

PARC NATIONAL DE L'UPEMBA
I. MISSION G. F. DE WITTE
en collaboration avec
W. ADAM, A. JANSSENS, L. VAN MEEL
et R. VERHEYEN (1946-1949).
Fascicule 8 (5)

NATIONAAL UPEMBA PARK
I. ZENDING G. F. DE WITTE
met medewerking van
W. ADAM, A. JANSSENS, L. VAN MEEL
en R. VERHEYEN (1946-1949).
Aflevering 8 (5)

BIBIONIDÆ AND DORILAIIDÆ (DIPTERA)

BY

D. ELMO HARDY (Honolulu, Hawaii)

Flies of these families were not well represented in this collection. It contained but fifty-six specimens of *Bibionidæ* and fifty *Dorilaidæ*. The majority of these have been adequately described and figured in other works (vide references at end of this paper) and are not being rediscussed. Keys to the genera and species are given in some of the cited references. All specimens were from the Belgian Congo and were collected by the Mission G. F. DE WITTE.

BIBIONIDÆ.

Seven species of *Bibionidæ* were present, these represent three genera.

Philia antipedalis ? (WIEDEMANN).

Dilophus antipedalis WIEDEMANN, 1818, Syst. Besch. Eur. Zweifl., 1, p. 308.

Two female specimens are on hand which apparently belong to this species. The costa is, however, shorter than in other specimens of *antipedalis* which I have seen; the costa extends about one-fourth or one-fifth the distance between the apices of the third and fourth veins (the radial sector and vein M_{1+2}).

The specimens are from Lusinga, alt. 1.760 m, 11.VII to 8.XII.1947.

***Philia erythræa* (BEZZI).**

Dilophus erythræus BEZZI, 1905, Firenze Boll. Soc. Ent. Ital., 37, pp. 205-206.

Seven specimens are in the collection from the following localities : Lusinga, alt. 1.760 m, 25.IV to 17.XII.1947 and Lusinga (riv. Dipidi), 12.VI.1945.

***Philia nupta* SPEISER.**

Philia nupta SPEISER, 1914, Berl. Zeits. Deutsch. Ent. Ges., p. 1.

This was apparently the most common species of *Bibionidæ* taken by this expedition. Thirty-six specimens are in the collection from the following localities : Mukana, alt. 1.810 m, 15.III.1948; riv. Kafwi, affl. dr. Lufwa, alt. 1.780 m, 5.III.1948; Lusinga, alt. 1.760 m, 12.III.1947 to 5.III.1948; Karibwe, affl. Lusinga, alt. 1.700 m, 8-10.III.1947 and Kamitungulu, affl. Lusinga, alt. 1.700 m, 4-7.III.1947.

***Philia obsoleta* HARDY.**

Philia obsoleta HARDY, 1951, Journ. Kans. Ent. Soc., 24, pp. 91-92.

One female specimen from riv. Kilolomatambo, affl. Lusinga, alt. 1.750 m, 16.VII.1945.

***Philia* sp. ?**

(Fig. 1.)

One female specimen is in the collection of a species, possibly undescribed, which is closely related to *P. nupta* SPEISER. The arrangement of the spines on the front tibiæ (fig. 1) is much like that of *nupta*, except that the pair of basad spines are located nearer the middle of the segment. The legs are predominantly black; only the front coxæ and trochanters and the basal portions of all the femora are rufous. The thorax is polished black, except for the rufous humeral ridges. The species is smaller than *nupta*.

Length : body, 4,2 mm; wings, 4,0 mm.

The specimen is from Lusinga, alt. 1.760 m, 1-8.XII.1947.

***Bibio upembensis* n. sp.**

(Figs. 2a-b.)

This species is closely related to *Bibio afer* LOEW. It is distinguished by having vein M_{3+4} obsolete at the apex, not extending to the wing margin; by having nine segments in the antennæ (not ten); by the rufous or rufous tinged legs of the male and rufous coxæ, femora, sternum and pleura of the female; and by the yellow pile on the head and prothorax of the female.

