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**NEW OR LITTLE-KNOWN CRANE-FLIES
FROM MAURITIUS
(TIPULIDAE DIPTERA)**

PART I

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I am greatly indebted to Mr. J. Vinson of the Mauritius Institute for sending to me for determination numerous Tipulidae from this island. For the past several years a detailed survey of these flies of the major island of Madagascar has been in progress and it would appear very desirable to enlarge the area to include the Mascarene Islands.

The plan of the present series of reports is to describe and record the various species found in Mauritius as they become available and, when our knowledge of the fauna is more complete, to provide keys for the recognition of the species and to summarize our knowledge of distribution. The species will be numbered consecutively throughout the various proposed parts so the total number known from the island at any time may be determined readily. Types and paratypes of the flies have been returned to Mr. Vinson for preservation in the British Museum and in the collection of the Mauritius Institute respectively. Further specimens

and records of these flies from any part of Mauritius will be greatly appreciated.

Limoniinae

1. *Limonia vinsoni* sp. n.

General coloration of thorax pale yellow, the disk darker yellow, the area margined with brown; rostrum yellow, palpi pale; flagellar segments with short abrupt apical pedicels; head silvery gray, anterior vertex very reduced; knobs of halteres dark brown; legs yellow, the tips of the femora dark brown; claws (female) simple; wings subhyaline, patterned with brown; Sc long, cell *1st M*₂ longer than any of the veins beyond it, its inner end arcuated; anal veins paralleling one another on basal portions; ovipositor with the cerci very slender, upcurved to the acute tips.

Female.—Length about 7 mm.; wing 7 mm.; antenna about 1.5 mm.

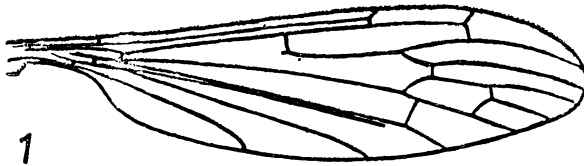


FIG. 1.— *Limonia vinsoni* sp. n., venation.

Rostrum yellow; palpi pale in color. Antennae with scape and pedicel light brown, flagellum darker with the short abrupt apical portions yellow; flagellar segments oval, subequal in length to the longest verticils; terminal segment elongate, about one-third longer than the penultimate. Head above silvery gray; anterior vertex reduced to a narrow line that is about as wide as two rows of ommatidia.

Pronotum pale. Anterior and lateral parts of the mesonotal praescutum pale yellow, the posterior half brownish yellow, sending two narrow lines anteriorly as delicate intermediate stripes; scutum, scutellum and mediotergite yellow, margined laterally with darker brown, this becoming more intense behind, delimiting the pale discal part. Pleura and pleurotergite pale yellowish-white. Halteres with stem pale, knob dark brown. Legs with all coxae and trochanters pale yellow; femora yellowish-white, the tips rather narrowly but conspicuously dark brown; remainder of legs whitened, the extreme tips of the tibiae and the outer tarsal segments darker; claw (female) without denticles. Wings (Fig. 1) subhyaline, patterned with pale brown as follows: arculus; origin of *Rs*; cord and outer end of cell *1st M*₂; *Sc*₂; stigma similarly darkened, circular in outline; veins pale brown, slightly darker in the clouded

portions. Abundant macrotrichia on veins of outer half of wing. Venation: Sc long, Sc_1 ending shortly before level of fork of R_s , Sc_2 near its tip; R_s square and short-spurred at origin; free tip of Sc_2 and R_2 in virtual transverse alignment; cell 1st M_2 long, exceeding any of the veins beyond it, the inner end strongly arcuated, virtually in transverse alignment with cell R_3 ; $m-cu$ about one-third its length beyond the fork of M or nearly in transverse alignment with $r-m$; anal veins subparallel for much of their lengths, thence slightly diverging.

Abdominal tergites brownish-yellow basally, the posterior parts more yellowed, the extreme borders clear yellow; sternites clear light yellow. Ovipositor with the cerci very slender, upcurved to the acute tips; hypovalvæ about as long but stouter, straight.

Holotype, ♀, Macabé Forest, October 8, 1950 (*J. Vinson*). *Paratopotype*, ♀, September 30, 1950.

