Ephestia moebiusi Rbl. (*Lepidoptera, Phycitidae*) in Denmark

by
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Some years ago Mr. W. van Deurs discovered that a Danish heath locality (Melby overdrev near Tisvilde in the north of Sealand) was the home of an *Ephestia*-species, and that this species was apparently different from all other species of the genus *Ephestia* Gn. previously known from Denmark. A genital slide made by Mr. N. L. Wolff showed, however, that the species was very close to, and probably identical with *E. elutella* Hb. W. van Deurs (1942 A, p. 216—217) enumerated altogether 6 examples of this species, but stated that it is probably only a form of *elutella* Hb., and placed it as such in his book on the pyralides (W. van Deurs 1942 B. p. 12, and fig. 75).

On August 12th, 1961, the present author made a visit to Melby overdrev, and caught a male of this curious "form" of *elutella*. Owing to its dissimilarity to the series of *Ephestia elutella* Hb., a genital slide of the specimen was made in the following autumn. There were small differences in the genitalia from those of *elutella*, and in the author's opinion they were important enough to distinguish it as a bona species. It is a well-known fact today that the genitalia in this group are much more consistent than considered previously.

During the winter an additional five males of this species were obtained from different collections, and two genital slides, one made by Mr. N. L. Wolff, the other made a few years ago by the author for another moth-collector. All these specimens showed the same differences from *elutella*, as my own specimen. A request was made to van Deurs for the loan of his specimens — 5 males (of which the genitalia of one of them was already in the author's possession), but before they arrived the problem had already been solved. Consequently, the remaining 4 specimens from Denmark have not been examined.

Nomenclature.

The great problem then was: which name should be used for this new species? As W. van Deurs (1942 A, p. 216—217)

had not succeeded in finding a description he thus assumed that the species had not been described at all. There are, however, so many descriptions of species in the genus *Ephestia* Gn., that it is very difficult to ascertain, whether a species is described or not.

The author began by consulting C. Heinrich's great work on the *Phycitinae* (1956, p. 302), but the only species Heinrich mentioned that could possibly be identical with that of the author was *E. vitivora* Filipjev. On fig. 628, and 1122 he (op. cit.) showed the genitalia of a typical male, and female, respectively, of *E. elutella* Hb.

N. Filipjev (1931, p. 70—73) described a new species of the genus *Ephestia,* which he named *vitivora.* However, it differs even more (both in general appearance and in the genitalia) from the Danish species, than does *elutella.* There is a biological difference too, in that *vitivora* feeds on vine.

J. Hübner (1796, fig. 163) showed a typical specimen of *elutella* carrying this name — he placed it in the family of *Tineidae,* and described it some years later (1856, p. 33).

A. H. Haworth (1811, p. 496—497) gave two additional names: *semirufa,* and *rufa,* but also used the name *elutea* (= *elutella*). The Danish species often has fore-wings of a reddish colour, and it was therefore thought that one of these names could probably be the name of the Danish species. Unfortunately, the description has not been seen by the author. To pursue the matter further, a letter was sent to Mr. P. E. S. Whalley of the British Museum (Nat. Hist.) asking for information on the names given by Haworth. He answered, however, that the British Museum did not have a single specimen matching that of the author. From the drawings of the male genitalia and the fore-wing, he considered that the only species that could possibly be identical was *Ephestia moebiusi* Rbl., of which he had seen the original description, and some drawings of the genitalia. He therefore proposed to contact Vienna and ask for further information.

Dr. F. Kasy of the Naturhistorisches Museum, Vienna, answered the question by sending, a few days later, two specimens — male, and female — from the type series of *Ephestia moebiusi* Rbl. This species, of which, apparently, very little is known, proved to be identical with the Danish species.

Dr. H. Rebel (1906(07), p. 229—231) described this species on some specimens caught by Mr. E. Möbius in Lössnitz near Dres-

den in the years 1905, and 1906. They flew in great numbers in a heather-covered locality.

Appearance.

Fig. 2 shows two Danish specimens of *Ephestia moebiusi* Rbl., and the two specimens from the type series of Rebel. The male has been chosen as the lectotypus, and the female as lectoallotypus. Further, four specimens of *E. elutella* Hb. are shown for comparison.

