

NOTES ON THE FAMILY ÆGERIIDÆ (SESIIDÆ), WITH
A SYNOPTIC TABLE OF THE NORTH AMERICAN
GENERA.

[Lepidoptera, Ægeriidae.]

BY AUGUST BUSCK.

The character which has been relied upon* to distinguish the family Ægeriidae, namely, the absence of vein 8 in the hind wings, proves to be an illusion. The apparent ease with which the venation can be studied in the more or less transparent wings of this group of moths has probably occasioned the error, but if careful slides are made of softened and denuded wings, it is plainly seen that the normal eight veins are really present in all the genera, though veins 7 and 8 are sometimes partly coalescent.

The mode of attachment between the fore wing and the hind wings in this family is peculiar and has added to the difficulty of interpreting the venation rightly. Aside from the frenulum, which normally, though not invariably,† is single in both sexes, the hind wing has a narrow, sharp, upward fold along the costa, into which the downwards-folded dorsal edge of the fore wing fits snugly and securely. Anyone who has spread moths of this group must have noticed how easy the task is, if the specimen is fresh and soft. By merely guiding the fore wing up into position the hind wing follows along; but if once the two wings are separated, it is exceedingly difficult to get them into their natural relations again and a poor mount results. This is because the fold on the hind wing is elastic and is difficult to wedge open again if the edge of the fore wing has slipped out. This fold locks the long, thin wings together very effectually and enables the strong flight of these moths.

If a pair of wings of a dry, well-mounted specimen is placed on a slide it is practically impossible to separate them without injury to the wings, except by sliding them longitudinally away from each other.

When this fold on the hind wing is softened and straightened out in a slide-mount the costal and subcostal veins are both observable.

A similar, though not quite so strongly developed, arrangement for holding the wings together is found in the Syntomidae.

There is considerable difference of opinion about the nomenclature of the family Ægeriidae (Sesiidae). The writer is in-

*Meyrick, Handbook Brit. Lep., p. 562, 1895.

†Females are occasionally found with divided frenulum.

clined to side with the conclusions of our European colleague in this matter, at least in the main. He has, however, at the present time no opportunity to reach conclusive opinions on these questions, which are essentially foreign to the science of entomology proper—and the purpose of the present paper is solely to deal with the structural questions. For convenience, therefore, the names of the genera have been adopted as they are given by Beutenmüller* and as used in the present American List.†

The type of each conception is cited at the end of the article and any other set of names can thus readily be substituted. To further assist in this I have appended the principal synonymy as used in (1) Meyrick's Handbook of British Lepidoptera, (2) Rebel, Cat. Lep. Europ., and (3) by Lord Walsingham and Mr. Durrant, the latter of whom has kindly sent me their opinions on the subject in full.

As to the systematic position of the family I concur with Meyrick in regarding it a derivative from the Hyponomeutidæ and coördinate with the other true microlepidopterous families, such as the Gelechiidæ, Oecophoridæ, etc.

The writer has had some difficulty in using the synoptic table of the genera in Beutenmüller's valuable Monograph,‡ and ventures to publish the following, which may perhaps also enable a more natural sequence of the genera.

The difficulty in using the synoptic table in the Monograph is augmented by the text figures of the venation, to which one naturally refers for confirmation; these figures are almost without exception faulty and in some cases very misleading. To cite some examples: Fig. 8 of *Melittia satyriniformis* lacks a vein (3) in the hind wing; figs 9 and 10 of *Gaea emphytiformis* and of *Euhagena nebrascæ* show veins 3 and 4 in the hind wings connate instead of approximate; fig. 11 of *Alcathoe caudata* shows one vein (10) too many in the fore wing and shares the main fault of nearly all the other figures in showing vein 7 in the fore wing ending far down on the dorsal edge instead of at or above apex. All of the genera except *Melittia* and *Aegeria* (in the sense of Beutenmüller's monograph) have vein 7 in the fore wing to or above apex.

*Monograph of the Sesiidæ of America, Mem. Amer. Mus. Nat. Hist., 1901.

†Dyar, Bull. U. S. Nat. Mus. No. 52, 1903.

‡Memoirs Amer. Mus. Nat. Hist., vol. 1, part vi, 1901.

SYNOPTIC TABLE OF GENERA OF SESIIDÆ.