I am very pleased to name this interesting fly after the collector, Mr. J. Vinson, to whom much of our knowledge of the insect fauna of Mauritius is due. It is quite distinct from all other Ethiopian species, especially in the pattern of the body and wings and in the venation. The darkened femoral tips are somewhat as in the otherwise very different *Limonia woosnami* Alexander, of the African mainland.

2. *Limonia (Dicranomyia) tipulipes* (Karsch).

Dicranomyia tipulipes Karsch, 1886, Entomol. Nachricht. 12: 51.

Dicranomyia tipulipes Bergroth, 1888, Entomol. Tidskr. 9: 127.

Dicranomyia consimilis Bergroth, 1888, Entomol. Tidskr. 9: 127.

Dicranomyia confinis Bergroth, 1889, Entomol. Zeitz, 8: 116.

Dicranomyia tipulipes Edwards, 1912, Trans. Linn. Soc. London (Zool. 2) 15: 197, pl. 10, fig. 1 (wing), pl. 11, fig. 1 (male hypopygium).

Dicranomyia tipulipes Alexander, 1917, Ann. South African Mus. 17: 141-142, pl. 10, fig. 3 (wing).

Limonia tipulipes Wood, 1952, Ann. South African Mus. 39: 170-176, figs. 50-52.

Widely distributed in southern and eastern Africa, Madagascar, and the Mascarene islands.

Moka, April 8-9, 1950, May 21, 1950 (*J. Vinson*).

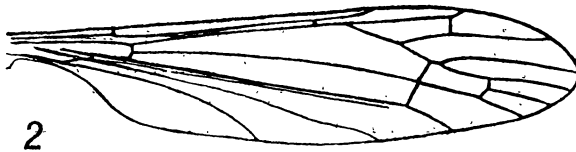


FIG. 2.—*Limonia tipulipes* (Karsch), venation.

It seems probable that *Limonia (Dicranomyia) tangentialis* (Speiser), described from a female specimen taken on Mount Kilimanjaro, Tanganyika, may likewise fall in the synonymy of this species.

The venation (Fig. 2) is unusually variable, as discussed by Wood

(1952). In the present material, *Sc* ends about opposite one-third the length of *Rs*, *Sc*₁ very long, subequal to or longer than *Rs*; degree of contact or fusion of veins *R*₄₊₅ and *M*₁₊₂ likewise very variable, from punctiform or barely tangential to fully as long as the basal section of vein *M*₁₊₂; *m cu* at or shortly before the fork of *M*; cell *2nd A* broad.

3. ***Limonia (Dicranomyia) midas*** sp.n.

Size large (wing 10 mm. or more); general coloration of thorax brown, more or less pruinose, the praescutum with four more or less distinct darker brown stripes; wings yellowish-gray, restrictedly patterned with brown, with no dark costal areas basad of the origin of *Rs*; *Sc*₁ long, in cases ending nearly opposite the fork of *Rs*; cell *1st M*₂ long, subequal to or a little longer than the distal section of vein *M*₁₊₂; male hypopygium with the ventromesal lobe of the basistyle very large; dorsal dististyle slender; ventral dististyle with two rostral spines that arise from very unequal basal tubercles, the inner one at the base of the prolongation on the face of the style.

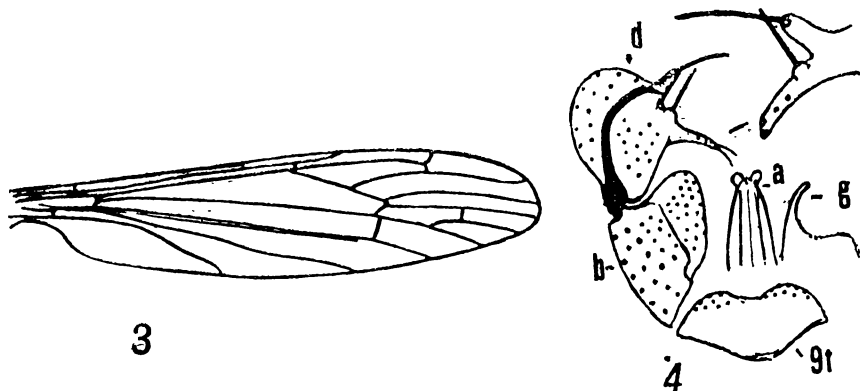
Male.— Length about 8-9 mm.; wing 10-13 mm.; antenna about 1.9 - 2.1 mm.

