

BOOK REVIEW

Molluscs in Archaeology: Methods, Approaches and Applications, edited by Michael J. Allen. 2017. Oxford: Oxbow Books. 434pp.

Forty-five years after John G. Evans' "Land Snails in Archaeology", and nineteen years after Cheryl Claassen's "Shells", we now have a textbook that aims to cover all aspects of archaeomalacology, the study of mollusc shells from archaeological sites. The book is a welcome addition to our bookshelves and comprises twenty-three chapters written by 26 authors. Six of the chapters were written or co-authored by Michael Allen, the editor. It represents a compilation of knowledge that has accumulated and been developed during the course of over one hundred years of research by hundreds of specialists, mostly from the disciplines of either archaeology or malacology, and in the last two decades, by specialists of archaeomalacology. Importantly, the discipline relies heavily on complementary fields of knowledge such as isotopic research, radiocarbon dating, ecology, speleology, sedimentology, social anthropology and more. This complexity represents a huge challenge because there are very few academic institutions (if any) that offer such a multi-disciplinary approach. It is therefore usually up to the researcher to acquire proper training in order to produce high level research. This complexity resonates through the book and contributes to both its strengths and weaknesses, or, simply put: the achievements are enormous and some biases are unavoidable.

Part 1, Palaeo-environments; environment and land-use comprises six chapters. Chapter 1, land snails in archaeology, presents an overview of this topic, with Allen's point of departure a geo-archaeological approach to site formation processes and the interplay between the natural, biological and geological processes, and the human interventions responsible for the occurrence of land snails in any archaeological site. Chapter 2, also by Allen, describes more specifically land snails found in colluvium. The very detailed text seems more suitable for specialists than students and emphasizes sampling strategies. Chapter 3 on statistics and land snail palaeoecology by M. Law is beautifully written but intended for readers with a previous knowledge of both fields. The

author points out in his conclusions (p. 62) that this field "remains underdeveloped in archaeology". Chapter 4, on the palaeo-environments of sand dunes in the British Isles (T. Walker) demonstrates how the change of species over time can be used to indicate environmental change, with a case study to explain the advantages of this approach. Chapter 5 (M. Law & N. Thew) deal with the dune-machair systems. The chapter is beautifully written and shows the interesting correlation between certain snail taxa and grazing, reflecting changes in vegetation and climate based on a study in islands off the Scottish coast. Chapter 6 (C.O. Hunt and E.A. Hill) is an excellent review that discusses the ways molluscs get into caves and how the researcher can distinguish between human and non-human interference. Examples from North Africa and Vietnam, as well as the British Isles demonstrate the potential for archaeological research. Chapters 7 (M. Robinson) on the alluvial floodplain of the Thames Valley and 8 (T. O'Connor) on molluscs from wetlands complete the paleoenvironmental data from Britain. Robinson explains clearly the environmental information that can be inferred from the Thames River Valley, especially from the Neolithic through the Bronze, Iron and Roman Ages. Importantly, how much is not yet known about the ecology of certain species, preventing proper interpretation of the finds. Such interpretation requires ecological study and thus shows the contribution of archaeology to malacology. O'Connor points out difficulties in environmental terms in the study of freshwater fauna generally, and its interpretation. However, he demonstrates three uses of various wetlands as fishpond, sewer and a moat and stresses the importance of integrating these finds with other environmental indicators from any given excavation. Here again, the contribution of archaeology to malacology is exhibited in its relevance to species conservation.

Part 2: Paleo-environmental reconstruction: Europe, the Mediterranean and Near East is made up of four chapters and is more eclectic

in that it presents not only palaeoenvironmental reconstructions, but also relies more heavily on an active role by humans in the acquisition of shells. In Ch. 9 on the English chalklands, M.J. Allen compiles many of his previous studies enabling the reconstruction of the mosaic of woodlands and grassland over space and time in southern England, especially in light of the absence of botanical remains. He shows that it is possible to distinguish between a natural absence of woodlands and deforestation. Ch. 10, Landscape and ecology in Malta (M.J. Allen & B. Eastabook), presents a recent study of the modern ecology of land snail fauna in Malta and shows its potential for the reconstruction of past environments. Ch. 11 presents Holocene sites along the lower Danube River (C. Pickard, A. Boroneant & C. Bonsall) and encompasses the malacofauna of terrestrial and aquatic species, with possible evidence for consumption (or use as fish bait) of both Helicids and Unionids. Furthermore, the study touches upon the use of shell, both freshwater and marine, for producing ornaments and other artefacts. Due to recent damming of parts of the Iron Gates region, the paleoenvironmental reconstructions are particularly valuable. What constitutes a shell midden and the use of land snails as a food source is discussed in Ch. 12, (V.K. Taylor & M. Bell), based on a study at Taforalt Cave, Morocco, where millions of shells were consumed over a period of about 2400 years, a practice that intensified around 15,000 years ago and complements information from Ch. 6. (although including Morocco in the Near East seems problematic).

