The crane-flies of South Africa in the South African museum (Diptera, Tipulidae). Part II

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2.—*The Crane-flies of South Africa in the South African Museum (Diptera, Tipulidae).*—By Charles P. Alexander, Ph.D.

Part II.

(With Plates III and IV.)

Since the publication of the first instalment under this title (Ann. South African Mus., vol. xvii, pt. ii, no. 5, pp. 139–182, Pls. X–XIV, 1917) Dr. Péringuey has continued to send me lots of specimens of this family of flies for determination. In the present article not only are some new and insufficiently described species characterised and figured, but the additional distribution of other species is included in order to supplement our meagre knowledge of the subject. In order to conserve space, in this and succeeding parts under this title, the references to genera and species that have been considered in earlier parts will not be repeated, but genera and species introduced for the first time will be given a detailed reference as hitherto. I am deeply indebted to Dr. Péringuey and to the collectors of this material for the privilege of studying these interesting lots of crane-flies.

Family TIPULIDAE.

Sub-family LIMNOBIINAE.

Tribe LIMNOBIINI.

Gen. DICRANOMYIA, Stephens.

Dicranomyia tipulipes, Karsch.

Additional records of distribution for this common and wide-spread Ethiopian species are as follows:

♀, Angra Pequena, S.W. Protectorate, September, 1917 (Dr. Knobel).

♀, Pretoria, Transvaal, January 29th, 1915 (H. K. Munro).

♂ ♀, Krantzkop, Natal, November, 1917 (K. H. Barnard).

DICRANOMYIA GARDINERI, Edwards.

1912. *Dicranomyia gardineri*, Edwards, Trans. Linn. Soc. Lond., vol. 15, pt. 2, pp. 197, 198.

The following specimens were included in the collection:

♀, Barberton, Transvaal, May 6th, 1913 (H. K. Munro).

♀, Maritzburg, Natal, 1917 (K. H. Barnard).

♂ ♀, Krantzkop, Natal, November, 1917 (K. H. Barnard).

♀, Arcturus, Salisbury, Rhodesia, 1916 (Dr. Melle).

The wing is shown on Plate III, fig. 1.

DICRANOMYIA PERINGUEYI, Alexander.

One male and two females from Oudebosch, Caledon, Cape Colony, altitude 1500 ft., January, 1919 (K. H. Barnard). The exact locality of the type was unknown, but it now seems probable that it came from the same general region as the above specimens. The type seems to be somewhat discoloured, being darker in colour than the fresh specimens mentioned above.

DICRANOMYIA CONFUSA, sp. n.

Close to *D. peringueyi*; size smaller, wing of male not exceeding 5·5 mm.; general coloration pale testaceous yellow; cell 1*st* M_2 small, subquadrate.

Male.—Length 4–4·1 mm.; wing, 5·3–5·5 mm.

Rostrum unusually long for this genus of flies, somewhat as in the Nearctic *D. rostrifera*, O. S.; the condition is very similar to that found in *D. peringueyi*, being a little more than half the length of the head; rostrum and palpi dark brown. Antennae with the scapal segments pale brownish-yellow, the flagellum dark brown; basal flagellar segments short-oval, gradually lengthening to the end of the organ. Head dark grey.

Thorax pale yellowish testaceous, the praescutum with an indistinct pale median stripe. Pleura dull yellow. Halteres dark brown. Legs pale yellowish testaceous, the tarsi more brownish. Wings subhyaline; stigma oval, brown; veins dark brown. Venation: *Sc* long, extending to about mid-length of the sector, Sc_2 at the tip of Sc_1; cell 1*st* M_2 very small, subquadrate, the veins issuing from it correspondingly long; basal deflection of Cu_1 a little before the fork of *M*.

Abdominal tergites brown, the sternites more yellowish.

Habitat.—South Africa.

Holotype, ♂, Krantzkop, Natal, November, 1917 (K. H. Barnard).

Paratopotypes, 2 ♂ ♂.

Type in the South African Museum.

This inconspicuous *Dicranomyia* has been confused with *D. peringueyi* of Cape Colony, both species agreeing in the slightly produced rostrum and the general features of venation. *D. confusa* may most readily be told by the small size, the pale testaceous yellow coloration and the small cell 1*st* M_2.

The wing is shown on Plate III, fig. 3.

Dicranomyia capicola, sp. n.

Antennae black throughout; mesonotal praescutum black, the humeral regions paler; pleura pale brown, greyish pruinose; wings greyish subhyaline, veins brownish-black; *Sc* long, cell 1*st* M_2 closed.

Male.—Length 5·5 mm.; wing 7 mm.

Female.—Length about 6·2 mm.; wing 7·4 mm.

Rostrum and palpi dark brown. Antennae black, the flagellar segments short oval. Head dark brown, grey pruinose.

Pronotum dark brown, the scutellum yellowish. Mesothorax convex. Mesonotal praescutum brown, with a broad, shiny, brownish-black median stripe and shorter lateral stripes that are quite confluent behind, so almost the whole disc is of this colour; scutum brownish-black, except the median area, which is densely buffy pollinose; scutellum dark brown; postnotum similar, very sparsely grey pruinose. Pleura pale brown, greyish pruinose, especially heavy between the fore and middle coxae. Mesosternum slightly infuscated. Halteres brown, the knobs darker. Legs with the coxae light brownish-yellow; trochanters yellow; remainder of the legs dark brown except the extreme base of the femora, which is pale. Wings greyish subhyaline; stigma long-oval, brown, practically all proximad of *r*; veins brownish-black. Venation: *Sc* moderately long, Sc_1 ending a little beyond one-third the length of *Rs*, Sc_2 at its tip; *Rs* more than twice the length of the basal deflection of R_{4+5}, arcuated or angulated at origin; *r* pale, at the tip of R_1; cell 1*st* M_2 small, pentagonal; cell 2*nd* M_2 longer than cell M_3, *m* being rather long and arcuated; basal deflection of Cu_1 at or before the fork of *M*.

Abdominal tergites uniformly dark brown, the sternites more yellowish; hypopygium reddish-brown. Ovipositor with the valves rusty-chestnut.

Habitat.—South Africa.

Holotype, ♂, Hottentot-Hollands Mountains, altitude 3000 ft., Caledon, Cape Colony, March, 1919 (K. H. Barnard).

Allotopotype, ♀.

Paratype, ♀, French Hoek, Cape Colony, altitude 2500–3600 ft., December 4th, 1916 (K. H. Barnard).

GEN. RHIPIDIA, Meigen.

RHIPIDIA AFRA, Bergroth.

Two male specimens from Krantzkop, Natal, November, 1917 (K. H. Barnard). A large male from the Hottentot-Hollands Mts., Caledon, Cape Colony, 1917 (K. H. Barnard). As stated by Edwards, this species runs uncomfortably close to the genus *Dicranomyia*, and should perhaps be referred to that genus.

RHIPIDIA MIOSEMA (Speiser).

1909. *Limonia miosema*, Speiser, Sjöstedts Kilimandjaro-Meru Exped., 10, Dipt., pt. 4, pp. 50, 51.

A female of this species from the type-locality, Kilimandjaro, 1916 (W. West). Cedara, Natal, April 18th, 1920 (S. H. Skaife).

The wing has never been figured, and is shown on Plate III, fig. 2.

GEN. GERANOMYIA, Haliday.

1833. Entomol. Mag., vol. 1, p. 154.

SUB-GEN. MONOPHANA, Edwards.

1912. Trans. Linn. Soc. Lond., vol. 15, pt. 2, p. 200.

GERANOMYIA (MONOPHANA) SUBIMMACULATA, sp. n.

Rostrum short; mesonotum shiny yellow with three indistinct reddish stripes; wings pale brown, the stigma indistinct; *r* at the tip of R_1.

Female.—Length, excluding the rostrum, 7·1 mm.; wing 8 mm.; rostrum 1·4 mm.

Rostrum short, black; palpi uniarticulate, black. Antennae very short, dark, the flagellar segments subglobular. Head grey.

Thorax shiny yellowish, the praescutum with three rather indistinct reddish stripes, the broad lateral stripes continued backward on to the scutal lobes. Pleura brownish testaceous. Halteres brown. Legs with the coxae brownish-yellow, the terminal segments of the latter darker. Wings with an indistinct brown tinge, the costal region a little more yellowish; stigma indistinct; veins dark brown. Venation (Plate III, fig. 4): Sc_2 far removed from the tip of Sc_1; *r* at the tip of R_1.

Abdomen dark brownish-black, the ovipositor and its valves brighter, the sternal valves deeply split.

Habitat.—South Africa.

Holotype, ♀, Krantz Kloof, Natal, June, 1916 (Marley).

Type in the South African Museum.

This species agrees closely with the type of the sub-genus, *G. immaculata*, Edwards, in the subgeneric characters; it is a much larger species (*immaculata*, ♀, length 5 mm.; wing 5·5 mm.), with the venation and coloration different. Edwards' figure of *immaculata* shows cross-vein *r* very long and strongly deflected at its outer end.

GERANOMYIA (GERANOMYIA) SEX-OCELLATA, sp. n.

Rostrum long, black; legs brownish-black; wings with a heavy ocellate pattern along the costal margin.

Male.—Length, excluding rostrum, 7·5 mm.; rostrum alone, 4·3 mm.; wing, 7·7 mm.; hind legs, femur, 6·8 mm.; tibia, 7·7 mm.

Rostrum elongate, black, the paraglossae strongly recurved at their tips, with sparse hairs along the margin; palpi small, black, apparently two-segmented; between the paraglossae a straight, slender rod that is deeply bifid at its apex. Antennae black, the flagellar segments short-oval. Head blackish, discoloured in the type.

Thoracic dorsum discoloured in type, reddish-brown, paler along the margin of the praescutum; an indistinct darker median stripe; scutellum reddish-brown with a narrow median brown line; postnotum brownish-black. Pleura reddish-yellow, with a narrow dark brown dorsal stripe extending from the cervical sclerites backward, becoming indistinct beneath the wing-root. Halteres brown, the knobs dark brown. Legs with the coxae and trochanters dull yellow, femora dark brown, brighter at the base; tibiae and tarsi brownish-black. Wings subhyaline, the cells in the posterior half of the wing more greyish; along the costal margin a series of seven brown markings, all except the last of which possess large brownish-yellow centres to produce an ocellate appearance; the largest of these ocellate blotches are located at the origin of *Rs*, tip of *Sc* and tip of R_1; in shape they are broadest along the costal margin, narrowed posteriorly, the first and third reaching vein *M*, the fifth and sixth reaching R_4+_5; the seventh, solid, marking is the smallest, located at the tip of R_4+_5; heavy brown seams along the cord and the outer end of cell 1*st* M_2; a small brown spot at the tip of 1*st A* and a much larger one at the tip of 2*nd A*. Venation: *Sc* long, ending slightly before the fork of the sector, Sc_2 at the tip of Sc_1; *Rs* long, strongly angulated at its origin, about twice the length of the deflection of R_4+_5; *r* at the tip of R_1; *r–m* short; cell 1*st* M_2 long, the veins issuing from it short; basal deflection of Cu_1 far before the fork of *M*, Cu_1+M being more than half the length of the basal deflection of Cu_1 alone.

Abdomen dark brown, the sternites more yellowish. Ovipositor with the tergal valves slender, straight, acicular, divergent; sternal valves flattened, gradually narrowed to the subacute tips.

Habitat.—South Africa.

Holotype, ♀, Oudebosch, Caledon, Cape Colony, altitude 1500 ft., January, 1919 (K. H. Barnard).

Type in the South African Museum.

GERANOMYIA (GERANOMYIA) RUBRITHORAX, sp. n.

General coloration reddish-orange; wings greyish-yellow, the stigma pale brown; Sc_2 present; cell 1*st* M_2 long and narrow; Cu_2 longer than the basal deflection of Cu_1.

Male.—Length (excluding rostrum) 6·7 mm.; wing 7 mm.

Female.—Length (excluding rostrum) 7 mm.; wing 7·9 mm.; rostrum alone 2·8 mm.

Rostrum long and stout, its exact length uncertain as it is broken a short distance beyond the palpi, dark brown in colour; palpi bi-articulate as in the subgenus. Antennae black throughout, the flagellar segments short-oval with a short white pubescence; verticils short, secund. Eyes large, the vertex very narrow, dark brownish-grey, the under side of the head more yellowish.

Mesonotum reddish-orange, the praescutum without distinct darker markings. Pleura reddish-yellow. Halteres brown, the base of the stem pale. Legs with the coxae and trochanters yellow; femora brownish-yellow, the tips darker; tibiae brown; tarsi dark brown. Wings with a strong greyish-yellow tinge; stigma rather large, rather indistinct, pale brown; veins dark brown. Venation: *Sc* short, Sc_1 ending a short distance beyond the origin of *Rs*; Sc_2 distinct, some distance from the tip of Sc_1 and proximad of the origin of *Rs*; Sc_1 more than one-half the length of the basal deflection of Cu_1 alone; *r* indistinct, at the tip of R_1; *Rs* strongly arcuated at origin; basal deflections of R_4+_5 and Cu_1 subequal; cell 1*st* M_2 long and narrow, longer than that portion of Cu_1 beyond it; basal deflection of Cu_1 a short distance before the fork of *M*; Cu_2 longer than the basal deflection of Cu_1.

Abdomen brownish-yellow. Male hypopygium orange-yellow; pleurites rather slender, the ventral caudal angle produced caudad and slightly proximad into a conspicuous cylindrical fleshy lobe that is provided with long hairs; ventral pleural appendage fleshy, a little shorter than the pleurites, rather narrow, the tips obtuse, the proximal cephalic margin produced into a slender arm that bears two stout spines before its apex; dorsal pleural appendage moderately long,

curved, suddenly narrowed before the acute tips; penis-guard and gonapophyses relatively small.

Habitat.—South Africa.

Holotype, ♂, French Hoek, Cape Colony, altitude 2500–3600 ft., December 4th, 1916 (K. H. Barnard).

Allotype, ♀, Paarl, Cape Colony, October, 1919 (Rev. G. Hawke).

Types in the South African Museum.

Superficially, *Geranomyia rubrithorax* resembles *G. subimmaculata*, sp. n., but is readily told by the two-segmented palpi and the distinct wing-venation.

Gen. LIMNOBIA, Meigen.

Limnobia irrorata (Enderlein).

1912. *Limonia irrorata*, Enderlein, Zool. Jahrb., vol. 32, pt. 1, pp. 74, 75, fig. 1.

Cedara, Natal, April 16th, 1920 (S. H. Skaife).

The brown dots on the wing are much more sparse and scattered than is usual in this species.