The habitus is seen so clearly in the photograph that a detailed description would appear to be superfluous. It should be mentioned, however, that *moebiusi* can best be distinguished from *elutella* by means of the inner cross-line on the fore-wing. In *moebiusi* the line is divided into three spots: a large spot on the costa, and two smaller ones behind situated at a greater distance from the base. In *elutella* it is unbroken, and appears as an almost straight line.

The colour of the fore-wing varies from grey (seldom met with) through light reddish- to dark reddish-brown, often with some violet. There is usually a yellow-brown band from the base to the outer cross-line, passing between the two outer spots of the inner cross-line. The wing, especially the costa, is often powdered with whitish-grey scales. In *moebiusi* the contrast in the colouring often seems to be more striking than in *elutella*, and in its natural surroundings it would probably be taken for a species of the genera *Homoeosoma,* or *Pempelia.*

The male of *E. elutella* has a fold on the underside of the costa, near the base, in which numerous strong, dark brown scales are placed. In *moebiusi* this fold is much smaller, and in fact almost invisible; the scales are longer, but more slender, and are coloured a light grey. The alar expanse is, as in a large *elutella,* about 18 mm.

Genitalia.

Fig. 1 shows the genitalia of the two species.

In the male the difference between *moebiusi* and *elutella* is in the end of the gnathos, which is broader in *moebiusi* and looks like a broad U, whereas in *elutella* it is formed like a V. More characteristically formed is the transtilla, which in *moebiusi* has two slender arms, while in *elutella* the arms are formed like broad, folded flaps. Further down in the aedeagus there is

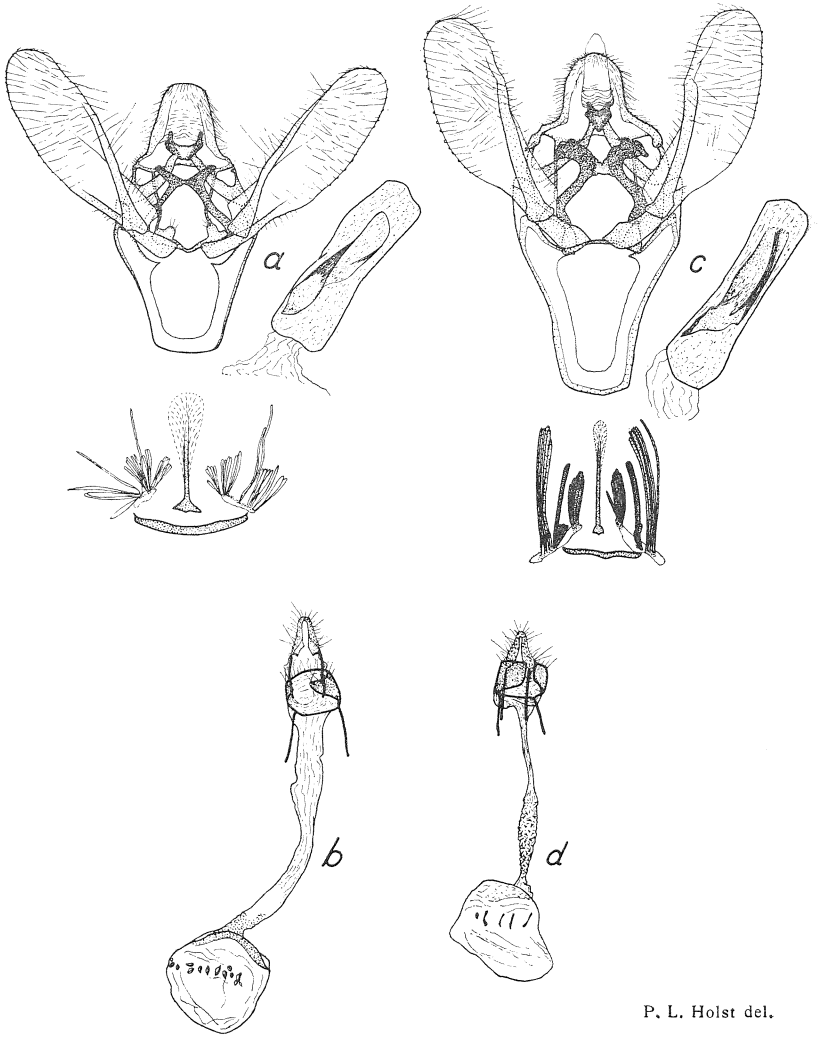


Fig. 1. Genitalia.

