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BOOK REVIEW

Mills, C.E., F. Boero, A. Migotto and J.M. Gili, (eds.) – 2000. ***Trends in Hydrozoan Biology IV***. *Scientia Marina* 64 (Supl. 1): 284 pp.

This volume is the fourth resulting from informal workshops of the Hydrozoan Society. The inaugural meeting[1] in 1985 was convened to discuss the systematics, ecology and evolution of hydroids and hydromedusae, a core to which other topical themes readily accrue. Such workshops draw their inspiration from the sea. Hydrozoan species occupy marine habitats ranging from intertidal and pelagic zones to great depths; only a few flourish in freshwater. Their life-histories and development are a key to understanding the relations between hydroids and medusae and elucidate the impressive diversity of Hydrozoa. Live specimens prove to be particularly important in hydrozoan research, and in this volume most of the papers are based on recently collected or cultured material.

All the papers report or summarise original observations. These contributions are thoughtful, unhurried, apt, illuminating. The research questions behind each project are set out and discussed and in several instances reviewed. The reader shares in lively trains of thought and the assurance conveyed by the authors' first-hand experience. For those who know little of hydrozoans this volume on its own furnishes a fine perspective that is full of new observations and will not date.

There are 30 papers, presented by 61 authors writing from 18 countries. More than half of the projects benefit from the impetus or experience of founder members.[1] The open nature of the workshops ensures that new topics within the frame of hydrozoan biology are represented whilst core themes remain sturdy. Many of the papers carry ecological implications. Among these, some test environmental effects (Rossi, Gili and Hughes; and Faucci and Boero, on the effects of wave exposure of epiphytic hydroids; Ribes *et al*'s study of benthic suspension feeders *in situ*), whereas others deal with behavioural ecology (Ford and Costello on adaptive swimming patterns of hydromedusae; Miglietta *et al*, on patterns of feeding behaviour in hydroids and some of their medusae; Pagliara, Bouillon and Boero on development and the role of behaviour in planula larvae). Studies in benthic habitat ecology range from intertidal distribution in rock pools (Hirano, Hirano and Yamada on 2 species of the creeping medusa *Staurocladia*) to research on hydroids associated with sessile invertebrate hosts (Bavestrello *et al* on a species of *Peranella*; and Kubota's wide-ranging review of *Eugymnanthea*). Turning to the pelagic zone, two papers on the large-scale distribution of gelatinous plankton examine the variability from year to year of assemblages within the Benguela ecosystem (Buecher and Gibbons), and the influence of coastal features off Argentina and Brazil which enhance productivity (Mianzan and Guerrero). In smaller ecosystems, such as the seawater lakes at Mljet Island in Croatia, the abundance of medusae (including *Aurelia*) is influenced rather more directly by local conditions (Benovic *et al*). Medusae from deeper waters are the subject of three broadly ecological papers. Bouillon *et al* report on unusual medusae from sediment traps in submarine canyons near Banyuls; Arai, Cavey and Moore on a new *Solmaris* sp. (narcomedusae) from Canadian north-east Pacific collections; and Osborn on live *Solmissus incisa* (also a narcomedusa) captured in Monterey Bay.

Systematic papers give the reader insight into keystone problems and their resolution. The status of the New Zealand hydroid *Clathrozoella* is established further by new information (Vervoort); the biology and systematics of *Tripoma* from Tasmanian seamounts are reviewed (Watson and Vervoort); a new species of *Pachycordyle* from a freshwater lake in Japan prompts a review of related brackish and freshwater species (Cordylophorinae, fam. Clavidae: Stepanjants *et al*). The importance of life-history studies to establish both identity and distribution is clear from contributions by Brinckmann-Voss (on *Sarsia bella),* Mills (on *Halimeda typus*), Rees (on *Amphinema* sp.), and two papers on invasive species of medusae in the San Francisco estuary, thought to have been native to the Black Sea (Rees and Gersh-

win; Mills and Rees). Bavestrello *et al*'s description of an unidentified strobilating hydroid makes the same point.

Features of reproduction and of behaviour are often species-specific. Examples are the development of the gonangium in medusoids of *Nemalecium lightii* (Gravier-Bonnet and Migotto), and development of the nerve-net in medusae of *Podocoryne carnea* (Grogier and Schmid). Stinging capsules (nematocysts), a character of phylum Cnidaria which is often species-specific in Hydrozoa, are referred to in about half the papers here. A considered review by Ostman of nematocyst nomenclature, illustrated by new material from Hydrozoa (hydroid, siphonophore), Scyphomedusae, and Anthozoa (anemones, a coral) will facilitate their identification in taxonomic and other work.

Two contributions view longer time scales and consider evolution. The thrust of molecular data upon phylogenetic problems is discussed by Schierwater and Ender, who use sequence data from the 16S rDNA mitochondrial large subunit to place a new species (*Sarsia marii)* in a clade of related species and genera. The whole picture of hydrozoan phylogeny is considered by Collins. He tests sequences of 18S rDNA against a number of hypotheses taken from the literature. His critique of existing sources of data with emphasis on the need for further research in all domains is plausible and welcome.

The reader whose imagination is fired by the history of ideas will turn to the paper by Gravili *et al*., which summarises almost a century of research on hydroidomedusae. The seminal author is W. Vervoort, whose bibliography of the years 1911-1995 has made so much endeavour possible. Thanks to F.Boero and his colleagues the current version of this bibliography is now on the Web. Among distinguished authors who contribute to the present volume J. Bouillon's notable entry fills several pages. Naturally, in order to trace ideas and discoveries, nothing replaces first-hand encounter with the author's printed page. This summary presents, rather, a first analysis of titles, general field of the work and where it was done, and illustrates the impact of world history upon the development of science and how and where it is pursued.

The editors have done a good job. In keeping with traditions the text is clear and well illustrated. There is a combined subject and taxonomic index. Send details to the librarian or buy it yourself. This is a guide to past and present ideas and it provides a springboard for anyone wishing to study through observation. For the researcher marooned on a desert island and aspiring to original projects this book is the only one needed.

Bouillon, J., F. Boero, F. Cicogna and P.F.S. Cornelius (eds.) – 1987. *Modern Trends in the Systematics, Ecology and Evolution of Hydroids and Hydromedusae*. Clarendon Press, Oxford, 320 pages

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