Tribe ANTOCHINI.

Gen. ATARBA, Osten Sacken.

Atarba capensis, Alexander.

In the collection was a small male from Knysna, Cape Colony, October, 1916 (L. Péringuey). It agrees with the type, but is considerably smaller, with narrower wings. The length is only 3·6 mm., the wing 3·8 mm.; subcosta is short, ending before the origin of the sector. In spite of these discrepancies I believe the specific reference as given above to be correct.

Gen. ORIMARGULA, Mik.

1883. Wiener Entomol. Zeitung, vol. 2, p. 198.

Orimargula transvaalia, sp. n.

General coloration reddish-yellow or greyish-brown; wings milky white without a distinct stigma.

Male.—Length 3·5 mm.; wing 4·6 mm.

Rostrum light yellow, on the nasal region with a few long hairs; the labium long, brownish-yellow; maxillary palpi long, the base light brown, soon passing into black. Antennae with the scape brownish-yellow, the flagellar segments oval, black, with a long coarse white pubescence. Head light grey.

Cervical region very long and narrow. Mesonotum pale greyish-yellow with a sparse whitish bloom, most distinct on the scutum. Pleura yellowish with a sparse white bloom. Halteres pale. Legs yellowish, the tips of the femora slightly brownish, tips of the tibiae narrowly blackened; apical tarsal segment brownish. Wings milky grey or white, veins brown, those along the costa more yellowish; anal angle square, prominent. Venation: Costa incrassated near the end of R; R ending nearly opposite mid-length of the deflection of R_4+_5; Rs straight or even slightly convex; R_2+_3 very weak, tending to atrophy; r present, a little more than its own length beyond the fork of Rs; r–m longer than the petiole of cell M_3, but shorter than the basal deflection of Cu_1; basal deflection of Cu_1 inserted slightly beyond the level of the fork of Rs, the fusion of Cu_1 and M_3 being a little shorter than the deflection of R_4+_5.

Abdominal tergites brownish-yellow, the segments with broad posterior margins of dirty silvery.

Habitat.—South Africa.

Holotype, ♂, Komati Poort, Eastern Transvaal, November, 1918 (R. W. Tucker).

Paratopotypes, 3 ♂ ♂.

Type in the South African Museum.

The paratypes represent a greyish-brown dimorphic form in which the entire body is much darker than in the type described. A very similar condition is found in the related genus *Antocha*.

This tiny species differs from the much larger genotype, *O. alpigena*, Mik (Austrian Alps), in general coloration, the lack of a stigma and in the venational details, *i.e.* the slightly convex radial sector, r far proximal of r–m; the long basal deflection of R_4+_5 and fused portion of $Cu_1 + M$, and the shorter but more divergent branches that enclose cell M_3.

Gen. ELEPHANTOMYIA, Osten Sacken.

Elephantomyia insularis pseudosimilis, sub-sp. n.

General coloration dark with a grey pruinosity; legs dark brown; wings greyish with a heavy brown pattern along the cord and outer end of cell 1*st* M_2.

Sex ?. Rostrum 6·5 mm.; wing 7·8 mm.; head and thorax combined 2·6 mm.; fore legs—femur 6·7 mm., tibia 9 mm.

Rostrum long and slender, dark brownish-black, including the small mouth-parts and palpi. Antennae black, the first flagellar segment paler, brown; the enlarged conical first segment of the flagellum is

made up of the fusion of two segments, there being twelve segments beyond it, the first of these very short-cylindrical, the remainder gradually elongated; verticils short, scarcely exceeding the pale pubescence, except on the last four segments, where they are greatly elongated and very conspicuous. Eyes large, contiguous beneath, the vertex greatly narrowed; vertex grey, lightest on the front; this region of the head is apparently discoloured, and the whole vertex may be light grey.

Neck elongate. Mesonotum dark, the praescutum with three darker stripes; a pale area between the scutal lobes; any pruinosity of the thorax is destroyed, but small areas persisting on the pleura show that this region at least is light grey pruinose. Halteres brown, the stems paler. Legs with the coxae pale, the fore coxae with the outer face darkened, trochanters brown; femora dark brown, more yellowish at the base; tibiae and tarsi dark brown. Wings with a pale greyish tinge, the costal and subcostal cells more yellowish; a large rounded brown spot at the origin of *Rs;* broad brown seams along the cord and outer end of cell 1*st* M_2; stigma elongate-oval, brown; veins dark brown. Venation: *Sc* ending just before the fork of *Rs*, Sc_2 at the tip of Sc_1; R_2+_3 long, running parallel to R_4+_5 so that cell R_3 is scarcely widened at the wing margin; cell 1*st* M_2 large, basal deflection of Cu_1 at about two-fifths of its length.

Abdomen broken beyond the first segment, which is greyish.

Habitat.—South Africa.

Holotype, sex ?, Oudebosch, Caledon, Cape Colony, altitude 1500 ft., January, 1919 (K. H. Barnard).

Type in the South African Museum.

This fly is closely related to the larger typical form, *E. insularis*, Edwards, of the Seychelles Islands, but seemingly represents a distinct race. The rostrum is shorter, the thorax not ochraceous, *m* a little shorter than the outer deflection of M_3, etc. Unfortunately Edwards does not figure the venation or describe it in detail. The present fly almost reproduces the venation of the genotype, *E. westwoodi*, O. S. (North-Eastern North America), except that the radial sector and cell 1*st* M_2 are considerably longer. The wings of this new *Elephantomyia* superficially resemble those of *Rhamphidia capensis*, Alex., in the nature of the brown pattern. Besides the generic characters, however, the present insect is readily told by the lack of brown markings proximad of the sector and by the cell R_3 not being widened at the wing margin.

Tribe ERIOPTERINI.

Gen. ERIOPTERA, Meigen.

Sub-gen. EMPEDA, Osten Sacken.

Erioptera (Empeda) bonae spei, Alexander.

Two females from M'fongosi, Zululand, May, 1917 (W. E. Jones).

Erioptera (Empeda) clausa, sp. n.

Size very small, wing of the male 3 mm.; general coloration yellowish-brown; wings subhyaline; cell 1*st* M_2 closed, basal deflection of Cu_1 far beyond the fork of *M*.

Male.— Length about 2 mm; wing 3 mm.

Rostrum and palpi dark brown. Antennae brown, the flagellar segments oval with moderately long verticils and a coarse white pubescence. Head brown. Eyes with large, coarse ommatidia.

Pronotum dark, the sides of the pronotal scutellum almost white. Mesonotal praescutum dark brown, the broad lateral margins and the humeral region somewhat brighter; pseudosutural foveae large, conspicuous; scutum with the lobes dark brown, the median area paler; scutellum projecting, dark brown, margined caudally with dull yellow; postnotum dark brown. Pleura dull yellowish, with two indistinct dark brown stripes, one on either side of a yellowish line that extends from behind the fore coxae to the base of the halteres; sternum dull yellow. Halteres very large, brown, the knobs dark brown. Legs with the coxae and trochanters dull yellow; remainder of the legs pale brown. Wings with a faint darker tinge, the stigma pale brown, indistinct; veins dark brown. Venation: *Sc* rather short, ending before mid-length of the sector, Sc_2 almost at the tip of Sc_1 and subequal to it; cell 1*st* M_2 closed, rather long and narrow; basal deflection of Cu_1 far beyond the fork of *M*, at about two-fifths the length of cell 1*st* M_2.

Abdomen dull brownish-yellow, the lateral margins darker brown. Pleurites of the male hypopygium apparently with three slender appendages; outer appendage longest, shaped as a pale, flattened, compressed arm that resembles the blade of a cutlass; the second appendage is somewhat similarly shaped but much smaller; the third appendage is heavily chitinised, slender, slightly bent, the tip acutely pointed. The type is unique, and the structure of the hypopygium can only be discussed in the general terms given above.

Habitat.—South Africa.

Holotype, ♂, French Hoek, Cape Colony, altitude 2500–3600 feet, December 4th, 1916 (K. H. Barnard).

Type in the South African Museum.

This tiny crane-fly is related to the much larger *E. bonae spei*, Alexander (South Africa), but is readily told by the closed cell 1*st* M_2—a character possessed by most European species and two Nearctic species of the sub-genus *Empeda*.

Sub-gen. ERIOPTERA, Meigen.

Erioptera (Erioptera) peringueyi, Bergroth.

A female from Krantzkop, Natal, November, 1917 (K. H. Barnard).

Erioptera (Erioptera) claripennis, sp. n.

Coloration dark brownish-black, dusted with grey; wings subhyaline, the extreme base yellowish, veins dark brown; cell 1*st* M_2 open, second anal vein short, straight.

Female?.—Length 3 mm.; wing 4·4 mm. Fore leg, femur 1·8 mm.; tibia 2·3 mm.; hind leg, femur 2·1 mm., tibia 2·4 mm.

Rostrum and palpi dark brownish-black. Antennae dark brown, the flagellar segments oval, densely clothed with an erect pale pubescence. Head dark, sparsely dusted with grey.

Pronotum with the scutum dark, dusted with grey, the scutellum clear yellow on the sides, infumed medially above. Mesonotum black, dusted with grey; scutellum broad, the apical third conspicuously dull yellow. Pleura dark, sparsely dusted with grey. Halteres brown. Legs with the coxae small, dull yellowish-brown; trochanters pale brown; fore femora dark brown except the extreme bases, which are paler; tibiae and tarsi dark brown; middle and hind legs similar but the femora brown, darkened at the tips. Wings greyish subhyaline; stigma indistinct; veins dark brown, slender and very distinct; extreme base of wing yellowish. Venation (Plate III, fig. 10): Sc_2 not greatly removed from the tip of Sc_1; *r* present, connecting R_2 some distance beyond the fork of R_2+_3; R_2+_3 moderately long, a little longer than *r–m*; *Rs* long, straight; basal deflection of R_4+_5, *r–m* and the deflection of M_1+_2 short, in alignment; cell 1*st* M_2 open by the atrophy of *m*; basal deflection of Cu_1 inserted at or slightly beyond mid-length of vein M_3; second anal vein straight. In its general features the venation suggests *E. laticeps*, Alex., or *E. pilipennis*, Alex. (Western United States). The condition of the second anal vein is more like the subgenus *Acyphona*, and this group of species may be considered as belonging there, although the appearance of the species is quite different from typical *Acyphonae*.

Abdomen dark brownish-black, the pleural region yellowish. Hypopygium dull brownish-yellow, the valves blunt. In the unique

specimen at hand I cannot determine the sex without dissection. From the genitalia of the dried specimen it does not seem to be a male, but the fleshy valves are quite different from the usual type of ovipositor in the genus *Erioptera*, more resembling the condition in *Cylindrotoma*, *Styringomyia*, some *Tipula*, etc. With this statement I have discussed the specimen above as being a female.

Habitat.—South Africa.

Holotype, ♀?, Ceres Division, Matroosberg, altitude 3500 ft., January, 1917 (R. M. Lightfoot).

Type in the South African Museum.

Erioptera claripennis is related to *E. nigrolatera*, Alex. (Ann. Mag. Nat. Hist., ser. 9, vol. 6, p. 31, 1920) of Nyasaland, described since the above was written.

ERIOPTERA (ERIOPTERA) FUMIPENNIS, sp. n.

Coloration medium brown, the abdomen darker; wings strongly infumed; cell 1*st* M_2 open by the atrophy of m; basal deflection of Cu_1 before the fork of M; second anal vein slightly sinuous near its tip.

Female.—Length 4·2 mm.; wing 4 mm.; hind leg, femur 3 mm., tibia 3·1 mm.

Rostrum light yellowish-brown; palpi short, dark brown, the segments with long black setae, the fourth segment at the apex with three very long setae. Antennae moderately elongated, dark brown, the first flagellar segment a little paler; segments of the flagellum elongate-oval with moderately long black verticils. Head brown.

Pronotum prominent, brown, the lateral portions of the scutum and scutellum more yellowish; sides of the pronotal scutum with several long, coarse bristles. Mesonotal praescutum brown, without stripes; pseudosutural foveae conspicuous, dark brown; tuberculate pits about on a level with the cephalic ends of the foveae, separated from one another by a distance about equal to one and one-half times the diameter of one; a few setae on the praescutal interspaces, including two long ones cephalad of the foveae; remainder of the mesonotum brown. Pleura pale brown, the mesepipleura a little more yellowish. Halteres brownish-yellow, the knobs darker, elongate and very large. Legs with the coxae and trochanters brown; remainder of the legs light brown. Wings with a strong brownish-grey suffusion; stigma indistinct; veins dark brown. The veins, with the exception of *r*, *r–m* and the basal deflection of Cu_1, are provided with long black setae. Venation: *Sc* moderately long, ending just before the fork of R_2+_3; Sc_2 very far removed from the tip of Sc_1, only a short distance beyond the origin of the long, straight sector; R_2+_3 moderately long, about

equal to r–m; r on R_2, the distance on R_2 between it and the fork of R_2+_3 a little less than r–m; r–m a little more distad than the basal deflection of R_4+_5; basal deflection of Cu_1 inserted a short distance before the fork of M, this distance varying from a little shorter to a little longer than r; fusion of M_3 and Cu_1 a little longer than the basal deflection of the latter; *2nd A* long, almost straight, on the distal fourth slightly sinuated as in the subgenus.

Abdomen uniform dark brown with numerous coarse setae; ovipositor yellowish-brown, long, the tergal valves longest, moderately curved, the margins smooth; sternal valves short, very slightly curved to almost straight, the tips acute.

Habitat.—South Africa.

Holotype, ♀, Lydenburg, Transvaal (P. Kroeger).

Type in the South African Museum.

A teneral male from Krantzkop, Natal, November, 1917 (K. H. Barnard), is somewhat injured, but agrees in all essentials with the type female above described. It may be considered as being the allotype.

Gen. MOLOPHILUS, Curtis.

1833. British Entomology, p. 444.

Molophilus eriopteroides, sp. n.

Coloration dark brownish-black, the body heavily dusted with grey; body and wings densely hairy; wings with the anal angle lacking or nearly so; *Rs* in alignment with vein R_3; basal deflection of Cu_1 before the fork of *M*.

Male.—Length 1·8 mm.; wing 3·2–3·3 mm.

Rostrum and palpi dark brown. Antennae with the scapal segments large, dark brownish-black, the second segment globular or a little longer than broad; flagellum broken; the condition of the scape would indicate an elongate antenna. Head dark brownish-grey with coarse brownish-yellow hairs; a narrow clear grey line along the inner margin of the eyes.