Some specimens have a shortened *r-m* crossvein and may run, imperfectly, to *B. hortulanus* (LINNAEUS), in couplet 2 of my key to the African *Bibio* (HARDY, 1950 b : 138). It is easily separated by the more fumose wings and by the incomplete vein M_{3+4} .

Male. — Head : Densely covered with brown to black pile. The antennæ are nine segmented, the last two are closely joined and appear as a single segment.

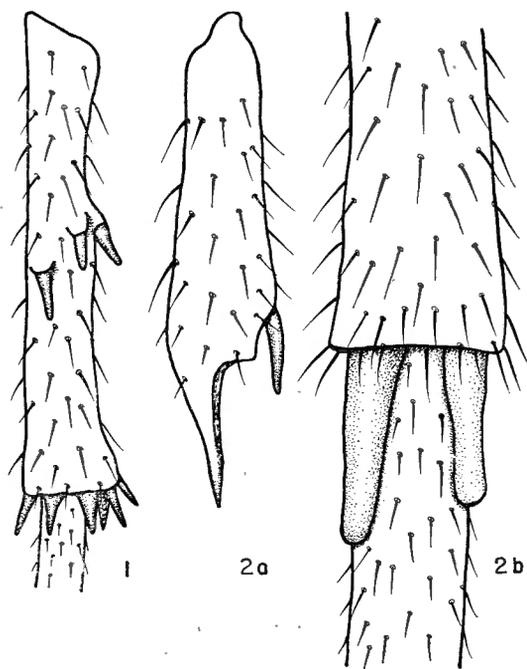


FIG. 1. — *Philia* n. sp. related to *nupta* SPEISER, front tibia of female.

FIG. 2. — *Bibia upembensis* n. sp.
a. front tibia of male; b. hind tibia of female.

Thorax : Polished black except for the yellow humeral ridges. All of the pile is yellow. The halteres are dark brown to black.

Legs : The coxae, trochanters and tarsi are black; the femora and tibiae are reddish brown, the hind femora are black at their bases. The femora and tibiae of other specimens vary from all black, tinged with rufous, to all rufous. The inner spur on the front tibiae is one-third to nearly one-half as long as the outer (fig. 2 a). The spurs of the hind tibiae are moderately elongate and are blunt at apices (fig. 2 b).

Wings : Yellow to brownish fumose, darker along the costal margin. The costa ends at the apex of the radial sector. The anterior veins are brown. The posteriors are yellowish, slightly darker than the wing membrane. Vein M_{3+4} ends at a distance from the wing margin about equal to the length of the m crossvein. The $r-m$ crossvein is about one-third as long as the basal part of the radial sector. In some other specimens the $r-m$ is about half as long as the radial sector.

Abdomen : Subopaque black, densely covered with long yellow pile. The genitalia have been studied but do not appear to differ from those of other species of *Bibio*. No specific characters have been found in these structures.

Length : body, 7,0 mm; wings, 5,0 mm.

Female. — The thorax and abdomen, coxæ and femora are all rufous except for the black central portion of the pronotum and the brown to blackish colored scutellum. All of the head and body pile is yellow, the tibiæ and tarsi are brown to black haired. The head is about one and one-fourth times longer than wide. The front is shining black and is slightly rugose. The front between the eyes is just slightly greater in width than the eyes. The eyes are about one and one-third times longer than that portion of the head behind the eyes.

Length : body, 7,5 mm; wings, 8,0 mm.

Holotype male : Dipidi, tête de source, alt. 1.700 m (rég. Lusinga), 17.VII.1947.

Allotype female : riv. Kilolomatambo, affl. Lusinga, alt. 1.750 m, 16.VII.1945. Seven paratypes, all males, from the following localities : same data as allotype; Lusinga, alt. 1.760 m, 3.VII.1947 and Parc National Albert : Ngesho, alt. 2.000 m, 3-6.IV.1934.

