

Introduction

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Two classes of finds are usually the most abundant in excavations: ceramics and animal remains. Both of them signalling aspects of procurement, preparation, serving and consuming of food; food for people, food for spirits, food for other animals and food/manure for plants. For the zooarchaeologist, animal remains are the tools to trace this recurrent food story as a reflection of three major components of human societies: economy, technology and ideology: economy as the means of planning, obtaining, processing, distributing and consuming animals; technology as the means of facilitating the above processes and ideology as governing all these events through norms defining what, how, when, by whom and for whom the above actions should be done.

During the long history of the discipline the emphasis on one or the other has been shifting together with the changing archaeological paradigm. At the times of new/processual archaeology, the zooarchaeologist became deeply engaged with the archaeological question of food in its economic aspect. The main lines of investigation were in accordance with the theoretical framework of new archaeology, that is model building for explaining cultures and cultural change. In these, major and causal factor was the adaptation to environmental challenges thought adaptation of the economy and technology to the such (Clark, 1952; Higgs & Jarman, 1975)). Surely, other aspects of the human-animal relationship were looked at too (Albarella, 2017). In addition, animal bones were an important set of data for understanding the formation process of the excavated site, a pivotal step for making sense of stratigraphy and organisation and use of space (Binford, 1981).

The post – processual move in archaeology brought a heavy criticism in the confidence with which models were operated and the emphasis on economic aspects of society (Thomas, 1990). Even though the “processual” models were never abandoned by any of the practitioners of the discipline of any theoretical stance (and how could they since what kind of academic credit any research would ever had without hypotheses, modelling and testing), the advent of post-processual archaeology brought in fresh approaches. Food now is more often than not approached as a manifestation of “social complexity”. Researchers came to attach new adjectives to the discipline such as sensorial zooarchaeology (Hamilakis, 2015) and social zooarchaeology (Marciniak, 2005; Russel, 2012; Overton & Hamilakis, 2013). Sometimes these trends received criticism on their implication that there is such a branch

of zooarchaeology that deals with societies whilst there is another one that deals with an obscure something else (Albarella, 2017). Indeed, zooarchaeology has always been dealing with understanding and interpreting societies (O’Connor, 1996).

In the post - post-processual times the polarisation on matters of archaeological theory perhaps subsided (Bintliff & Pearce, 2011). For zooarchaeology, more trends come to the fore. I would argue that one of the most challenging is the call for an “applied zooarchaeology” (Lyman, 1996). Here, the use of zooarchaeological data for “making world a better place” (Lyman, 1996:111) is advocated and envisioned in ways of helping to make time-depth informed decisions on matters such as wildlife management and conservation biology. This may partly be seen as a return to the early days of the discipline when its practitioners were more interested on the documentation of animals as biological entities rather than on the archaeological aspects of their remains. Naturally enough, since at that early times of historic archaeology, zooarchaeological information was compiled mostly by researchers whose major interest was not archaeology (Reitz & Wing, 2008). This recent move though, does have the archaeology included plus an explicitly expressed aim to elate the discipline to a contributor towards solving major problems of the contemporary society (i.e. Lauwerier & Plug, 2003; Lyman & Cannon, 2004; Wolverson et al., 2016)

With the interdisciplinarity fashion ranking high in all research agendas, including archaeology, zooarchaeology is not the exception. In fact, it has been an interdisciplinary endeavour from its very beginnings. Some researchers turned their efforts to even more input from hard sciences such as biology, chemistry and geology whilst others turned to combining different sources of archaeological and historical evidence for the interpretation of the studied bone assemblages (Brown & Brown, 2011; Hartman, 2017). Hand in hand with these, zooarchaeology embraced the digital era with the greatest willingness and we could confidently say that within archaeology and all its branches, zooarchaeology was pioneering (Kansa et al., 2014).

The present book is a collection rather than a representative selection of the papers delivered at the 13th ICAZ international conference and includes those papers that were available and ready at the time of the publication. Other papers have been published elsewhere as individual articles or within other collections and more publications are anticipated. The articles offer a range of approaches and

methods about studying animal bones from archaeological excavations as a source of information related to ancient societies' practices as well as to animals as biological entities. They cover a wide geographical (Poland, Israel, Turkey, Italy, Spain, Slovenia, Brazil, Argentina, India) and temporal scale (from Palaeolithic to Medieval).

First comes a group of articles that move along the primary lines of zooarchaeological research. The article written by Marta Modolo et al. discusses two Palaeolithic sites Abric Romani (Barcelona, Spain, 45.1 and 48.6 ka BP) and Riparo Tagliente (Verona, Italy, 60 to 32-30 ka years BP). In this, additional to the economic and subsistence analysis of animal exploitation, a study of taphonomy and refitting of bone fragments is carried out for establishing the archaeological layers' integrity, sequence of human actions and use of space and by doing so contributes to the wider archaeological question of understanding Neanderthal behaviour.

Wilczyński et al. paper discusses the Eneolithic site of Mozgawa in Poland. The work integrates all animal remains, including mammals, birds, fish and molluscs in full, including information on human modifications as well as taphonomic discussion. This is stated to be one of the few extensive analyses of large assemblages from the period and locality. The discussion of all classes of animal remains together has led to a better understanding of human exploitation of the environment and has recovered for first time interesting information about intensive exploitation of wetlands and fermentation of fish.