1. Hind wings with veins 3 and 4 stalked 2.
Hind wings with veins 3 and 4 not stalked 10.
2. Forewings with 11 veins; one vein absent 3.
Fore wings with 12 veins 4.
3. Fore wings with a costal vein (10) absent.....*Alcathoe*.
Fore wings with a dorsal vein (4) absent *Bembesia*.
4. Tongue rudimentary; fore wings with vein 7 to termen...*Aegeria*.
Tongue developed; fore wings with vein 7 to costa or apex.... 5.
5. Labial palpi nearly smooth; if rough beneath, then with short
scales 6.
.. Labial palpi hairy 8.
6. Hind tibiæ nearly smooth throughout *Parharmonia*.
Hind tibiæ not smooth throughout 7.
7. Hind tibiæ rough haired throughout *Sannina*.
Hind tibiæ tufted at the spurs, smooth between *Sesia*.
8. Hind tibiæ nearly smooth *Podosesia*.
Hind tibiæ rough haired 9.
9. Labial palpi upturned, nearly reaching vertex *Vespa mima*.
Labial palpi short, corrected *Palnia*.
10. Fore wings with veins 7 and 8 coincident 11.
Fore wings with veins 7 and 8 stalked 12.
11. Tongue rudimentary *Parathrene*.
Tongue developed *Calasesia*.
12. Hind wings with vein 3 closely approximate to 4..... 13.
Hind wings with vein 3 approximate to 2.....*Melittia*.
13. Tongue rudimentary 14.
Tongue developed *Memythris*.
14. Head and thorax long-haired *Euhagena*.
Head and thorax smooth *Gaea*.

I am unable to separate *Sanninoida* Beutenmüller from *Sesia* Fabricius (Beutenmüller), and *Albuna* Hy. Edwards from *Memythris* Newman. The characters which in the microlepidoptera are recognized as generic are identical in these two pairs of genera relatively, and even the secondary sexual characters, the anal tufts, relied upon by Beutenmüller, are not tenable and seem mere questions of degree.

The natural sequence of the genera would seem as follows, placing those with the highest developed pterogostic characters first:

1. *Bembesia* Hübner; type: *hylæiformis* Laspeyres.
2. *Alcathoe* Hy. Edwards; type: *caudata* Harris.
3. *Aegeria* Fabricius; type: *apiformis* Clerck.

4. *Sesia* Fabricius; type: *tipuliformis* Clerck.
Syn: *Sanninoida* Beutenmüller; type: *exitiosa* Say.
5. *Parharmonia* Beutenmüller; type: *pini* Kellicott.
6. *Sannina* Walker; type: *uroceriformis* Walker.
7. *Podosesia* Möschler; type: *syringæ* Harris.
8. *Vespanima* Beutenmüller; type: *præcedens* Hy. Edwards.
9. *Palnia* Beutenmüller; type: *sequoiæ* Hy. Edwards.
10. *Gaca* Beutenmüller; type: *solituda* Hy. Edwards.
11. *Euhagena* Hy. Edwards; type: *nebraskæ* Hy. Edwards.
12. *Parathrenc* Hübner; type: *tinciformis* Esper.
13. *Calasesia* Beutenmüller; type: *coccinea* Beutenmüller.
14. *Melittia* Hübner; type: *satyriniiformis* Hübner.
15. *Memythris* Newman; type: *tabaniformis* Rottenburg.
Syn: *Albuna* Hy. Edwards; type: *pyramidalis* Walker.

The differences in the nomenclature are confined to the following four genera:

1. *Sesia* (Beutenmüller, Dyar, Staudinger).
Trochilium (Meyrick).
Aegeria (Walsingham, Durrant).
2. *Aegeria* (Beutenmüller, Dyar, Meyrick).
Trochilium (Walsingham, Durrant, Staudinger).
3. *Memythris* (Beutenmüller, Dyar).
Sciapteron (Meyrick, Staudinger).
Parathrenc (Walsingham, Durrant).
4. *Parathrenc* (Beutenmüller, Dyar, Staudinger).
Zenodoxus (Grote and Robinson, Walsingham, Durrant).

The following names are omitted in Dyar, Catalogue North American Lepidoptera, 1903:

- Sesia* (*Carmenta*) *minuta* H. Edwards, Papilio, I, p. 204, 1881. Georgia.
Sesia (*Pyrrhotæcia*) *mcadii* H. Edwards, Papilio, I, p. 204, 1881. California.

This is, according to Beutenmüller, the male of *polygonia* H. Edwards. Dyar, No. 4244.

- Memythrus* (*Trochilium*) *luggeri*, H. Edwards, Psyche, VI, p. 108, 1891. Minnesota.

This is, according to Beutenmüller, a synonym of *simulans* Grote. Dyar, No. 4181.