Praescutum grey, with three broad brownish stripes; remainder of the thorax blackish, heavily dusted with grey. Halteres rather short, the knobs large, dark brown. Legs with the coxae blackish, heavily grey pruinose; trochanters brown; remainder of the legs dark brown. Wings with a faint brown tinge, a little darker in the region of the stigma; veins dark brown. Anal angle of the wings lacking or approximately so, the posterior margin from the base to about mid-length being almost straight. Venation (Plate III, fig. 12): Sc_1 long,

terminating some distance beyond the end of the sector; Sc_2 far removed from the tip of Sc_1, so that Sc_1 is almost as long as the sector; *r* indistinct, inserted on R_2 just beyond its origin; *Rs* in a straight line with R_3; R_2 strongly arcuated at origin; *r–m* a little longer than the deflection of R_4+_5; cell 1*st* M_2 open by the atrophy of *m*; basal deflection of Cu_1 before the fork of *M*; fusion of veins M_3 and Cu_1, *i. e.* the petiole of cell M_3, about one-third the length of the cell; second anal vein short, ending opposite the basal portion of the sector.

Abdomen dark, sparsely dusted with grey; hypopygium somewhat paler brown.

Habitat.—South Africa.

Holotype, ♂, Hottentot-Hollands Mts., 4000 ft., Caledon, Cape Colony, 1917 (K. H. Barnard).

Type in the South African Museum.

This small fly is of considerable interest. It presents many features in agreement with the Seychelles *Tasiocera minutissima*, Edwards, but is a rather larger fly. Sc_2 is present, though far retracted. The principal character given to separate *Molophilus* from *Erioptera* is the fact that the sector apparently ends in cell R_2, whereas in *Erioptera* it ends in cell R_3. In the present insect the sector is in direct alignment with vein R_3 and consequently does not end in any cell. This feature is approximated by some *Molophilus* (*ursinus*) from Eastern North America.

Gen. TRIMICRA, Osten Sacken.

Trimicra inconspicua, Loew.

The following additional records are at hand:

♂ ♀, Cape Town, Cape Colony, September, 1913 (L. Péringuey).

♂ ♀, Knysna, Cape Colony, October, 1916 (L. Péringuey).

♂ ♀, Barberton, Transvaal, May 8th–15th, 1913 (H. K. Munro).

♂ ♂, Junction of the Crocodile and Marico Rivers, Transvaal, February, 1918 (R. Tucker).

♂ ♂, Maritzburg, Natal, December 18th, 1917 (S. G. Rich).

As stated in my earlier paper, it seems probable that this species is the same as *Limnobia lanuginipes*, Walker; two of the above specimens are almost as large as the figures given for *lanuginipes* (male, length 8·5 mm.; wing 10·5 mm.). Moreover it is probable that both of the names above used are synonyms of *Limnobia capensis*, Macquart, the description of which agrees very well with the present insect. The various types should be consulted, if possible, before any positive statement of synonymy is made.

Sub-gen. TRICHOTRIMICRA, sub-gen. n.

Antennae with sixteen segments, the flagellar segments gradually narrowed to the end of the organ. Wings with the entire surface pubescent; vein *Sc* rather short, ending about opposite mid-length of the sector; cell 1*st* M_2 closed, small; legs with the pubescence long but not conspicuous, subappressed.

Type of the sub-genus: *Trimicra* (*Trichotrimicra*) *hirtipennis*, sp. n. (Southern Ethiopian region).

The small fly upon which this new group is based bears a strong resemblance to certain species of the genus *Ormosia*, especially some Holarctic species of the *nigripila* group; this resemblance seems to be due largely to analogy, and the real affinities of the insect to be in the vicinity of *Trimicra*. The comparatively short subcosta and the peculiar structure of the ovipositor will serve to separate this fly from the species of *Ormosia* that resemble it.

Trimicra (Trichotrimicra) hirtipennis, sp. n.

General coloration reddish-brown; wings nearly hyaline, the costal region more yellowish; wings covered with a short dense pubescence.

Female.—Length about 3·3 mm.; wing 4·8 mm.

Rostrum light yellow; palpi dark brown. Antennae pale brownish testaceous, the flagellar segments cylindrical, covered with a long, coarse, pale pubescence and sparse black verticils; flagellar segments becoming more slender and a little longer toward the end of the organ. Head pale brownish-yellow, with long erect hairs.

Pronotum pale, on either side a little tumid, and here provided with a tuft of from eight to ten very long yellow hairs. Mesonotal praescutum uniform reddish-brown, the lateral margins narrowly whitish; interspaces with long erect yellowish hairs; pseudosutural foveae pale; tuberculate pits rather large, located almost on a level with the foveae, separated from one another by a distance that varies from a little less than the diameter of one to nearly twice this distance: scutum dark brown; scutellum brown, broadly margined caudally with yellowish testaceous; postnotum brown, very sparsely pruinose. Pleura reddish-brown, sparsely grey pruinose. Halteres with the stem yellow, the knobs brown. Legs with the coxae and trochanters very pale yellow, provided with long yellow hairs; femora and tibiae yellow, the pubescence long but subappressed; tarsi pale, the terminal segments darker. Wings hyaline, the costal region pale yellow; stigma indistinct; veins brown, *C*, *Sc* and *R* pale; a rather dense pubescence in all the cells of the wing. Venation: *Sc* short, ending opposite or very slightly

beyond mid-length of the sector; r on R_2 just beyond the fork; cell 1*st* M_2 small, about as long as the basal deflection of Cu_1, which is inserted at the fork of M.

Abdominal tergites pale brown, sternites yellow. Ovipositor with the tergal valves very slender, almost acicular, subfleshy, delicately pubescent, slightly upcurved before their tips; sternal valves pale, very flattened and compressed, approximately as long as the tergal valves.

Habitat.—South Africa.

Holotype, ♀, Krantzkop, Natal, November, 1917 (K. H. Barnard).

Paratopotype, ♀.

Type in the South African Museum.

Gen. PLATYLIMNOBIA, Alexander.

Platylimnobia pumila, sp. n.

Size small (male, length 2·6 mm.); general coloration brownish-black including the hypopygium; antennae with but nine flagellar segments, the last more elongated than the others.

Male.—Length, 2·6 mm.; hind leg, femur 2·8 mm., tibia 3·2 mm.

Rostrum and palpi dark. Antennae black; scapal segments large; flagellar segments (Plate IV, fig. 22) nine in number, oval-cylindrical, rather crowded, the terminal segment a little narrowed, elongate, about as long as the two preceding taken together. Head with the eyes small, widely separated; ommatidia very coarse. Head dark, sparsely dusted.

Thorax dark, dusted with grey. Pleura paler. Legs with the coxæ and trochanters rather light yellowish-brown, especially the posterior pair; remainder of the legs black.

Abdomen dark brownish-black; hypopygium large, black.

Habitat.—South Africa.

Holotype, ♂, Hottentot-Hollands Mts., Caledon, Cape Colony, 1917 (K. H. Barnard).

Type in the South African Museum.

This interesting species is undoubtedly related to the genotype, *Platylimnobia barnardi*, Alexander, but is only about one-half as large (in *barnardi* the middle leg shows the following measurements: femur 6·4 mm., tibia 6 mm.) and almost entirely blackish in colour. The antennae are but 11-segmented. In the material of *P. barnardi* I believed that I could distinguish 16 segments, there being 14 flagellar segments; the material has since been returned to the South African Museum and I cannot confirm the statement at this time, but would indicate the possibility of a mistaken observation. *P. barnardi* has the

abdomen light yellowish-brown, including the hypoygium, in the male with a dark brown subterminal ring on segment 8 and the end of segment 7.

Gen. PODONEURA Bergroth.

Podoneura anthracogramma, Bergroth.

The following additional distribution is shown in the material available for study:

♀, Cape Town, Cape Colony, January, 1918 (Cowper).

♀, Kranzkop, Natal, November, 1917 (K. H. Barnard.)

♂, Salisbury, Rhodesia, March 21st, 1901 (F. L. Snow); in the collection of Kansas University.

Gen. GONOMYIA, Meigen.

Gonomyia (Gonomyia) sulphurelloides, sp. n.

Somewhat resembling *G. sulphurella* (O.S.) of the Eastern United States; mesonotum yellow, the praescutum with three dark brown stripes; pleura with two narrow dark brown stripes; legs dull brownish-yellow, the tarsal segments darker; wings greyish; *Sc* ending far before the origin of the sector; cell R_2 very small; cell 1*st* M_2 narrowed at its inner end.

Female.—Length about 4·5 mm.; wing 5·1 mm.

Head broken.

Mesonotum light yellow, the praescutum with three dark brown stripes that are entirely confluent behind; the median area behind the median stripe yellowish; scutal lobes brown, the median area yellow; scutellum dark basally, the apex broadly yellowish; postnotum brown, yellow laterally. Pleura yellow with two narrow dark brown longitudinal stripes, the yellow stripe thus enclosed broad; the dorsal brown stripe begins above the fore coxa and passes just beneath the halteres; the ventral stripe is grey pruinose, and occupies the end of the fore coxa and suffuses the sides of the mesosterna. Halteres pale. Legs with the coxae dull yellow except as described above; trochanters dull yellow; remainder of the legs dull brownish-yellow, only the apical tarsal segments dark brown. Wings with a strong greyish tinge; stigma indistinct, veins dark brown. Venation (Plate III, fig. 11): *Sc* short, ending far before the origin of the sector, this distance about equal to *r–m*; cell R_2 very small as in *G. sulphurella*; cell 1*st* M_2 narrowed at the inner end; basal deflection of Cu_1 at the fork of *M*.

Abdominal tergites brown, the posterior margins of the segments dull yellow; sternites brownish-yellow.

Habitat.—South Africa.

Holotype, ♀, Kranzkop, Natal, November, 1917 (K. H. Barnard).
Type in the South African Museum.

GONOMYIA (GONOMYIA) MIMETICA, sp. n.

Related to *G. subcinerea* (O.S.) of the Eastern United States; general coloration grey, the thoracic pleura yellowish, the sternum brownish.

Male.—Length about 4·5 mm.; wing 5·2 mm.

Rostrum and palpi black. Antennae black, the terminal flagellar segments elongated. Head dark, greyish pruinose.

Thoracic dorsum grey, the praescutal stripes ill-defined. Pleura yellow, the mesosterna brownish. Halteres long, pale, the knobs a little darker. Legs with the coxae and trochanters dull yellow; remainder of the legs pale brown, the tarsi darker. Wings greyish subhyaline; stigma distinct but rather pale; veins dark brown. Venation (Plate III, fig. 14): *Sc* ending just beyond the origin of the sector; *Rs* long, oblique, a little sinuous before mid-length; R_2+_3 arcuated; deflection of R_4+_5 punctiform; cell 1*st* M_2 closed; basal deflection of Cu_1 at the fork of *M*.

Abdomen dark brown, more yellowish laterally; hypopygium yellow. Male hypopygium with the pleurites moderately elongated, the dorsal angle produced caudad into a rather stout pale lobe that bears a few scattered hairs; ventral pleural appendage a long, slender, pale lobe that is covered with pale hairs; dorsal pleural appendage stout, subcircular, the distal end produced into a short, blunt tubercle that bears a few hairs; the caudal margin is chitinised and produced into a powerful curved hook that bends dorsad and finally slightly cephalad (Plate IV, fig. 23). Penis-guard elongate, compressed, deeply notched beyond mid-length, exceeding the tips of the pleurites; from near its base projects an elongate, slender, heavily chitinised rod that is acutely pointed at its tip.

Habitat.—South Africa.

Holotype, ♂, Kranzkop, Natal, November, 1917 (K. H. Barnard).

Paratype, ♂, New Hanover, Natal, November 29th, 1914 (C. B. Hardenberg); Montagu, Cape Colony, October, 1919 (R. W. Tucker).

Type in the South African Museum.

GONOMYIA (GONOMYIA) TUCKERI, sp. n.

Colour brownish-grey, the praescutal stripes rather indistinct; antennae black; legs dark brown; wings with a faint yellowish tinge; *Sc* long, extending to opposite mid-length of *Rs*; cell 1*st* M_2 open by the atrophy of the outer deflection of M_3; basal deflection of Cu_1 far before the fork of *M*.

Sex?. Wing, 6·4 mm.

Rostrum and palpi dark brownish-black. Antennae black, the flagellar segments long-oval. Head grey, more reddish along the inner margin of the eye.

Mesonotum brownish-grey, the praescutum with the stripes indistinct; scutellum yellow, dark brown anteriorly. Pleura pale greyish-white, indistinctly marked with darker blotches. Halteres pale. Legs with the coxae dull yellow, the outer face more brownish; trochanters dull yellow; remainder of the legs dark brown, darkest on the tarsi. Wings with a faint yellow tinge, the stigma indistinct; veins pale yellowish-brown, the costal veins more yellowish. Venation: Sc_1 elongate, ending just beyond mid-length of the long, arcuate sector; Sc_2 retreated, located just before the origin of Rs; R_2+_3 long, gently arcuated; R_2 oblique; cell R_2 large; cell 1*st* M_2 open by the atrophy of the outer deflection of M_3; cell M_2 deep; basal deflection of Cu_1 far before the fork of M, the fusion with M greater than the deflection alone.

Abdomen broken beyond the first segment.

Habitat.—South Africa.

Holotype, sex ?, Komati Poort, Eastern Transvaal, November, 1918 (R. W. Tucker).

Type in the South African Museum.

In its venation *G. tuckeri* agrees almost exactly with *G. mathesoni*, Alex. (North-eastern North America). In both species Sc_2 is retreated far back from the tip of Sc_1 so that it lies just proximad of the origin of the sector. Such species would run to the tribe Pediciini in the keys to the family.

This interesting fly is dedicated to its collector, Mr. R. W. Tucker.

Gonomyia (Gonomyella) flaveola, sp. n.

Front yellow, vertex dark grey; thorax yellow, the praescutum with three dark brown stripes; legs largely yellow, the tips of the femora and tibiae darkened; wings tinged with yellow; *Sc* long; basal deflection of Cu_1 just before the fork of M.

Female.—Length, 5·8–6·3 mm.; wing, 6–6·5 mm.

Rostrum and palpi dark brown. Antennae with the basal segments yellowish, the remainder of the organ dark brown; flagellar segments oval. Front dull yellow; vertex dark grey pruinose.

Thorax yellow, the praescutum with three dark brown stripes that are confluent behind; pseudosutural foveae large, conspicuous, triangular, shiny dark brown; scutum with the lobes largely dark; scutellum dull brownish-yellow; postnotum dark brown, the sides more yellowish.