a. *Ephestia moebiusi* Rbl., male, × 24; genital slide PLH 279 A, coremata from genital slide PLH 346.

b. do., female, × 12; genital slide PLH 351.

c. *Ephestia elutella* Hb., male, × 24; genital slide PLH 344, aedeagus and coremata from genital slide made by N. L. Wolff 13-8-1941.

d. do., female, × 12; genital slide PLH 348.

a large plate, which is almost flat in *elutella*, and rolled in *moebiusi*, but this character is not very distinct. The most characteristic difference between the two species, however, is shown by the coremata. In both species there is a central spine, and a plate at the bottom, almost as strongly sclerotized in *moebiusi*, as in *elutella*. On each side of the central spine there are three groups of hairs; these are much stronger sclerotized in *elutella*, where they are dark brown (the outer group a little lighter), than in *moebiusi*, where they are almost colourless. The inner group is of almost the same shape in the two species. The second group, however, has another group of small hairs at the base in *elutella*, which is missing in *moebiusi*. The hairs in the third group are very long in *elutella* and shorter in *moebiusi*.

The author has examined only one female specimen of *moebiusi*, but it seems to show characteristic differences. In the ductus bursae there are numerous very small spines near the bursa in *moebiusi*; these spines are much larger in *elutella*. In the bursa there are some signa in both species. In the lectoallotypus of *moebiusi* their number is 14, whereas in *elutella* 5—9 have been counted. They are placed in a line in both species, but much more regular in *elutella* than in *moebiusi*. The length of the signa in *elutella* is about twice as long as those of *moebiusi*; the thickness is, however, almost the same in the two species.

Biology.

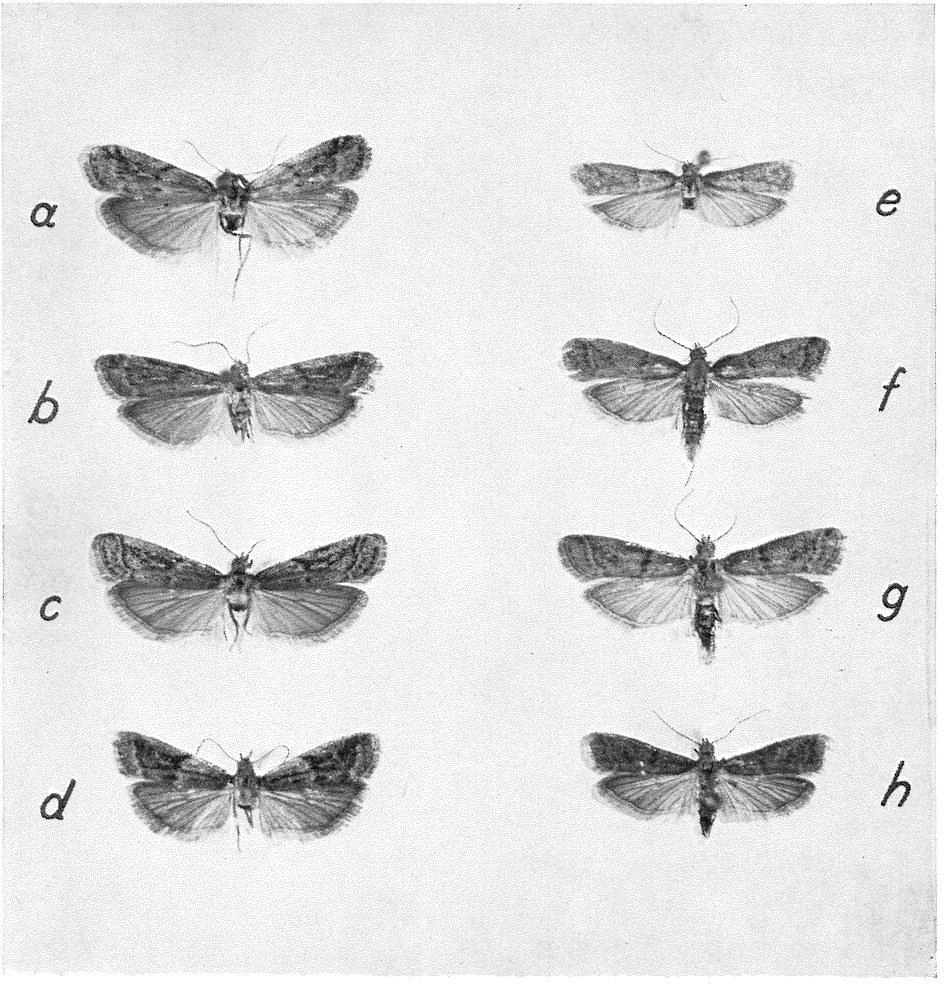
It seems that very little is known of the biology of this species. The early stages appear to be unknown. The moth is out in July, and is always found on heather-covered localities, often near the coast.