Type, allotype, and four paratypes returned to the « Institut des Parcs Nationaux du Congo Belge ». Two paratypes are in the U. S. National Museum and one is at the University of Hawaii.

***Plecia zernyi* HARDY.**

Plecia zernyi HARDY, in press, Journ. Kans. Ent. Soc. (to appear in June, 1952).

One male specimen is in the collection from Lusinga, alt. 1.700 m, 17.III.1947.

DORILAIIDÆ.

Eighteen species of *Dorilaidæ* were present, representing three genera and two subgenera.

Dorilas (Eudorylas) abdominalis (LOEW).

Pipunculus abdominalis LOEW, 1857, Öfvers. K. Vet. Akad. Förhandl., 14, p. 374.

One specimen is in the collection from Mukana, near Lusinga, alt. 1.810 m, 28.V.1945.

Dorilas (Eudorylas) abruptus HARDY.

Dorilas (Eudorylas) abruptus HARDY, in press. *Bibionidæ* et *Dorilaidæ* récoltés par F. J. FRANÇOIS dans le territoire de l'Urundi. Being published by the Institut royal des Sciences naturelles de Belgique.

One female specimen (a paratype) is in the collection from Lusinga, alt. 1.760 m, 1-8.XII.1947.

Dorilas (Dorilas) angustifacies HARDY.

Dorilas (Dorilas) angustifacies HARDY, 1949, Mém. Inst. roy. des Sc. nat. de Belg., 2^e sér., fasc. 36, p. 20.

One male is in the collection from Mubale, affl. g. de la Munte, alt. 1.480 m, 28.VI.1945.

Dorilas (Eudorylas) collarti HARDY.

Dorilas (Eudorylas) collarti HARDY, in press, Bull. Inst. roy. des Sc. nat. de Belg.

The female specimen in the collection has been designated as a paratype. It is from Lusinga, alt. 1.760 m, 1-8.VII.1947.

Dorilas (Dorilas) conspectus HARDY.

Dorilas (Dorilas) conspectus HARDY, 1949, Mém. Inst. roy. des Sc. nat. de Belg., 2^e sér., fasc. 36, pp. 27-28.

The propleural fan is rather poorly developed in this species and the hairs are often difficult to see, even when the propleura are plainly visible. The hairs are short and in some specimens only four to six hairs make up the fan.

Twelve specimens are in the collection from the following localities :

Lusinga, alt. 1.760 m, 8.IV.1947 to 2.V.1949; Mukana, près Lusinga, alt. 1.810 m, 1.VI.1945 and 14.IV.1947; Lusinga (riv. Dipidi), alt. 1.650 m, 12.VI.1945 and Lufwa, alt. 1.700 m, 16.III.1948.

Dorilas (Dorilas) damasi HARDY.

Dorilas (Dorilas) damasi HARDY, 1950, Expl. Parc Nat. Albert, Mission G. F. DE WITTE (1933-1935), fasc. 62, pp. 17-18.

Three specimens are in the collection from the following localities : riv. Kenia, affl. dr. Lusinga, alt. 1.585 m, 5-8.V.1949; Mukana, près de Lusinga, alt. 1.810 m, 20.VI.1945 and Lusinga, riv. Lusinga, alt. 1.810 m, 14.VI.1945.

Dorilas (Eudorylas) decorus HARDY.

Dorilas (Eudorylas) decorus HARDY, 1950, Expl. Parc Nat. Albert, Mission G. F. DE WITTE (1933-1935), fasc. 62, pp. 24-26.

Four specimens are in the collection from the following localities : Lusinga, alt. 1.760 m, 17.III to 6.XII.1947; Mukana, près de Lusinga, alt. 1.810 m, 28.V.1945 and Mubale, affl. g. de la Munte, 28.VI.1945.

Dorilas (Eudorylas) ghesquierei HARDY.

Dorilas (Eudorylas) ghesquierei HARDY, 1950, Expl. Parc Nat. Albert, Mission G. F. DE WITTE (1933-1935), fasc. 62, pp. 29-30.