Pleura dull brownish-yellow. Halteres short, yellow. Legs stout, the coxae and trochanters dull yellow, femora and tibiae dull yellow, narrowly tipped with dark brown; tarsi brown, darkest on the terminal segments. Wings with a strong yellow tinge; stigma indistinct; veins yellow and brownish-yellow, brightest at the base of the wing and in the costal area. Venation (Plate III, fig. 13): *Sc* long, ending at about two-thirds the length of the sector; Sc_2 removed to some distance from the tip of Sc_1; *Rs* very long, almost straight; *r* inserted at about mid-length of the short R_{2+3}; cell 1*st* M_2 open by the atrophy of the outer deflection of M_3; in a paratype the *m* cross-vein is likewise atrophied, leaving the end of M_3 suspended in the membrane; basal deflection of Cu_1 before the fork of *M*.

Abdominal tergites brown or yellowish-brown, the posterior margins of the segments broadly ringed with dull yellow; sternites yellow, the segments narrowly and indistinctly ringed with paler.

Habitat.—South Africa.

Holotype, ♀, Knysna, Cape Colony, October, 1916 (L. Péringuey).

Paratopotypes, two ♀ ♀.

Type in the South African Museum.

This species is most closely allied to *G. natalensis*, Alex., but is readily told by the diagnostic characters given above.

Gonomyia (Gonomyella) pulchrissima, sp. n.

Black; pleura yellow with two black stripes; abdominal tergites banded with brown and yellow; wings subhyaline, cell R_2 deep, tip of vein M_3 hanging free in the membrane.

Male.—Length 3·4 mm.; wing, 2·3 mm.

Rostrum and palpi black. Antennae black; second scapal segment enlarged ovate; flagellar segments oval-cylindrical, the verticils short. Head black.

Pronotum dark brownish-black, the lateral margin narrowly bright yellow. Mesonotal praescutum shiny black, conspicuously margined with bright yellow; scutum black, the lobes with a yellow spot on the lateral posterior margin; scutellum and postnotum black. Pleura clear yellow, with a broad black dorsal pleural stripe extending from the posterior margin of the pronotum caudad beneath the wing root to the postnotum; conspicuous black marks on the mesosternum between the fore and middle coxae. Halteres dark brown, the base of the stem yellow. Legs with the coxae dull yellow, the outer face purplish brown, especially basally; trochanters blackish; femora light brown the bases more yellow, the apices darkest; tibiae brown, the tips darker; tarsi dark brown. Wings subhyaline, the veins brown.

Venation: *Sc* rather long, extending to beyond one-third the length of the long sector; *r* rather indistinct, connecting with R_2 just beyond the base; cell R_2 very deep; tip of vein M_3 lying free in the membrane, the basal connections atrophied; if it were connected with vein *Cu* (as in *G. brevifurca*) the fork would be very deep, there being about ten equidistant macrotrichiae on the preserved portion of M_3.

Abdominal tergites pale reddish-brown, broadly margined caudally and laterally with yellow; hypopygium jet black, the ninth tergite with a yellow dorsal semi-lunar mark at the base and a less distinct mark on either side; sternites light yellow. Hypopygium suddenly narrowed, small, its general structure somewhat as in *G. brevifurca*; ninth tergite narrow, with a profound median split, the lateral lobes very slender, slightly down-curved, covered with a short pubescence; ninth pleurite produced caudad into a slender finger-like lobe; three pairs of appendages project from a genital chamber, most of which seem to be pleural appendages; the longest pair are apparently attached to the sternite, are flattened basally, light brown, the tips slightly curved and blackened, near the base on the outer face with a short spine; the other spines are shorter and are more pleural in position.

Habitat.—South Africa.

Holotype, ♂, French Hoek, Cape Colony, altitude 2500–3600 ft., December 4th, 1916 (K. H. Barnard).

Type in the South African Museum.

This beautiful crane-fly is very similar in its general appearance to *G. brevifurca*, Alexander, but is readily told by the venation and details of body coloration, as diagnosed above.

Gen. TRENTEPOHLIA, Bigot.

1854. Ann. Soc. Ent. France (3rd ser.), vol. 2, p. 473.

(This genus was not used in Part I of this series, *Mongoma*, Westwood, being substituted. However, *Trentepohlia* is the older name, and there seems to be no just reason for not adopting it.)

Trentepohlia (Trentepohlia) speiseri humeralis, subsp. n.

Mesonotum dark brownish-black, the humeral angles of the praescutum reddish; legs brown; wings with the subhyaline spot in cell R_2 very small.

Male.—Length about 7·6 mm.; wing 6·4 mm.

Female.—Length about 7·3 mm.; wing 6·8 mm.

Mouth-parts, including the well-developed maxillary and labial palpi,

dark brown. Antennae dark brown throughout. Head black with a grey pruinosity.

Neck distinct, black. Prothorax black. Mesonotal praescutum dark brownish-black, the extensive humeral areas dull reddish, delimited behind by a broad shallow suture; the broad median black stripe extends to the anterior margin of the sclerite. Remainder of the mesonotum, including the pleura, dark brownish-black. Halteres pale, the knobs large. Legs with the fore and middle coxae brownish, the posterior coxae more yellow on the outer face; fore trochanters brown, the other trochanters dull yellow; femora and tibiae dark brown, slightly paler basally; tarsi dark brown. Wings with the broad costal area yellowish, the remainder of the wing grey; a broad dark brown wing apex passing through the fork of R_2+_3 and the fork of R_4+_5 and M_1+_2, paler in the posterior cells; a small, subhyaline, rounded spot in cell R_2 adjacent to the tip of R_2 and costa, not reaching vein R_3; a broad dark brown seam along the cord, on the cephalic portion greatly broadened into a solid subquadrangular costal area; a broad brown seam along *Cu*; veins yellow, brown in the darkened areas. Venation: similar to typical *speiseri* as figured by Edwards, but the fusion of R_4+_5 and M_1+_2 longer, exceeding *Rs*.

Abdomen dark brownish-black. Ovipositor black with the valves rusty, the dorsal valves very short and curved as in this group of species.

Habitat.—South Africa.

Holotype, ♂, Kaapmuiden, Eastern Transvaal, October 30th, 1918 (R. W. Tucker).

Allotopotype, ♀.

Paratopotypes, 2 ♂ ♀, June 10th–23rd, 1919 (H. K. Munro).

This handsome fly will probably be found to be a valid species, but for the present the writer prefers to consider it a race of *T. speiseri*, Edwards. From the type species it differs notably in the large size and darker colour throughout, especially the thoracic pattern, where black has largely replaced the reddish-brown areas, and in the darker legs and wings.

TRENTEPOHLIA (TRENTEPOHLIA) GRACILIS CONTINENTALIS, subsp. n.

Male.—Wing 6·5 mm.

Female.—Length 9·4 mm.; abdomen 7·5 mm.; wing 6·7 mm., its greatest width 1·05 mm.

This species differs from the description of typical *gracilis*, End. (Madagascar), as follows: wings longer and narrower, proportionate to the length of the body. Mesonotal praescutum dull brownish-grey

with a broad dark brown median stripe, broadest in front, narrowed behind, ending at the suture. Halteres not elongate. Abdomen dark brownish-black, the ovipositor deep rusty.

The mouth-parts, in addition to the moderately elongate maxillary palpi, possess conspicuous bi-articulate labial palpi, the distal segment of which is more than twice the length of the basal segment, suddenly narrowed at its apex and provided with a few sensory bristles; the inner face of this segment is nearly glabrous, the outer face with numerous short, appressed, bristle-like setae.

Male hypopygium small, the pleurites stout; pleural appendage slender, at about mid-length deeply incised, basad of the incision with a small finger-like lobe; the distal blade of the appendage with a conspicuous flattened wing along the inner margin, this bearing two setigerous punctures; at the apex of the appendage are a few additional setae. Gonapophyses widely separated at their insertion, inclined toward one another, each one at its distal end expanded into a flattened blade that is apically subtruncate.

Habitat.—South Africa.

Holotype, ♀, Kaapmuiden, Eastern Transvaal, October 30th, 1918 (R. W. Tucker).

Allotopotype, ♂.

Paratopotype, sex ?.

Type in the South African Museum.

Gen. CONOSIA, van der Wulp.

Conosia irrorata, Wiedem., var.

Three specimens from Waterberg, Damara Land, February, 1920 (R. W. Tucker).

These specimens are smaller and more greyish than typical forms, but it seems probable that these features are due to environmental factors. The species is probably the most widely distributed crane-fly known, occurring over practically the entire African continent, thence eastward to Australia, north to Palestine and Japan.

Tribe LIMNOPHILINI.

Gen. LIMNOPHILA, Macquart.

Limnophila frugi, Bergroth.

The following additional distribution:

♂ ♂, Pretoria, Transvaal, April 5th, 1913 (H. K. Munro).

♂ ♂, M'fongosi, Zululand, April, May, 1916; February, 1917 (W. E. Jones).

LIMNOPHILA SPECTABILIS, sp. n.

Antennae black, the first segment of the flagellum yellowish; wings subhyaline, with an extensive pale grey pattern.

Male.—Length 7·2 mm.; wing 8·8 mm.

Rostrum and palpi black. Antennae moderately elongated, black, the first flagellar segment yellowish; flagellar segments elongate-oval. Head dark brown.

Pronotum dull brownish-yellow. Mesonotum dull brown, discoloured in the type, scutellum more yellowish. Pleura dull brownish-yellow with a broad dark brown stripe extending from the cervical sclerites backward. Halteres yellowish, the base of the knob brown. Legs with the coxae and trochanters dull yellow; femora and tibiae dull brown, the tips a little darker; tarsi brown. Wings subhyaline, extensively suffused with pale greyish-brown clouds and broad seams as follows: Base of the wing, origin of the sector, along the cord and outer end of cell 1*st* M_2 and at the ends of the longitudinal veins; veins dark brown. Venation (Plate III, fig. 5): *Sc* extending to beyond the end of the sector; Sc_2 at the tip of Sc_1; *r* at the tip of R_1; R_2+_3 rather short, somewhat arcuated; petiole of cell M_1 about one-third to one-half the length of the cell; basal deflection of Cu_1 just before the middle of cell 1*st* M_2.

Abdominal tergites dark brown; sternites with the basal third of the segments brownish, the remainder dull yellowish; hypopygium dark.

Habitat.—South Africa.

Holotype, ♂, Maritzburg, Natal, 1917 (K. H. Barnard).

Type in the South African Museum.

LIMNOPHILA MEDIALIS, sp. n.

Related to *L. frugi*, Bergr.; first flagellar segment dark brown with only the base yellowish; wings brown with a sparse brown pattern at the origin of the sector and along the cord.

Female.—Length 7·8 mm.; wing 8 mm.

Rostrum and palpi dark brown. Antennae dark brown, basal third or less of the rather long first segment of the flagellum light yellow; remaining segments of the flagellum elongate-oval, the organ being rather long for this sex. Head dark, pruinose.

The thorax is discoloured in the unique type, and the colour of the pollen cannot be described. Pronotum brownish-yellow. Mesonotum dark brown. Pleura yellowish-brown, with a broad dark brown longitudinal stripe extending from the cervical sclerites to beyond the base of the abdomen. Halteres dark brown, pale at the base. Legs with the coxae and trochanters dull yellow, the remainder of the legs broken.

Wings with a strong brownish suffusion; darker brown clouds as follows: at the origin of *Rs*, along the cord, at the stigma; smaller markings at the outer end of cell 1*st* M_2 and at the forks of R_2+_3 and M_1+_2. Venation: similar to *L. frugi*, but *r* closer to the tip of R_1; deflection of R_4+_5 almost in alignment with *r*–*m*; petiole of cell M_1 shorter; basal deflection of Cu_1 beyond mid-length of cell 1*st* M_2.

Abdomen dirty yellow, more brownish along the lateral margins of the segments. Ovipositor rusty, very long and slender.

Habitat.—South Africa.

Holotype, ♀, Oudebosch, Caledon, Cape Colony, altitude 1500 ft., January, 1919 (K. H. Barnard).

Type in the South African Museum.

L. medialis is similar to *L. spectabilis*, but is much smaller, *Sc* ending opposite the fork of the very long sector, the wings brown, with a pattern that is darker but not nearly so extensive as in *L. spectabilis*.

LIMNOPHILA NATALENSIS, sp. n.

Coloration light yellowish-brown, the thoracic stripes indistinct; abdomen of the male with a black ring on segment 8; wings pale brown; *r* at the tip of R_1; cell M_1 deep; basal deflection of Cu_1 beyond mid-length of cell 1*st* M_2.

Male.—Length 6·3 mm.; wing 7·8 mm.

Rostrum and palpi dark brown. Antennae moderately elongated. dark brown, the scapal segments light brown; flagellar segments elongate-oval. Head brown.

Thorax light yellowish-brown, the usual three praescutal stripes indistinct. Pleura dull brownish-yellow. Halteres light brown, the knobs darker. Legs with the coxae and trochanters dull yellow; femora yellowish-brown; tibiae and tarsi dark brown. Wings evenly suffused with pale brown; stigma indistinct, slightly darker brown; veins dark brown. Venation (Plate III, fig. 6): *Sc* extending to beyond the end of the sector; *r* at the tip of R_1 and inserted at about mid-length of R_2; *Rs* moderately elongated, arcuated at origin; R_2+_3 long, arcuated; cell M_1 deep, more than twice the length of its petiole; cell 1*st* M_2 long; basal deflection of Cu_1 at about two-thirds the length of cell 1*st* M_2.

Abdominal tergites dull brownish-yellow, the lateral margins brown; a black subterminal ring; sternites dull testaceous yellow, the eighth segment black; hypopygium yellow.

Habitat.—South Africa.

Holotype, ♂, Maritzburg, Natal, 1917 (K. H. Barnard).

Paratopotype, ♂.

Type in the South African Museum.

This fly agrees closely with the rather insufficient description of *L. cladduroneura*, Speiser (Kilimandjaro)—a somewhat larger fly,with the petiole of cell M_1 still shorter, only about one-fourth the length of the cell itself.

LIMNOPHILA GRISEICEPS, sp. n.

Related to *L. natalensis*; head light grey; antennae elongate, black; wings greyish-brown, the costal region a little darker; subcosta long, basal deflection of R_4+_5 very short.

Female.—Length 9·4 mm.; wing 10 mm.

