



Book Reviews

THE OXFORD HANDBOOK OF ZOOARCHAEOLOGY EDITED BY UMBERTO ALBARELLA WITH MAURO RIZZETTO, HANNAH RUSS, KIM VICKERS AND SARAH VINER-DANIELS

Oxford University Press, 2017. 864pp, 129 illus incl B&W plates, 40 tables and online supplementary material, hb, ISBN 978-0-19-968647-6, £110

Animal bones are often amongst the most common finds from archaeological sites and their study – zooarchaeology – has emerged as a strong discipline allowing us to better understand the complex roles animals played in past human cultures. In the early days published animal bone reports were often little more than a brief inventory of species present, with much of the detailed information consigned to microfiche. As the discipline evolved and research questions formulated, the potential of this data began to be realized and animal bone reports became more integrated into interpretive narratives about sites and cultures. The advancement of scientific techniques such as radiocarbon dating, DNA and isotope analysis, 3D modelling, has significantly broadened research possibilities and provided greater clarity.

This volume provides a broad global overview of current knowledge from leading specialists and goes beyond environmental, economic, and social approaches, to deliver a holistic view. The volume is divided into six geographic regions, and includes 46 chapters covering all continents of the globe, time periods, approaches and themes. Coverage is not entirely equal, with only four chapters for South America and Oceania compared to 15 for Europe; however, this reflects the intensity of research in different geographical areas. Approaches vary from broad period overviews within defined geographic areas to more detailed accounts of specific research themes. Extensive bibliographies at the end of each chapter allow the reader to pursue the subject matter in greater detail and a methodological glossary (Rizzetto and Albarella) at the end of the volume ensures that techniques and concepts are accessible to all readers.

The introduction (Part I, Chapter 1, Albarella) outlines the roots of zooarchaeology, how it has evolved into a thriving area of archaeological research and its future potential.

Part II covers Europe and comprises 15 chapters on a diverse array of cultural periods. The first two chapters deal with aspects of the Upper Palaeolithic in Russia (Chapter 2, Germonpré and Sablin) and western Europe (Chapter 3, Boyle), specifically mammoths and large canid remains from sites on the Russian Plain and Siberia, and the specialized reindeer-hunters in southwest France. Chapter 4 (Lõugas) explores the effects of climate change on hunting and fishing in the eastern Baltic during the Mesolithic. The next two papers explore aspects of the process of Neolithization in Cyprus (Chapter 5, Vigne) and Switzerland (Chapter 6, Schibler). One exploring how early colonists to Cyprus developed husbandry strategies from feralization linked to hunting traditions and the other, the influence of topographic, climate and cultural traditions on hunting and domestication in the Central Alpine Foreland. The next paper (Chapter 7, Bartosiewicz) offers a broad overview of zooarchaeology in the Carpathian Basin from the Neolithic to Ottoman periods. This is followed by an in depth look at animals in the Minoan and Mycenaean 'palatial' civilizations of Later Bronze Age Greece (Chapter 8, Halstead and Isaakidou). The authors exhibit something of the interdisciplinary nature of zooarchaeology by making use of not just the osteological evidence but also textual and iconography proof to aid their interpretation. Chapter 9 (Mazzorin and Minniti) considers changes in diet and animal exploitation throughout the Roman period in Rome, starting at the Iron Age-Roman transition, while Chapter 10 (Smiarowski *et al.*) deals with evidence for the exploitation of sea mammals, birds and marine fish by early Scandinavian settlers in Iceland and Greenland. The theme of island economies is touched on again in Chapter 11 (Serjeantson) in relation to fishing, wildfowling and marine mammal exploitation in northern Scotland from prehistory to early modern times. Chapter 12 (Davis) deals with evidence for Muslim improvement of sheep in Portugal using metrical data to look at size changes between the Roman and Muslim periods. Chapter 13 (McCormick and Murray) outlines the main trends in livestock agricultural change in medieval Ireland, concluding that change was largely driven by geographical adaptations and the growing market economy. The last two chapters in Part II deal with animal bone assemblages from medieval to modern urban contexts in England (Chapter 14, O'Connor) and northwest Russia (Chapter 15, Maltby), the latter focusing on the town of Novgorod.

Part III is a collection of eight chapters covering the Asian continent. A common thread runs through many of the chapters emphasizing the importance of this geographical area in the origin and development of plant and animal domestication. Chapter 16

(Peters *et al.*) looks at the spatio-temporal framework for the beginning and spread of animal domestication in Anatolia during the Early Neolithic. The next chapter provides a broad overview of zooarchaeology from the Palaeolithic to Byzantine periods in western Turkey and touches on the process of Neolithization in the region (Chapter 17, Çakırlar and Atici). Chapter 18 (Patel and Meadow) explores animal domestication and pastoralism in south Asia using osteological and genetic (mtDNA) evidence. It concludes that domestication probably occurred sometime from the sixth to fourth millennia, possibly in Gujarat. Chapter 19 (Liu and Ma) explores the Neolithic origins and spread of animal domestication, the use of domestic animals in ritual practices and discusses how animal-based subsistence strategies contributed to the development of a complex society in China. The next few papers provide broad overviews of zooarchaeological evidence in central Asia (Chapter 20, Benecke), Japan (Chapter 21, Hongo), southeast Asia (Chapter 22, Higham) and the southern Levant (Chapter 23, Lev-Tov and Whitcher Kensa) from the Neolithic to Iron Age. Chapter 22, touches again on how the development of farming led to social change and state formation.

