

Undescribed African crane-flies in the British museum (Tipulidae, Diptera)

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UNDESCRIBED AFRICAN CRANE-FLIES IN THE BRITISH MUSEUM. (TIPULIDÆ, DIPTERA).

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For the past several years the writer has been engaged in preparing a monographic revision of the crane-flies of the Ethiopian Region. The collections of many of the museums in America, Europe and South Africa have been generously loaned me for study in the continuation of this work. The largest collections of tropical African Tipulidæ available are those of the British Museum (Natural History), and I would express my sincere thanks to Mr. F. W. Edwards for his kindness in sending me this material. The Limnobiinæ of this collection are discussed in another paper; part of the Tipulinæ are described in this article.

Genus *Habromastix* Skuse.

***Habromastix edwardsiana*, sp. n.**

General coloration rusty-brown; wings pale brown, cells *C* and *Sc* and the wing-apex dark brown; a pale area before and beyond the stigma; fusion of *M*₃ and *Cu*₁ extensive; abdomen black, ringed with obscure yellow.

Male.—Length 10.5 mm.; wing 10.4 mm.; antenna 10.3 mm. Hing leg, femur 6.3 mm.; tibia 9 mm.

Female.—Length 10.3 mm.; wing 10.2 mm.

Rostrum and palpi pale brown. Head vertical in position, the frontal prolongation very short. Antennæ pale brownish yellow, brightest basally, the outer segments darker; scapal segments small; first flagellar segment enlarged basally; flagellar segments clothed with a long, erect pubescence and provided with a few, very tiny, black verticils. Vertex bright brown; head between the eyes broad.

Mesonotal præscutum rusty-brown without stripes; remainder of the mesonotum a little darker. Pleura pale brown, the mesepimeron a little brighter. Halteres pale brown, the base of the stem brighter, the knobs dark brown. Legs with the coxæ and trochanters brownish yellow; femora and tibiæ pale yellowish brown, the tips conspicuously blackened, the latter very narrowly; tarsi yellowish brown, only the distal segments darkened. Wings with a strong, brownish tinge; cells *C* and *Sc* dark brown; stigma dark brown; apices of cells *R*₂ and *R*₃ strongly darkened; cross-veins and deflections of veins indistinctly seamed with brown; a conspicuous whitish area before the stigma in cell 2nd *R*₁ and a smaller, but similar, area beyond the stigma in the base of cell *R*₂; cells in the vicinity of 1st *M*₂ indistinctly centred with paler; veins dark brown. Venation: *Rs* strongly arcuated at origin; tip of *R*₁ somewhat indistinct; basal deflection of *R*₂ nearly as long as *r*; cell 1st *M*₂ pentagonal; petiole of cell *M*₁ about equal to *m*; basal deflection of *Cu*₁ just beyond the fork of *M*, the fusion of *M*₃ and *Cu*₁ being a little shorter than the basal deflection of *M*₁₊₂.

Abdomen with the first segment yellow; remaining segments with the basal and apical thirds black, the middle third obscure yellow, producing a narrow, pale-ringed appearance; eighth and ninth segments black. In the female, the abdomen is almost uniformly dark brown in colour and greatly distended with eggs. Male hypopygium of an unusually generalized structure,

not unlike that occurring in the subfamily Limnobiinae; ninth tergite almost straight across the caudal margin; pleurites subcylindrical, each with two pleural appendages, borne at the apex; the outer appendage is flattened, pale, elongate-oval in outline; inner appendage flattened, clothed with conspicuous dense hairs; on the dorsal face before the tip produced into a long, blackened point that extends beyond the other parts of this appendage; pleural suture indicated only beneath, straight. Ninth sternite membranous, the caudal margin with a deep, rounded, median notch. Penis-guard a simple, cylindrical rod. Anal tube conspicuous, pale. Ovipositor with the tergal valves compressed, strongly upcurved, the tips subacute; sternal valves very compressed and flattened, the tips obtusely rounded.

Habitat.—Ashanti.

Holotype.—♂, Obuasi, June 20, 1907, (Dr. W. M. Graham), B. M. No. 1908-245.

Allotopotype.—♀, in the copula with the male.

The types were caught in dense bush on a leaf.

Type in the collection of the British Museum (Natural History).

Habromastix riedeliana, sp. n.

Antennae moderately elongated; mesonotum yellowish red, unmarked with darker; wings pale brown, the costal region slightly darker; fusion of M_3 and Cu_1 punctiform; abdomen yellow, striped longitudinally with black.

Male.—Length about 11.8 mm.; wing 11.5 mm. Hing leg, femur 7.5 mm.; tibia 9.7 mm.

Female.—Length about 12 mm.; wing 11.5 mm.

Frontal prolongation of the head short but evident, brownish yellow; nasus lacking; palpi short, dark brown. Antennae moderately elongate, in the male, if bent backward, extending about to mid-length of the abdomen; but nine flagellar segments; scape and basal swelling of the first flagellar segment yellow, remainder of the flagellum dark brown, clothed with a dense, erect, pale pubescence; verticils short and sparse. Head brownish, covered with a pale pollen; no vertical tubercle; vertex between the comparatively small eyes broad.

Mesonotum light yellowish red without darker markings. Pleura obscure yellow. Halteres long and slender, pale yellow, the knobs dark brown. Legs with the coxae and trochanters yellow; femora yellow basally, the outer half pale brown, the tips dark brown; tibiae pale brown, the tips narrowly dark brown; tarsi brown. Wings with a pale brownish tinge, the costal and subcostal cells, and the stigma, slightly darker brown; veins indistinctly seamed with brown; an indistinct whitish spot before the stigma in cell 1st R_1 and another crossing cell 1st M_2 ; veins dark brown. Venation: R_s rather short and feebly arcuated, about equal to R_{2+3} ; cell R_2 large, veins R_2 and R_3 divergent; cell 1st M_2 rather small, pentagonal; petiole of cell M_1 about one-half longer than m ; fusion of M_3 and Cu_1 very slight, almost punctiform.