Related to *L. natalensis*, sp. n., differing as follows: size larger; head clear light grey, not reddish-brown as in *natalensis*, the eyes much closer together at the vertex. Antennae black, the first scapal segment grey pruinose; the flagellar segments very long and slender, so the antenna is considerably longer than in the males of *natalensis*—the only sex of this latter species yet made known. Thoracic notum dark brown, brightened only on the humeral region of the praescutum and the caudal half of the postnotum, which are more reddish. Wings darker, especially cell *C*, which is brownish. Venation: Sc_2 longer than Sc_1 and entering *R* slightly before the fork of R_2+_3; *Rs* longer and less arcuated at origin; basal deflection of R_4+_5 very short to almost obliterated, *r–m* being correspondingly longer; petiole of cell M_1 shorter; cell 1*st* M_2 broader.

Habitat.—South Africa.

Holotype, ♀, Oudebosch, Caledon, Cape Colony, altitude 1500 ft., January, 1919 (K. H. Barnard).

Type in the South African Museum.

LIMNOPHILA RHODESIAE, sp. n.

Related to *L. frugi* (Bergr.); the first flagellar segment yellow; thoracic pleura with a broad silvery stripe; wings with a delicate pale brown dotting along the veins and at the wing margin; *Rs* angulated and spurred at origin; cell 1*st* M_2 small, subquadrate.

Male.—Length about 6·5 mm.; wing about 7 mm.

Rostrum and palpi dark brown; antennae dark brown, the second scapal segment paler brown; the first flagellar segment light yellow; first scapal segment very long; flagellar segments beyond the fourth slender, elongate-cylindrical. Head dark with a heavy yellowish-grey bloom, an indistinct brown longitudinal mark on the vertex; head strongly narrowed behind as in this subgenus (*Pseudolimnophila*, Alex.).

Pronotum conspicuous, grey, with a narrow brown dorso-medial line.

Mesonotal praescutum greyish-yellow with three dark brown stripes, the median one narrowed to the transverse suture; lateral stripes narrow. Pseudo-sutural foveae very conspicuous, semi-circular, black, shiny. Remainder of the mesonotum greyish-yellow, pruinose, the scutal lobes darker. Pleura dark brown, a conspicuous broad silvery grey stripe across the mesopleura, extending from the fore coxae to above the base of the middle coxae. Mesosternum dark brown, more or less silvery-grey pruinose. Halteres pale at base, the knobs brown. Legs with the coxae pale, grey pruinose; trochanters yellow; remainder of the legs broken. Wings with a faint grey tinge, the membrane heavily dotted with brown along the veins and outer margin. The pattern is as follows: larger and darker brown marks at the origin of *Rs*, at about mid-length of *R*, where there are three confluent dark brown spots in cell *Sc*, the tip of Sc_1 and presumably at the tip of R_1; this region of the wing injured in the unique type; paler brown dots along the veins and at regular intervals along the wing margin, the largest at the ends of the longitudinal veins; in cell *C* the dots are very small, pale and few in number; there are about four dots along *Rs*, about eight along *M*, about twelve very distinct clouds along *Cu* before its fork, seven along *2nd A*, and about four or five along the margin of the wing in cell *2nd A*. Veins light brown, costa more yellowish. Venation: *Sc* ending just beyond the fork of *Rs*; *Rs* moderately long, strongly angulated and slightly spurred at its origin; basal deflection of R_{4+5} about as long, or a trifle shorter than the basal deflection of Cu_1; *r–m* about twice the length of the very short *m*; cell *1st* M_2 small, subquadrate, about as long as the basal deflection of Cu_1, which is inserted at about the middle of its length; terminal section of Cu_1 nearly twice the length of cell *1st* M_2; second anal vein strongly curved at its tip.

Abdominal tergites dark brown, the basal sternites more yellowish.

Habitat.—South Africa.

Holotype, ♂, Salisbury, Southern Rhodesia, May, 1917 (R. W. E. Tucker).

Type in the South African Museum.

Limnophila nox, sp. n.

General colour brown; legs, halteres and wings blackish; wings with *r* rather indistinct; cell R_2 sessile or nearly so; petiole of cell M_1 very long; basal deflection of Cu_1 beyond the fork of *M*.

Male.—Length 4·3 mm.; wing 4·9 mm.

Rostrum and palpi black. Antennae short, black; basal flagellar segments subglobular, enlarged, broader than long, the terminal

flagellar segments slender, elongated, with long black bristles. Head broad, dark brown.

Thorax discoloured in the type, probably dark brown. Halteres short, black. Legs black. Wings dark brownish-black; veins dark brown. Venation (Plate III, fig. 7): *Sc* extending to just before the end of the sector; *r* rather indistinct; cell R_2 very deep, almost sessile; deflection of R_4+_5 long, nearly twice the length of *r–m*; cell M_1 very short, from one-third to two-fifths the length of its petiole; basal deflection of Cu_1 beyond the fork of *M*.

Abdomen black, the hypopygium a little brighter.

Habitat.—South Africa.

Holotype, ♂, Ceres Division, Matroosberg, Cape Colony, altitude 3,500 ft., November, 1917 (Lightfoot).

Paratype, ♂, Paarl, Cape Colony, October, 1919 (Rev. G. Hawke).

A paratype specimen from French Hoek, Cape Colony, altitude 2500–3600 ft., December 4th, 1916 (K. H. Barnard) is larger than the type, offering the following measurements: length about 5·3 mm.; wing 5·8 mm. As the coloration is better preserved than in the somewhat defective type the following additional notes are given.

First scapal segment of the antennae long, the second nearly globular. Pronotum very large and generalised in structure, the scutellum constricted medially and with a deep impressed median groove. Mesonotal praescutum dark brown with a sparse brownish-yellow pollen and with a broad dark brown median stripe that is broadest in front, becoming obliterated before the suture; pseudo-sutural foveae very large and conspicuous, shiny black; tuberculate pits lacking or else very reduced. Pleura grey pruinose. The wing coloration and venation is almost exactly as in the type; Sc_2 a short distance from the tip of Sc_1. Abdomen brownish-grey pruinose. Male hypopygium with the pleurites short and stout, the two pleural appendages relatively small, the outer appendage a little longer but narrower than the fleshy inner appendage. Penis-guard slender, almost straight; gonapophyses with the tips slender, acute.

Sub-gen. LIMNOPHILOMYIA, sub-gen. n.

Labium triangular, pointed. Antennae elongate, 16-segmented, the flagellar segments with short subbasal verticils. Tibial spurs microscopic or lacking. Wings with the radial cross-vein lacking; Sc_2 elongate; basal deflection of R_4+_5 in a direct line with the sector. Male hypopygium simple.

Type of the sub-genus: *Limnophila* (*Limnophilomyia*) *lacteitarsis*, sp. n. (Southern Ethiopian region).

In the characters of the loss of *r* and the reduction or loss of the tibial spurs this group suggests *Phyllolabis*, O.S., of the northern Holarctic region.

LIMNOPHILA (LIMNOPHILOMYIA) LACTEITARSIS, sp. n.

General coloration, including the wings and halteres, brownish-black; legs black, the tips of the posterior tarsi creamy-white; antennae of the male elongated; tibial spurs microscopic or lacking; wings with *r* and cell M_1 lacking, the deflection of R_4+_5 in direct alignment with the radial sector.

Male.—Length 7 mm.; wing 7·7 mm.; hind leg, femur 7·3 mm., tibia 7·1 mm.; antenna about 4·3 mm.

Frontal prolongation of the head very short, light brown, running cephalad into a shiny chitinised median point. Lower lip triangular, pointed. Palpi dark brown. Antennae of the male 16-segmented, dark brownish-black; the organ is elongated, about equal to twice the length of the combined head and thorax; scapal segments small, the flagellar segments greatly elongated, the first segment longest, the remaining segments gradually shortened to the end of the organ; flagellar segments cylindrical, densely clothed with a rather long blackish pubescence and with a few short verticils. Head broad, dark brown. Eyes contiguous beneath, the ommatidia coarse.

Mesonotum dark brown, the praescutum a little paler and without distinct stripes. Pleura dark brown. Halteres black. Legs broken, excepting one of the posterior pair; this has the coxa and trochanter brown; femur, tibia and base of the metatarsus black, the apical quarter of the metatarsus creamy white, remainder of the tarsus broken; in the unique specimen at hand the writer cannot detect tibial spurs, and if they are present they are very short and hidden by the rather long apical tibial hairs. Wings with a strong blackish suffusion, the costal and subcostal cells a little darker; stigma indistinct; veins dark brownish-black. Venation: Sc_1 ending about opposite the fork of *Rs*, Sc_2, projecting considerably beyond, nearly four times the length of Sc_1 alone; *Rs* long, almost straight; tip of R_1 indistinct and *r* lacking; R_2+_3 strongly angulated at origin; basal deflection of R_4+_5 in a straight line with *Rs*; *r–m* a little shorter than the basal deflection of M_1+_2; cell 1*st* M_2 small, almost square; cell M_1 lacking; basal deflection of Cu_1 at about two-fifths the length of cell 1*st* M_2. Long black setae on vein *R* and all the longitudinal veins beyond the cord, scarce or entirely lacking on the basal portions of *M*, *Cu* and the anal veins.

Abdomen rather long, dark brown, the basal sternites paler.

Hypopygium rather small, the pleurites moderately stout, elongate; the long, slender, yellow pleural appendages lie on the dorsal face of the pleurites, and are subsinuous with the tips bent slightly outward.

Habitat.—South Africa.

Holotype, ♂, Oudebosch, Caledon, Cape Colony, altitude 1500 ft., January, 1919 (K. H. Barnard).

Type in the South African Museum.

Tribe HEXATOMINI.

Gen. ERIOCERA, Macquart.

1838. Dipt. Exotiques, vol. 1, pt. i, p. 74.

This interesting genus was supposed to be lacking on the European and African continents, although represented by a few species in Madagascar and the Seychelles. A few species from continental Africa have been described by the writer while the present paper was in press. The two new species described below belong to the section of the genus with elongate male antennae and cell M_1 of the wings lacking—a group typified by *Eriocera longicornis*, Walker (Eastern United States), to which species the new forms are obviously allied.

Eriocera capensis, sp. n.

Coloration black; legs and halteres black; wings brown; fork of R_2 shallow; antennae of the male greatly elongated.

Male.—Length 7 mm.; wing 8·5 mm.

Female.—Length 6·7 mm.; wing 7·2 mm.

Rostrum and palpi dark brown. Antennae of the male enormously elongated, greatly exceeding the body; first scapal segment large, reddish-brown; second segment small cyathiform, black; flagellar segments elongated, black, provided with long delicate hairs and a row of scattered spinous projections. Frontal tubercle enormous, globular, occupying the space between the eyes like a crest. Head dark brownish-black.

Thorax black, sparsely dusted with brownish-grey. Halteres black. Legs black, the coxae, trochanters and base of the femora dark brown. Wings suffused with brown; stigma distinct, darker brown; veins dark brown. Venation (Plate III, fig. 8): *Sc* extending beyond the end of the sector; *r* at the tip of R_1 and inserted on R_{2+3} just before the fork; cell R_2 not deep; *r–m* and the deflection of M_{1+2} in alignment; cell M_1 lacking; basal deflection of Cu_1 before, at, or just beyond the fork of *M*; Cu_2 a little shorter than the deflection of Cu_1.

Abdomen black.

The female is smaller than the male; antennae short; frontal tubercle smaller; valves of the ovipositor blunt (as in *longicornis*).

Habitat.—South Africa.

Holotype, ♂, junction of the Crocodile and Marico Rivers, Transvaal, February, 1918 (R. Tucker).

Allotopotype, ♀.

Type in the South African Museum.

ERIOCERA HUMILIS, sp. n.

Coloration brown; legs yellowish-brown with the tips of the femora and tibiae dark; wings pale brown; antennae of the male greatly elongated.

Male.—Length 5·6 mm.; wing 7·3 mm.; antennae about 15 mm.

Female.—Wing 6 mm.

Similar to *E. capensis*, as described above, but smaller; general coloration brown, the legs dull yellowish-brown with the tips of the femora and tibiae darker; wings pale brown; *Sc* longer; basal deflection of Cu_1 beyond the fork of *M* (Plate III, fig. 9).

It will be noted that in this group of species, as well as in a very few other groups of crane-flies, the males are larger than the females.

Habitat.—South Africa.

Holotype, ♂, junction of the Crocodile and Marico Rivers, Transvaal, February, 1918 (R. Tucker).

Allotopotype, ♀.

Type in the South African Museum.

SUB-FAMILY TIPULINAE.

TRIBE TIPULINI.

A recent study of the immature stages of crane-flies has shown that the tribe Dolichopezini as used in the first part of this series of papers is scarcely valid, and is now relegated to the synonomy of the *Tipulini*.

GEN. DOLICHOPEZA, Curtis.

SUB-GEN. TRICHODOLICHOPEZA, Alexander.

DOLICHOPEZA (TRICHODOLICHOPEZA) HIRTIPENNIS, Alexander.

A male and a female from Inchanga, Natal, November, 1917 (K. H. Barnard). A male and a female from Krantzkop, Natal, November, 1917 (K. H. Barnard). The wing of the male measures 9·7–9·8 mm.; that of the female 11–11·4 mm. The specimens differ somewhat from the type, but this difference is not sufficient for

separation. The basal flagellar segments are a little pale at the tips; the median praescutal stripe distinctly split by a line of the ground-colour; tip of vein R_2 much better preserved to the wing-margin, etc.

DOLICHOPEZA (TRICHODOLICHOPEZA) AURANTIACA, sp. n.

Head orange; thorax orange with three indistinct brown stripes; wings greyish-yellow; tip of vein R_2 preserved; tarsi brown.

Male.—Length 8·8 mm.; wing 9·5 mm.

Frontal prolongation of the head very short, dull yellow; nasus prominent. Palpi dark brown. Antennae moderately elongated, the scape yellow, flagellar segments dark brown, the basal segments a little paler at the tips. Head orange without distinct markings.

Mesonotum brownish-orange, the praescutum with the median stripe very indistinct, obliterated anteriorly, the lateral stripes pale. Pleura orange-yellow. Halteres short, pale, the knobs dark brown, pale at the extreme tips. Legs with the coxae and trochanters pale yellow; femora dark brown, paler basally, almost black at the tips; tibiae and tarsi black. Wings suffused with greyish-yellow, the wing-apex a little darker; stigma large, elongate-oval, dark brown; cord seamed with pale brown; a pale obliterative streak before the cord extending into the base of cell M_3, and a similar but smaller area beyond the stigma in the end of cell *2nd* R_1 and the extreme base of R_2; veins dark brown. A heavy pubescence in the apical cells of the wings. Venation (Plate IV, fig. 15): tip of R_2 entirely preserved; fusion of M and Cu_1 a little shorter than the free portion of M beyond the fusion.