One specimen is in the collection from Kaziba, alt. 1.140 m, 24.II.1948.

Dorilas (Eudorylas) mikenensis HARDY.

Dorilas (Eudorylas) mikenensis HARDY, 1950, Expl. Parc Nat. Albert, Mission G. F. DE WITTE (1933-1935), fasc. 62, pp. 33-34.

One female specimen is in the collection from Mukana, près de Lusinga, alt. 1.810 m, 28.V.1945.

Dorilas (Eudorylas) mutillatus (LOEW).

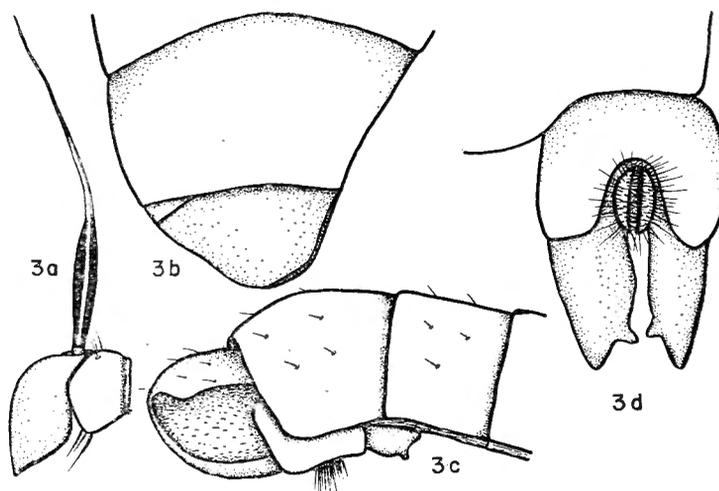
Pipunculus mutillatus LOEW, 1857, Öfver. K. Vet. Akad. Förhandl., 14, p. 374.

Three specimens are in the collection from the following localities : Karibwe, affl. Lusinga, alt. 1.700 m, 11.III.1947; Mubale, affl. g. de la Munte, alt. 1.480 m, 28.VI.1945 and Lusinga, alt. 1.760 m, 17.III.1947.

Dorilas (Dorilas) navus n. sp.

(Figs. 3a-d.)

This species is related to *D. visendus* HARDY and runs imperfectly to this species in couplet 21 of my key to the species known from the Belgian Congo (HARDY, 1950a : 9). The ninth segment is not visible from above and the membranous area is to the right side of the apex, not the left. The acutely pointed third antennal segment will also differentiate it, as will

FIG. 3. — *Dorilas (Dorilas) navus* n. sp.

a. antenna; b. male genitalia, dorsal; c. male genitalia, right lateral;
d. male genitalia, ventral.

the all yellow legs (except coxæ) and the absence of strong bristles on the outside of the hind tibiæ. In my key to the African *Dorilas* (HARDY, 1949a : 10) it runs imperfectly to *bellulus* HARDY. It differs by having the anterior crossvein at the basal third of the discal cell; the third costal section equal in length to the fourth and by the presence of a large membranous area covering all of the right; ventral portion of the apex of the male genitalia.

Male. — Head : The junction of the compound eyes is almost equal in length to the frontal triangle. The face is equal in width to the lower part of the front; the former is silvery pubescent, the latter is gray. The basal segments of the antennæ are brown, the third is yellow and is acutely pointed below (fig. 3a). The occiput is entirely opaque gray, slightly brownish on the upper portion.

Thorax : Subshining black, tinged with yellow on the pleura. The dorsum is lightly brownish pollinose, the pleura are dusted with gray. The humeri and the knobs of the halteres are yellow, slightly tinged with brown. The propleura each have a fan of pale hairs.

Legs : All yellow except for yellow-brown to black coxæ. The femora are slightly swollen and flexor spines are moderately developed on the first two pairs. Apical spines are lacking on the tibiæ and the hind pair have no strong erect bristles on the outside median surface.