Abdomen yellow, heavily lined with black; basal tergite yellowish brown; second tergite yellow with brown median and lateral stripes; tergites three to seven with the conspicuous median and lateral stripes broadly connected apically so that only the sides at the base are of the obscure yellow ground-colour. Eighth

segment entirely black; hypopygium reddish. Abdomen of female dark, distended with eggs; ovipositor reddish horn-colour. Male hypopygium somewhat as in *H. edwardsiana*; ninth tergite with a shallow median notch and broader and slightly deeper lateral notches. Sterno-pleurite prolonged considerably beyond the level of the tergite, the pleural appendages borne at the apex; outer appendage slender, pale; inner appendage a flattened blade with the apex bifid, the base rounded and tumid, densely hairy. Ninth sternite with a very deep and narrow U-shaped median notch. Eighth sternite with a very low V-shaped notch, the margin unarmed. Ovipositor with the tergal valves comparatively slender; sternal valves long, compressed, the tips obtuse.

Habitat.—Nyasaland.

Holotype.—♂, Mt. Mlanje, January 6, 1913, (S. A. Neave).

Allotype.—♀, January, February, 1914, (J. B. Davey).

Presented by the Imperial Bureau of Entomology 1913-236, 1915-58.

Type in the collection of the British Museum (Natural History).

Genus *Tipula* Linnaeus.

***Tipula* (*Tipulodina*) *milanjii*, sp. n.**

Coloration orange-yellow; præscutum and scutum largely shiny black; legs black, the tibiae with a broad whitish ring beyond the base; wings brownish yellow, stigma oval, dark brown; abdomen orange-yellow, the tergites ringed caudally with velvety black.

Female.—Length about 26.5 mm.; wing about 21.5 mm.; abdomen alone, 19.2 mm. Fore leg, femur 10.7 mm.; tibia 13.3 mm.; metatarsus, 9.8 mm.; 2nd tarsal segment 3.1 mm.; 3rd to fifth tarsal segments 3 mm. Hind leg, femur 13.8 mm.; tibia 15 mm.

Frontal prolongation of the head rather short, clear orange-yellow; nasus short and stout; mouth-parts and palpi brown. Antennae with the scapal segments fiery orange; flagellar segments cylindrical, dark brown; verticils rather short. Head fiery orange; a small black spot on the ventral side adjoining the inner margin of the eye; vertex broad, eyes small.

Pronotum yellow. Mesonotum yellow, the præscutum with three broad, shiny black stripes, the narrow interspaces opaque velvety-black so the dorsum appears to be almost entirely black, only the lateral regions of the ground colour; scutal lobes shiny black; scutellum clear light yellow, the lateral wings brown; postnotum light yellow. Pleura light orange-yellow. Mesosternum a little infuscated. Halteres dark brown, the base of the stem narrowly pale. Legs with the coxae and trochanters orange-yellow; femora dark brownish black, the extreme base brighter; tibiae black with a rather broad (1.7 mm.) whitish ring just beyond the base; tarsi brownish black; metatarsi much shorter than tibiae; femora slightly enlarged apically; claws of female simple, empodia pale. Wings rather broad, with a pale brownish yellow suffusion; cell *C* light brown, cell *Sc* dark brown; stigma dark brown, oval; indistinct brown seams along the cord; veins dark brownish black. Venation: *Rs* rather short, slightly arcuated; *R*₂ short, about one-half the length of *R*₂₊₃; *m-cu* very short but present.

Abdomen with tergites one to five orange-yellow; segments two to five with the posterior margins deep velvety-black and sending a paler brown band cephalad to the anterior margin of the segments; tergites six and seven similar

but the basal half entirely dark brown; eight and nine orange; sternites generally similar, segments two to five with a brown posterior band, reduced to a triangle on the second and third segments, the second segment with an additional brown band near midlength; segments six and seven dark brown, the caudal margin very narrowly yellow. Ovipositor with the tergal valves long and slender, the tips curved a little ventrad; sternal valves compressed, the tips broadly rounded.

Habitat.—Nyasaland.

Holotype.—♀, Mt. Mlanje, November 21, 1912, (S. A. Neave).

Presented by the Entomological Research Committee 1913-394.

Type in the collection of the British Museum (Natural History).

This magnificent crane-fly is apparently related to the much smaller and less brightly coloured *Tipulodina kinangopensis* Riedel (British East Africa) and is referred, provisionally, at least, to the subgenus *Tipulodina* Enderlein. The white tibial bands in the present species suggest that this reference is correct although the two African forms are very much more brightly coloured than the numerous Oriental species as known. *Tipula milanjii* in its general appearance suggests a large and handsome species of *Nephrotoma*.

***Tipula silinda*, sp. n.**

Allied to *T. jocosa*; mesonotal præscutum yellow with three yellowish stripes that are margined with brown; lateral and anterior margins of the præscutum dark brown; postnotum yellow, the caudal margin dark brown including a dark brown spot above the base of the halteres; pleura yellow, faintly marked with brown; legs yellow, tips of the femora broadly blackened; wings brownish subhyaline, a darker brown spot at arculus, stigma dark brown, brown seams along the cord; whitish oblitative areas beyond the arculus and before the stigma; cell 1st M_2 ample; abdomen brownish yellow, margined sublaterally with dark brown.

Female.—Length 25 mm.; wing 22.5 mm.; abdomen alone, 17.8 mm. Fore leg, femur 14.5 mm.; tibia 17.8 mm.; metatarsus 16.2 mm.

Frontal prolongation of the head brownish yellow; mouth-parts and palpi brown. Antennæ with the scape and basal two or three flagellar segments yellow, the remainder of the flagellum passing into dark brown; verticils long and conspicuous. Head obscure brown.