Abdomen with the two basal tergites orange-yellow; remaining tergites orange-brown, with the caudal margins of the segments narrowly ringed with dark brown; sternites orange-brown, the apical sternites dark brown basally. Male hypopygium with the tergal region margined caudally with a horseshoe-shaped chitinised band that is almost smooth except at the ends of the crescent, which are enlarged and coarsely toothed. In the related *D. hirtipennis* the band is irregularly and finely denticulate or roughened, and above the median or dorsal portion of the crescent is a high, depressed, very flattened ledge whose posterior margin is narrowly chitinised and roughened. The penis-guard and the flattened pleural lobes that lie ventrad of the outer pleural appendages are less conspicuous than in *D. hirtipennis*.

Habitat.—South Africa.

Holotype, ♂, Kranzkop, Natal, November, 1917 (K. H. Barnard).

Paratype, ♂, Maritzburg, Natal, 1917 (K. H. Barnard).

Type in the South African Museum.

In addition to the characters given above, the species may be told from *D. hirtipennis* by the shorter flagellar segments, the very different pattern to the wings and mesonotum and the general orange-yellow coloration, not buff as in *hirtipennis*.

Gen. GONIOTIPULA, gen. n.

Frontal prolongation of the head rather short; nasus distinct. Antennae of the male elongated, apparently but 11-segmented; segments without verticils; first scapal segment shorter than the first flagellar segment, second scapal segment about one-half the length of the first. Halteres long and slender. Legs with the tibial spurs rather small, empodia large. Wings with a long basal petiole, the anal angle practically lacking; Sc_1 lacking, tip of R_2 atrophied; fusion of M_3+_4 and Cu_1 extensive, about as long as r–m alone; the abortive anal vein that lies immediately behind vein Cu and has been termed the "anal furrow" in literature is here very evident, and almost attains the wing-margin; second anal vein straight, rather long, almost parallel to the anal angle of the wing. Veins with few setae. Male hypopygium with the tergite notched behind, distinct from the sterno-pleurite; eighth sternite unarmed.

Genotype, *Goniotipula cuneipennis*, sp. n. (Southern Ethiopian region).

The genus *Goniotipula* presents some features in common with both *Megistomastix*, Alex. (Neotropical region), and *Leptotipula*, Alex. (Ethiopian region), but cannot be placed with either of these groups by the combination of characters. The elongate antennal flagellum without verticils and the strikingly petiolate wings furnish the principal generic characters.

Goniotipula cuneipennis, sp. n.

Antennae elongate, longer than the combined head and thorax, dark brown, the flagellar segments without verticils; wings long-petiolate, faintly greyish, the tip of vein R_2 atrophied.

Male.—Length, 8·6 mm.; wing, 8·5 mm., its greatest width, 1·6 mm.; fore leg, femur about 6·8 mm., tibia, 6·4 mm., tarsus about 8·3 mm.

Frontal prolongation of the head short, stout, light grey, the nasus stout; palpi dark brown, the last segment nearly equal to the second and third combined. Antennae of the male elongated, considerably longer than the head and thorax taken together, dark brown, with a dense erect white pubescence; flagellar segments elongate-cylindrical, the first and the last shortest. Eyes rather small, widely separated by the vertex. Head greyish-brown, clear grey along the margins of the eye.

Mesonotum brownish-grey, the praescutum with three indistinct darker brown stripes; scutum dull grey, the lobes indistinctly brownish; scutellum brownish-grey; postnotum blackish-grey, very narrowly yellowish anteriorly. Pleura blackish with a heavy grey pruinosity, the dorso-pleural membrane yellowish, clearest near the base of the halteres. Halteres long, black throughout. Legs with the coxae black, the posterior face of the hind coxae yellowish; trochanters dull yellowish; legs black. Wings long and narrow, with a long basal petiole; membrane faintly greyish, the subcostal cell brown; stigma oval, pale brown, not passing beyond the radial cross-vein; veins dark brown. Venation: Sc_2 ending about opposite two-thirds the length of the long straight sector; tip of R_2 atrophied, represented only by a small spur; cell 1*st* M_2 long, hexagonal; petiole of cell M_1 short, a little longer than m; m a little longer than the fusion of Cu_1 and M_{3+4}; second anal vein straight, almost parallel with the anal margin of the wing.

Abdominal tergites blackish, the segments yellowish on the sides, brightest and most conspicuous on the eighth tergite; sternites dark brownish-black, paler laterally. Male hypopygium with the ninth tergite distinct from the sterno-pleurite. Ninth tergite with a broad posterior incision, each small lateral lobe armed with numerous slender black spines; posterior lateral regions of the caudal margin broadly notched. Ninth pleurite narrow, projecting, at its tip bearing a complicated pleural appendage. Pleural appendage a chitinised blade with the outer lateral margin irregularly and minutely serrulate, at the tip suddenly narrowed to an oval lobe that juts into the notch of the tergite; the outer proximal margin with a row of delicate long hairs that are directed backward; near the base of the appendage on the outer side with a sharp arm that is fringed with long hairs, at its tip with a few smaller ones. Ninth sternite broadly membranaceous, the posterior margin with dense fringes of long golden-yellow hairs. Eighth sternite extensive, unarmed.

Habitat.—South Africa.

Holotype, ♂, Caledon, Cape Colony, October, 1918 (L. Péringuey).

Type in the South African Museum.

Gen. LONGURIO, Loew.

Longurio capicola, sp. n.

Nasus bifid, with long reddish-yellow hairs; head reddish-brown; wings almost uniform yellowish-brown, without a subhyaline longi-

tudinal stripe near mid-width of the wing; abdomen dark brown, the basal sternites paler.

Male.—Length 14 mm.; wing 16 mm.; fore leg, femur 8·5 mm., tibia 9·8 mm.; middle leg, femur 8·8 mm., tibia 10 mm.; hind leg, femur 11 mm., tibia 12·8 mm.

Frontal prolongation of the head dark brown, the apex of the nasus distinctly notched, each lobe with a tuft of long reddish-yellow hairs; palpi dark brown. Antennae reddish-brown; the first scapal segment and the apical flagellar segment a little darker. Head reddish-brown; vertical tubercle prominent, indistinctly notched in front. Eyes rather small, widely separated both above and beneath.

Mesonotum discoloured in the types, brown, the praescutum with darker stripes, the lateral stripes dark brown; scutellum brown; postnotum clear grey pruinose. Pleura dark brown, grey pruinose, the dorso-pleural membrane light brown. Halteres pale brown. Legs with the coxae and trochanters brownish-yellow; femora dull brownish-yellow, the tips dark brown; tibiae similar, narrowly tipped with brownish-black; tarsi light brown, darkened towards the tips. Wings with a strong yellowish-brown suffusion, the costal and subcostal cells a little darker; stigma distinct, dark brown; a small hyaline area before and beyond the stigma; a narrow streak crosses cell 1*st* M_2 into the base of cell M_4. Venation: almost as in *L. bonae spei* (Bergr.); basal portion of R_2 more oblique; cell 1*st* M_2 wider, second anal vein not slightly sinuous.

Abdomen dark brown, the tergites very narrowly and indistinctly ringed caudally with pale; basal sternites more yellowish; hypopygium slightly brighter. Hypopygium with the ninth tergite having a deep V-shaped notch; pleural appendages with numerous blackened spines.

Habitat.—South Africa.

Holotype, ♂, Zonder End Peak, Caledon, Cape Colony, altitude 3600 ft., January, 1919 (K. H. Barnard).

Paratopotype ♂.

Type in the South African Museum.

L. capicola is readily told from the related *L. bonae spei* (Bergr.) by the almost uniformly coloured wings. In this regard it agrees more nearly with the much smaller and differently coloured *L. minusculus*, Alex.

Longurio belloides, sp. n.

Nasus bifid, provided with long black hairs; head grey; wings dark brown with a distinct subhyaline longitudinal stripe extending from near the wing-base almost to the margin in cells M, 1*st* M_2 and R_5,

basal half of the anal cells subhyaline; cell 1*st* M_2 long and narrow; abdomen dark brown, the lateral margins broadly dull yellow.

Male.—Length 18 mm.; wing 18 mm.; fore leg, femur 10·3 mm., tibia 13 mm.; middle leg, femur 11·2 mm.; wing 12 mm.; hind leg, femur 12·2 mm., tibia 15·8 mm., tarsus about 32 mm.

Frontal prolongation of the head brown, the nasus distinct, slightly bifid at apex and clothed with long black hairs; palpi dark brown, the terminal segment about equal to the second. Antennae rather short, the first segment of the scape long, first segment of the flagellum pedicillate; remaining segments oval, with subappressed verticils and a coarse white pubescence; antennae brownish-black, the second and third segments paler brown. Head dark grey, paler grey on the prominent vertical tubercle and along the inner margin of the eye, passing into brown on the occipital region.

Mesonotal praescutum light brown, with four stripes, the intermediate pair narrowly separated by a pale vitta, brown, grey pruinose, at least anteriorly; lateral stripes dark brown; scutellum dull yellowish; postnotum dark grey pruinose. Pleura light grey, the dorsal sclerites and the dorso-pleural membrane more tawny. Halteres light brown, the knobs dark brown. Legs with the coxae and trochanters dull yellow; femora brown, a little paler basally; tibiae dull brownish-yellow, covered with an abundant black pubescence, the tips broadly dark brown; tarsi brownish-black. Wings dark brownish-grey with a subhyaline longitudinal stripe at about mid-width of the disc and the bases of the anal cells pale; the pale stripe includes almost all of cells M, 1*st* M_2 and R_5, the tip of the latter narrowly infumed; stigma brownish; veins dark brown. The wing pattern suggests the type found in the Nearctic *Tipula bella*, Lw.; there is scarcely any white colour in cells M_1, M_2, M_4 or Cu_1 except very indistinct clouds near the base; a broad dark seam along vein *Cu*. Venation as in *L. bonae spei* (Bergr.), but cell 1*st* M_2 long and narrow, petiole of cell M_1 very short; cell M_1 broad, the veins M_1 and M_2 short.

Abdomen not elongated; tergites dark brown, the lateral margins broadly dull yellowish except on the eighth and ninth segments; sternites dull yellow, broadly ringed with dark brown. Hypopygium light yellowish-brown. Hypopygium as in the genus, the tergite with a deep V-shaped notch, the lateral lobes rather pointed, margined with pale; ninth sterno-pleurite elongate.

Habitat.—South Africa.

Holotype, ♂, Zonder End, Peak, Caledon, Cape Colony, altitude 5400 ft., January, 1919 (K. H. Barnard).

Type in the South African Museum.

LONGURIO MICROPTERYX, sp. n.

General coloration reddish-yellow, the pleura and abdomen with a blackish lateral stripe; wings very reduced, in the male sex less than one-half the length of the slender halteres.

Male.—Length 8·5 mm.

Frontal prolongation of the head short and stout, blackish; nasus indistinct, represented by a tuft of long black setae; palpi short, the first two segments longest, subequal, the last two segments shorter and nearly equal in length, the basal segment provided with long coarse bristles. Antennae rather short, 13-segmented, the scape dull yellowish, the flagellum dark brown; first segment of the scape elongate, the second subglobular; first flagellar segment pyriform with the base very narrow; second and third flagellar segments slightly enlarged, the remaining flagellar segments rather elongate, covered with a sparse pale pubescence and with moderately long, secund verticils. Vertex rather narrow, the vertical tubercle low, indistinctly bifid. Head dark reddish-brown.

Thorax with the mesonotum very flattened, almost as in the genus *Platylimnobia*. Mesonotum reddish-yellow, with an indistinct dusky lateral line that continues caudad on to the abdomen. Pleura reddish-yellow, clearer yellow underneath the wing-root. Halteres brown, the knobs darker, the stem slender. Legs with the coxae very long and tumid, yellowish, the fore coxae a little darker; remainder of the legs brown, darkened on the tarsi; legs rather stout, the tibiae longer than either the femora or metatarsi. Wings blackish, very reduced, less than one-half the length of the halteres.

Abdominal tergites reddish-brown, darkening on the terminal segments, a broad, conspicuous, black lateral stripe extending the length of the abdomen; sternites yellow, more brownish on segments 7 to 9. First abdominal segment long, more than half the length of the second; eighth tergite telescoped beneath the seventh, only the lateral portions being visible; impressed areas on the segments reddish, concolorous with the rest of the abdomen, inconspicuous. Male hypopygium of the normal *Longurio* type, the ninth tergite very deeply notched medially, the lateral lobes obtusely pointed at their tips; ninth sterno-pleurite long, narrowed to the blunt tip, the pleural appendages bearing a row of short black spines as in the other species of the genus.

Habitat.—South Africa.

Holotype, ♂, Table Mountain, Cape Colony, 1919 (spring) (R. W. E. Tucker).

Type in the South African Museum.

Longurio micropteryx is a typical representative of the genus except for the microscopic wings. In this latter feature it agrees with *Tipula chionoides*, Alexander (Ann. S. Afr. Mus., vol. xvii, pt. ii, 1917, pp. 164, 165), which is also to be considered as being a species of *Longurio*, this reference being based on the bifid nasus and the strong resemblance to the present species, which, from the characteristic structure of the male hypopygium, is an undoubted *Longurio*. *L. micropteryx* differs from *L. chionoides* in its small size, pale coloration, the conspicuous black lateral stripe on the abdomen, the pale impressed areas on the abdominal segments, the different structure to the nasus and numerous smaller characters.

Gen. HABROMASTIX, Skuse.

1890. Proc. Linn. Soc. N.S. Wales, vol. 5, ser. ii, pp. 93, 94.

Habromastix africana, sp. n.

Antennae of the male elongate, about as long as the body, the flagellar segments clothed with a dense, erect, pale pubescence; general coloration dark brown; wings dusky, a clear whitish spot before and beyond the stigma.

Male.—Length 11 mm.; wing 11 mm.; antenna 10·5 mm.

Frontal prolongation of the head short, dark brown. Palpi short, yellow basally, the terminal segments dark brown, Antennae of the male elongate, filiform, nearly as long as the body; scapal segments short and small, the second cyathiform, with the apex abruptly truncated; first flagellar segment enlarged at the extreme base; segments of the flagellum greatly elongated, clothed with a conspicuous dense, erect, white pubescence; scape light yellow, the flagellar segments dark brown except the base of the first and, less distinctly, the articulations of the succeeding segments. Head broad; eyes large, black; distance separating the eyes moderate, the vertical tubercle prominent, conical; head brown.

