

D.T.J. Littlewood, R.A. Bray (Eds.): Interrelationships of the Platyhelminthes. *The Systematics Association Special Volume Series 60*. Taylor & Francis, London and New York, 2001, ISBN 0-7484-0903-3, hard cover, 353 pp. Price £ 75.00.

Flatworms have attracted the attention of biologists for many years as they are supposedly among the most primitive bilaterian animals and because their parasitic forms such as flukes and tapeworms are of medical and veterinary importance. The presence of both free-living and parasitic groups among flatworms has led to relatively separate investigations performed by invertebrate zoologists and parasitologists respectively. With the idea to join both groups of researchers and to review recent achievements in studies on the morphology, biology and phylogeny of flatworms, a workshop named "Interrelationships of the Platyhelminthes" was organised in the Linnean Society of London in July 1999.

In the present book, peer-reviewed papers by most of the invited speakers are presented to summarise the current knowledge of the phylogeny of the Platyhelminthes. The book is divided into four parts, each of them dealing with different groups of flatworms and using distinct methodological approaches. The different state of the present knowledge is also reflected by the fact that not all major groups are represented whereas others are treated in several contributions.

The first part ("Early origins and basal taxa") includes four papers on presumably basal taxa of flatworms, i.e., Acoela consisting of Acoelomorpha and Nemertodermatida. Due to still controversial opinions and the absence of indisputable evidence, no definitive conclusions have been made with regard to the putative unrelatedness of the Acoela to the remaining flatworms, as indicated by recent molecular studies. Nevertheless, new characters, potentially useful for phylogenetic analyses, are discussed.

Free-living groups, originally allocated to the undoubtedly artificial taxon "Turbellaria", are treated in the four contributions of the second part. Different approaches to studying members of the Proseriata, Tricladida, Dugesidae (Tricladida) and Prolecithophora have been used to provide updated information about their phylogeny.

The highest number of contributions (10) is presented in the third part "Symbionts and parasites". L.R.G. Cannon and B.I. Joffe provide a comprehensive data set about morphology and biogeography of the Temnocephalida. The phylogeny of families of the Monogenea (Monogenoidea) is evaluated on the basis of a revised matrix of characters in the following chapter (W.A. Boeger and D.C. Kritsky).

Great progress has been made in studies on the phylogeny of tapeworms (Cestoda). Besides analyses inferred from molecular (J. Mariaux and P.D. Olson) and morphological (W.E. Xylander; J.N. Caira, K. Jensen and C.J. Healy) data, a phylogenetic tree based on a total evidence approach is presented by E.P. Hoberg, J. Mariaux and D.R. Brooks.

Apparently, the less resolved phylogeny remains in trematodes (Digenea), where new characters should be found to better evaluate relationships of individual digenean groups. Nevertheless, the analysis based on a synthesis of morphological, life-cycle and molecular data (T.H. Cribb, R.A. Bray, D.T.J. Littlewood, S.P. Pichelin and E.A. Herniou) has indicated the basal position of the Transversotrematidae and Diplostomatoidea + Schistosomatoidea. Although the final

solution is still not resolved, the results suggest that a three-host developmental cycle was a basal life-cycle pattern in the Digenea and fork-tailed cercaria (furcocercaria) a plesiomorphic type.

In other chapters, the phylogeny of aspidogastreaans (the basal taxon of the Trematoda) (K. Rohde), digeneans of the suborder Plagiorchata (V.V. Tkach, J. Pawlowski, J. Mariaux and Z. Swiderski) and blood flukes (Schistosomatidae – S.D. Snyder, E.S. Loker, D.A. Johnston and D. Rollinson) is discussed on the basis of the most recent data.

The fourth part consists of nine contributions that provide extensive information about different characters considered to be useful for phylogenetic studies of flatworms, both free-living and parasitic. The usefulness of characters such as the protonephridia (K. Rohde), the spermatozoa (N.A. Watson; J.-L. Justine), the nervous system (M. Reuter and D.W. Halton), the life cycles (I. Beveridge), the embryonic development and developmental genes (M.J. Telford), and the sequences of 18S rDNA (D.T.J. Littlewood and P.D. Olson) is discussed with regards to their suitability for phylogenetic studies.

The book is concluded by contributions by B.I. Joffe and E.E. Kornakova ("Flatworm phylogeneticist: between molecular hammer and morphological anvil") and M. Wilkinson, J.L. Thorley, D.T.J. Littlewood and R.A. Bray ("Towards a phylogenetic supertree of Platyhelminthes?").

The present book documents well the great progress achieved in studies of free-living and parasitic Platyhelminthes since publication of Ehler's (1985) fundamental volume "Das Phylogenetische System der Plathelminthes". Although the amount of data accumulated since 1985 is impressive, this book also illustrates that there are still many questions that should be addressed in future research.

This book represents an invaluable source of comprehensive information about the current state of research in respective groups of flatworms. The data provided will certainly serve for further research of these phylogenetically primitive, but extremely diverse and evolutionarily successful group of bilaterian animals. The fact that complete matrices of characters and their states are included further enhances the usefulness of the book.

Although misspellings and misprints can be found in places, their number is negligible considering the huge amount of information presented. The graphic quality of the book is also excellent, including its cover that nicely documents the extraordinary diversity of flatworms. The authors of all papers, and the Editors in particular, should be congratulated. This book is not only an indispensable source of information for helminthologists and invertebrate zoologists working on flatworms, but it will also be of great use to other zoologists and anybody interested in nature and animal evolution.

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