Pronotal scutum light brown; scutellum more yellowish. Mesonotal præscutum obscure yellow, the three stripes concolorous and evident only by their brown margins; median stripe with the lateral margins ill-defined at midlength and with a broad, brown median stripe; lateral stripes with the brown margins distinct, the lateral margin broader than the proximal; at the anterior ends of the lateral stripes a large, rounded, dark brown spot; anterior margin of the præscutum narrowly dark brown; scutum obscure yellow anteriorly, dark brown posteriorly, this colour confluent across the median line; scutellum with the median area yellow, narrowly margined caudally with brown, the lateral wings of the scutellum similarly yellow but here margined anteriorly with brown; postnotum with the median sclerite yellow with two indistinct brown lines, the caudal margin with two dark brown spots; lateral sclerites of the postnotum yellow, the dorsal anterior margin brown, extending to beneath

the wing-root; ventral posterior margin, immediately dorsad of the base of the halteres conspicuously dark brown. Pleura yellow, a pale brown cloud on the dorsal margin of the mesosternum and another on the caudal margin of the mesepimeron. Halteres with the base and knobs conspicuously light yellow the remainder of the stem dark brown. Legs with the coxæ yellow, the outer face of the posterior coxæ infumed; trochanters yellow; femora yellow, the tips broadly (1.8 mm.) and abruptly blackened; tibiæ brownish yellow, the tips rather narrowly dark brown; tarsi brown, darker distally. Wings with a faint brownish tinge, cell *Sc* more brownish yellow; stigma brown; a brown spot at the arculus; brown seams along the cord, outer and anterior margin of cell *1st M*₂; oblitative areas beyond arculus and before the stigma; veins dark brown. Venation: similar to *T. pomposa* but veins *Rs* and *R*₂₊₃ in alignment; *Rs* shorter than *R*₂₊₃; vein *R*₃ bent a little toward *R*₄₊₅ (as in *T. alphaspsis*); cell *1st M*₂ very large, roughly rounded-oval in outline; fusion of *M*₃ and *Cu*₁ extensive, longer than the basal deflection of *M*₃.

Abdomen with the basal tergites obscure yellowish, beyond the second more brownish; lateral margins of the segments narrowly light yellow; a broad, dark brown, submarginal stripe; sternites more uniformly reddish yellow. Ovipositor with the tergal valves very long and slender, straight, divergent; sternal valves ending about opposite mid-length of the tergal valves, compressed.

Habitat.—Southern Rhodesia.

Holotype—♀, Mt. Chirinda, Melsetter District, altitude 3,800 feet, June 11, 1911, (C. F. M. Swynnerton).

Presented by the Entomological Research Committee 1912–145.

Type in the collection of the British Museum (Natural History).

Tipula silinda is somewhat similar to *T. pomposa* Bergroth but is very distinct in the details of coloration and structures. It is closer to *T. jocosa* Alexander (Cape Colony—Natal) and *T. masai*, sp. n. (British East Africa) as discussed under this latter species. The specific name, *silinda*, is the Zulu form of Chirinda, for the explanation of which I am indebted to Dr. G. A. K. Marshall.

***Tipula masai*, sp. n.**

Allied to *T. jocosa*; antennæ yellow; wings grayish subhyaline, variegated with brown seams and hyaline spaces in certain of the cells.

Female.—Wing 18 mm. Middle leg, femur 9.5 mm.; tibia 10.5 mm. Hind leg, femur 10 mm.; tibia 12.1 mm.

Frontal prolongation of the head rather slender, brownish yellow, paler ventrally, with a narrow, brown, lateral line; mouth-parts yellowish; palpi dark brown. Antennæ light yellow, only the distal segments darker coloured. Head reddish brown.

Pronotum light brown. Mesonotal præscutum obscure yellow with four narrow, light yellow stripes that are narrowly margined with dark brown so as to practically obliterate the ground colour; intermediate stripes bent away from one another near mid-length, exposing a linear strip of the ground colour; anterior and lateral margins of the præscutum dark brown; scutum yellow, the lobes indistinctly margined anteriorly with brown, the posterior half broadly and conspicuously margined with brown, this colour bridging the posterior half

of the median area; scutellum and postnotum obscure brown; a slightly darker brown spot on the lateral sclerites of the postnotum above the base of the halteres. Pleura indistinctly marked with pale brown and whitish. Halteres light brown, the base of the stem and the knobs conspicuously light yellow. Legs with the coxæ and trochanters yellow, the outer face of the middle coxæ infuscated; femora yellow, a little brightened immediately before the broad, black tips; tibiæ obscure yellow, the tips narrowly and indistinctly darkened; tarsi light brown, passing into darker brown at the tips. Wings grayish subhyaline, sparsely marked with brown and variegated with hyaline; costal cell slightly more yellowish, the subcostal cell brownish yellow; stigma brown; conspicuous brown seams at the origin of R_s ; along the cord in the bases of cells R_3 and R_5 ; completely surrounding cell 1st M_2 and at the fork of M_{1+2} ; deflection of Cu_1 broadly seamed with brown; a large brownish area near the arculus in the bases of cells R and M ; a large oblitative streak along the cord, extending from before the stigma, across cell 1st M_2 into the base of cell M_4 ; smaller hyaline areas beyond the stigma, in the bases of cells M_1 and 2nd M_2 ; and two others in the end of cell 1st A , one adjoining vein 1st A , the other nearer the 2nd *Anal* vein; veins dark brown. Venation: somewhat as in *T. jocosa*, differing as follows: R_s longer, a little longer than R_{2+3} ; base of R_2 before r longer, apex of R_2 beyond r long and almost straight; cell 1st M_2 roughly oval in outline, the basal deflection of M_{1+2} being shorter than the deflection of M_{3+4} ; M_{1+2} between $r-m$ and m long, evenly and gently arcuated; petiole of cell M_1 shorter than m ; $m-cu$ short but evident.

Abdomen broken beyond the base, the first tergite brown, narrowly margined caudally with yellow; base of the abdomen filled with large eggs.

Habitat.—British East Africa.

Holotype.—♂, Southeastern slopes of Mt. Kenya, altitude 6,000–7,000 feet, February 3–12, 1911, (S. A. Neave). B. M. No. 1912–70.

Type in the collection of the British Museum (Natural History).

Tipula masai is told from the related *T. jocosa* and *T. silinda* by the different pattern of the posterior sclerites of the mesonotum. From *jocosa* it is also readily told by the yellow antennæ and very distinct venation. The coloration of the mesonotal postnotum is sufficient to distinguish *T. silinda* from *T. masai*. The three species here mentioned form a group of rather closely-related forms that are readily told by their peculiar thoracic pattern and yellow-knobbed halteres.

