

THE PROTURA

The Protura

A Revision of the Species of the World with Keys for Determination. By Prof. S. L. Tuxen. (Actualités Scientifiques et Industrielles, No. 1311.) Pp. 360. (Paris: Hermann, 1964.) 54 francs.

THE Protura, a group of small Arthropods usually placed for convenience with the Insecta, were not recognized at all until 1907 when Silvestri described the order and the first species; even now there are less than 150 known species. The original descriptions, with a few exceptions, are inadequate, resulting in names being applied to different species by different workers and in the formation of many synonyms. The only remedy for this is to interpret conclusively all the specific names by examining the type material—designating lectotypes where necessary and erecting neotypes where the types are lost. This, together with a re-assessment of taxonomic characters, has been done by Prof. Tuxen in *The Protura: a Revision of the Species of the World with Keys for Determination*.

In this, 48 pages are devoted to morphology, partly based on original work by Prof. Tuxen, with emphasis on the characters used in the classification. Post-embryonal development is dealt with in three pages, while techniques of collecting, examination and preservation are outlined in one. A list is provided of references to ecology and distribution (arranged geographically) together with a systematic list of all the known names, ten pages of references to the literature, and indexes to names and subjects. The rest and greater part of the book contains the systematic discussion, keys, figures and descriptions of the species, including discussion of the intra-specific variation of some of the characters; all are clearly and conveniently presented.

Thus, for the first time a critical re-assessment of all the morphological and systematic information about the Protura is contained in one volume and it should now be possible to determine Protura material correctly. However, in using the keys it becomes apparent that for identification the specimens must be in good condition and some familiarity with the order is necessary, the arrangements of the sensillae and setae of the foretarsus being especially difficult to resolve; in this respect it is unfortunate that some of the figures of the foretarsus, as mentioned in the preface, have been so much reduced. One other criticism that might be made is the number of genera which have been used for the relatively small number of species, but in Prof. Tuxen's opinion this is a necessary, perhaps only temporary, step to survey a group in which relationships and evolutionary lines are difficult to assess.

It is hoped that this work with its high standards of taxonomy will induce similar standards in the work of subsequent taxonomists of the group and encourage the collection of information on the biology and ecology of the Protura. Further, their distribution may prove to be of considerable zoogeographical interest.

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