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Book Review

Glenn B. WIGGINS: Caddisflies – The Underwater Architects. University of Toronto Press, 2004:292p. ISBN 0-8020-3714-3. Price (cloth): \$125.00, £80

This is not the first book on Trichoptera intended for a wide audience: for instance, one with the same focus on the constructions of caddisfly young instars, and with an almost identical title, was published in 1963 – but in a “peripheral” language (L. Botoșăneanu. 1963. Insecte sub apă...arhitecți și constructori. București: Editura Științifică) rendering it practically unknown. However we have here a very comprehensive book which will make this fascinating Order of insects known to naturalists and entomologists, to people directly interested in aquatic biology or in insect behaviour, at the same time representing an important source of information for trichopterologists. It will be a counterweight to the plethora of books on Lepidoptera, Coleoptera, etc. appearing every year.

The main objective of the book is in this manner formulated by the author: “The underlying theme of this book is that the effective roles of caddisflies in the flow of energy and nutrients through freshwater systems is largely a result of extraordinary diversification in larval architecture. Construction behaviour of the larvae is interpreted as a pathway of natural selection in establishing new ecological niches for caddisflies”. This theme is developed mainly in the sections “Architecture and biology” and “Caddisflies in freshwater communities”, where the link between type of constructions and their ecological significance is the guideline. I should have liked to see here some information on patterns of the construction (or reconstruction) process – a research field not very fashionable today, as it seems, but in which several authors have earlier established highly interesting observations or results of experiments on representatives of various families. But the presentation of the results of building activity in connection with their biological significance (material selection, feeding, respiration, energy budget, protection...) is excellent, and, for instance, much attention is given to the link between portable cases and predation or respiration, to filter feeding larvae, and to the special case of the Hydropsychidae.

In “Caddisflies in freshwater communities”, the concern with biological significance of construction is further developed, with information on food resources and functional feeding groups, the various trophic categories of Trichoptera and the various main types of building activity being examined in a historical context – an original manner of tackling the problem. The reader will find in this speculation material for reflection, and I quote: “My interpretation of the evidence available now is that for caddisflies the better ways for making a living involved the modification of behaviour to use silk in unprecedented ways to gather food” and “I think that caddis larvae became unconventional competitors with a novel advantage when natural selection began to tinker with larval behaviour and the production of silk, which is largely what radiation in Trichoptera is about”. The last part of this section is devoted to caddis communities in various freshwater habitats, and as could be expected from earlier publications of the author, special attention is given to temporary pools, and to spring seepage habitats.

Another section part of the book is concerned with the architecture of pupation, patterns of pupation being considered an important information source for phylogenetic speculation. This leads directly to “Evolution of caddisflies and their architecture”, a section of the book certainly not meant for a wide circle of readers – and, I must confess, one beyond my capacity of formulating clear

opinions. The origin of the Order is here envisaged, the bulk of this section being a critical review of various, sometimes conflicting, hypotheses for the phylogeny of Trichoptera, hypotheses for whose elaboration construction results were the essential tools (although we read that “I do not contend that the basal phylogeny of Trichoptera can be reconstructed solely from construction behaviour of the larvae”). Discussion of the pros and cons for the several proposed phylogenies has led to choice of the classification used in part II of the book.

“Biogeography of caddisflies” is an account of historical (I emphasize!) biogeography, starting with the Triassic when Trichoptera possibly became a separate lineage, following with the Mesozoic biogeography of the three main groups of caddisflies, and with a part on the Cenozoic which is rather brief and where the Western Palaearctic is rather neglected. It should be emphasized here that palaeontological evidence has been consistently used throughout the book as a background for various considerations (to quote from p. 85: “Throughout the account, geological time has been a connecting theme...”). When reading the title of this section, I hoped to find here also some synthetic account of caddisfly biodiversity in the 6 major Biogeographic Realms of the globe: I have been disappointed to find nothing of this kind.

It is Part II of the book “The families of caddisflies”: pp. 103-219 which will reveal to a large audience the extraordinary diversity of the Order. Larvae, pupae, and constructions in all (45) recognized extant families are reviewed through profusely illustrated, succinct but multilateral texts. Families represented in the Nearctic, the “centre of gravity” for chosen examples and illustrations, bear the author’s very distinct mark: *de gustibus et coloribus non disputandum!*

A good idea has been the inclusion of much supplementary information at the end of the book: in this manner the presence of numerous parentheses in the text proper has been avoided.

Like his earlier books, this one has been conceived by G. B. Wiggins as a work of art: it is a real pleasure for the eye. And the University of Toronto Press is to be congratulated for a graphic achievement approaching perfection.

L. Botoșăneanu, Amsterdam

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**Japanese collections**

Dr. Kuranishi tells me that the collection of Mineo Kobayashi is now in the Chiba Museum; the collection of M. Iwata is in the Kyoto Museum. The collections of I. Akagi and M. Tsuda are possibly lost.

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