***Tipula bartletti*, sp. n.**

General coloration reddish brown, the præscutal stripes nearly concolorous, narrowly margined with dark brown; scutellum and postnotum largely brown; a small, brown spot on the sides of the præscutum and on the lateral sclerites of the postnotum; wings brownish yellow, the costal region darker; fusion of M_3 and Cu_1 punctiform.

Sex?—Wing about 25 mm. Hind leg, femur 16.1 mm.; tibia 16.5 mm. Head destroyed by pests.

Pronotum yellow, indistinctly infuscated on the sides.

Mesonotal præscutum reddish brown with four almost concolorous stripes that are narrowly margined with dark brown; median stripe narrowly split by

a capillary dark brown line; interspaces dark; lateral margins obscure yellow; a small, brown spot on the lateral margin opposite the anterior end of the lateral stripes; scutal lobes brown; scutellum brown, the lateral wings paler; postnotum with the median sclerite largely uniform brown, the lateral margins narrowly, the posterior margin more broadly, pale; lateral sclerites of postnotum with an ill-defined brown spot near the centre. Pleura obscure unicolorous yellow. Halteres broken. Legs with the coxæ and trochanters obscure yellow; femora light brown, the tips rather narrowly blackened; tibiæ brown, the tips narrowly and indistinctly darkened; tarsi dark brown. Wings with a strong brownish yellow tinge, the costal and subcostal cells more saturated; basal deflection of R_{4+5} and $r-m$ indistinctly seamed with darker; Cu and its branches likewise seamed with darker; veins dark brown. Venation: Rs shorter than R_{2+3} ; petiole of cell M_1 a little longer than m ; fusion of M_3 and Cu_1 very slight.

Abdomen reddish brown, the tergites with indistinct lateral stripes; apex of the abdomen broken.

Habitat.—Madagascar.

Holotype.—Sex?, Ekongo, South-western Madagascar, (E. Bartlett) B. M. No. 78-58.

Type in the collection of the British Museum (Natural History).

***Tipula victoria*, sp. n.**

Closely allied to *T. zambeziensis*; size larger, wing over 19 mm.; ninth tergite of the male hypopygium produced caudad into a short, broad, median lobe whose posterior margin is gently concave, the lateral lobes neither conspicuous nor divergent.

Male.—Length 20-21 mm.; wing 19.5 mm.

Female.—Length about 21 mm.; wing 19.5 mm.

Generally similar to *T. zambeziensis* Alexander, differing as follows: Size larger; brown seams along the deflection of R_{4+5} and $r-m$ more extensive and distinct; stigma dark brown. In the allotype veins M_3 and Cu_1 are fused for a considerable space, but in the type male this fusion is punctiform. The female has a rounded dark brown spot on the lateral margin of the præscutum, but otherwise the mesonotum is quite unmarked with darker as in this group of species. The wings of the female are darker than those of the male, with a large obliterative area before and a somewhat smaller spot beyond the stigma. Male hypopygium with the ninth tergite extensive, the median area produced caudad into a short, broad, depressed or slightly hollowed-out lobe whose posterior margin is rather deeply concave, the lateral lobes short and not divergent as in *T. zambeziensis*. Ninth sternite profoundly incised medially as in the *zambeziensis* group of species, the notch extending almost to the eighth sternite; at the base of this notch are two parallel pencils of stiff, erect bristles, directed caudad; in *zambeziensis* these bristles are less conspicuous and tend to be decussate apically.

The female is considerably darker than the male, but for the time being, at least, must be considered as belonging to this same species.

Habitat.—Uganda.

Holotype.—♂, Mabira Forest, Chagwe, altitude 3,500-3,800 feet, July 16-25, 1911, (S. A. Neave). B. M. No. 1913-140.

Allotopotype.—♀.

Type in the collection of the British Museum (Natural History).

***Tipula milanjensis*, sp. n.**

Allied to *T. zambeziensis*; general coloration bright orange-yellow; thorax unmarked with darker; abdomen with a narrow, blackish subterminal ring; antennæ of male moderately elongated; wings nearly hyaline, iridescent, stigma dark brown.

Male.—Length about 20 mm.; wing 19.3 mm.

Hind leg, femur 13.8 mm.; tibia 15 mm.; metatarsus about 24 mm.

Frontal prolongation of head moderately long, orange-yellow; nasus long; mouth-parts and palpi obscure yellow. Antennæ rather long, if bent backward, extending about to the base of the halteres; scape orange; flagellum light brown, the distal segments darker brown; segments elongate-cylindrical, the verticils about as long as the segments that bear them. Head orange yellow.

Mesonotum orange-yellow without distinct darker markings; scutellum and postnotum paler yellow. Pleura yellow. Halteres brownish yellow, the knobs dark brown. Legs with the coxæ and trochanters light orange-yellow; femora pale brown, the bases still paler, the tips rather broadly blackened; tibiæ dark brown, the tips narrowly and indistinctly blackened; tarsi dark brownish black; tarsi very long and slender; claws toothed. Wings nearly hyaline, iridescent, the subcostal cell slightly darker; stigma dark brown, conspicuous; an indistinct brown cloud at the deflection of R_{4+5} and $r-m$, and another at the wing-margin at the end of vein Cu_2 . Venation: Rs short, almost straight; fusion of M_3 and Cu_1 slight.

Abdominal tergites brownish orange, the basal tergites bright orange, segments three to six brownish orange; a narrow, subterminal black ring, including most of segment seven and segment eight with the exception of a narrow, orange-brown caudal margin; hypopygium brownish orange. Male hypopygium with the sclerites fused into a continuous ring as in this group of species. Ninth tergite extensive, the median area produced caudad into a broad, flattened lobe, the caudal margin of which is provided with a low, U-shaped notch, the lateral lobes and margin quite unarmed with spinules. Outer pleural appendage rather narrow, tapering to the subacute tip, pale, the surface covered with comparatively short setæ; inner pleural appendage produced into an inner blade that juts toward the ninth tergite, the proximal face covered with numerous short hairs; the outer margin is provided with a very powerful black spine and a small, apical flattened blade. Ninth sternite with a broad and profound median notch, the base of this incision almost coincident with the posterior margin of the eighth sternite; base of the notch broad, provided with two flattened sheaths of long, reddish yellow bristles, their tips decussate. Eighth sternite unarmed.