Wings : Lightly brownish fumose with the stigma filling all of the third costal section. The third section is equal in length to the fourth and the two combined are slightly longer than the fifth. The anterior crossvein is situated at about the basal third of the discal cell and the last section of the fourth vein is slightly curved.

Abdomen : Chiefly polished black and slightly clavate in shape, broadest at the junction between the fourth and fifth segments. The first tergum has one or two bristles on each side, the remainder of the abdomen is nearly bare. The first tergum is entirely opaque brown to black. The second tergum is opaque brown except for the polished apical portion. The other terga are polished black with very narrow opaque bands across their basal margins.

Genitalia : About three-fourths as long as the fifth abdominal segment with the apical membranous area usually not visible in direct dorsal view (fig. 3 b). From a lateral view (fig. 3 c), or a ventral view, almost the entire right side is membranous. The ninth segment is brown, the claspers are yellow. The claspers are short and broad and each has a short finger-like lobe near the apex on the inner margin (fig. 3 d).

Length : body, 3,8 mm; wings, 4,4 mm.

Female unknown.

Holotype male : Lusinga, alt. 1.760 m, 22-23.IV.1949. Two male paratypes, same data as type (one dated 16.III.1948).

The type and one paratype has been returned to the « Institut des Parcs Nationaux du Congo Belge ». One paratype has been deposited in the United States National Museum.

Dorilas (Dorilas) ruandensis HARDY.

Dorilas (Dorilas) ruandensis HARDY, 1950, Expl. Parc Nat. Albert, Mission G. F. DE WITTE (1933-1935), fasc. 62, pp. 21-22.

One specimen is present from Lusinga, alt. 1.760 m, 27.IV-2.V.1949.

Dorilas (Eudorylas) sinuosus HARDY.

(Fig. 4.)

Dorilas (Eudorylas) sinuosus HARDY, 1949, Mém. Inst. roy. des Sc. nat. de Belg., 2^e sér., fasc. 36, pp. 56-57.

Two male specimens of this unusual species are present in the collection, from Kalule Nord, rive g. face Mujinga-Kalenge, alt. 1.050 m, 28.II-3.III.1949 and Lusinga, alt. 1.760 m, 2-4.V.1949.

A few additional notes should be added to the original description of the male genitalia. The eighth segment is largely membranous. The membranous area extends over the median portion of the segment from near the anterior dorsal margin over the apex and around the venter to the anterior ventral margin (fig. 4). The eighth segment is longer than wide. The ninth segment is longer than wide and is scarcely longer than the claspers. The claspers are asymmetrical, the outer has a small finger-like lobe on its inner, subapical margin (fig. 4), the inner clasper is simple.

Dorilas (Dorilas) visendus HARDY.

Dorilas (Dorilas) visendus HARDY, 1950, Expl. Parc Nat. Albert, Mission G. F. DE WITTE (1933-1935), fasc. 62, pp. 23-24.

Two specimens are present from Lusinga, alt. 1.760 m, 2-4.V.1949.

Dorilas (Eudorylas) sp. ? poor cond.

One badly damaged specimen is present from Lusinga, alt. 1.760 m, 3.VII.1947.

Dorilas (subg. ?) n. sp. « A ».

(Fig. 5.)

One male specimen at hand appears to be undescribed but the prothorax is obscured by glue and the abdomen is slightly greased so it is not being named at this time.

The species runs to *D. congoensis* HARDY in my key to the *Dorilas* of the Belgian Congo (HARDY, 1950a : 10). It is distinguished by the narrow face and by the rufous coloration on the pleura and the first four abdominal segments; as well as by genital and wing characters. The abdomen is colored much as in *abdominalis* and related species but the abdomen is opaque to faintly shining and not polished. The narrow face and the rufous coloration on the abdomen would suggest that the species might be related to *D. conspectus* HARDY but the abdomen is more extensively rufous and is not polished; the legs are all yellow; the anterior crossvein is situated at the basal fourth of the discal cell and the last section of the fourth vein is

strongly curved. The dorsal aspects of the genitalia are as in figure 5. A small basal cleft is present on the extreme right side. This does not show from a direct dorsal view.