Mesonotum rather dark brown without distinct stripes. Pro- and meso-pleurites darker than the yellowish metapleura. Sternites dark. Halteres very long and slender, dark brown, with the extreme base more yellowish. Legs with the fore and middle coxae infuscated, the posterior coxae yellow; trochanters yellow; remainder of the legs broken. Wings dark brownish-grey, the costal and subcostal cells a little darker; stigma elongate, dark brown; a clear whitish obliterative spot before the stigma and a less distinct spot beyond the stigma in cell *2nd* R_1; veins dark brown. Venation (Plate IV, fig. 17): *Sc* long, ending opposite the tip of the sector; Sc_1 persistent; *Rs* short,

arcuated at origin; R_2 persistent; petiole of cell M_1 a little longer than *m*.

Abdominal tergites dark brown; segments 2 to 7 with a large yellowish area on the sides beyond the base. Sternites yellow except the base and apex of the segments, which are blackish; segments 7 and 8 largely dark brown; remainder of the hypopygium yellowish. Male hypopygium (Plate IV, fig. 25) simple. Ninth tergite large, the posterior margin notched medially. Ninth sterno-pleurite prominent, elongate, but not so excessively produced as in *Longurio*, jutting slightly beyond the level of the tergite. Outer pleural appendage an elongate, pale, fleshy lobe clothed with long hairs; inner pleural appendage more or less chitinised, compressed. Sterno-pleurite profoundly incised on the mid-ventral line, the adjacent margins almost contiguous.

Habitat.—South Africa.

Holotype, ♂, Kranzkop, Natal, November, 1917 (K. H. Barnard).

Paratopotype, ♂.

Type in the South African Museum.

The genus *Habromastix* is principally Australasian in its distribution, but there are three or four Ethiopian species. The genus is very close to *Longurio*, and is separated from it chiefly by the elongate male antennae. In this genus, as well as in *Longurio*, the cell M_1 of the wings varies from sessile to long-petiolate.

Habromastix jonesi, sp. n.

Antennae of the male greatly elongated, approximately as long as the body; mesonotal praescutum brownish-grey with four dark brown stripes; wings striped longitudinally with brown, grey and white; legs with the femora black, the tibiae abruptly light yellow except at the tips.

Male.—Wing 12 mm.

Female.—Length 17–18 mm.; wing 12·3–12·5 mm.; fore leg, femur about 7 mm., tibia 8·5 mm.; middle leg, femur 7·8 mm., tibia 8·7 mm.

Head small, the frontal prolongation rather short, yellowish above, dark brown beneath and on the sides; nasus lacking. Palpi short, dark brown. Antennae of the male greatly elongated, approximately as long as the body; scape yellow; first flagellar segment yellow basally, passing into brown; remaining segments dark brown, yellowish at the sutures; flagellar segments clothed with a long, pale, erect pubescence; verticils very short and sparse. Antennae of the female much shorter than those of the male, but still elongate. Head dark

brown, the front and anterior portion of the vertex whitish, this continued backward as a narrow pale margin around the eyes; a median impressed line on the anterior portion of the broad vertex.

Mesonotum light brownish-grey, the praescutum with four dark brown stripes, the middle pair long and only indistinctly separated from one another by the pale ground colour; lateral stripes short, confluent with the intermediate stripes; region of the pseudosutural foveae grey; scutellum and postnotum greyish. Pleura pale grey with indistinct dark brown blotches on the mesopleura. Halteres rather long, dark brown, the stem much paler. Legs with the hind coxae pale, the fore and middle coxae darkened; trochanters pale; femora dark brownish-black, darkest apically; tibiae abruptly light yellow, dark brown at the tips; metatarsi and the second tarsal segment yellow, darkened at the tips; remaining tarsal segments dark brown. Wings dark brown, the anal cells more greyish, the cells streaked with whitish, these pale streaks occupying the bases of cells 1*st* R_1, R_2 and 1*st* *A*; the end of cell *R*; the centres of cells R_5, M_1, 1*st* M_2, 2*nd* M_2, M_4, *M*, Cu_1 and 2*nd* *A*. Venation (Plate IV, fig. 21): *Rs* elongate, rather strongly angulated at origin; R_2 persistent, deflected strongly cephalad or outwards at its apex; petiole of cell M_1 about equal to *m*; fusion of Cu_1 on M_{3+4} extensive, about equal to *m*, the fusion beginning at or just beyond the fork of *M*, ending at about two-fifths the length of cell 1*st* M_2.

Abdominal tergites dark brown above, the basal tergite light yellow, the terminal tergites indistinctly marked with dull yellow laterally; caudal margin of the segments ringed with dull silvery. Sternites mottled dark brown and yellow. Ovipositor with the tergal valves long, slender, straight; sternal valves flattened, compressed, ending a little beyond mid-length of the tergal valves.

Habitat.—South Africa.

Holotype, ♂, M'fongosi, Zululand, December, 1916 (W. E. Jones).

Allotype, ♀, with the type.

Paratopotype, ♀.

Type in the South African Museum.

This very interesting species is named in honour of its collector, who has discovered many interesting crane-fly novelties. Unfortunately the abdomen of the unique male is broken off, and nothing can be stated about the male hypopygium.

Gen. IDIOTIPULA, gen. n.

Frontal prolongation of the head slender, moderately elongated. nasus very short, indistinct, surrounded by numerous pale hairs;

Palpi very short, only about as long as the prolongation of the head plus the mouth-parts, the last segment oval, the basal segments elongate-oval. Antennae filiform, in the male sex from one and one-half to nearly twice the length of the body, composed of 13 segments; scape enlarged, the second segment very short, cyathiform, only about one-half as long as wide; flagellar segments elongate, the third and fourth longest; thence gradually shortened to the end of the organ; flagellar segments with short, delicate, pale hairs and a few scattered bristles. In the female the antennae are much shorter, the flagellar segments only moderately elongated. Eyes small, widely separated by the broad vertex; vertical tubercle prominent, indistinctly bifid. Thorax broad. Legs moderately elongated; tibial spurs apparently lacking; claws small, untoothed. Wing venation (Plate IV, fig. 16) with *Sc* moderately elongated, extending to beyond mid-length of the long sector; Sc_1 persistent; end of R_2 beyond *r* entirely atrophied; but two branches of *M* attain the wing-margin; *m–cu* obliterated by fusion. Abdomen moderately elongated, the male hypopygium simple in structure.

Genotype, *Idiotipula confluens*, sp. n. (Southern Ethiopian Region).

This curious fly presents many features that are uncommon or lacking in other members of the subfamily, the short palpi, the apparently unspurred tibiae, and, especially, the reduction of the branches of media.

Idiotipula confluens, sp. n.

Antennae of the male filiform; palpi short; wings dark brown, with but two branches of media reaching the wing-margin; vein R_2 atrophied beyond *r*; *2nd A* short.

Male.—Length, 7·5–8 mm.; wing, 8·4–9·2 mm.; antennae, 13·5–14 mm. Fore leg, femur, 5·1 mm., tibia, 5·6 mm.; hind leg, femur 6 mm., tibia 5·6 mm.

Female.—Wing, 10 mm.

Frontal prolongation of the head light brown, slender, moderately elongated, the nasus short, surrounded by numerous stiff yellow hairs; palpi short, brown, darker outwardly. Antennae filiform, the second scapal segment light yellow, the flagellum dark brown. Head yellowish-brown with a capillary dark brown median line.

Mesonotal praescutum yellowish-brown with four darker brown stripes, the median pair confluent in front, behind ending before the transverse suture, the lateral stripes continued backward to suffuse the scutal lobes; scutum and scutellum yellowish-brown; postnotum greyish. Pleura yellowish-brown with a clear grey pruinosity.

Halteres slender, brown, the knobs dark brown. Legs with the coxae large, yellowish, with a sparse grey pruinosity; trochanters, femora and tibiae yellow, the tips of the two latter darkened; tarsi brown. Wings with a strong brown suffusion throughout, the stigma but little darker; veins dark brown. Venation (Plate IV, fig. 16) as discussed under the generic diagnosis; *2nd A* vein very short, the cell long and very narrow.

Abdominal tergites with the first segment pale laterally; tergites dark brown medially, the lateral and posterior margins paler; sternites brown. Male hypopygium (Plate IV, fig. 24) simple. Ninth tergite transversely rectangular, the posterior margin squarely truncated or feebly concave, the dorsal surface provided with numerous stiff, black bristles. Ninth sterno-pleurite projecting strongly caudad, beneath, on the mid-ventral line, profoundly incised by a V-shaped notch. Pleural appendages very simple, closely applied to one another, the longest with about ten to twelve sharp, black spines at the apex and stiff setae along the margin, these latter directed backward; the shorter cephalic lobe is set with abundant stiff setae on raised tubercles.

The type female is teneral, not fully coloured, but is similar to the male in all but the sexual characters.

Habitat.—South Africa.

Holotype, ♂, M'fongosi, Zululand, April, 1917 (W. E. Jones).

Allotopotype, ♀, February, 1917.

Paratopotype, 2 ♂♂, February, 1917; 1 ♂, May, 1917. Paratype, ♂, Maritzburg, 1917 (Conrad Akerman).

Type in the South African Museum; paratype in Natal Museum.

Gen. TIPULA, Linnaeus.

Tipula coronata, Alexander.

Two large male specimens from the Palmiet River, Caledon Division, Cape Colony (K. H. Barnard). They measure from 10–10·2 mm. in length, the wings, 12·5–13·8 mm.

Tipula rubronigra, sp. n.

Antennae very short, simple in structure; thorax shiny yellowish, the praescutum with dark brown stripes; abdomen and legs black, the hind tarsi very long and slender, greatly exceeding those of the other legs; wings broad, grey, longitudinally streaked with whitish; male hypopygium not enlarged, very simple in structure, the ninth tergite with a rounded notch.

Male.—Length, 11·5–12 mm.; wing, 13·5–14·8 mm. Fore leg,

femur 7 mm., tibia 7·6–8·2 mm., tarsus about 13·6 mm. Hind leg, femur 9·3–9·5 mm., tibia 10·3–10·6 mm., tarsus about 30 mm.

Frontal prolongation of the head very short, dark brownish-black, paler basally on the sides; nasus short or practically lacking; palpi short. Antennae short, dark brownish-black, the flagellar segments oval with indistinct verticils. Head broad, dark brownish-black, sparsely dusted with brownish-grey; vertex between the antennal bases elevated, somewhat compressed, and with a deep median furrow.

Mesonotum broad, shiny, dull brownish-yellow, the praescutum with three indistinct dark brown stripes that are confluent behind; scutum yellowish, the lobes brown; scutellum and postnotum dull yellow. Pleura dull brownish-yellow, sparsely yellowish pollinose. Halteres very long and slender, brown, the knobs darker. Legs with the coxae and trochanters dull yellow; remainder of the legs black excepting the basal portions of the femora, which are paler; fore tarsi short, the posterior tarsi excessively elongated. Wings broad, greyish, indistinctly streaked longitudinally with whitish; costal region and the stigma yellowish-brown; a brownish cloud along *Cu*; obliterative streak passing completely through cell 1*st* M_2; extreme tips of veins R_1 and R_2 semi-obliterated. Venation (Plate IV, fig. 19): Sc_1 persistent, situated at the extreme tip of the vein *Sc*; *Rs* long; petiole of cell M_1 a little longer than *m*; *m–cu* at about one-fourth the length of cell 1*st* M_2, punctiform or barely obliterated by the fusion of the connecting veins.

Abdomen black, the posterior margins of the segments narrowly, the lateral margins of the tergites more broadly, silvery; lateral margins of the first tergite yellowish. Male hypopygium very small and simple in structure, jet black. Ninth tergite small, the posterior margin with a deep U-shaped notch, the lateral lobes at the margins a little paler. Pleurites fused with the sternite, the pleural suture feebly indicated; pleural appendages small. Ninth sternite rounded on the median line, the posterior margin with a deep U-shaped incision that extends about half the length of the sclerite. Eighth sternite large, the posterior margin unarmed.

Habitat.—South Africa.

Holotype, ♂, Krantzkop, Natal, November, 1917 (K. H. Barnard).

Paratopotypes, 2 ♂♂.

Type in the South African Museum.

Tipula cinereilinea, sp. n.

Size small (wing of male 8 mm.); coloration brownish-yellow with a broad, clear ashy dorso-median stripe extending from the frontal

prolongation of the head backwards to the hypopygium; wings subhyaline; *Rs* short, straight, second anal vein short; male hypopygium simple, the pleural appendages armed with sharp chitinised spines.

Male.—Length about 7 mm.; wing, 8 mm.

Frontal prolongation of the head brownish-yellow laterally, clear silvery cinereous above, moderately elongated; nasus distinct; palpi elongate, brown. Antennae with the scapal segments dark brown, the first heavily grey pruinose; flagellar segments uniformly yellowish-brown. Head with the occiput and sides of the vertex rich brown, the middle portion of the vertex and front clear ashy, this area narrowed to a point behind. Eyes large, the ommatidia delicate.

Pronotum yellowish-brown on the sides, clear ashy medially. Mesonotal praescutum yellowish-brown laterally, more golden-yellow medially, a narrow ashy line down the extreme median portion; scutal lobes largely golden-yellow, the median area ashy; scutellum and postnotum yellowish-brown laterally, ashy medially. Pleura yellow, sparsely grey pruinose. Halteres short, pale brownish-yellow. Legs with the coxae and trochanters yellow, the remainder more brownish-yellow. Wings of the somewhat teneral type almost clear; when fully coloured probably uniformly suffused with darker. Venation (Plate IV, fig. 18): *Sc* ends about opposite mid-length of the sector; *Rs* short and almost straight; basal deflection of M_{1+2} long, exceeding *m* in length; *m–cu* present, short; second anal vein very short.

Abdomen with a broad, ashy dorso-median stripe that is interrupted at the sutures; lateral margins of the tergites dark brown; sternites and hypopygium yellow. Male hypopygium very small and simple in structure. Ninth tergite moderate in size, the posterior margin with a broad V-shaped notch, the lateral lobes formed with their margins evenly rounded. Outer pleural appendage sub-oval, flattened, pale, with numerous pale hairs, lying closely appressed to the second or inner appendage; this latter is large, flattened, pale, the outer margin set with about six acute blackened spines, of which four lie posteriorly and two more cephalad; the extreme tip of the appendage is produced into a flattened blade that juts into the tergal notch. Ninth sternite deeply incised on the mid-ventral line. Eighth sternite unarmed.

Habitat.—South Africa.

Holotype, ♂, Eshowe, Natal, December, 1916 (Bell-Marley).

Type in the South African Museum.

Tipula frater, sp. n.