In Part 3, marine and food and diet, most chapters emphasize the methodology for researching marine molluscs. Ch. 13 (L. Sommerville, J. Light & M.J. Allen) provide detailed guidelines on how to handle and how to identify molluscs from an excavation, with a good summary of what molluscs are and how to measure them. The archaeological aspects emphasize their use as a food source, mostly from later periods (i.e., not including the Palaeolithic). Ch. 14 on oysters (J. Winder) is well written and mostly concerns oyster consumption in Britain during pre-Roman, Roman and Medieval times, while also discussing different strategies for gathering oysters. An important insight suggests future possible research into proteomics in oysters. Ch. 15, shell middens (K. Hardy) deals with the way

an ethnographic study of contemporary shell middens in Senegal can contribute to the archaeological interpretation of middens, while Ch. 16 (G. Campbell) discusses in detail the research methodology of molluscs and is a strong complement to Ch. 13. Ch 16 also contains information on the handling and curation of archaeological collections, something essential for future research.

Part 4 is dedicated to artefacts. Ch. 17 (J. Ridout-Sharpe) mostly reviews shell ornaments from the Eastern Mediterranean (Greece and Cyprus) and the Levant. Ch. 18 explains how the molluscan shell can be used as a raw material based on the different mineralogical structures. Thus, certain mollusc families are more suitable for object production than others. The chapter also provides a concise review of Palaeolithic shell artefacts, both tools and ornaments manufactured (or acquired) by various hominin taxa. J. Light and T. Walker (Ch. 19) present the use of *Nucella lapillus* as a source of purple dye in Britain and Ireland, and include other evidence of Muricids exploited for dye. They conclude that the mere presence of the species is not in itself proof of dye extraction because *N. lapillus* may have served other purposes (food or bait). Ch. 20 (J. Light) presents a study that explores the taphonomy of *Mytilus edulis* that were apparently consumed, as well as *Glycymeris* that may have been collected as ornaments. By performing a 'ground-truthing' exercise (elsewhere referred to as an "actualistic study") she was able to compare the archaeological specimens to natural taphonomic processes to improve interpretation of archaeological finds.

Part 5, science and shells, is dedicated to the isotopic studies of mollusc shells. Ch. 21 (R. Fernandes & A. Dreves), bivalves and radiocarbon, is a clear explanation of the principles and practicalities of radiocarbon dating, the provenance of carbon in a bivalve's shell, and the dating procedures for both marine and freshwater bivalves. It is complemented by Ch. 22 (K. Douka), radiocarbon dating of marine and terrestrial shell. Ideally the two chapters should have been combined, as the second clearly complements the first, and emphasizes different aspects of the same facts and procedures. Douka also clarifies certain aspects of shell mineralogy that had been discussed already by Szabo in Ch. 18. Both chapters 21 and 22 thoroughly explain the complexities of radiocarbon reservoir effects.

Chapter 23 (A.C. Colonese) closes the volume with stable isotopes in terrestrial gastropods. By observing changes in $\delta^{18/16}\text{O}$ and $\delta^{13/12}\text{C}$ within shells and within assemblages, Colonese was able to reconstruct past environmental conditions within and between regions and periods in Iberia and Italy using a different technique, bringing us back full circle to the environmental reconstructions that opened the book.

The entire volume, does indeed cover all possible aspects of archaeomalacology and provides ample examples of research from both Britain and elsewhere around the world. In a few places, some inaccuracies can be found connected to Phylum Mollusca: in the introduction (p. 1) Monoplacophora, a class that is irrelevant to archaeology, is mentioned, but Polyplacophora, species of which were sometimes consumed by humans in the past is not discussed in the volume at all. Conversely, on p. 381 Polyplacophora is mentioned but Monoplacophora is not. "Order Gastropoda" (p. 227) should have really been avoided because it is a Class, and in one place 'operculum' seems to have been confused with 'aperture' (p. 186). Inaccuracies are not only found in the malacological terminology: for example, the presence of the Natufian Culture in the Levant was defined by Dorothy Garrod, not Kathleen Kenyon (p. 290–1). Notably, most of the writers are either British or affiliated with British institutions, and the book (especially its first half)

sometimes reads like "Molluscs in Archaeology in Britain". The use of terms such as "Victorian period" (p. 167) rather than nineteenth century, emphasizes the "Britishness" of this volume, but to someone from outside the country such as myself, simply sounds odd. In addition, it would have been better to include more research from the Americas. American research in general is rather under-represented in the volume.

Except for a very few editorial mistakes (the occasional word that repeats itself, the occasional missing reference), the layout of the book is very professional and pleasing. Boxes with important references (chapters 1 and 13) and the cautionary comments that books are no substitute for a reference collection are rightly highlighted. The presentations of analytical methods in every chapter are very useful.

Michael Allen is to be congratulated for achieving the herculean task of compiling all the up-to-date methods, approaches and applications of the study of molluscs in archaeology. This volume will undoubtedly serve as a textbook, not only for archaeomalacologists, but for archaeologists in general, professionals and students alike, as well as malacologists interested in human-mollusc interactions, for many years to come.

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