Distribution.

As previously mentioned, 12 examples from Denmark are known to me. These are found in similar localities in different parts of Denmark.

Jutland: One specimen labelled "Aalbæk, 8. VIII. 60, B. W. R." from the collection of B. W. Rasmussen. Aalbæk is situated on the east coast in the north of Jutland. One specimen labelled "Anholt, 12-7-1961, Ole Olsen" from the collection of O. Olsen. Anholt is a little island east of North Jutland.

Sealand: Two specimens labelled "Tisvilde, 24. 6. 39" from the collection of W. van Deurs, and one specimen labelled "Asserbo, 12. 8. 1961, P. Holst" from the author's own collection. These three examples were all caught at the same place, Melby overdrev, situated in the very north of Sealand near the better known locaties of Asserbo and Tisvilde.



H. V. Christensen phot.

Fig. 2. Appearance, × 2.

a. *Ephestia moebiusi* Rbl., male, labelled Dueodde 16-7-50; genital slide PLH 345.

b. do., male, labelled Anholt 12-7-1961, Ole Olsen; genital slide PLH 349.

c. do., male, Lectotypus, labelled Loessnitz, Dresden 15-7-1906; *Eph. moebiusi* ♂, Type Rbl; genital slide PLH 350.

d. do., female, Lectoallotypus, labelled Loessnitz, Dresden 15-7-1906; *Eph. moebiusi* ♀, Type Rbl; genital slide PLH 351.

e. *Ephestia elutella* Hb., male, labelled Knudsker 27-6-1959, P. Holst; genital slide PLH 419.

f.-g., do., two males, both labelled Rønne 23-5-1955.

h. do., female, labelled Rødovre 12-6-1959, P. Holst.

Bornholm: One specimen labelled "Snogebæk 12/7-36, Coll. Ejvind Kjær" from the collection of the Zoological Museum, Copenhagen. One specimen labelled "Dueodde, 10. 7. 37", one "Dueodde 12. 7. 37", and one "Dueodde, Juli 38, V. K." from the collection of W. van Deurs. Three specimens labelled "Dueodde 16. 7. 50" from the collection of H. Vibe-Kierulff. Snogebæk and Dueodde are situated in the most south-eastern part of the Baltic island of Bornholm.

The type material was taken (Rebel, 1906(07), p. 229) in Lössnitz, near Dresden, Germany in the period 4—17th of July in 1905, and 1906. The two specimens borrowed by the author are both labelled "Loessnitz, Dresden, 15. VII. 1906"; the male is further labelled "*Eph. moebiusi* ♂, Type Rbl", and the female "*Eph. moebiusi* ♀, Type Rbl". Dr. F. Kasy has kindly informed me, that the type series in Vienna consists of four males and four females altogether, all labelled "Type" by Rebel.

The author's sincere appreciation is due to all collectors, who have helped in procuring the material. In particular, Mr. P. E. S. Whalley, and Dr. F. Kasy have given valuable help in determining the species.

The material has been returned to the collections mentioned above under distribution.

The type of *Ephestia moebiusi* Rbl., male, including genital slide no. PLH 350, and labelled *Ephestia moebiusi* Rebel ♂, Lectotypus design. 2-4-1962, P. L. Holst, together with the female, genital slide no. PLH 351, and labelled Lectoallotypus are in the collection of the Naturhistorisches Museum, Vienna.

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