Habitat.—Nyasaland.

Holotype.—♂, Mt. Mlanje, December 28, 1912, (S. A. Neave).

Presented by the Entomological Research Committee 1913-236.

Type in the collection of the British Museum (Natural History).

***Tipula hova*, sp. n.**

Allied to *T. zambeziensis*; general coloration bright orange-yellow, the

thorax unmarked with darker; male hypopygium with the median lobe of the ninth tergite short, the caudal margin with a broad, U-shaped notch.

Male.—Length 22 mm.; wing 21.5 mm. Hind leg, femur 12.1 mm.; tibia 14.6 mm.

Female.—Length 26 mm.; wing 18.5 mm.

Head and frontal prolongation clear light yellow; rostrum and palpi pale brown. Antennæ with the scape yellow; flagellum light brown, the basal swellings indistinctly paler, brownish yellow.

Mesonotum orange-yellow, the præscutum and scutum with the usual three stripes lacking or barely indicated; scutellum and postnotum clearer yellow, unmarked. Pleura clear orange-yellow, unmarked. Halteres light brown, the base of the stem narrowly light yellow. Legs with the coxæ and trochanters orange-yellow; femora yellowish brown, the tips broadly blackened; tibiæ light brown, the tips scarcely darkened; tarsi brown; claws toothed. Wings brownish subhyaline, cell *C* more yellowish, cell *Sc* more brownish; stigma brown; very indistinct seams along *r-m* and the basal deflection of *Cu*₁; veins dark brown. Venation: as in the subgenus; fusion of *M*₃ and *Cu*₁ punctiform.

Abdomen with the basal tergites orange-yellow, the basal third of the intermediate segments paler yellow and destitute of pubescence; segments six to nine more yellowish brown; a conspicuous, interrupted, brown, lateral stripe on tergites two to four. In the female, the dark lateral stripe is more extensive. Male hypopygium as in the *zambeziensis* group but rather more enlarged than usual. Ninth tergite with the median lobe short, the caudal margin with a broad and deep U-shaped notch, the lateral lobes rather slender, lying subparallel; viewed from the side, appearing as conspicuous flattened blades. Outer pleural appendage pale yellow, elongate-oval, the apex obtusely rounded, the outer face of the lobe with sparse bristles, longer and fringe-like at the apex. Inner pleural appendage moderately complicated in structure, consisting of an inner blade that juts against the ninth tergite, the proximal face densely clothed with long, yellow hairs, and an outer blade that bears a somewhat oval area of about a score of erect, black, spinous bristles; between these two blades lies a slightly curved, cylindrical arm with the apex truncated and heavily chitinized. Ninth sterno-pleurite with a broad and very deep V-shaped median notch that is deeper than in any other species of this group so far made known, the base lying underneath the caudal margin of the eighth sternite; beneath this profound incision is a membranous tissue, at about mid-length of the split with two contiguous flattened lobes, each fringed with a sheath of reddish bristles that are directed caudad, these longest proximally, decreasing in length outwardly. Ovipositor with the tergal valves very slender, straight; sternal valves compressed, the tips obtuse.

Habitat.—Madagascar.

Holotype.—♂, (W. D. Cowan). B.M. No. 80-45.

Allotype.—♀, Region south-east of Fort Dauphin, December, 1900, (Ch. Alluaud).

Paratopotype.—♂.

Paratypes.—♂, Ambohimombo Forest, November, 1894, (Dr. Forsyth-Major); ♂, Tamatave, 1906, (A. Sauzier). B. M. Nos. 98-46, 1906-291; 6 ♂ ♀'s, Forêt e d'Andrangoloaka, Imerina, 1891, (A. Grandidier).

Type in the collection of the British Museum (Natural History); allotype in the collection of the Paris Museum.

The specific name, *hova*, is that of the natives inhabiting the central provinces of Madagascar.

***Tipula meliuscula*, sp. n.**

Antenal scape yellow, flagellum indistinctly bicolorous; head cinnamon-brown with a conspicuous, dark brown, median stripe; præscutum brown with four obscure yellow stripes; remainder of the mesonotum dark brown and yellowish; pleura obscure yellow, a brown spot between the fore and middle coxæ; wings grayish subhyaline, the deflection of Cu_1 conspicuously seamed with dark brown; male hypopygium with the ninth tergite short, the caudal margin with two widely-separated rounded protuberances.

Male.—Length 15 mm.; wing 17 mm.

Frontal prolongation of the head dark brown above, more yellowish on the ventral half; palpi dark brown. Antennæ with the scape yellow; flagellum brown, the basal enlargement of each segment dark brown, the remainder slightly paler; the first scapal segment bears numerous rather short bristles on the outer face and a group of three larger bristles on the inner face, arranged in a transverse row before the tip; flagellar verticils elongate. Head rich cinnamon-brown, the vertex and occiput with a conspicuous, dark brown median stripe.

Pronotum obscure brownish yellow, darker brown on the sides. Mesonotal præscutum brown with four narrow, obscure brownish yellow stripes that are margined with darker brown; lateral margins of the sclerite in front of the pseudosutural foveæ narrowly blackened; scutal lobes brownish black, the centres indistinctly yellowish; scutellum pale testaceous, the posterior margin weakly infuscated; lateral wings of the scutellum brownish black; postnotum with the median sclerite largely dark brown, the posterior third, a median blotch near the base and the lateral margins pale; lateral lobes of the postnotum brownish black, the ventro-cephalic portion yellowish. Pleura obscure yellow with a brown spot near the dorsal margin of the mesosternum immediately behind the fore coxa; mesepisternum slightly infuscated. Halteres dark brown, the extreme base conspicuously yellowish orange. Legs with the coxæ obscure yellow, the outer faces of the fore and middle coxæ slightly infuscated; trochanters yellow; remainder of the legs broken. Wings grayish subhyaline; cell C light yellow, cell Sc pale brown; a brown spot before the arculus; stigma narrow, dark brown; conspicuous brown seams at the deflection of R_{4+5} and $r-m$ and along the deflection of Cu_1 ; oblitative areas before the stigma in cell $1st\ R_1$ and beyond the stigma in the base of cell R_2 . Venation: Rs short, straight, about equal to R_{2+3} ; petiole of cell M_1 a little shorter than m ; fusion of M_3 and Cu_1 short.

