

REVIEW

TAXONOMIST'S GLOSSARY OF GENITALIA IN INSECTS. Edited by S. L. Tuxen with contributions by numerous specialists. Copenhagen: Ejnar Munksgaard, 1956, 284 pp., 215 figs. [Price: \$12.00; available from E. W. Classey, 4 Church St., Isleworth, Middx., England.]

At last this eagerly awaited volume has appeared. It is well printed and serviceably bound (and, which is more, its pages lie flat where opened). The figures are of varied quality, being the work of many hands, but all are useful and many are really excellent. The book is in two parts: Part I, describing and figuring the genital structures of both sexes in the various orders and Part II, the glossary of terms used in these structures.

Part I is composed of 29 chapters by various specialists, each one dealing with a particular order. Each chapter is made up of a description of the male and female genitalia, illustrated by several text figures; at the end of each is a list of figure captions, followed usually by a short list of selected references to the literature. The figures in the chapter on Hymenoptera (by C. D. MICHENER) have all structural terms, and there are many, spelled out in full; in all other chapters abbreviations are used, explanation of which is to be found in a list in the front of the book.

Part II comprises the glossary, a list of the various terms for genital and associated structures used in the insects. The terms include both barbarisms (in the major European tongues) and more formal terms in Latin and Greek, with inflections indicated where necessary. Each term is further provided with the sex and order in which it is used and in most cases with the author and year of proposal (so far, I gather, as these are known). Definitions naturally are given as well as synonymies, equivalent terms and cross-references to related terms. When the structure is illustrated (in Part I), this is indicated.

There can be no question about the competence of the work. It is prepared by a group that numbers many of the leading authorities in their respective fields.

Workers for many years to come will turn to this book for the solution of their problems of genital terminology. Most often they will get satisfaction; yet there will be many who will be exasperated; others who will be disappointed; and some who will turn to it in vain.

Exasperation must follow when one finds that he has to turn to the end of each chapter to find explanation of the figures scattered through it, and then must turn all the way to the front of the book for explanation of the abbreviations in these figures (and the abbreviations are poorly devised, usually with small ability to suggest the term meant). The chapter by MICHENER, where terms are spelled out in full in all figures, demonstrates that abbreviations were not even necessary; but even granting that they were, they should have been explained on the same or the facing page. Exasperation also occurs when, seeing the reference "(Smith 1947)" one turns to the list of references which concludes most of the chapters and finds no paper by SMITH at all.

Disappointment will come to many at the paucity of figures. Twelve figures are to be found, for example, covering both sexes in the chapter on Lepidoptera, the largest chapter in part I. This is wholly inadequate to illustrate, or even to intimate, the diversity of grosser and finer structure in this order. It would have been preferable by far to increase the number of figures to fill one page out of every two, with the text reduced to a facing page of descriptive and discussive commentary.

Among those who will often turn to the book in vain are those interested in the homologies of various structures, especially from one order to another. Throughout the book one finds references to the large uncertainty surrounding this topic: so much so that the impression is formed that homology is something to be shunned. As a result, each chapter stands as its own little ivory tower whose only window to the common problem is the glossary in the back of the book.

The work would have been benefitted considerably had another extensive chapter been added on the subject of homologies. Admittedly it is a vast topic, a controversial one and all too often an uncertain one; but in spite of these obstacles it could have been done, if not by harmonious collaboration, then by the pen of an invited and well chosen authority, with *carte blanche* from the editor.

The work was expressly designed as an aid to the taxonomist and it is in this light that it must be most carefully judged. It appears, however, that only a part of the needs of the taxonomist has been satisfied. With questioned term in hand he may turn here with every assurance of satisfaction: he learns what it means; what, if anything, it is equivalent to; finds a figure of it if it is illustrated, and so on. But what of the taxonomist who discovers a peculiar and unfamiliar structure in the course of his own investigations, one which he finds useful and would like a name for? Unless it is something painfully obvious he will more often than not be left as much in the dark as before, for there is no mechanism in the volume for helping to solve this sort of problem. In desperation, then, he may do either of two things: misapply some well-known term; or invent a new one (and we gather that both of these are to be deplored). It is just such a situation that has contributed so generously and so needlessly to the size of the glossary in part II.

The above paragraphs have dwelt on what seem to be the larger inadequacies of the volume. Minor defects are few, a testimony to the diligence and care of both editor and collaborators. A few omissions have been noticed, two of them surprising since they both involve contributors to the volume! One such omission is *labides* (a pair of lobes apparently representing a reduced, bifid uncus) as used several times by KLOTS (e.g., *Field Guide*: 54) and others. The only definition of this term to be found in the glossary (or the text) refers to a very different structure, part of the diaphragma. The second omission is MICHENER's (1952, *Saturniidæ*) use of the term *gnathos* as equivalent, at least in part, to the transtilla of the present volume and most writers.

The complexity of the genital structures and the enormous amount of their variation throughout the Lepidoptera have placed a special burden on this chapter, but it would appear that much of that burden has been avoided. The text is chiefly a description of typical or usual structures, with rarely more than hints of their variability. Nor is this description too well correlated with the figures. Several of the terms are not illustrated at all (e.g., *superuncus*; exoporian type of female genitalia); others are illustrated but not labelled (*valvæ*; *fultura inferior*); and some are illustrated and labelled but the abbreviations in the figures are not given in the text (*peniculi*; *caulis*).

There is, further, a bit of confusion in spots. The *valvula* is defined (p.104) as a ventrodiscal region of the valva and so labelled in fig.126; in fig.122, however, a mediobasal region is so labelled: the two may be considered as homologues, but this is not stated. What is labelled as *saccus* (sa) in fig.122 is surely not that, the true saccus being the apex of the structure extending cephalad of that point. Especially troublesome is the nomenclature of the sclerites of the diaphragma, surrounding the penis, as KLOTS points out. This would seem to be an excellent site for some arbitrary terminology of convenience, rather than continuing the confusion with attempts at deciding with each new structure examined whether to call it a juxta, an anellus, or something else.

In spite of the critical remarks above, unquestionably the work will long be a valuable and useful reference for the practicing taxonomist. Never before has such an effort been made, so systematically and so thoroughly, to comb the literature for genital terms, assemble them, sift them, relate and evaluate them, and then index and define them for reference.

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