One male is present from Lusinga (riv.), alt. 1.810 m, 9.VI.1945.

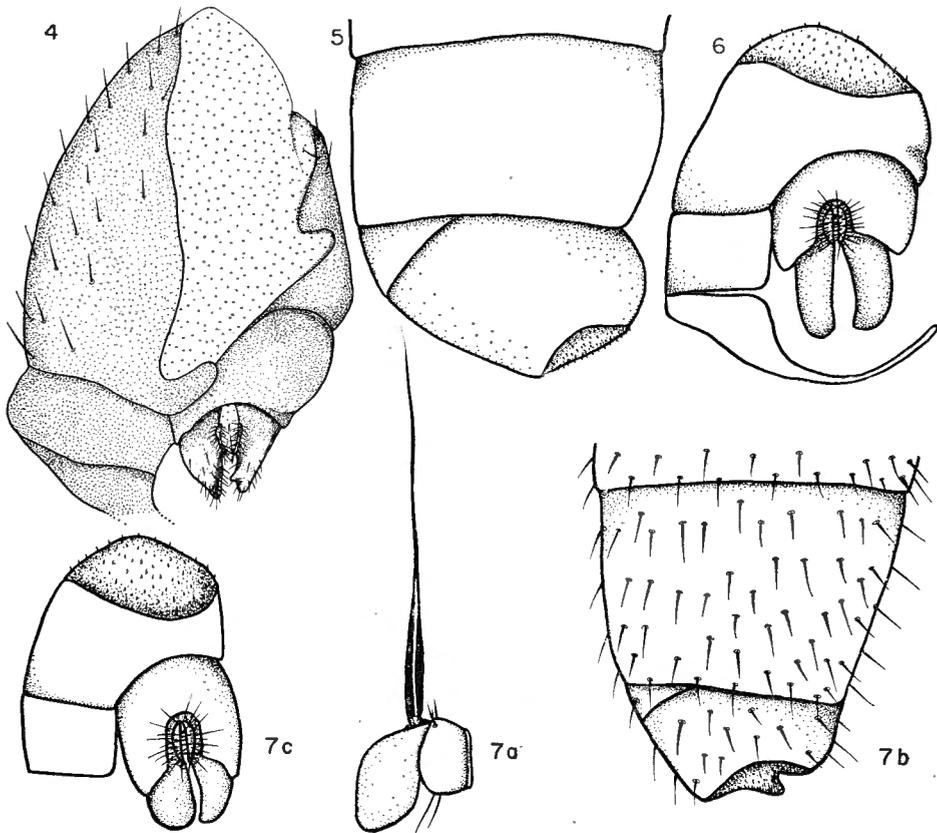


FIG. 4. — *Dorilas (Eudorylas) sinuosus* HARDY, male genitalia, ventral view.

FIG. 5. — *Dorilas* n. sp. « A », male genitalia, dorsal.

FIG. 6. — *Wittella candidula* (HARDY), male genitalia, ventral.

FIG. 7. — *Wittella lusingensis* n. sp.

a. antenna; b. male genitalia, dorsal; c. male genitalia, ventral (from a paratype specimen).

***Wittella lusingensis* n. sp.**

(Figs. 7a-c.)

This species is very closely related to *W. candidula* (HARDY). It is best distinguished by the dark brown to black antennæ; the rather thickly pilose thorax and abdomen and by the differences in the male genitalia as shown in figures 6 and 7c.

Male. — **Head** : The compound eyes are joined on the front for a distance about equal to nearly one-half of the length of the frontal triangle. The frontal triangle and the face are gray pubescent, subshining black in ground color. The upper portion of the front, below the vertex, is polished black. The upper third of the occiput is polished black, the remainder is gray pollinose. The antennæ are dark brown to black. The third segment is small and is obtuse, rounded below (fig. 7a).

Thorax : Entirely polished black except for the yellow humeri and halteres. Rather conspicuously yellow pilose on the margins, scutellum and down the dorsocentral areas. The propleura have a fan of hairs.

