Ins. Dipt., III, Nematocera polyneura, p. 75; 1914.

Limonia (Limonia) uniflava ALEXANDER; Ruwenzori Exped., 1934-35, Tipulidae, 1, no. 7: 243; 1956.

Widely distributed from Uganda to Southern Rhodesia.

Tanganyika: Bunduki, Uluguru Mts., moyenne Mgeta, 1.300 meters, April 30 - May 11, 1957. Mt. Oldeani, versant Est, 2.350 - 2.500 meters, June 6-9, 1957. Ngorogoro, région bocagère, 2.300 meters, June 8, 1957 (BASILEWSKY-LELEUP).

***Limonia (Dicranomyia) aberdareica* ALEXANDER**

Limonia (Dicranomyia) aberdareica ALEXANDER; Ruwenzori Exped., 1934-35, Tipulidae, 1, no. 7: 222, fig. 75 (♂ hypopygium); 1956.

Described from Uganda and Kenya.

Tanganyika: 2 ♀♀, Bunduki, Uluguru Mts., 1.300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP). Although the critical male sex was unavailable the identification of the present specimens appears to be correct.

***Limonia (Dicranomyia) tipulipes* KARSCH**

Dicranomyia tipulipes KARSCH; Ent. Nachricht., 12: 51; 1886.

Limonia (Dicranomyia) tipulipes ALEXANDER; Mauritius Inst. Bull., 3: 221, fig. 2 (venation), detailed synonymy; 1954.

Dicranomyia tangentialis SPEISER; Kilimandjaro-Meru Zool. Exped., 1905-1906, 10 Diptera, 4 Orthorapha Nematocera, pp. 47-48; 1909, new synonymy.

The present fly is one of the commonest and most widely distributed members of the subgenus, with a wide range in eastern and southern Africa, including Madagascar and satellite islands, and very probably also in southern Asia. Speiser's type of *tangentialis* was from Kiboscho, Kilimanjaro, Tanganyika, at 3.000 meters.

Tanganyika: Bunduki, Uluguru Mts., moyenne Mgeta, 1.300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

***Limonia (Geranomyia) albeticola* ALEXANDER**

Limonia (Geranomyia) albeticola ALEXANDER; Ruwenzori Exped., 1934-35, Tipulidae, 1, no. 7: 208-209; 1956.

Widely distributed in eastern Africa.

Tanganyika : Bunduki, Uluguru Mts., moyenne Mgeta, 1,300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

Antocha (Orimargula) multispina ALEXANDER

Antocha (Orimargula) multispina ALEXANDER; Ruwenzori Exped., 1934-35, Tipulidae, 1, no. 7: 245-246, fig. (♂ hypopygium); 1956.

The types were from the Ruwenzori Range, Uganda, at 4,000 feet, taken by EDWARDS.

Tanganyika : Bunduki, Uluguru Mts., moyenne Mgeta, 1,300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

Antocha (Orimargula) setosa ALEXANDER

Antocha (Orimargula) setosa ALEXANDER; Ann. Natal Mus., 15: 20-21, figs. (venation, ♂ hypopygium); 1960.

Described from Gorongoza Mt., Portuguese East Africa, taken in September by Brian STUCKENBERG.

Tanganyika : Bunduki, Uluguru Mts., moyenne Mgeta, 1,300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

HEXATOMINI

Austrolimnophila (Austrolimnophila) leleupi, sp. n.

Size medium (wing of female 7 mm.); general coloration yellow, mesonotal praescutum with four more reddish brown stripes, thoracic pleura yellow, striped longitudinally with brown; legs brownish yellow; wings subhyaline, unpatterned except for the pale brown stigma; *Rs* short, angulated at base; R_{2+3+4} about two-thirds R_{2+3} ; cell M_1 very deep, about seven times its petiole; *m-cu* at near midlength of M_{3+4} ; abdomen bicolored, especially the tergites, basal three-fifths of segments brown, posterior borders broadly yellow.

Female. — Length about 8 mm.; wing about 7 mm.

Described from an alcoholic specimen. Rostrum short, brownish yellow, clear yellow on sides; palpi short, light brown. Antennae with scape and pedicel yellow, basal flagellar segments slightly darker, subcylindrical (outer segments broken). Head with disk of vertex dark brown, front and occiput more yellowed the orbits less evidently so.

Pronotum relatively small, yellow. Mesonotal praescutum yellow, with four poorly delimited more reddish brown stripes, the intermediate pair narrowly separated; posterior sclerites of notum pale brown. Pleura yellow, distinctly patterned with pale brown, including a dorsal stripe from the cervical region and propleura to the posterior border of anepisternum; a second more ventral stripe includes the lower parts of sternopleurite, meron and metapleura; dorso-pleural region pale. Halteres with stem pale, knob weakly darkened, especially

at base. Legs with all coxae white; trochanters yellow; remainder of legs brownish yellow to pale brown; tarsi broken. Wings (fig. 6) virtually subhyaline, prearcular and costal fields vaguely more yellowed; stigma elongate, pale brown; veins light brown. Macrotrichia on longitudinal veins beyond general level of origin of R_s , basad of this on both Anals to base, lacking on proximal half of M and Cu . Venation: Sc_1 ending nearly opposite midlength of R_{2+3+4} , Sc_2 near its tip; R_s unusually short, basal third angulated; R_{2+3+4} about two-thirds R_{2+3} ; petiole of cell M_1 short, from about one-sixth to one-seventh the length of the cell or one-third longer than m ; $m-cu$ at midlength of M_{3+4} .

