NOTES ON THE GENUS **PHUMOSIA ROBINEAU-DESVOIDY** IN THE ETHIOPIAN GEOGRAPHICAL REGION, WITH DESCRIPTION OF A NEW SPECIES (Diptera : Sarcophagidae, Calliphorinae)

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The following descriptions and taxonomic abbreviations are in accordance with a scheme used in the revision of the Calliphorinae of the Ethiopian region (ZUMPT, 1956), which also contains an introduction to the morphology of taxonomic importance.

Phumosia alluaudi (SÉGUY)

Denatella alluaudi SÉGUY, Encycl. ent. 8, 1935, p. 135 ;

ZUMPT, Explor. Parc. nat. Albert, Miss. G.F. de Witte, 87, 1956, p. 48.

The genus *Denatella* was founded by SÉGUY (ibid. p. 127) in order to lodge a new species of a *Phumosia*-like fly, which he named *D. alluaudi*. It was based on a single female specimen.

In his description, SÉGUY credited the genus to TOWNSEND (1931) but this is an error. TOWNSEND had only listed this species under the name proposed by SÉGUY before it was actually described.

Referring to SÉGUY's description, ZUMPT (1954) synonymized *Denatella* SÉGUY with *Phumosia* ROBINEAU-DESVOIDY.

Dr. L. TSACAS (Paris Museum) has kindly sent us the type of *D. alluaudi*. We can reaffirm that it should be placed in the genus *Phumosia*, but it represents a distinct species, which in ZUMPT's key to the genus *Phumosia* runs down to *Phumosia bicolor* (BEZZI), showing a densely setulose alar-declivity. However, the body is densely and predominantly grey pollinose, the antennal groove is beset with setae, and the wing-costa is provided in its basal half with a row of long bristles (fig. 1).

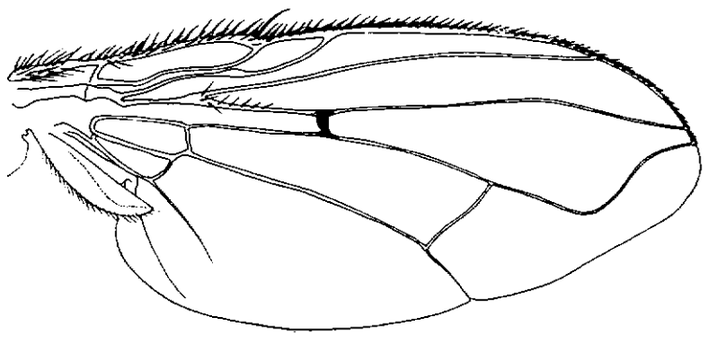

FIG. 1. — *Phumosia alluaudi* (SÉGUY) : female wing (holotype from Nakuro, Kenya)

Female — Eyes with scanty pale setae. Frons at vertex broader than half the eye-length (4.5 : 7), gradually and strongly widened towards the antennal groove. Frontal stripe parallel and black, but ocellar triangle large and densely grey to olive pollinose like the parafrontalia. Ocellar bristles long and divergent, accompanied by several hairs, *iv, ev, f,* 2 proclinate *fo* and 6 *paf* on each side are well developed, parafrontalia with sparse black setae. Parafacialia with a dense silvery pollinosity, but without setae. Antennal groove black, with a grey pollinosity and pale setae, median prominence very weak. Antennae also densely greyish pollinose, third segment about twice as long as the second, arista with long dorsal and ventral hairs. Height of bucca 3/7 of eye-length, pollinosity grey and dense, hairs and bristes black, facial ridge above the vibrissa with only a few setae. Palpi red-brown.