There are eight chapters on the zooarchaeology of the African continent, many of which highlight the importance of cattle. Part IV (Chapter 24, Plug) starts with a paper on Middle and Later Stone Age hunters in southern Africa focusing on Sibudu Cave and Bushman Rock shelters. The next paper (Chapter 25, Gifford-Gonzalez) looks at the evidence (osteological and lipid residue analysis) for the emergence and spread of pastoralism in Sub-Saharan Africa and discusses how humans developed genetic and technological means for digesting milk. The importance of cattle in the Kerma culture of northern Sudan (Chapter 26, Chaix) is explored with reference to the use of bucrania in funerary and religious contexts. Chapter 27 (Badenhorst) deals with the zooarchaeology of Iron Age farmers in southern Africa focusing on sites in the Kruger National Park where greater economic and social importance was placed on caprines. Chapter 28 (Linseele) deals with the exploitation of aquatic resources in west Africa, looking at specialized food procurement strategies. Chapter 29 (Ikram) looks at the use of animals in ancient Egyptian religion, specifically animal cults and the vast numbers of votive mummies produced. The next paper (Chapter 30, MacKinnon) looks at the effect of colonization and acculturation on diet in ancient and Islamic North Africa. The final paper (Chapter 31, Heinrich) in this section is for me perhaps one of the memorable of the whole volume. It focuses on the effect the Dutch East India Company had on the

meat industry at the Cape of Good Hope in South Africa, which set in motion the dispossession of the indigenous Kloeckhoen pastoralists.

Part V is a collection of eight chapters on North America. There are two broad themes, one exploring animal use by indigenous peoples and the other the effect of early colonists and commercial exploitation on these cultures. Chapter 32 (Monks) provides a broad overview of zooarchaeology from pre-contact sites on the northwest coast and highlights the key themes. The next paper (Chapter 33, Dean) looks at the emergence of intensive agricultural economies in the southwest focusing on the Hohokam culture in Arizona. Chapter 34 (Speth) explores 13,000 years of communal bison hunting in the west, a cultural tradition that was wiped out due to commercial over-exploitation during the 19th century. The next paper (Chapter 35, Arroyo-Cabrales and Corona-M) deals with hunter-gathers in Mexico, focusing on current research and future directions. Chapter 36 (Peres) explores the exploitation of aquatic environments by the Olmec and Epi-Olmec culture in the Gulf Coastal lowlands around Veracruz in Mexico, focusing on fishing technologies, trading of resources, iconography and ritual paraphernalia, concluding that animal use went beyond physical sustenance. The next paper (Chapter 37, Lapham) examines the trade in animal pelts (specifically deer and beaver) by early colonists focusing on southwestern Virginian and south-central Pennsylvania and demonstrates how Native American hunting strategies changed to supply commercial trade. This is followed by a paper (Chapter 38, Reitz) looking at animal use by early colonists on the southeastern coast focusing on Spanish Florida, the English Carolinas, French Gulf Coast. The final paper (Chapter 39, Emery) provides a broad overview of the zooarchaeology of the Maya and explores the evidence for deforestation, overhunting, domestication and elite access to resources.

Part VI on South America comprises just four chapters. The broad themes of this section are like those explored in Part V. Chapter 40 (Stahl) explores Pre-Columbian zooarchaeology in the neotropics of the northwestern part of South America focusing on the development of indigenous agricultural systems and trade networks, and the effect of early colonists. The next paper (Chapter 41, Klokler) focuses on the composition of Brazilian shell-mounds from two sites, looking at aspects of construction and ritual. This is followed by a paper (Chapter 42, Mengoni Goñalons) on camelid hunting and herding in the southern part of the Inca empire (Argentina) looking specifically at strategic political control on the productive-consumption system. The final

paper in this section (Chapter 43, Borrero) provides an overview of Prehistoric animal exploitation in Patagonian focusing on different topographic and environmental zones – the Andean range (forest), coastline and steppes.

Part VII on Oceania is also short and comprises just four chapters. Chapter 44 (Leavesley) deals with the main themes relating to the study of Pleistocene zooarchaeology in Melanesia, focusing of the evidence from the cave site at Buang Merabak. This followed by a paper (Chapter 45, Cosgrove and Garvey) looking at behavioral inferences from Late Pleistocene Aboriginal Australia focusing on seasonality, butchery and nutrition in southwest Tasmania. The next paper (Chapter 46, Smith) deals with regional and chronological variations in energy harvests from prehistoric fauna in New Zealand and the final paper (Chapter 47, Allen) looks at spatial variability and human eco-dynamics in central East Polynesian fisheries.

There are a few typos here and there, and the clarity of some of the illustrations – particularly location maps – is lacking and could perhaps have been improved by having a set style to give the volume visual coherence. The cost of the volume is also likely to be prohibitive for many. These minor points aside, this is clearly a seminal piece of work that showcases world zooarchaeology, in a format that is proudly inclusive and non-prescriptive. The global approach has succeeded to drawing out regional research traditions and themes, and emphasised the inter-disciplinary nature of zooarchaeology and the importance of human-animal relationships in the interpretation of past cultures.

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