Legs : Entirely yellow except for the black coxæ and brown apical subsegments of the tarsi. The flexor spines are moderately developed on the middle femora. The hind tibiæ have three or four strong erect bristles near the middle on the outside surface. The front and middle tibiæ have rather conspicuous apical spines. The femora are all slender.

Wings : Faintly brownish fumose. The third costal section is about one-third as long as the fourth and the fourth section is about equal in length to the fifth. The stigma fills all of the third costal section. The anterior crossvein is situated at the basal fifth of the discal cell. The last section of the fourth vein is slightly curved.

Abdomen : Entirely polished black, rather thickly covered with erect yellow hairs. The abdomen is slightly clavate, it is broadest at the junction of segments four and five. The first tergum has a row of long yellow bristles on each side.

Genitalia : From a dorsal view the genitalia are about one-half as long as the fifth abdominal segment and a large membranous area is present at the apex of the eighth segment (fig. 7b). From a ventral view the ninth segment is longer than wide and two or more times longer than the claspers. The claspers are asymmetrical in shape, the inner is much broader than the outer. The inner clasper is approximately as broad as long (fig. 7c). (Note : the information on the ventral aspects of the genitalia is taken from a paratype specimen.)

Length : body, 4,0 mm; wings, 4,5 mm.

Female unknown.

Holotype male : Lusinga, alt. 1.760 m, 12-17.XII.1947. Two paratypes, males : Kalumengongo, alt. 1.780 m, 18.IV.1947 and Mukana, près de Lusinga, alt. 1.810 m, I-IV.1947.

The type and one paratype have been returned to the « Institut des Parcs Nationaux du Congo Belge ». One paratype has been deposited in the United States National Museum.

***Tömösváryella mbuyensis* n. sp.**

(Figs. 8a-e.)

This species appears more closely related to *T. apicalis* HARDY than to any other known species. It is distinguished by the keel-like development of the underside of the hind trochanters; by the short junction of the compound eyes of the male on the front, and by the differences in the male genitalia as shown in the figures.

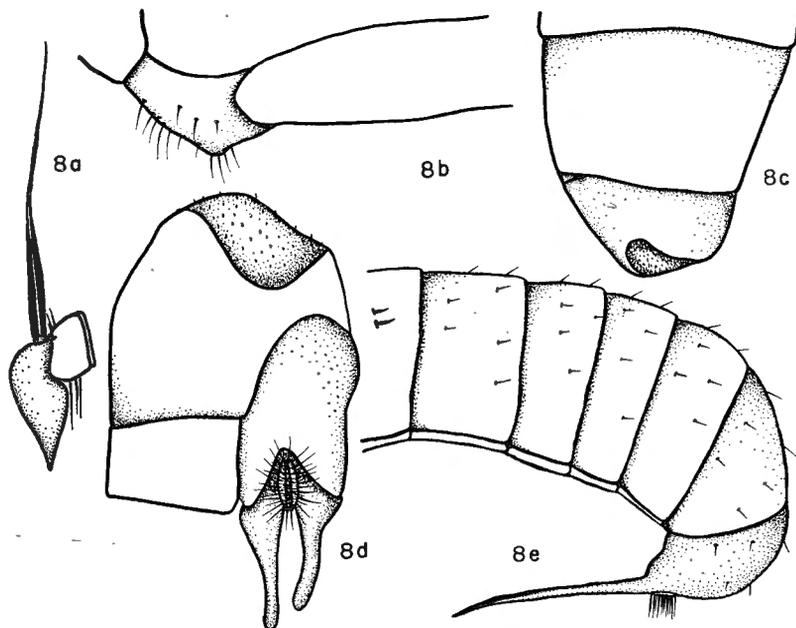


FIG. 8. — *Tömösváryella mbuyensis* n. sp.

a. antenna; b. hind trochanter of male; c. male genitalia, dorsal;
d. male genitalia, ventral; e. female abdomen, lateral.

