ON SOME EMPIDID FLIES OF THE AZORES AND MADEIRA[1]

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With 2 plates

Empidid flies collected in the Azores in 1958 and in Madeira in 1935 and 1938 were identified by R. Frey, as follows:—

Two species of the Azores, *Atalanta stagnalis* (Haliday) and *Drapetis assimilis* (Fallén), have a wide geographical distribution in Europe, Africa and North America.

Three other species, *Parathalassius blasigi* Mik, *Atalanta bipunctata* (Haliday) and *Drapetis aenescens* Wiedemann occur in the Azores, in Europe and in Africa.

Empis aestiva Loew, *E. vitripennis* Meigen, *Rhamphomyia gibba* Fallén, *Tachydromia minuta* Meigen, and *Stilpon nubila* Collin are found in the Azores and in Europe.

Drapetis disparilis Frey and *Chersodromia gratiosa* Becker occur not only in the Azores, but also in some of the Canary Islands.

The Azores have two endemic species of Empididae: *Atalanta sexmaculata* Frey and *Atalanta storai* Frey. Both belong to the subfamily Hemerodrominae.

Madeira has two widely distributed species of Hemerodromiinae, viz. *Drapetis aenescens* Wiedemann and *D. assimilis* (Fallén), and three endemic species of this subfamily, *Roederioides longirostris* Frey, *Atalanta heamorrhoidalis* Becker and *A. rabacali* Frey.

The only two species of the Hemerodromiinae in the Canary Islands are *Atalanta amarantha* Becker and *Wiedemannia lagunae* Becker. Both are endemic.

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1) Report No. 35 from the Lund University Expedition in 1957 to the Azores and Madeira.

2) Zoological Institute of the University of Grenoble, France.

Dr. Brinck and Dr. Dahl kindly sent me the Empidid material they collected during their visit to the Azores and Madeira in 1957. The specimens belong to the following species:—

Tachydromia minuta Meigen

Azores. São Miguel. 2 km E of Ribeira Grande, 8.III.1957, 1 ♀. It does not belong to the variety *obscuripes* Strobl, but the antennae are longer than in typical specimens (the third segment is 2.5 times longer than wide) and the hairs on the front femora are less numerous. This species has already been recorded from the Azores.

Stilpon nubila Collin

Azores. São Miguel. Fonte Grande, SE of Feteiras, 6.III.1957, 1 ♀. Already recorded from the Azores.

Atalanta (Kowarzia) haemorrhoidalis Becker

Specimens found on wet rocks, in the northern part of Madeira, were described by Becker. Fourty eight years later, a more complete description was given from the types in the Museum of Berlin by the German dipterist E. O. Engel. But no figures were published.

Dr. Brink and Dr. Dahl sent me several specimens in perfect condition, and as *A. haemorrhoidalis* has very characteristic male genital parts, I shall present a description and add some figures.

MALE (figs. 1a-1e).

On the face, 10-12 setae; the two inferior ones are longer than the others. Four setae on the pronutum. Four acrostical setae on the front part of the mesonotum. On each side, 4 long dorso-central chetae, 1 humeral ch., 2 presutural ch., 1 supraalar ch. and 1 long cheta and a very small one in the sutural triangle. On the scutellum, 2 long chetae. On each side of the mesophragm, a group of very small chetae. Femur 1 with very few chetae; a pre-apical comb on the anterior side (fig. 1a) and 4 straight chetae, almost as long as the femur is wide, on the proximal 1/5 of the femur. No other special chetae or hairs on the legs. Wing (fig. 1b) with a light brown tinge. Stigmatic spot pale, as large as 2/3 of the radial cell; it starts from the tip of r_1, and ends at 2/5 of of the distance between