Female.— Length about 8-9 mm.; wing 10-11 mm.

Rostrum and palpi black, the former about one-fourth as long as the remainder of head. Antennæ with the scape and pedicel brown, the flagellum dark brown, in cases with the proximal ends of the segments restrictedly pale, especially of the more basal segments; basal flagellar segments oval, the outer ones more elongate; verticils shorter than the segments; terminal segment only a trifle longer than the penultimate. Head gray or brownish gray; anterior vertex narrow in both sexes, about equal to two rows of ommatidia.

Pronotum brown. Mesonotal præscutum brown, with indications of four darker brown stripes, in cases better defined, especially the posterior ends of the intermediate pair; posterior sclerites of notum more pruinose, the centers of the scutal lobes infuscated; posterior border of scutellum more reddened. Pleura and pleurotergite brown, heavily pruinose, especially behind, vaguely lined longitudinally with darker brown. Halteres pale, the knob weakly darkened. Legs with the coxæ testaceous-brown; trochanters clearer testaceous; femora and tibiæ obscure yellow, the tips brown to dark brown, of the tibiæ more narrowly so; outer tarsal segments blackened. Wings (Fig. 3) yellowish-gray, restrictedly patterned with brown, including spots at origin of *Rs*, fork of *Sc*, cord, outer end of cell *1st M*₂, and surrounding the otherwise pale stigma; two additional brown spots in cell *1st A* adjoining vein *2nd A*; small marginal darkenings at ends of the longitudinal veins, alternating with somewhat clearer white marginal spots in the cells; veins pale brown, darker in the patterned areas. No dark costal areas basad of the

origin of *Rs*. Venation *Sc* unusually long, in cases *Sc*₁ ending nearly opposite the fork of the straight oblique *Rs*, the latter about one-third longer than the basal section of *R*₄₊₅; cell *1st M*₂ long, subequal to or longer than the distal section of *M*₁₊₂; *m-cu* at or close to the fork of *M*; anal veins on basal part subparallel or gently converging, diverging at the inner darkened spot.



FIGS. 3, 4.— *Limonia midas* sp. n. 3, venation. 4, male hypopygium *a*, aedeagus; *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *9t*, ninth tergite.

Abdomen dark brown, the basal sternites a trifle paler. Ovipositor with the cerci unusually slender, gently upcurved; hypovalvae stouter, straight. Male hypopygium (Fig. 4) with the ninth tergite, *9t*, transverse, the lateral lobes very low, each with some 16 to 18 strong setae. Basistyle, *b*, with the ventromesal lobe very large and stout, virtually equal in area to the remainder of style. Dorsal dististyle, *d*, a long slender rod, gently curved, the tip acute. Ventral dististyle, *d*, somewhat smaller than the basistyle; rostral prolongation slender, two rostral spines, the outer from a small hemispherical tubercle near base of prolongation, the other at base of prolongation on face of style, arising from a long very pale basal tubercle that is approximately two-thirds as long as the spine itself. Gonapophysis, *g*, with the mesal-apical lobe slender.

Holotype, ♂, Moka, August 1, 1950 (*J. Vinson*). *Allotopotype*, ♀, with the type. *Paratopotypes*, ♂♂ and ♀♀, April-May; August 1, 1950; *paratype*, 1 ♀, Macabé Forest, October 8, 1950 (*J. Vinson*).

The present fly is generally similar to species such as *Limonia* (*Dicranomyia*) *tipulipes* (Karsch), differing in the large size, pattern of the wing, long vein *Sc*, and especially in the structure of the male hypopygium.

4. *Pseudolimnophila (Calolimnophila) mauritiana* sp. n.