Thorax densely grey and partly olive pollinose, presutural area with two narrow median black stripes and laterally with an ill-defined triangular dark spot, postsutural area without pattern. Chaetotaxy : $ac = 0+0$, $dc = 2+3$, $ia = 0+2$, $prs = 1$, $ph = 1$ (outer wanting), $h = 2$, $n = 2$, $sa = 2$, $pa = 2$, $sc = 2+0$. Prosternum and propleuron setulose, *pp* and *pst* well developed,

mesopleuron with several bristly hairs in the anterior upper part and with a row of 6 posterior marginal bristles, *st* = 2 : 1. Supraspiracular convexity with long hairs, hypopleuron with a posterior row of 5 bristles and a number of hairs in front of them. Pro- and poststigma dark brown. Alar-declivity with thick black setulae in the posterior part. Wing tinged completely yellow-brown, veins yellow, but *r-m* narrowly darkened. The long costal bristles are characteristic (comp. fig. 1), squamae and halter yellow. Legs with densely black-brown pollinose femora and yellow-brown tibiae and tarsi ; fore-femur with long black dorsal and ventral bristles, fore-tibia with 3 *ad* and one long submedian *pv* ; mid-femur with one long median and one preapical *ad* bristle, and with one basal *av*, posterior side with 3 preapical bristles and one long ventral bristle, apart from a dense row of shorter ventral bristles, mid-tibia with a submedian *ad* and *av*, and 2 *pd* ; hind-femur with long dorsal and ventral bristles, hind-tibia with 2 *ad*, 2 *pd* and 2 *av* ; tarsi without special characters.

Abdomen longer than broad (8 : 7), densely pollinose like the thorax and without pattern, tergites III to V with lateral bristles, tergites III and IV also with bristles at the hind margins, and tergite V with marginal and discal bristles.

Length : 6,5 mm.

Locality : Former English East Africa, Nakuro (Rift Valley), XII. 1904, 1 ♀ leg. C.H. Alluaud (holotype in the collection of Paris Museum).

Phumosia meropia (SÉGUY)

Paratricyclea meropia SÉGUY, Mém. Mus. nat. Hist. nat., Paris 8, 1938, p. 379.

Phumosia meropia, ZUMPT, Expl. Parc nat. Albert, Miss G.F. de Witte, 87, 1956, p. 30.

Dr. L. TSACAS (Paris Museum) had kindly sent us the holotype, a male and the only specimen recorded so far. It is apparently not fully hardened and also not in a good state of preservation. In the revision of the genus *Phumosia,* ZUMPT placed this species near *P. biplaga* (VILLENEUVE), because SÉGUY said in his description that the mesonotum showed slight metallic reflections (« légers reflets métallique ». We cannot state this in the holotype, and in

ZUMPT's key, *P. meropia* runs down to *P. vittata* CURRAN, showing a close relationship to *P. spangleri* ZUMPT (1970) and also placed near *P. vittata.*

We cannot find distinct characters which would allow a separation of *P. spangleri* and *P. meropia* on the hypopygial structures. However, as already mentioned, the holotype of *P. meropia* is not fully hardened and the cerci and paralobi are a little distorted.

With respect to the colouring, *P. meropia* looks quite different from *P. spangleri.* The mesonotum and the greater part of the pleura are black, but the scutellum is wholly and the abdomen is predominantly yellow-brown, except for a median, ill-defined blackish stripe. In *P. spangleri,* the thorax and abdomen are black and provided with a dense olive-green pollinosity.

With respect to the chaetotaxy of the head, thorax and abdomen, no differences of taxonomic value are found in the two species. With respect to the legs, the hind-tibia of *P. meropia* shows 4-5 *ad* and one *pd* only, whereas in *P. spangleri,* there are 3-4 *ad* and 2-3 *pd.*

The question arises as to whether the chaetotaxy and especially that of the legs is not more variable than formely presumed. Only the study of numerous specimens from various populations can shed some more light on this matter, but this requires not only the intensive collection of specimens, but also the necessary time and especially the people to do these studies.

The lighter colouring of *P. meropia* could be explained by its teneral condition, or by environmental conditions.

If, in the future, such studies could be done, they may eventually prove that *P. meropia* and *P. spangleri* are conspecific, but for the time being, we prefer to keep them as good species.

Phumosia fulva (SÉGUY)

Chopardimyia fulva SÉGUY, Ann. Soc. ent. Fr., 109, 1940 (1941) p. 125, fig. 1.