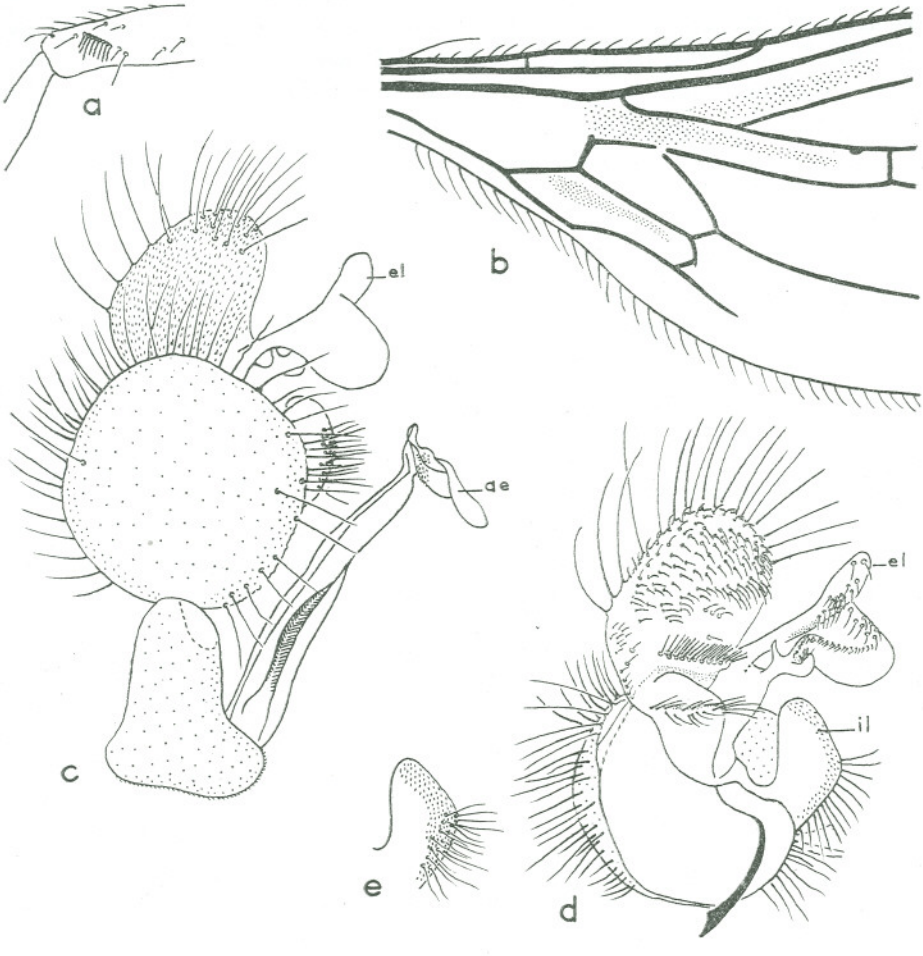

Plate 1. - *Atalanta (Kowarzia) haemorrhoidalis* Becker, male. *a:* distal part of right femur 1. *b:* proximal part of wing. *c:* genitalia, side view. *d:* genitalia, inside view (the ninth tergite has been split in two parts along the sagittal level and the right part is seen from the left side). *e:* left internal lamella, seen from the left.

ae: aedeagus. *el:* external lamella. *il:* internal lamella.

the apex of r_1 and the apex of r_{2+3}. The nerve r_4 runs almost parallel to m_1, and r_5 runs distally towards m_1.

The ninth abdominal tergite is almost spherical and more than twice as large as the eighth abdominal segment; this is a very characteristic feature. The external lamella (fig. 1c and 1d) has two branches, an anterior and a posterior one. Two ridges covered with hairs run along the bases of the branches. The internal lamella is simple (fig. 1e).

Length of the body, extended: 4.3 mm. Wing length: 3.7 mm.

FEMALE

Similar to the male.

Madeira. Terreiro da Luta, 850 m, 20.IV.1957, 8 ♂ 2 ♀. Rib. do Lago, E of Pico do Serrado, alt. 900 m, stream, 27.IV.1957, 3♂, 11♀.

Atalanta (Kowarzia) dahli n. sp.

MALE (figs. 2a-2i)

Face in its narrowest part as wide as 2/3 of eye in front view. The face widens gradually towards the mouth; it does not extend below the eyes and its lower edge is sligthly convex; it bears 4 pairs of hairs, the lowermost being the longest. There are two interocellar chetae and 6 postocellar ones; on each side 1 postvertical and 6 postocular chetae which are black; the remaining postocular chetae are yellow. Mesonotum dark brown, with, on each side, a more lightly coloured stripe between the row of acrostical chetae and the corresponding row of dorso-central chetae. On each side only 4-6 acrostical chetae, 5 dc, 1 humeral, 1 presutural, 1 cheta and 1 hair in the sutural triangle, 1 prealar, 1 supraalar, 5 or 6 propleural hairs. On the scutellum 2 long chetae close together. Legs brown. On each front femur an anterior preapical comb made of 8 or 9 short spines touching each other, and, on the proximal third of the segment, 7 to 9 ventral erect chetae longer than the other ones; some of them are almost as long as the femur is thick in its largest part. Femora II and III have 5 or 6 especially long preapical chetae; the posteroventral one is the longest. Tibiae III have, on their distal 1/4, dorsal chetae slightly longer than the other ones. The tarsi have short pulvilli and a very long empodium. The wing is a little darkened in a few places (fig. 2b); it has no special features, save a thickening of the nerve r_{4-5}, just before the transversal nerve r m; the costal spot is light brown, and more than twice as