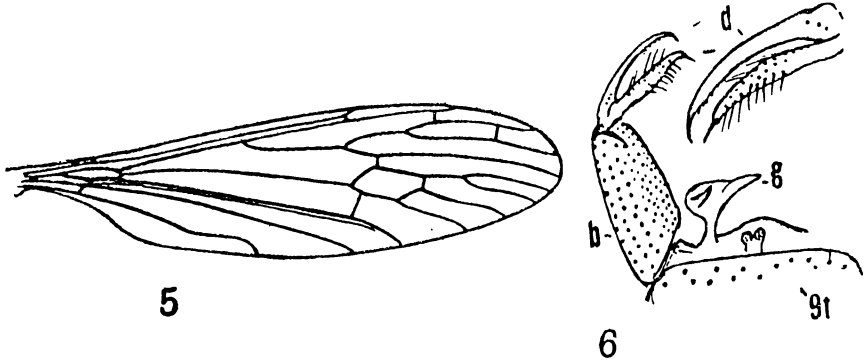
Size large (wing, male, 9 mm.); general coloration of mesonotum brown, patterned with obscure yellow, the præscutum with four brownish-gray stripes; antennæ black, the first flagellar segment white; femora light brown, the tips darker; wings strongly tinged with brown, with extensive darker brown clouds and spots and restricted yellow markings the last most evident as alternating areas along veins *Sc* and *Cu*; male hypopygium with both dististyles long and slender.

Male.— Length about 8.5 mm.; wing 9 mm.; antenna about 1.5 mm. Rostrum brownish-black; palpi short, the proximal two segments obscure yellow, the outer ones brownish-black. Antennæ with the scape black, heavily pruinose; pedicel brown; first flagellar segment abruptly white, oval; succeeding segments black, the proximal two oval, the remainder elongate-subcylindrical, with long verticils. Head with the anterior vertex and narrow posterior orbits buffy yellow pollinose, the remainder of vertex and the occiput brownish-gray; head strongly narrowed behind; anterior vertex moderately broad, about twice the diameter of the scape.

Pronotum buffy yellow, narrowly darkened medially, clearer yellow behind. Mesonotal præscutum with the restricted ground and interspaces brown, forming borders to the four brownish-gray stripes; pseudosutural foveæ black, conspicuous; scutum obscure yellow pollinose, the lobes patterned with brown; scutellum brown basally, the margin broadly obscure yellow; mediotergite yellow pollinose, with a narrow brown central line. Pleura and pleurotergite brown with a still darker brown longitudinal stripe across the dorsal pleurites, the ventral sternopleurite and meron more gray pruinose. Halteres infuscated, the knobs still darker brown. Legs with the fore coxæ chiefly dark brown, the outer third pale, the remaining coxæ whitened, their extreme bases slightly darker; trochanters brown; femora light brown, the tips slightly and very gradually more darkened; tibiae and proximal segments of tarsi light brown, the outer tarsal segments light yellow. Wings (Fig. 5) with a strong brownish tinge, with extensive slightly darker brown clouds and spots, including series along veins *Sc* and *Cu* that alternate with light yellow spots of approximately equal size; stigma a little darker brown, hairy, preceded by a larger light yellow spot; the paler brown clouds are most evident as marginal darkenings, very large on both anal veins; veins brown, more yellowed in the pale areas. Venation: supernumerary crossvein in cell *R*₃ at near three-fifths the length of the cell; *m-cu* about one-third to one-half its length beyond the fork of *M*.

Abdominal tergites dark brown, the sternites yellowed. Male hypopygium (Fig. 6) with both dististyles, *d*, long and slender, the outer style narrowed to a long acute terminal spine, the lower margin before apex with three or four small points; style glabrous, except for three or four setae near base; inner style nearly as long, a little swollen at near

midlength, conspicuously setiferous, the outer face with sparse very long yellow setae, those of the lower face shorter and stouter, darkened. Gonapophysis, *g*, appearing as a flattened blade from a slender basal pedicel, bearing a recurved spine at outer end of blade. Aedeagus very small.



FIGS. 5, 6.— *Pseudolimmophila mauritiana* sp. n. 5, venation. 6, male hypopygium: *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *9t*, ninth tergite.

Holotype, ♂, Mare Longue, December 26, 1950 (*J. Vinson*).

Most similar to *Pseudolimmophila* (*Calolimmophila*) *octoseriata* Alexander, of Madagascar, differing in the coloration of the body and wings and in the details of venation.