Antennae short, yellow; general coloration yellow, the praescutum with four greyish-brown stripes that are margined with dark brown;

wings brown, streaked with whitish; abdomen yellowish, with three dark brown longitudinal stripes.

Male.—Length 20 mm.; wing 19·4 mm.; middle leg, femur 13 mm., tibia 13·2 mm.

Female.—Length 23 mm.; wing 19 mm.

Frontal prolongation of the head brownish-yellow; nasus very long and slender. Palpi dark brown, paler at the incisures. Antennae short, uniform pale yellow, the terminal segments a little infumed with brown. Head greyish-yellow, brightest on the front anterio-portion of the vertex and along the inner margin of the eyes; an indistinct brownish median line on the vertex.

Mesonotum brownish-yellow, the praescutum with four greyish-brown stripes that are narrowly margined with dark brown; the middle stripes are narrowed and confluent behind, much paler at their anterior ends; scutum dull yellow, the lobes with dark greyish-brown marks; scutellum brown basally, yellowish apically; postnotum yellowish. Pleura yellow. Halteres light brownish-yellow, the knobs dark brown. Legs with the coxae and trochanters yellow; femora yellow, the tips dark brown, broadest on the fore legs, narrowest on the hind legs; tibiae dark brown, the bases conspicuously yellowish; metatarsi dark brown, the extreme base brownish-yellow; remainder of the legs dark brown. Wings brown, streaked with whitish, the costal area brighter, yellowish-brown; a whitish streak occupying the posterior half of cell *R* and the anterior half of cell *M*, and including cells 1*st* M_2 and R_5; pale areas in the base of cell 1*st A* and the end of *Cu*. Venation (Plate IV, fig. 20): Sc_1 obliterated; R_2 persistent; *m–cu* obliterated by a slight fusion of Cu_1 on M_{3+4}; cell 2*nd A* rather narrow.

Abdominal tergites dull yellow with three brownish longitudinal stripes, the lateral pair usually more distinct, the median stripe obliterated basally but becoming more distinct toward the end of the abdomen; sternites brownish-yellow. Male hypopygium with the sclerites of the ninth segment fused into a continuous ring. Region of the ninth tergite extensive, the median area (Plate IV, fig. 26) produced into a slender but very high lobe that is indistinctly bifid at its tip, which is blackened and indistinctly spinulose; dorsal face of the tergite slightly depressed. Pleural region not set off by a suture. Outer pleural appendage pale, very broad and flattened, the apex obliquely truncated. Ninth sternite strongly carinate on the mid-ventral line. Female ovipositor with the tergal valves very long and slender, straight, a little expanded at the tips; sternal valves very short, ending at about mid-length of the tergal valves.

Habitat.—South Africa.

Holotype, ♂, Pretoria, Transvaal, January 17th, 1913 (H. K. Munro).

Allotype, ♀, Nels Rust, Natal, April 24th, 1916 (S. G. Rich).

Paratype, sex ?, Kranzkop, Natal, November, 1917 (K. H. Barnard).

Type in the South African Museum.

This species is closely related to *Tipula soror*, Wiedemann, but the general coloration is much more yellowish, and the details of the wing-pattern and the male hypopygium are slightly different.

Tipula jocosa, Alexander.

The male sex of this handsome crane-fly has not been described, and the single specimen in the present collection is made the allotype.

Male.—Length 17·5 mm.; wing 18 mm.; fore leg, femur 11·6 mm., tibia 14·8 mm.; middle leg, femur 12 mm., tibia 13 mm.

Similar to the type female except as follows:

Antennae with both scapal segments yellow, the first flagellar segment yellowish-brown; remainder of the antennae dark brownish-black; antennae moderately elongated, if bent backward extending about to the wing-root.

Mesonotal postnotum blackish, heavily grey pruinose except behind. A narrow dark brown line extending from the postnotum obliquely forwards across the pleura, traversing the mesepimeron and the mesosternum, ending behind the fore coxa. Pleura pale, whitish or yellowish pollinose. Legs with the outer faces of the fore and hind coxae a little darkened basally. Venation as in the type female, the fusion of Cu_1 and M_3+_4 much longer than r–m but shorter than m.

Abdomen much darker coloured than in the female, the basal tergites yellowish; tergites 2 to 6 broadly dark brown apically with a broad silvery basal ring; tergites 7 and 8 paler, yellowish-brown; sternites pale, the ninth sternite blackish. Male hypopygium (Plate IV, fig. 28) enlarged, the sclerites of the ninth segment fused into a continuous ring that is interrupted only on the mid-ventral line. Region of the ninth tergite (Plate IV, fig. 27) large, ample, the posterior margin concave, the lateral angles slightly produced into thin, heavily chitinised shiny lobes, the median area produced ventrad and slightly caudad into a pendulous pale fleshy lobe that is densely clothed with a fine pubescence. Region of the ninth pleurite ample, with a flattened obtuse tooth ventrad of the lateral angles of the tergite. Pleural appendages dark coloured, the outer appendage a small, elongate-cylindrical, sparsely hairy lobe; inner appendage small, heavily chitinised, the apex produced into a cylindrical beak that is directed

cephalad, the outer margin of the lobe fringed with delicate erect hairs. Angle of the pleural region ventrad of the appendages, and the adjacent region of the ninth sternite each with a sparse brush of long yellow hairs. Ninth sternite profoundly incised on the mid-ventral line, the margins of the incision pale yellow, contiguous with one another. Eighth sternite carinate, unarmed.

Allotype, ♂, Maritzburg, Natal, 1917 (K. H. Barnard).

Allotype in the South African Museum.

TIPULA SETOSIPENNIS, Alexander.

1920. *Tipula setosipennis*, Alex., Ann. Mag. Nat. Hist., ser. 9, vol. 5, pp. 61, 62.

Cedara, Natal, March 12th, 1920 (S. H. Skaife).

GEN. NEPHROTOMA, Meig.

NEPHROTOMA CROCEA (Loew.), var.

Waterberg, Damaraland, February, 1920 (R. W. Tucker).

These specimens are scarcely typical of this species, and yet there are no tangible characters on which to separate them. The differences in coloration are probably explainable by ecological factors involved.

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4.—Wing of *Geranomyia* (*Monophana*) *subimmaculata*, sp. n.
5.—Wing of *Limnophila spectabilis*, sp. n.
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PLATE IV.

FIG.

15.—Wing of *Dolichopeza* (*Trichodolichopeza*) *aurantiaca*, sp. n.
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18.—Wing of *Tipula cinereilinea*, sp. n.
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26.—Hypopygium of *Tipula frater*; ninth tergite, dorsal aspect.
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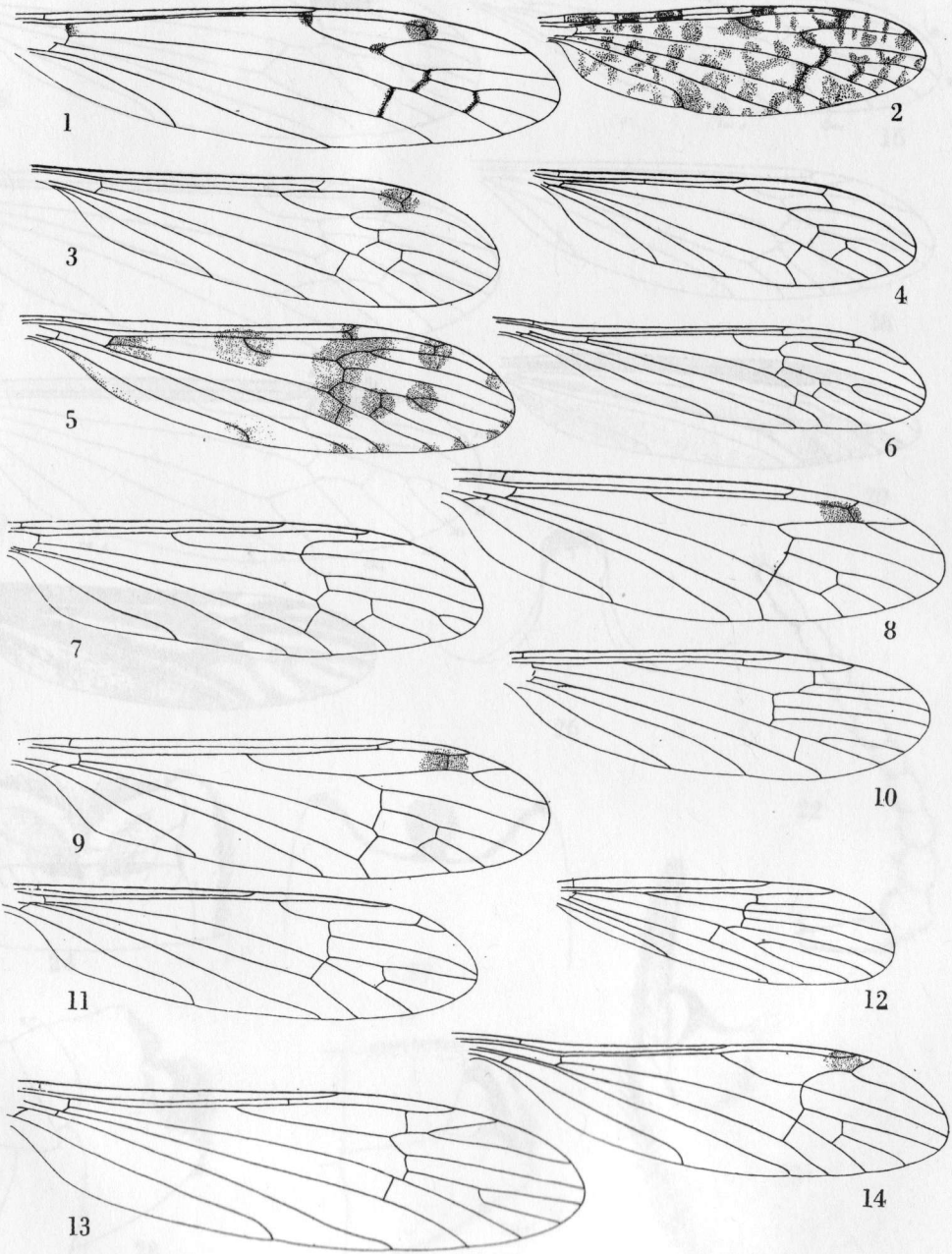
28.—Hypopygium of *T. jocosa*; lateral aspect.

Abbreviations: *Sc* = subcosta; *R* = radius; *M* = media; *Cu* = cubitus *A* = anal veins *T* = tergites; *S* = sternites; *St. Pl.* = sterno-pleurites.



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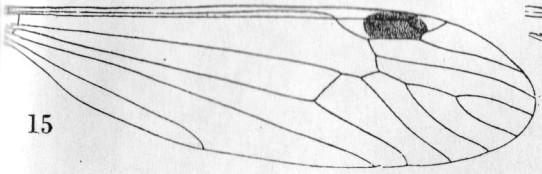

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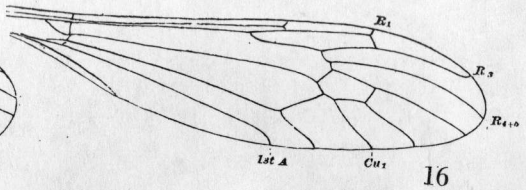

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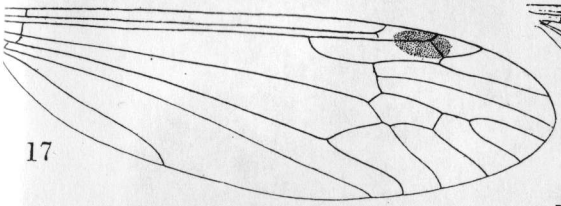

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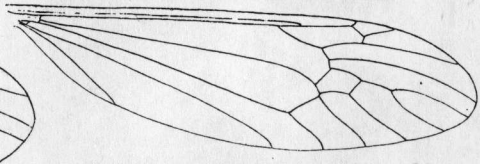

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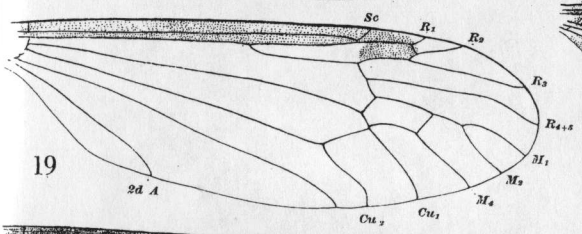

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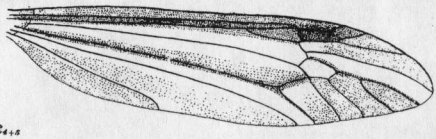

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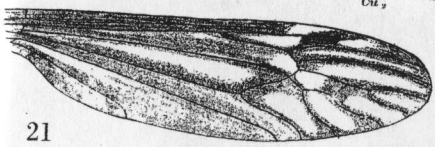

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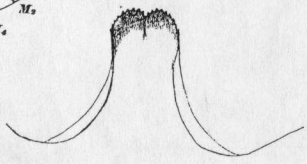

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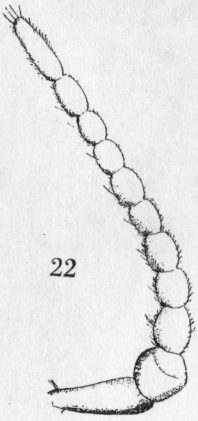

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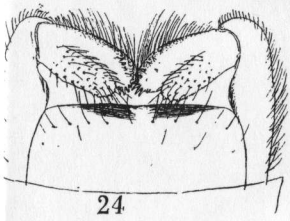

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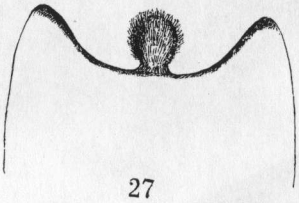

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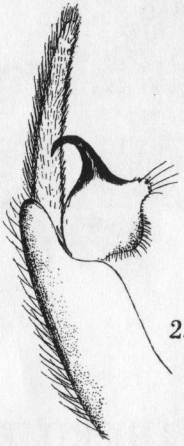

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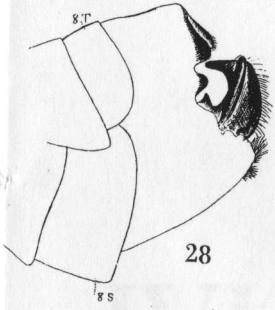

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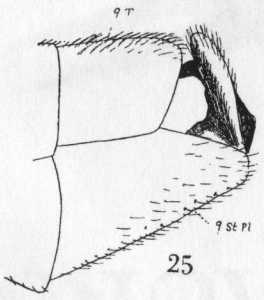

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