Abdominal tergites brownish yellow, the basal segments brightest, the lateral margins of the tergites narrowly dark brown; sternites generally similar to the tergites. Male hypopygium with the ninth tergite short, the caudal margin with two rounded protuberances that are widely separated, the space between appearing as a broad, U-shaped notch; these protuberances are minutely roughened. The outer pleural appendage is small and slender, provided with long hairs; inner pleural appendage with the caudal basal angle produced caudad

into a flattened spatulate blade whose apical portion is very thin, narrowly blackened and minutely denticulate.

Habitat.—Sierra Leone.

Holotype.—♂, November, 1904, (Major F. Smith). B. M. No. 1904-347.

Type in the collection of the British Museum (Natural History).

***Tipula alphaspis nyasæ*, subsp. n.**

Female.—Length about 30 mm.; wing 25.4–26 mm.

Closely related to typical *alphaspis* Speiser (East Africa) differing as follows:

Mesonotal præscutum light yellow, the three stripes grayish brown, heavily margined with dark brown; the broad median stripe split by a median brown vitta that becomes obsolete behind; scutal lobes similar to the præscutal stripes, heavily margined with dark brown; scutellum yellow, the lateral wings dark brown; postnotum light yellow with two indistinct brownish lines near the sides of the median sclerite; typical *alphaspis* has this sclerite brown with an orange-yellow median line. Pleura bright yellow. The ovipositor with the valves long and straight, the tergal valves very slender, the sternal valves more compressed. The claws of the female are simple as in this sex of the present group of species.

Habitat.—Nyasaland.

Holotype.—♀, Mt. Mlanje, January 1, 1913, (S. A. Neave).

Paratopotype.—♀, January 28, 1913; a broken ♀, bred from the pupa, November 6, 1913.

Presented by the Entomological Research Committee 1913-236; Imperial Bureau of Entomology 1915-58.

Type in the collection of the British Museum (Natural History).

***Tipula leonensis*, sp. n.**

Size large (wing of male over 25 mm.); generally similar to *T. gaboonensis* but smaller; mesonotum with dark brown spots on the sides of the præscutum and postnotum; abdominal segments dark brown, the intermediate tergites with yellowish basal areas on the sides; male hypopygium with the ninth tergite produced into a median lobe which is shallowly notched medially.

Male.—Length 23 mm.; wing 26.5 mm.

Frontal prolongation of the head light orange; mouth-parts and palpi dark brown; tips of the latter broken. Antennæ with the scapal segments bright orange; flagellum dark brown; antennæ short; flagellar segments with very long, conspicuous bristles. Head orange, the vertex narrowed between the large eyes.

Mesonotal præscutum obscure yellow with four dark brown stripes, intermediate pair narrowly separated from one another by a capillary line; lateral stripes broad; on the sides of the præscutum opposite the anterior ends of the lateral stripes, a large, rounded dark brown spot; scutum yellow, each lobe with two confluent, dark brown spots on the anterior proximal half; scutellum dark; postnotum dark brown, the lateral sclerites obscure yellowish, the centres with a very large, rounded brown area. Pleura yellow. Halteres dark brown. Legs with the coxæ and trochanters dull yellow; femora and tibiæ brown, the tips scarcely darkened; tarsi long, dark brown; claws of the

male toothed. Wings with a strong brownish tinge, costal cell more yellowish, subcostal cell dark brown; stigma elongate, dark brown; narrow brown seams along *r-m* and the deflection of R_{4+5} and another along the basal deflection of Cu_1 ; a brown spot at the region of the arculus. Venation about as in other members of this characteristic group of species; R_s short, about equal to R_2 ; cell R_2 very narrow, its inner end pointed; cells 1st M_2 and M_1 large; petiole of cell M_1 short, subequal to *m*; fusion of M_3 and Cu_1 about one-half of *r-m*.

Abdomen discoloured; apparently dark brown, the lateral basal portions of tergites two to five yellowish; tergites six to eight uniformly dark; sternites somewhat similar; hypopygium yellowish. Male hypopygium with the ninth tergite produced medially into a broad lobe, the apex of which is provided with a rather small, V-shaped notch, the lateral lobes inconspicuous; the apex of this median lobe is broadly blackened and the entire tergite, except the base, is covered with numerous, subappressed, yellowish hairs; viewed laterally, each lateral lobe is seen to be produced ventrad into a minute blackened tooth. Outer pleural appendage broadly circular in outline, pale, a little darker near the base, the surface covered with a dense, appressed, silken pubescence of a yellow colour and a less number of coarse, black hairs. Inner pleural appendage not jutting conspicuously caudad as in *T. gaboonensis*. Ninth sternite narrowly but profoundly incised on the median line, near the dorsal proximal angle with numerous long reddish setae. Eighth sternite unarmed.

Habitat.—Sierra Leone.

Holotype.—♂, collected by W. G. Clements, No. 93-20.

Type in the collection of the British Museum (Natural History).

Tipula leonensis is closest to *T. gaboonensis* Alexander (Gaboon to Southern Nigeria) but differs sufficiently in the smaller size, the different pattern of the thorax, such as the increased size of the lateral spots on the præscutum and postnotum, and, especially, the structure of the male hypopygium.

***Tipula ellioti*, sp. n.**

General coloration orange-yellow, the præscutum and scutum with grayish brown stripes that are narrowly margined with still darker brown; a small brown spot on the lateral margin of the præscutum; abdomen yellow and black; male hypopygium with the median lobe of the tergite very broad, depressed, the caudal margin gently concave; pleural appendage very complicated in structure.

Male.—Length 20 mm.; wing 22 mm.

Frontal prolongation of the head moderately elongate, orange-yellow, the nasus slender; mouth-parts and palpi dark brown. Antennae with the scape yellow, the flagellum brownish black. Head orange-yellow.

