

Animal phylogeny is undergoing a major revolution due to the availability of an exponentially increasing amount of molecular data and the application of novel methods of phylogenetic reconstruction, as well as the many spectacular advances in palaeontology and molecular developmental biology. Traditional views of the relationships among major phyla have been shaken and new, often unexpected, relationships are now being considered. At the same time, the emerging discipline of evolutionary developmental biology, or 'evo-devo', has offered new insights into the origins and evolvability of major traits of animal architecture and life cycle. All these developments call for a revised interpretation of the pathways along which animal structure and development has evolved since the origin of the Metazoa.

Perspectives in Animal Phylogeny and Evolution takes on this challenge, successfully integrating morphological, fossil, and molecular evidence to produce a novel reinterpretation of animal evolution. Central to the book's approach is an 'evo-devo' perspective on animal evolution (with all the fresh insights this has given into the evolution of animal organization and life cycles), complementary to the more traditional perspectives of pattern (cladistics, comparative anatomy, and embryology), mechanisms (developmental biology), and adaptation (evolutionary biology). The author advocates the need to approach the study of animal evolution with a critical attitude towards many key concepts of comparative morphology and developmental biology. Particular attention in the book is paid to the evolution of life cycles and larval forms.

This accessible text is suitable for graduate students taking advanced courses in evolutionary developmental biology, invertebrate zoology, molecular phylogenetics, and palaeontology, as well as professional researchers in these fields requiring an authoritative and up-to-date overview of this dynamic topic.

'... a magnificent tour of metazoan relationships ... This concise account easily can and should be read by all serious students of animal phylogeny and evolution.'

Science

'... a must-read for anybody interested in any aspects of animal evolution, systematics, development, or paleontology ... it constitutes a milestone in what can be called the field of "phyloevodevo"'

Systematic Biology

'... a celebration of the intellectual puzzles posed by the wonderful diversity of animals, an effective spur for further exploration and debate of the mysterious but unmistakable signs of unity hidden beneath this diversity. No serious student of animal evolution can afford to miss this book.'

Nature

Cover images: The acorn *Coriolutria longissima* © Andreas Hejnol & Eric Röttinger, Kewalo Laboratory, Hawaii; DNA autoradiogram © Science Photo Library

OXFORD
UNIVERSITY PRESS

www.oup.com

ISBN 978-0-19-856621-2



9 780198 566212