Phumosia fulva, ZUMPT, Explor. Parc nat. Albert, Miss G.F. de Witte, 87, 1956, p. 50.

ZUMPT (1956) placed *Chopardimyia fulva* in the genus *Phumosia s. lat.,* referring to SÉGUY's description. Dr. L. TSACAS (Paris) has kindly sent us the male holotype, the only specimen so far record-

ed. It is well charaterized by several non-hypopygial features, but does not deserve, we think, a special generic status. We found it inadvisable to dissect the hypopygium, as the specimen had not hardened fully. A re-description reads as follows :

MALE — Eyes bare, facets of almost equal size. Frons strongly narrowed in the middle, at the tip of the ocellar triangle not broader than twice the anterior ocellus. Lower part of frontal stripe triangular, red-brown. Parafrontalia and -facialia with a dense silvery-white pollinosity, the latter without setulosity ; *oc* and *iv* well developed, 7 pairs of *paf* are present. Vibrissarium and bucca red-brown and densely yellowish pollinose. Vibrissa long and thick, peristomal bristles and posterior buccal hairs black, anterior part of bucca with short and mostly pale hairs, facial ridge above the vibrissa with a few black setae. Antennal groove red-brown, with a white pollinosity and a broad median, dorsally flattened keel. Antennal segments red-brown, the third terminally blackened and about twice as long as the second, arista with long dorsal and ventral hairs. Palpi orange, slightly broadened terminally.

Thorax yellow-brown, weakly pollinose, without a distinct pattern, pro- and poststigma of same colour. Chaetotaxy : *ac* = 1+1, *dc* = 2+4, *ia* = 1+2, *prs* = 1, *ph* = 2 (outer present), *h* = 3, *n* = 2, *sa* = 3, *pa* = 2, *sc* = 5+1, *st* = 2 : 1, *pp* and *pst* present. Propleuron and prosternum as well as alar-declivity setulose, mesopleuron in the anterior upper corner with a few bristly black hairs, posterior margin with a row of 8 long black bristles, otherwise with black hairs ; pteropleuron beneath the wing with a bunch of bristly hairs. Wing with a slight brownish tinge, veins yellow, costal spine long, r_{4+5} dorsally with black setae half-way to *r-m*, R_5 open, squamae and halter yellow. Legs yellow-brown, fore-femur with long and thick dorsal and ventral bristles, fore-tibia with a row of 4 *ad*, increasing in size towards the tarsus and with one long submedian *pv* ; mid-femur with one submedian *ad* and 3 long ventral bristles, mid-tibia with a submedian *ad*, *pd*, *av* and 2 *pv* ; hind-femur with long dorsal and ventral bristles, hind-tibia with 2 *ad*, 2 *pd* and 2 *av* ; tarsi without special features.

Abdomen about as long as broad, same colour as the thorax and without a dark pattern. Hind margins of tergites IV and V with long bristles.

Length : 9 mm.

Locality : Man, Ivory Coast, XII. 1938 (♂ holotype in the collection of Paris Museum).

Phumosia gambiensis (VILLENEUVE)

Paratricyclea gambiensis VILLENEUVE, Ann. Soc. ent. Fr., 85, 1916, p. 154 ; MALLOCH, Ann. Mag. nat. Hist., (9) 17, 1926, p. 495.

Phumosia gambiensis, ZUMPT, Expl. Parc nat. Albert, Miss. G.F. de Witte, 87, 1956, p. 30.

Phumosia snyderi ZUMPT, J. ent. Soc. sth. Afr., 16, 1953, p. 185 fig. 4 ; ZUMPT, Explor. Parc nat. Albert, Miss. G.F. de Witte, 87, 1956, p. 55 fig. 26 (**syn. nov.**).

Paratricyclea elephantina SÉGUY, Bull. Inst. fr. Afr. noire (A) 20, 1958, p. 148 (**syn. nov.**).