5 *Toxorhina* (*Ceratocheilus*) *flavicostata* sp. n.

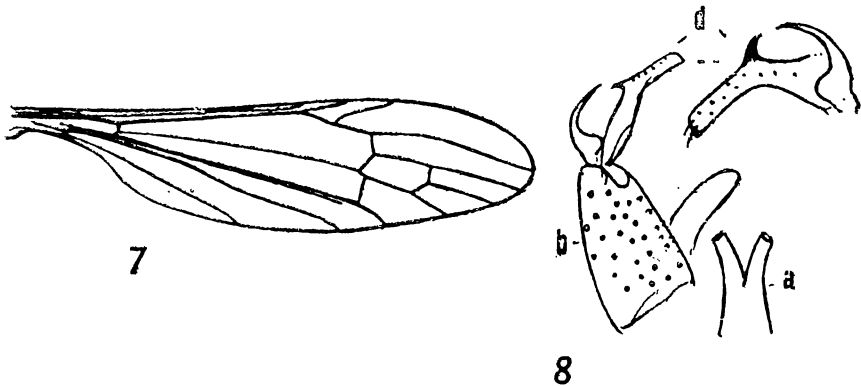
General coloration of body dark brown or black; head gray, anterior vertex narrow; cervical region and pleura black; wings with a strong blackish tinge, the prearcular field and costal region abruptly light yellow; *Rs* a little more than one-half as long as its sinuous anterior branch; cell *1st M₂* rectangular; male hypopygium with the outer dististyle small, curved into a long needlelike spine; inner style larger, with a strong black spine on outer margin at near midlength, the apex subtruncate to cultrate; arms of aedeagus relatively short.

Male.— Length, excluding rostrum, about 5.5-6.5mm.; wing 5-6mm.; rostrum about 5-5.5mm.

Female.— Length, excluding rostrum, about 5.5-6.5mm.; wing 5-6mm.; rostrum about 5-5.2mm.

Rostrum black, approximately as long as wing. Antennæ black basally, the short crowded flagellar segments paler. Head gray; anterior vertex narrow.

Cervical region and pronotum black. Mesonotal præscutum strongly projected cephalad ; notum dark brown, patterned with still darker on the præscutum and scutal lobes, more pruinose on sides and behind. Pleura and pleurotergite black. Halteres dark brown. Legs with the coxæ black ; trochanters brown ; remainder of legs brown, the genua narrowly and vaguely pale, vestiture black. Wings (Fig. 7) with a strong blackish tinge, the prearcular field and costal region abruptly light yellow ; very narrow and ill-defined darker clouds on cord and outer end of cell *1st M*₂; base of wing behind the costal brightening infuscated ; veins brown, yellow in the flavous parts. Costal fringe short and dense. Macrotrichia on outer sections of veins *R*₅, *M*₂ + 2 and *M*₃, lacking on *R*_s and its anterior branch, *M*₄ and veins basad of cord. Venation : *Sc*₁ ending opposite or just before origin of *R*_s, *Sc*₂ some distance from its tip ; *R*_s a little more than one-half its sinuous anterior branch ; cell *1st M*₂ rectangular, with *m-cu* at or shortly beyond the fork of *M*.



FIGS, 7, 8.— *Toxorhina flavicostata* sp. n. 7, venation. 8, male hypopygium : *a*, aedeagus ; *b*, basistyle ; *d*, dististyles.

Abdomen black. Male hypopygium (Fig. 8) with the dististyles, *d*, terminal, the outer style small, enlarged basally, curved into a long needlelike spine ; inner style larger, angularly bent at near midlength and here with a strong black spine on outer margin, the apex subtruncate to cultrate. Arms of aedeagus, *a*, relatively short.

Holotype, ♂, Mare Longue, December 26, 1950 (*J. Vinson*). *Allotopotype*, ♀. *Paratopotypes*, 4 ♂♂ and ♀♀.

The present fly is very different from all other regional species of the subgenus in the pattern of the wings, which are strongly darkened with the costal border abruptly light yellow. The most similar species having the wings unpatterned or virtually so is *Toxorhina (Ceratocheilus) gilesi* (Edwards).