

been described, for, indeed, it has often, but not with regard to its several moults. Until recent years it was thought sufficient to describe, and usually in general terms, the adult caterpillar, or at the most, to describe without regard to moults, as young, half-grown, three-quarters grown, etc., and until Mr. Buckler bred *Machaon*, as he relates, in 1880, with the express desire of ascertaining the number of moults the species was subject to, I, for one, could get no definite information on the matter. Several old authors had stated that there were four, as Chr. Schwarz, 1791, C. Valoren, 1859, as Dr. Hagen informed me; but later ones, to whom I had access, gave no definite information about it, and two well-known entomologists to whom I applied thought the number was but three. Mr. Buckler's paper has the credit of clearly establishing the number of moults in *Machaon* and for the first time carefully describing them.

“TINEIDÆ” OR “TINEINA.”

By THOMAS, LORD WALSHINGHAM, F. Z. S., Etc.

In a paper published in the Journal of the Cincinnati Society of Natural History for April, 1882, vol. v. p. 5, Mr. V. T. Chambers discusses the antennæ and trophi of Lepidopterous larvæ, offering the results of his observations “as suggestions to systematists of the Lepidoptera” which “may aid somewhat in their classification, especially in that of the Tineina.” He then writes, “these do not constitute a family in the sense that the Noctuidæ, Geometridæ, etc., are families. The Tineina is (*sic*) a large group of many families, some of which seem to me to be as far removed from each other in a natural system as they are from any of the Macro-Heterocera.”

In a foot-note at the bottom of page 5 we read: “I have sometimes been asked why I used the name Tineina instead of Tineidæ. I trust the above remarks afford a sufficient answer. Besides, ‘Tineina’ is the term adopted by the editors of the ‘Natural History of the Tineina,’ the standard work upon the group.”

Although the precedent quoted by Mr. Chambers is rightly entitled to respect, there are certain rules generally recognized among naturalists of all countries by which, for the sake of uniformity, it is most desirable to be guided. Probably the best modern authority that can be quoted upon this subject is to be found in the “Rules of Zoological Nomenclature by Hugh E. Strickland,” originally drawn up by a committee of the British Association in 1842; revised, corrected, and reprinted, by their authority, in 1863 and 1878.

These “Rules” consist of a “Series of propositions for rendering the nomenclature of Zoology uniform and permanent.” Turning to p. 23 and p. 17 respectively of this pamphlet we find:

"[Families to end in *idæ* and subfamilies in *inæ*.] The practice suggested in the following proposition has been adopted by many recent authors, and its simplicity and convenience is so great that we strongly recommend its universal use:—B. It is recommended that the assemblages of genera termed families should be uniformly named by adding the termination *idæ* to the name of the earliest known, or most typically characterized genus in them; and that their subdivisions, termed *subfamilies*, should be similarly constructed, with the termination *inæ*." Thus, if this rule be accepted, it follows that the appellation "Tineina" should be applied to a *subfamily*, and should indicate a division inferior rather than superior to the family Tineidæ. Mr. Chambers, however, rests his claim to the use of the term "Tineina," in the sense adopted by him from the authors of the 'Natural History of the Tineina,' upon the ground that the various genera or groups of genera which it has been made to include do not constitute in themselves a natural family.

Alluding to the old subdivision of the group into two families, Tineidæ and Hyponomeutidæ, by Stephens, he writes, "It would be, perhaps, even more unnatural to put them all in a single group of Tineidæ. Mr. Stainton's system, in which the name Tineidæ is retained for the restricted family containing *Tinea* and its allies, is the best classification of the group with which I am acquainted."

The only objection now raised against Mr. Stainton's use of the name "Tineidæ," as strictly indicating a *family*, is that it should not be made subordinate to the name "Tineina," the termination of which, by the British Association rules, is such as to indicate an inferior subdivision.

There are in this case two alternatives open to those who desire to conform to the generally accepted rules of nomenclature quoted above. The first is to adopt the names of the various families in the sense in which they are used by Mr. Stainton and others, and to change the name of the group from Tineina to Tineimorpha, Tineoidea, or such like. The second is to adopt the name Tineidæ, in lieu of Tineina, for what is now usually regarded as a group of families, thus treating them as constituting one family, and to designate the existing families as subfamilies with the termination *ina*, now used with doubtful propriety for the whole group to which they belong.

If we would inquire into the merits of these two alternatives, the first point to be considered is, what is a family?

Regarding it in the accepted sense as an "assembly of genera," each of which possesses, in greater or less degree, the characteristic feature or features of one and all of them, we must ask ourselves whether any one or more than one characteristic generic feature pervades the whole group of genera which have of late been massed together under the name "Tineina."

It is undoubtedly true that great diversity is to be found in the characters which they present; for instance, in the presence or absence of tongue, ocelli, and maxillary palpi, in the form of the wings, and in the structure of the labial palpi and antennæ. Nevertheless it is surely far easier at first sight to separate any of these genera from those of other families than it is to determine, with readiness and certainty, the true position of a Bombycid (which approaches the Noctuidæ), a Noctuid (which approaches the Pyralidæ), or a Pyralid (which approaches the Phycidæ).

Whether by their small size, their long cilia, or their slender and upturned palpi, by the leaf-mining habits of their larvæ or the neurulation or ornamentation of their wings, there is in each genus associated with the Linnæan name "*Tinea*" some peculiarity by which its members can without difficulty be recognized as possessing what may, I think, be properly called a family resemblance.

Without at present entering into an elaborate analysis of these resemblances to test the question of how far they may or may not be regarded as of "family" value, it will not be denied that they are far more easily grasped than are those more uniform generic characters upon the strength of which the various existing families have been founded.

There is considerable divergence of opinion between different authors as to the family position of several well-known genera; and, on the whole, it would be perhaps the safest course to adopt the name "Tineidæ" as a family definition coextensive with the "Tineina" of Stainton and other authors, thereby securing a termination uniform with that of the Sphingidæ, Bombycidæ, Geometridæ, Noctuidæ, etc., and to regard the present families as subfamilies, adopting for them the proper termination of such divisions, as Tineina, Hyponomeutina, Adelina, Gelechina, and so forth.

It will scarcely be objected that any necessity for further subdivision except into genera and species has yet arisen or is ever likely to arise.

FOOD PLANTS OF SAMIA COLUMBIA.

From a paper read before the Natural History Society of Toronto, by W. BRODIE.

This species is common in the Muskoka, Nipissing and Lake Superior districts, and extends beyond the height of land towards James's Bay. It no doubt feeds indiscriminately on our coniferous trees as well as many deciduous trees having a northern range. It is very rare in Southern Ontario; those found are probably the



Walsingham, Thomas de
Grey,

↑

↑

. 1882. "Tineidae or Tineina." *Papilio* 2(5), 77–79.

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