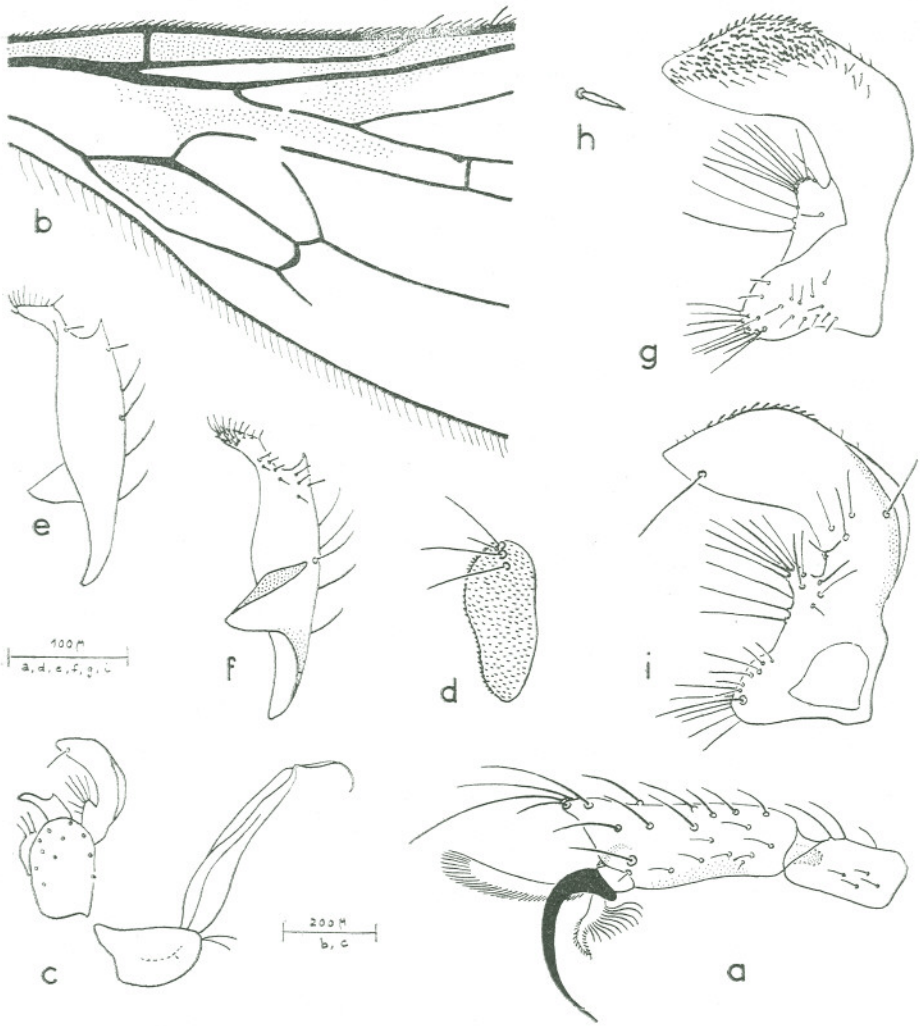

Plate 2. - *Atalanta (Kowarzia)* dahli n. sp. male. *a:* distal part of leg III. *b:* proximal part of wing. *c:* genitalia, side view. *d:* left anal lobe. *e:* left internal lamella, outside view. *f:* right internal lamella, inside view. *g:* right external lamella, inside view. *h:* one of the internal hairs on the distal part of the external lamella. *i:* left external lamella, external view.

long as large; it extends from the apex of r_1 to half the distance between the apex of r_1 and the apex of r_{2+3}. The genital parts are not very different from those of *Atalanta rabacali*.

Length of body, extended: 5 mm. Length of wing: 3.4 mm.

FEMALE

Tibiae III have no especially long chetae.

Azores: Faial: Nasce Água, 3 km S of Cedros, 5.IV.1957, 1 ♂. São Miguel, Ribeira das Três Voltas, near Ribeira Chã, 16.III.1957, 1 ♀.

Holotype and allotype in the Entomological Museum, University of Lund.

Ten species of Hemerodromiinae occur in the islands of the Atlantic Ocean, remote from the continents. Only two of them have a wide range. All the others are endemic of one island or of a group of islands situated close together.

Roederioides longirostris Frey has probably an American origin, since no species of this genus occur in Europe.

Atalanta sexmaculata Frey, *A. storai* Frey, *A. dahli* n. sp. from the Azores, *A. rabacali* Frey, *A. haemorrhoidalis* Becker from Madeira, and *A. amarantha* Becker from the Canary Islands, all belong to the same subgenus, viz. *Kowarzia* or to a subgenus closely allied to *Kowarzia*. They probably have an «old world» origin, since there are 8 species of *Kowarzia* in Europe, 2 in Africa and none in America.

As to *Wiedemannia lagunae* Becker of the Canary Islands, this is the only species of this genus in the Atlantic Islands. There are at least 7 species of *Wiedemannia* in America and more than 40 in Europe.

It is of some interest to compare the fauna of Hemerodromiinae of these Atlantic islands with that of Corsica and Mallorca in the Mediterranean Sea, islands which are close to the continent. Corsica has two widely spread species of *Atalanta*, viz. *A. (Atalanta) nigra* Loew and *A. (Kowarzia) tibiella* (Mik), one endemic species of the same genus, *A. (Kowarzia) schnabli* Becker, and only one species of *Wiedemannia*, *W. corsicana* Vaillant, which is endemic. Mallorca has only two species of *Atalanta*: *A. (Hydrodromia) stagnalis* and *A. (Kowarzia) dieuzeidei* Vaillant, and one of *Wiedemannia*, *W. ouedorum* Vaillant. All three are widely distributed in Europe and Africa.

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