Abdominal segments bicolored, especially the tergites, basal two-thirds to three-fifths brown, posterior borders broadly yellow. Ovipositor with cerci slender, gently upcurved to the acute tips.

Holotype, alcoholic ♀, Bunduki, Uluguru Mts., Tanganyika, moyenne Mgeta, 1,300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).

The species is dedicated to Mr. N. LELEUP, of the Mission Zoologique I.R.S.A.C. to East Africa in 1957. The most similar regional species include *Austrolimnophila* (*Austrolimnophila*) *claduroneura* (SPEISER) and *A. (A.) claduroneurodes* ALEXANDER, which likewise have the wings unpatterned except for the stigma. Both of these differ evidently in body coloration, especially the thoracic pleura, and in the venation. It may be noted that the type of *claduroneura*, from Kilimanjaro, is a female, the male that is further discussed and figured very possibly being a different species.

***Austrolimnophila* (*Phragmocrypta*) *maumau* ALEXANDER**

Austrolimnophila (*Phragmocrypta*) *maumau* ALEXANDER; Ruwenzori Exped., 1934-35, Tipulidae, 1, no. 7: 265-266, figs. (venation, ♂ hypopygium); 1956.

Types from Mt. Kinangop, Aberdare Range, Kenya, 8,000 feet, taken in October 1934 by EDWARDS.

Kenya: alcoholic female, Timboroa, prairies découvertes, 2,800 meters, April 10, 1957 (BASILEWSKY-LELEUP).

ERIOPTERINI

***Conosia angustissima* ALEXANDER**

Conosia angustissima ALEXANDER; Philippine Jour. Sci., 33: 306, pl. 2, fig. 17 (venation); 1927.

Tanganyika: Handeni, 350 meters, April 25-27, 1957 (BASILEWSKY-LELEUP).

Conosia irrorata WIEDEMANN

Limnobia irrorata WIEDEMANN; Aussereur. zweifl. Ins., 1: 574; 1828.

Limnobia substituta WALKER; List Dipt. Brit. Mus., 1: 39; 1848.

Limnophila crux DOLESCHALL; Tijdschr. Nederl. Indie, 14: 388, pl. 4, fig. 3; 1857.

Conosia irrorata VAN DER WULP; Tijdschr. v. Entomol., 23: 161, pl. 10, figs. 5-7; 1880.

The species is widespread over Asia, the southern Palaearctic region and eastern Africa.

Uganda : Bugiri, 1,400 meters, August 5-8, 1957 (BASILEWSKY-LELEUP).

Gonomyia (Gonomyia), species

A single ♀ that cannot be determined specifically without the ♂. It is most similar to species such as *Gonomyia (Gonomyia) callisto* ALEXANDER, *G. (G.) ericarum* ALEXANDER, and *G. (G.) mendica* ALEXANDER, of Uganda and Kenya.

Tanganyika : Marungu, Kilimanjaro, versant S.E., 1,600 - 1,750 meters, July 13-20, 1957 (BASILEWSKY-LELEUP).

Molophilus (Molophilus) africanus RIEDEL

Molophilus africanus RIEDEL; Voy. Alluaud et Jeannel Afrique Orientale (1911-1912), Inst. Dipt., III, Nematocera polyneura, p. 82, fig. (Venation); 1914.

The type, a female, was from above Marungu, Kilimanjaro, Tanganyika, 1,800 - 2,600 meters, taken March 30, 1912, by ALLUAUD and JEANNEL. A male now available is discussed as allotype.

Male. — Length about 6.5 mm.; wing 6 mm. Hind leg, femur 4.4 mm.; tibia 4.6 mm.; tarsus 5.2 mm.

Characters as in the type female. Whitened pattern of legs less evident, including a subbasal ring on tibia and more than the proximal third of basitarsus. Legs elongate as in the female, especially the posterior pair, as shown by the measurements. Wings with vein *2nd A* elongate, as in the type. Male hypopygium (fig. 8) with the lobes of the basistyle, *b*, different from those in *variitibia*, especially the mesal lobe, *mb*, which is broad at base, extended into a narrow blade that appears as a spinous point; surface of lobe with scattered microscopic punctures but without setae. Longest dististyle, *d*, quite glabrous, the small basal style more extended than in *variitibia*. Phallosomic plate, *p*, with apex more obtuse. Aedeagus, *a*, more slender, tip long-extended.