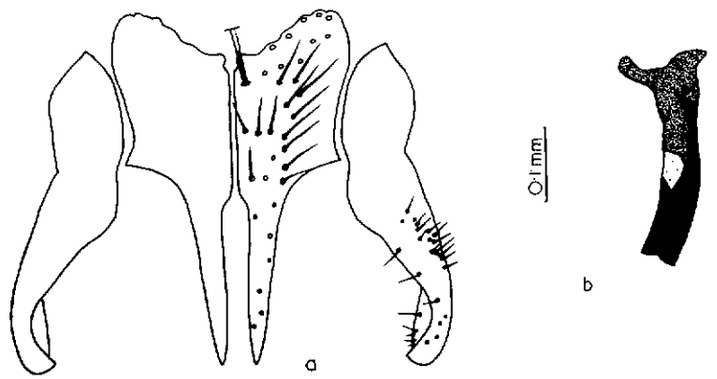

FIG. 2. — *Phumosia gambiensis* (VILLENEUVE) :
(a) Cerci with paralobi, (b) phallosome in lateral view, the terminal part broken off. (holotype from Gambia)

VILLENEUVE's short description was based on a male and a female specimen collected by M.E. Roubaud in Gambia. The next record is by MALLOCH, who tentatively referred another couple « the male in poor condition » from the Luchi River, Kenya, to this species. We have not seen these two specimens, but it is

doubtful whether they really belong to *P. gambiensis*, a member of a group of species, most of which are identifiable only by checking the male genitalia. In the revision of the *Phumosia* species of the Ethiopian geographical region, ZUMPT (1956) pointed out that according to VILLENEUVE's description, it belongs to the *stabulans*-group, but « may be a synonym of one of the species described above ».

From the Institut royal des Sciences naturelles de Belgique, we have now received VILLENEUVE's two specimens, with kind leave to dissect the male genitalia (fig. 2), which proved that *P. gambiensis* is conspecific with *P. snyderi* ZUMPT, described from Liberia. Furthermore, *P. elephantina* SÉGUY, based on a single female specimen from the Ivory Coast, should also be regarded as conspecific with *P. gambiensis*. ZUMPT studied this specimen in the Paris Museum.

Phumosia optica n. sp.

In ZUMPT's key, this small species of only 3 mm body-length runs down to the « *stabulans*-group », in which it is charaterized by relatively long thoracic bristles (fig. 3), and by having only one long and thick supra-alar bristle. In the male, the facets of the upper three-quarters of the eyes are strongly enlarged, and at its narrowest point, the frons is distinctly smaller than the anterior ocellus.

MALE — Eyes bare, with facets of the upper three-quarters strongly enlarged, graduating into smaller lower ones. In front of the ocellar triangle, the eyes nearly touch, and the parafrontalia are compressed to a yellow line. In the lower half of the frons, the frontal stripe is developed as a long triangle of light brown colour. Parafrontalia in the lower part whitish pollinose, with 4-5 pairs of parafrontals, *oc* proclinate, of medium length, *iv* long and relatively thick. Parafrontalia narrow, densely whitish pollinose, without setae. Antennal groove densely pollinose like the parafacialia, a carina is not developed and the antennae are close together. Basal antennal segments yellow, third segment brown, twice as long as the second, arista with long dorsal and ventral hairs. Vibrissa, peristomal and buccal hairs black. Bucca brown pollinose, about 1/3rd as high as the eye is long, vibrissarium yellow pollinose. Palpi yellow, terminally dilated.

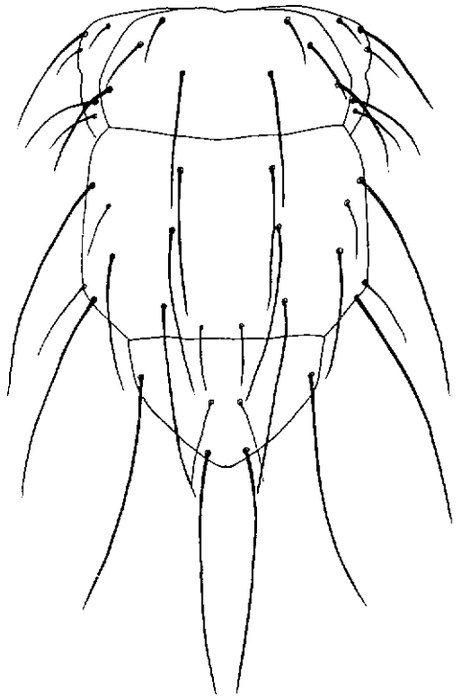

FIG. 3. — *Phumosia optica* n. sp. : chaetotaxy of thorax (holotype from Zaria, Nigeria)