Wojtal et al. present the Early Bronze Age site of Tel Erani in the northern Negev, Israel. It also takes a holistic approach in that mammals, birds, fish and molluscs are discussed together to explain the economic strategies employed. The use of bones for the manufacture of artefacts is discussed in detail and supported by photographs. A detailed taphonomic analysis is also included.

The next group of articles concerns mostly the documentation of species as biological entities even though information on their exploitation by humans is paid attention too. Methodological issues are also discussed. The article by Souza et al. discusses the importance of using multiproxy evidence in zooarchaeology and it points out the importance of good reference collections and governmental support for such works. They also discuss the use of zooarchaeological materials for the study of biodiversity and the tracking of extinctions or expansion of the range of particular species. They demonstrate this through the study of crustaceans, molluscs and fish remains from shell mounds in Brazil. Special emphasis is given to the value of such data for the contemporary study of species management and conservation.

Borella and L'Heureux article focuses on otarid remains from the coast of San Matías Gulf (GSM, Patagonia, Argentina) found at sites of late Holocene date. They proposed a useful new method for clarifying the

identification of the two different species, *Arctocephalus australis* and *Otaria flavescens* which co-exist in the area. Their study not only provided deeper insights on the hunting practices and exploitation of these species but also on their past distribution, information useful for the historical ecology and contemporary management of them.

Pişkin and Sütçü present a group of dog and cat finds of medieval date from the site of Komana, Turkey. The animals may have been pets of the nearby living population in that some care was shown to disposing of their dead bodies. The article gives detailed measurements for the documentation of the two species and can serve as a baseline for further studies since publication of such information for both species is rare in Turkey.

The last four articles combine zooarchaeological evidence with other sources of information such as iconography, ancient texts, mythology. The paper of Ornella Prato is an interdisciplinary treatment of the role of deer in the society of Roman Tarquinia, Italy. There, it is argued that interpretation of zooarchaeological data should not rely only on bones recovered in excavations but other sources of information should definitely be investigated simultaneously. She argues that the role of deer in that site has been misinterpreted because only species proportions were taken into account. She clarifies that the kind of deer remains recovered were mostly antlers which do not prove that deer was actually hunted and consumed. She then reviews mortuary iconographic evidence to examine the perception of deer and the relationship Tarquinians' had with it. She concludes that deer had been not much of a "food" animal but rather a symbolically charged representation of sacredness as well as a mark of dexterity of hunters of elite rank, and, most interestingly she suggests that it could have also being a pet.

The article of Ragolič and Toškan review dog finds in human graves from a number of localities in the southern alpine region of Slovenia, dated from Roman to Late Antique periods. The central research questions are the symbolic significance of dogs for these societies and the acculturation to the "Roman ways" of the local population after the Roman conquest. In the interpretation, much emphasis is given to ancient sources and the perception of dog as understood from Greek and Roman mythology but the occasional reference is given to German and Slavic folklore related to wolves.

The article by Pişkin and Durdu questions the aims of sheep and goat animal husbandry at the Late Bronze Age Hittite site of Şapinuva, Turkey. The zooarchaeological analysis relies on mortality profiles and it is supported with an extensive review of translated Hittite cuneiform texts. The combination of the two confirms some aspects of the ovicaprid exploitation.

Bedekar's article asserts that animal bone studies should not remain detached from historical literary sources

because neither the zooarchaeological information nor the study of ancient texts alone can provide a full picture of the human – animal relation. The author presents an extensive and detailed survey of Indian Sanskrit texts of Vedic tradition and details laws, attitudes and recommendations for about 50 animals. She then compares these with results of zooarchaeological research. She comes to the conclusion that the two data sets do not always conform with each other because they represent different aspects of life: the zooarchaeological datasets represent rural, semi-rural settlements and everyday life necessities whilst the text were written by urban elites to reflect an idealised form of lifestyle.

This collection offers a glimpse on the multitude of approaches that zooarchaeologists can follow even though by no means represents the full range of works discussed at the 13th ICAZ international conference nor it covers the wide variety of the studies executed within the discipline. Nevertheless, it is a good primer showcasing what zooarchaeology can/may do and leaves no doubt that faunal remains studies are a major contributor to the study of ancient societies. The strength of the discipline is evidenced by the increasing volume of books and articles published as well as conferences taking place every year. Well known amongst these are the conferences of the flourishing and very active organisation of ICAZ (<https://www.alexandriaarchive.org/icaz/index>) and its many “working groups”, each focusing on specific themes research. ICAZ, with a long tradition of almost 50 years, has worked towards creating a platform for discussing and promoting the study of animal remains worldwide. Starting with a small group that first meet in 1971 in Budapest has grown to a large community of around 500 registered members from all over the world. Surely many more colleagues take part at its quadrennial conferences since being a member of ICAZ is not mandatory for participation. Instead the conferences are open to all, members and non-members and colleagues of any specialisation can take part as far as they present a topic that it is concerned with the human-animal relationship. This all embracing attitude shows clearly the deep involvement of the discipline with the archaeological, historical and even the contemporary inquiry.

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