Thorax orange-yellow, the mesonotal præscutum with three dark grayish brown stripes that are narrowly marginal with still darker velvety-brownish black; anterior half of the median stripe split by a blackish line; a very small, rounded brown spot on the sides of the præscutum opposite the anterior ends of the lateral stripes; sides of the pronotum with an indistinct darker spot; scutal lobes grayish brown margined with darker, the median area broadly yellow; scutellum yellow, the lateral portions darker; the juncture between the scutellum and lateral sclerites of the postnotum dark brownish black; postnotum yellowish

with a pale brown blotch on either side of the median sclerite, the lateral sclerites unmarked. Pleura orange-yellow. Halteres brown, the base of the stem yellowish. Legs with the coxæ orange, the outer face of the fore coxæ slightly infuscated; trochanters orange; remainder of the legs broken. Wings with a grayish tinge, cell *C* faintly yellowish, cell *Sc* more strongly so; stigma brown; a brown seam along the basal deflection of *Cu*₁; veins dark brown. Venation: *Rs* almost straight, much longer than *R*₂₊₃ and not in alignment with it; petiole of cell *M*₁ a little shorter than *m*; fusion of *M*₃ and *Cu*₁ punctiform.

Abdomen with the basal tergites narrowly blackish laterally, less distinctly darkened medially; fourth to sixth tergites brownish yellow, the lateral margins broadly black except at the base, the median area with an elongate black triangle with the point directed backwards; seventh and eighth tergites black; hypopygium reddish yellow; sternites uniformly yellowish, the seventh sternite with the posterior lateral angles blackened; eighth sternite medially at the base and laterally at the outer angles, blackened. Male hypopygium with the sclerites fused into a continuous ring as in the subgenus; median lobe of the tergite very broad, depressed, the caudal margin gently concave and set with numerous small blackened spicules; the sides of this lobe are provided with long yellowish bristles that are longest at the posterior lateral angles of the tergite. Pleural suture well indicated beneath; pleural appendages united into a single highly-complicated structure; what seems to correspond to the outer pleural appendage is a bifid lobe with the arms densely hairy; the inner appendage is produced into an outer chitinized spine, and intermediate flattened blade and an inner powerful compressed arm that juts toward the ninth tergite and corresponds to this inner blade in less specialized species; the inner face of this blade is covered with numerous, short bristles; the cephalic apex is rounded. Ninth sternite with only a shallow median notch, the remainder of the median area being filled with a pale membrane; proximo-caudal angles with a coarse pencil of reddish bristles that are decussate across the median line. Eighth sternite unarmed.

Habitat.—Uganda.

Holotype.—♂, Salt Lake to Wawamba (G. F. Scott Elliot) No. 95-41. Type in the collection of the British Museum (Natural History).

Tipula ellioti bears a general resemblance to *T. kenia*, but is a very different fly. It is named in honour of its collector, the distinguished Botanist, Dr. G. F. Scott Elliot.

***Tipula kenia*, sp. n.**

General coloration orange-yellow, the mesonotal præscutum with three broad, shiny black stripes; scutal lobes largely black; male hypopygium with the median lobe of the tergite short and with a small, rounded median notch.

Male.—Length about 15 mm.; wing 17.2 mm. Hing leg, femur 11.5 mm.; tibia 13.5 mm.

Female.—Length about 20 mm.; wing 18.8 mm.

Frontal prolongation of the head obscure yellow, moderately long; palpi dark brown. Antennæ with the scapal segments obscure yellow, the flagellum broken. Head orange-yellow.

Pronotum orange-yellow. Mesonotal præscutum yellow with three con-

spicuous, shiny black stripes, the lateral stripes anteriorly subcontiguous with the median stripe; scutum yellow, the lobes largely shiny black; scutellum and postnotum light yellow. Pleura yellow; an obscure brownish area beneath the wing-root and surrounding the base of the halteres; mesosternum faintly brownish. Halteres long and slender, dark brown. Legs with the coxæ and trochanters reddish yellow; femora obscure yellow, the tips black; tibiæ brown, the tips narrowly dark brown; tarsi dark brown. Wings with a grayish yellow tinge, the costal cell light yellow, the subcostal cell a little darker; stigma elongate, medium brown; veins dark brown. Venation as in the subgenus; *m-cu* present.

Abdomen with the basal tergites yellowish, longitudinally striped medially and less distinctly laterally with jet-black, these three lines narrowly connected across the caudal margin of the segments; segment five largely black, the tergite narrowly, the sternite more broadly, reddish at the base; segments six and seven black, excepting the extreme base; segment eight reddish, the tergite darker laterally and with a narrow, clear-cut median line, the sternite broadly darkened laterally and medially; hypopygium bright orange. Male hypopygium with the sclerites fused into a continuous ring; tergal region very narrow, the median area slightly produced caudad and with a rounded median notch, the blunt lateral lobes thus formed directed slightly proximad and densely set with short, blackened spinules. Outer pleural appendage rather narrow, narrowed at the base and apex, the latter bluntly rounded, the outer face of the appendage sparsely provided with moderately long bristles; inner pleural appendage moderately complicated in structure, divided into two arms, the cephalic arm compressed into a blade, the posterior arm more slender. Ninth sternite with a deep median incision filled with membranous tissue, the caudal proximal angles provided with a brush of long hairs. Eighth sternite unarmed.

Habitat.—East Africa.

Holotype.—♂, South-eastern Slopes of Mt. Kenia, British East Africa, altitude 6,000–7,000 feet, February 3–12, 1911, (S. A. Neave).

Allotype.—♀, Mt. Rungwe, near New Langenburg, ex-German East Africa, altitude 5,000–6,000 feet, November 18–21, 1910, (S. A. Neave).

Type in the collection of the British Museum (Natural History).

The female that is referred to this species has the antennal flagellum black; the median præscutal stripe narrowly split behind by a capillary pale line; the subterminal abdominal segments are narrowly ringed basally with obscure yellowish; seventh tergite yellow, narrowly but conspicuously margined laterally and caudally with black; ovipositor with the tergal valves very slender and divergent as in this group of species, the sternal valves much shorter and compressed.