In my key to the African *Tömösváryella* (HARDY, 1949a : 64-66), this species runs to *apicalis* HARDY in couplet 12. In my key to the *Tömösváryella* of the Belgian Congo (HARDY, 1950a : 42-43) it runs to *congoana* HARDY, in couplet 6. It is distinguished from both of these species by the characters given above.

Male. — Head : The eyes are joined for just a short distance on the front. The junction is about equal in length to six or seven of the eye facets. The frontal triangle is gray pubescent, the portion of the front

below the vertex is shining black. The face is equal in width to the broadest portion of the front. The antennæ are dark brown to black, the third segment is short acuminate (fig. 8*a*). The labellum is yellow.

Thorax : Subshining black in ground color, brownish pollinose on the dorsum, gray on the sides. The humeri and halteres are yellow.

Legs : Predominantly black, the apices of the tibiæ and femora, the bases of the tibiæ and the basal subsegments of the tarsi are yellow. The hind trochanters have a ridge-like development on the underside, this is raised into a slight point (fig. 8*b*). The hind trochanters have rather long setæ below.

Wings : Hyaline, faintly iridescent. The third costal section is about one-half as long as the fourth and the two sections combined are less than half as long as the fifth. The anterior crossvein is situated near the middle of the discal cell and the last section of the fourth vein is straight or nearly so. The last section of the fifth vein is shorter than the posterior crossvein.

Abdomen : Subshining black in ground color, dusted with grayish brown pollen on the dorsum, gray on the sides. The sides are nearly straight, it is slightly broadest at the apex of the third segment. The abdomen is rather sparsely covered with suberect hairs.

Genitalia : About three-fourths as long as the fifth abdominal segment and with a moderately large membranous area at its apex (fig. 8*c*). This membranous area is over half as broad as the eighth segment. The ninth segment is slightly longer than wide and about equal in length to the claspers. The claspers are slender and rather elongate, the inner is slightly longer than the outer; they are both blunt pointed (fig. 8*d*).

Length : body and wings, 2,8-3,0 mm.

Female. — The front is expanded in the middle and at this point is wider than the face. The lower half of the face is grey, the upper half is shining black. The hind trochanters are not ridged as in the male and are covered with gray pubescence on the underside. The ovipositor is slender and straight, the piercer is one and one-half to two times longer than its base and extends to about the base of segment two (fig. 8*e*). The piercer is rufous in color, the base is subshining black, the latter is oblong in shape.

Length : body, 2,4 mm; wings, 2,6 mm.

Holotype male : Buye-Bala, affl. g. Muye, alt. 1.750 m, 25-31.III.1948. Allotype, same data as type. Paratypes, three males : Two same locality as type; 1 specimen, same data; 1 specimen, 1-7.IV.1948 and one from Mukana, près Lusunga, alt. 1.810 m, 15-19.I.1948.

The type, allotype and one paratype have been returned to the « Institut

des Parcs Nationaux du Congo Belge ». One paratype has been deposited in the U. S. National Museum collection, and one is at the University of Hawaii.

Tömösváryella subvirescens (LOEW).

Pipunculus subvirescens LOEW, 1872, Berl. Ent. Zeitschr., 16, p. 87.

Four specimens are in the collection from the following localities :
Lusinga, alt. 1.760 m, 22-23.IV.1949 and Kalule Nord, rive g. face Mujinga-Kalenge, alt. 1.050 m, 28.II-3.III.1949.

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- 1949b. New *Dorilaidæ* from the Belgian Congo [*Bull. Inst. roy. des Sci. nat. de Belgique*, 25 (39), 1-10, 15 figs.).
- 1950a. Exploration du Parc National Albert, Miss. G. F. de Witte (1933-1935), fasc. 62 : *Dorilaidæ*, 1-53, 7 pls.
- 1950b. A monographic study of the African *Bibionidæ*. Part I: Introduction and genus *Biblio* (*Journ. Kans. Ent. Soc.*, 23, 137-153, 13 figs.).

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