

BOOK REVIEW

WICHARD W., ARENS W. & EISENBEIS G.: ATLAS ZUR BIOLOGIE DER WASSERINSEKTEN. G. Fischer, Stuttgart etc., 1995, XII + 338 pp. ISBN 3-37-30743-6. Price DM 128.00.

With the exception of the famous C. Wesenberg-Lund's classical book on the biology of freshwater insects (1943), there is no modern comprehensive monograph on aquatic insects in general. The present volume fills this gap at much higher methodical levels presenting 912 SEM micrographs and 156 text figures with the emphasis on the ways in which numerous unrelated, originally terrestrial taxa colonized limnic habitats, responded to selective pressure and adapted to life in the aquatic environment.

The book consists of five principal chapters. The introductory chapter (General part) deals with evolution of aquatic insects in general, their respiratory and osmoregulatory adaptations and types of their life cycles. The second chapter (Systematic part) describes morphological (and sometimes behavioural as well) adaptations of individual groups of aquatic insects or aquatic representatives of predominantly terrestrial taxa like Coleoptera, Diptera and Hymenoptera. Altogether 12 insect orders are elaborated, from springtails (Collembola) to dipterans in a similar way. The left-hand pages contain text, additional line drawings or graphs and diagrams mostly taken from the literature, and figure legends. The right-hand pages show original SEM micrographs of excellent quality. They illustrate mostly respiratory or osmoregulatory organs with various sensilla, adaptations of mouthparts to underwater feeding, various whole body or leg modifications enabling life in stream-line habitats, and many other structures of interest at various magnifications up to 12,100 \times . For the stoneflies (Plecoptera), for example, the following main subjects are dealt with: characteristics and distribution, habitats and body form types, mouthparts and feeding biology of carnivorous forms and species feeding on algae, metamorphosis with the emphasis on development of wings and external abdominal appendages, chloride cells in Arctoperlaria and Ant-

arctoperlaria, tracheal gills and their functional morphology, and the eggs of Plecoptera.

The main chapters of this book (General and Systematic parts) are completed by brief notes to methods of SEM (fixation, drying, mounting of preparations, observation), a list of references (25 pages), plus taxonomic and subject indices.

However, the systematic part has some minor mistakes. For instance, the Table 6 (and also one of the figures on the front cover) definitively do not represent mayfly species *Epeorus sylvicola* but some species of the genus *Iron* (probably *I. alpicola*), the statement that "... die letzten Larvenstadien und die Imago geflügelt sind" (p. 85) is evidently incorrect, Galastoceridae (sic) should be Gelastoceridae, *Nepa rubra* is a junior synonym of *N. cinerea*, etc. At several places, such as on pp. 18, 90 or 106, the left-hand page text does not correspond with figures and vice versa. The selection of literature seems to be rather arbitrary in numerous cases. For instance, the phylogeny of insects (Fig. 1) according to Paulus (1985) is quite obsolete ignoring contemporary opinions on phylogeny and classification of hexapod arthropods (Kristensen, Kukalová-Peck and others). Higher classification of the order Ephemeroptera is omitted. Higher classification of Heteroptera is based on earlier literary data although quite modern systems are available (Štys & Kerzhner, 1975 or Mahner, 1993). The youngest literary source on the family Pleidae cited here (Weber, 1930) is more than 50 years old.

The above critical remarks only concern mostly formal aspects of this marvelous treatment of all groups of aquatic insects and the present volume is the counterpart of an earlier *Atlas zur Biologie der Bodenarthropoden* by Eisenbeis & Wichard (1985). There is little need to emphasize how useful such a comprehensive treatment is for experts in hydrobiology and aquatic entomology. This very attractive and splendidly illustrated book undoubtedly will fascinate students and also beginners in this field of entomology.

T. Soldán & M. Papáček