***Tipula neavei*, sp. n.**

Head orange; general coloration deep velvety-black, including the postnotum; sides of the scutellum and a large circular area surrounding the base of the halteres pale yellow; legs brownish black; wings subhyaline, the costal and subcostal cells scarcely darkened.

Female.—Wing 16.2 mm. Middle leg, femur 10.5 mm.; tibia 10.8 mm.

Frontal prolongation of the head light orange, nasus slender, with long

black hairs; mouth-parts and palpi dark brown. Antennæ with the scape orange; flagellum dark brownish black; flagellar segments slender, elongate-cylindrical, with long verticils. Head orange; vertex between the eyes more brownish.

Pronotal scutum dark brownish black; scutellum paler. Mesonotum deep velvety black, the præscutum narrowly margined anteriorly with pale yellow; lateral wings of the scutellum whitish. Mesonotum covered with an abundant, short, subappressed pubescence. Pleura deep black, the dorso-pleural membrane buffy-yellow; a large, circular, pale yellow area surrounding the base of the halteres. Halteres dark brown, the base of the stem narrowly pale. Legs with the outer faces of the coxæ blackened; trochanters yellowish testaceous; femora dark brownish black, paler basally; tibiæ brown, the tips darker; tarsi brownish black. Wings subhyaline, the costal and subcostal cells scarcely brighter; stigma elongate, brown; veins dark brownish black, slender but clearly defined; an obliterative area before the stigma, continued across the basal deflection of M_{1+2} and the outer deflection of M_3 . Venation: R_s moderately long, slightly arcuated at origin, a little shorter than R_{2+3} ; deflection of R_{4+5} and $r-m$ in alignment; $m-cu$ obliterated by the very short fusion of M_3 and Cu_1 .

Abdomen broken, only the terminal six segments preserved, the fourth to seventh deep velvety-black, the eighth and ninth reddish horn colour. Ovipositor with the tergal valves slender, curved slightly ventrad; sternal valves much shorter, the apices obtusely rounded.

Habitat.—Uganda.

Holotype.—♀, Ankole-Toro Border, east of Lake George, altitude 4,500 feet, October 20–21, 1911, (S. A. Neave).

Presented by the Imperial Bureau of Entomology, 1915–57.

Type in the collection of the British Museum (Natural History).

The opaque black mesonotum without markings and clothed with an abundant, nearly appressed pubescence, gives this handsome fly a very characteristic appearance.

***Tipula ruwenzori*, sp. n.**

General coloration black; head orange-red; mesonotal præscutum shiny yellow with three very broad, black stripes; postnotum light yellow; abdomen brownish black.

Female.—Length 18 mm.; wing 16.8 mm. Fore leg, femur 9.8 mm.; tibia 11.4 mm. Hind leg, femur 11.1 mm.; tibia 12.8 mm.

Somewhat similar to *T. neavei* but readily distinguished as follows: Antennæ shorter. Mesonotal præscutum shiny yellow with three broad, shiny black stripes, only the narrow interspaces and the humeral and lateral margins being of the ground colour; scutum and scutellum entirely black; postnotum with the median sclerite conspicuously light yellow, the extreme caudal margin narrowly darkened. Pleura entirely dark brown, the mesepimeron with an indistinct yellowish cast. Wings slightly more brownish, especially the costal and subcostal cells; veins with short but conspicuous macrotrichia. Venation: section of vein M_{1+2} between $r-m$ and m strongly arcuated; petiole of cell M_1 about equal to m ; fusion of M_3 and Cu_1 very slight, less than one-half $r-m$.

Abdomen dark brownish black, without definite marks of paler, the genital segment and ovipositor reddish horn-colour.

Habitat.—Uganda.

Holotype.—♀, Mt. Kokanjero, Southwest of Elgon, altitude 6,400 feet, August 9, 1911, (S. A. Neave). B. M. No. 1913-140. +

Paratype.—♀, Ruwenzori, altitude 6,000-8,000 feet, December (G. F. Scott Elliott). B. M. No. 95-41.

Type in the collection of the British Museum (Natural History).

***Tipula ruwenzori ankolensis*, subsp. n.**

Very close to the typical variety described above, differing as follows: Vertex with a conspicuous brown mark adjoining the inner margin of the eye; mesonotal præscutum almost entirely black, the yellow interspaces being greatly reduced or obliterated; postnotum with a large brownish spot on either side near the caudal margin; a yellowish spot on the dorsal portion of the mesosternum between the fore and middle coxæ. Abdominal sternites two to four with a large, obscure orange blotch, not evident in the paratype.

Habitat.—Uganda.

Holotype.—♀, Western Ankole, altitude 4,500-5,000 feet, October 10-14, 1911, (S. A. Neave).

Paratopotype.—♀.

Type in the collection of the British Museum (Natural History).

DR. W. J. HOLLAND ON "THE CANADIAN ENTOMOLOGIST."

At the meeting of the Entomological Society of America, held at St. Louis, Mo., on the 30th of December, 1919, Dr. W. J. Holland, Director of the Carnegie Museum, Pittsburg, Pa., delivered the annual address. His subject was "The Development of Entomology in North America." At the close of his interesting address, he thus referred to the "Canadian Entomologist":—

"In these times of strife and discord it is a pleasure to recall how fraternal have been the relationships which have been maintained by all workers in our special field of inquiry. I desire especially to emphasize the cordial relationships which have been maintained during all these years between students living south of the St. Lawrence with those living north of that river. One of the best of all the entomological journals on the Continent is the "Canadian Entomologist." As it is one of the oldest, so it is one of the best-sustained publications of its kind. "The Entomological Society of Ontario" is a splendid organization, in which most of the leading workers within the United States have felt it an honor to have membership. For all practical purposes the entomologists of British North America and the United States form one united brotherhood. Behold how good and pleasant it is for us thus to dwell together in unity! May I not express the hope that the friendly relationship which has so long been maintained among us may remain indissoluble, and the same spirit which has prevailed between these two great bodies of workers in the New World may extend to all brotherhoods of other nations, and that through our scientific friendships we all may help to bring in the reign of universal peace, the thought of which is dominant among us and is emphasized by the anniversary of the birth of The Prince of Peace, which we have just celebrated."