Allotype, alcoholic male, Olkokola, Mt. Meru, Tanganyika, versant N.O., in the gorge de Kordikorda, 2,700 meters, June 29, 1957 (BASILEWSKY-LELEUP).

Styryngomyia acanthobasis, sp. n.

Allied to *vittata*; darkened stripe of abdominal tergites slightly interrupted; male hypopygium with apex of major lobe of intermediate arm of dististyle truncate, margin of inner arm produced into a conspicuous spinoid point.

Male. — Length about 7 mm.; wing 5 mm.

Female. — Length about 6 mm.; wing 4.8 mm.

Described from alcoholic material. Rostrum yellow; palpi yellow, apices of the segments darkened. Antennae with scape yellow, narrowly lined beneath with brown; pedicel dark brown, yellow basally; flagellum yellow. Head yellow, occiput with intermediate brownish lines; posterior vertex behind eyes with a nearly transverse row of about eight setae, the innermost pair stronger, porrect.

Pronotal scutum infuscated laterally, yellow medially, with six strong porrect setae; scutellum yellow, narrowly bordered by brown, with a pair of setae on either side, the outer one weak. Mesonotal praescutum yellow, patterned with brown, the intermediate stripes evident on anterior half, obsolete behind; lateral stripes indicated chiefly at and before suture; scutal lobes yellow, posterior borders narrowly darkened; scutellum yellow, with a darkened stripe on either side; mediotergite infuscated, especially behind, with a narrow central yellow line. Pleura yellow, with three small blackened spots or dashes, the anterior one on anepisternum, the second on dorsal pteropleurite beneath wing root, the third beneath the posterior thoracic spiracle. Prosteronum with a transverse darkened mark on either side of midline. Halteres yellow, apex of knob vaguely darkened. Legs with coxae and trochanters yellow; femora yellow, with two narrow brown rings, the interspace broader than either annulus; tibiae yellow, apex narrowly darkened, with a second incomplete ring before midlength; tarsi yellow, tips of proximal four segments narrowly dark brown, terminal segment brownish black. Wings yellow, with four brown spots, placed at *r-m*, outer end of cell *1st M*₂, posterior end of *m-cu*, and tip of vein *2nd A*, the color not involving the adjacent veins; veins yellow, dark brown in the patterned parts. Venation: Anterior branch of *Rs* oblique; cell *2nd M*₂ short-petiolate (type) to narrowly sessile (allotype); vein *2nd A* spurred.

Abdomen yellow, tergites patterned with brown, including the slightly more intense posterior border, central darkened stripe slightly interrupted. Male hypopygium (figs. 9, 10) with the apical lobe of tergite, *t*, transversely oval, apex truncate, surface with abundant delicate setulae, the outer ones smaller. Sternite, *s*, with apex relatively broad, with two distinctly separated setae that are about as long as the width of the sternite at their insertion, apex of the latter rounded, slightly produced. Basistyle, *b*, with basal tubercle elongate; spine broken. Dististyle, *d*, with outer arm slender, unarmed; intermediate arm as shown, its major lobe truncated at apex, not emarginate as

in *vittata*, with nearly a score of spinoid setae, the apical ones smaller, the more lateral ones progressively larger; lateral branch of arm terminating in a compact group of longer spinous setae; on disk of major lobe with about six short spinoid setae and a group of six or seven longer bristles; inner arm a flattened glabrous blade, apex obtuse, lower margin near base produced into a conspicuous spinelike point. Phallosome, *p*, as illustrated, including a slender more basal blackened point and a group of three slender slightly decurved black lobes, their tips obtuse.

Holotype, alcoholic ♂, Marangu, Kilimanjaro, Tanganyika, versant S.E., 1.600-1.750 meters, July 13-20, 1957 (BASILEWSKY-LELEUP). *Allotopotype*, alcoholic ♀, in ALEXANDER Collection.

The nearest relatives of the present fly are *Styringomyia longituberculata* ALEXANDER and *S. vittata* EDWARDS, all differing among themselves in hypopygial structure, particularly the intermediate and inner arms of the dististyle. These structures are illustrated for comparison. *S. acanthobasis* (fig. 10), lobe of intermediate arm of style obtuse; a conspicuous spinelike extension on lower margin of inner arm. *S. longituberculata* (fig. 11) with the lobe of intermediate arm more pointed; inner arm with a very small spinelike extension. *S. vittata* (fig. 12) with lobe of intermediate arm emarginate; no spinelike extension on margin of inner arm.

Toxorhina (*Ceratocheilus*) sp., near *brachymera* ALEXANDER

Toxorhina (*Ceratocheilus*) *brachymera* ALEXANDER; Ruwenzori Exped., 1934-35, 1, no. 7: 366-367, fig. 183 (♂ hypopygium); 1956.

Type from the Ruwenzori Range, Uganda, 7.300 feet, collected by EDWARDS. A single broken ♀ in the present series agrees closely and is presumed to belong to this species.

Tanganyika: Bunduki, Uluguru Mts., 1.300 meters, April 30 - May 11, 1957 (BASILEWSKY-LELEUP).