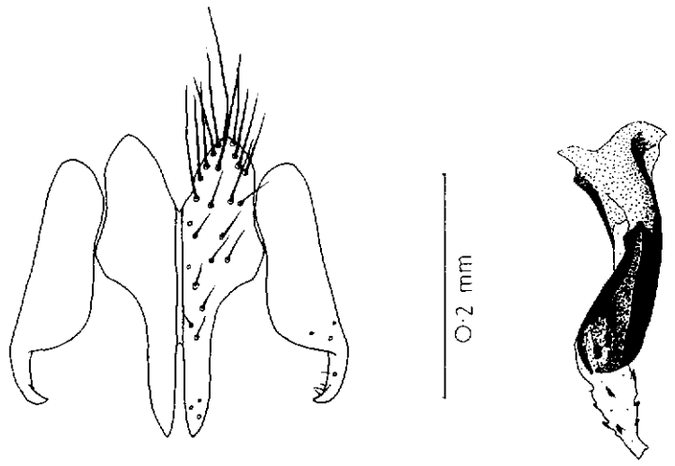

FIG. 4. — *Phumosia optica* n. sp. : cerci with paralobi and phallosome (holotype from Zaria, Nigeria)

Thorax black-brown and densely covered with a greyish to olive pollinosity, without a dark pattern. Pro- and post-stigma dark-brown. Chaetotaxy : *ac* = 0+1, *dc* = 1+3, *ia* = 0+2, *prs* = 1, *ph* = 1, *h* = 2-3, *n* = 2, *sa* = 1 (long and thick), *pa* = 2, *sc* = 2+1 (discals weak), *st* = 2 : 1, *pp* and *pst* present. Prosternum with hairs, propleuron and alar-declivity bare. Wings hyaline, with a slight brownish tinge ; veins yellow-brown, costal spine long and costal setae well developed, but no setae on other veins are detectable, R_5 narrowly open, squamae and halter yellow. Legs olive-brown like the body, tibiae and tarsi more or less yellowish ; fore-tibia with 2 *ad* and a long submedian *pv* ; mid-tibia with 1 *ad* and 2 *pd,* but no ventral bristles ; hind-tibia with 2 *ad,* 1 *pd* and 1 *av* ; claws and pulvilli about as long as the last tarsal segment.

Abdomen slightly longer than broad, densely olive brown pollinose, without any pattern ; with black hairs and bristles, the latter forming a complete row at the hind margins of tergites IV and V, tergites I + II and III with long lateral bristles. Hairs of varying lengths and upright on tergite I + II. Hypopygium as in fig. 4.

FEMALE — Eye-facets of equal size. Frons at vertex measuring 4/7 of eye-length, gradually widening towards the antennal groove. Frontal stripe parallel, reddish orange, parafrontalia and -facialia with a silvery-white pollinosity. Chaetotaxy of head complete, with *iv, ev, f,* two proclinate *fo,* 4 pairs of *paf* and a pair of strong divaricate *oc.* Parafrontalia and -facialia much broader than in the male, but height of bucca about the same.

Thorax as in the male ; mid-tibia with a submedian ventral bristle. Abdomen as in the male.

Length : 3 mm.

Locality : Zaria, Samaru, N. Nigeria, IX. 1968, 3 ♂♂ leg. J.C. Deeming ; Mambilla Plateau, Ngel Nyaki, Nigeria, XI/XII. 1968, 1 ♀ leg. J.C. Deeming (♂ holotype and 1 ♀ paratype as well as the female are in the collection of the British Museum (Nat. Hist.), 2 ♂♂ paratypes are in the collection of the South African Institute for Medical Research, Johannesburg, kindly presented by the British Museum).

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