

The Evolutionary Biology of the Bivalvia

EDITED BY

E. M. HARPER
Cambridge University, UK

J. D. TAYLOR
The Natural History Museum, UK

&

J. A. CRAME
British Antarctic Survey, UK

2000
Published by
The Geological Society
London

Contents

Preface	vii
HARPER, E. M., TAYLOR, J. D. & CRAME, J. A. Unravelling the evolutionary biology of the Bivalvia: a multidisciplinary approach	1
STEINER, G. A. & HAMMER, S. Molecular phylogeny of the Bivalvia inferred from 18S rDNA sequences with particular reference to the Pteriomorpha	11
CAMPBELL, D. C. Molecular evidence on the evolution of the Bivalvia	31
CARTER, J. G., CAMPBELL, D. C. & CAMPBELL, M. R. Cladistic perspectives on early bivalve evolution	47
COPE, J. C. W. A new look at early bivalve phylogeny	81
SKELTON, P. W. & SMITH, A. B. A preliminary phylogeny for rudist bivalves: sifting clades from grades	97
HARPER, E. M., HIDE, E. A. & MORTON, B. Relationships between the extant Anomalodesmata: a cladistic test	129
LYDEARD, C., MINTON, R. L. & WILLIAMS, J. D. Prodigious polyphyly in imperilled freshwater pearly-mussels (Bivalvia: Unionidae): a phylogenetic test of species and generic designations	145
BOGAN, A. E. & HOEH, W. R. On becoming cemented: evolutionary relationships among the genera in the freshwater bivalve family Etheriidae (Bivalvia: Unionidae)	159
HEALY, J. M., KEYS, J. L. & DADDOW, L. Y. M. Comparative sperm ultrastructure in pteriomorphian bivalves with special reference to phylogenetic and taxonomic implications	169
KEYS, J. L. & HEALY, J. M. Relevance of sperm ultrastructure to the classification of giant clams (Mollusca, Cardioidea, Cardiidae, Tridacnidae)	191
TAYLOR, J. D. & GLOVER, E. A. Functional anatomy, chemosymbiosis and evolution of the Lucinidae	207
KELLY, S. R. A., BLANC, E., PRICE, S. P. & WHITHAM, A. G. Early Cretaceous giant bivalves from seep-related limestone mounds, Wollaston Forland, Northeast Greenland	227
MORTON, B. The function of pallial eyes within the Pectinidae, with a new description of those present in <i>Patinopecten yessoensis</i>	247
LOPES, S. G. B. C., DOMANESCHI, O., MORAES, D. T. DE, MORITA, M. & MESERANI, G. DE L. C. Functional anatomy of the digestive system of <i>Neoteredo reynei</i> (Bartsch, 1920) and <i>Psiloteredo healdi</i> (Bartsch, 1931) (Bivalvia: Teredinidone)	257
BENINGER, P. G. & DUFOUR, S. C. Evolutionary trajectories of a redundant feature: lessons from bivalve gill abfrontal cilia and mucocyte distributions	273
THOMAS, R. D. K., MADZAMUSE, A., MANNI, P. K. & WATHEN, A. J. Growth patterns of noetiid ligaments: implications of developmental models for the origin of an evolutionary novelty among arcoid bivalves	279
YANCEY, T. E. & HEANEY, III, M. J. Carboniferous praecardioid bivalves from the exceptional Buckhorn Asphalt biota of south-central Oklahoma, USA	291

MALCHUS, N. Evolutionary significance of fossil larval shell characters: a case study from the Ostreioidea (Bivalvia: Pteriomorpha)	303
SAVAZZI, E. Morphodynamics of <i>Bryopa</i> and the evolution of the clavagellids	313
BYRNE, M. Calcium concretions in the interstitial tissues of the Australian freshwater mussel <i>Hyridella depressa</i> (Hyriidae)	329
ROGALLA, N. S. & AMLER, M. R. W. <i>Teranota</i> and its implications on anomalodesmatan phylogeny	339
CRAME, J. A. The nature and origin of taxonomic diversity gradients in marine bivalves	347
JABLONSKI, D., ROY, K. & VALENTINE, J. W. Dissecting the latitudinal diversity gradient in marine bivalves	361
MIKKELSEN, P. M. & BIELER, R. Marine bivalves of the Florida Keys: discovered biodiversity	367
DAGUIN, C. & BORSA, P. Genetic relationships of <i>Mytilus galloprovincialis</i> Lamarck populations worldwide: evidence from nuclear-DNA markers	389
CRAMPTON, J. S. & MAXWELL, P. A. Size: all it's shaped up to be? Evolution of shape through the lifespan of the Cenozoic bivalve <i>Spissatella</i> (Crassatellidae)	399
JOHNSON, A. L. A., HICKSON, J. A., SWAN, J., BROWN, M. R., HEATON, T. H. E., CHENERY, S. & BALSON, P. S. The Queen Scallop <i>Aequipecten opercularis</i> : a new source of information on the late Cenozoic marine environments in Europe	452
PECK, L. S. & CONWAY, L. Z. The myth of metabolic cold adaptation: oxygen consumption in stenothermal Antarctic bivalves	441
EDELAAR, P. Phenotypic plasticity of burrowing depth in the bivalve <i>Macoma balthica</i> : experimental evidence and general implications	451
CADÉE, G. C. Herring gulls feeding on a recent invader in the Wadden Sea, <i>Ensis directus</i>	459
SEED, R., RICHARDSON, C. A. & SMITH, K. Marine mussels, their evolutionary success, ecological significance and use as chronometers of environmental change	465
Index	479

It is recommended that reference to all or part of this book should be made in one of the following ways:

HARPER, E. M., TAYLOR, J. D. & CRAME, J. A. (eds) 2000. *The Evolutionary Biology of the Bivalvia*. Geological Society, London, Special Publications, **177**.

MORTON, B. 2000. The function of pallial eyes within the Pectinidae, with a new description of those present in *Patinopecten yessoensis* In: HARPER, E. M., TAYLOR, J. D. & CRAME, J. A. (eds) *The Evolutionary Biology of the Bivalvia*. Geological Society, London, Special Publications, **177**, 247–257.