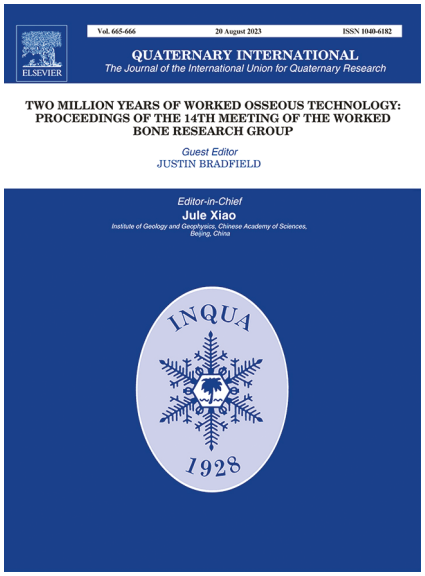
Volume XVI • Issue 1/2025 • Pages 87–88

INTERDISCIPLINARIA ARCHAEOLOGICA
NATURAL SCIENCES IN ARCHAEOLOGY
homepage: http://www.iansa.eu

Book reviews

Two Million Years of Worked Osseous Technology: Proceedings of the 14th Meeting of the Worked Bone Research Group

Justin Bradfield, ed., 2023:
Quaternary International, 665–666, special issue, pp. 1–186. ISSN: 1040-6182.
https://dx.doi.org/10.1016/j.quaint.2023.07.003



The journal Quaternary International has recently published a special issue focused on tools made from zoological raw materials. The issue contains a total of 15 articles from participants at the 14th Meeting of the Worked Bone Research Group (WBRG). In the editorial, written by *Bradfield*, we learn that although the meeting was hosted in 2021 in Johannesburg, South Africa, it was largely held online due to restrictions associated with Covid-19. There were 38 presenters from 24 countries (in addition to Europe, there were speakers from Argentina and Peru, Canada and Australia, India and, of course, South Africa) and a large audience. What follows is a summary of the entire special issue, highlighting the potential of worked osseous studies for archaeology.

In the second paper, *Gates St-Pierre et al.* come up with the first general portrait of WBRG members. We learn the distribution of gender, age, ethnicity, nationality, education, field of study, employment position, research topics, raw material, animal taxa, or time phase interests, publication habits, funding, favourite animal and much other information, based mainly on a community survey. Everything is clearly summarised in tables and visualised in figures.

The following are three articles dealing with the oldest period of human history, the Palaeolithic. While *Stammers et al.* analyse bone finds from South African cave deposits roughly two million years old and using use-wear and other methodologies to identify bone tools among the fossil fragments, *Martelotta's* contribution is purely experimental: based on bone retouchers made for this analysis from cattle bones, she measures use-wear on several different microscopes and highlights the advantages of using 3D microscopic methods. The third Palaeolithic paper, written by *Orlowska et al.* is a study of traces on an antler hammer from Poland, using not only modern methods (Mass Spectrometry, traceology, micro-CT, microscopy), but also experimentally modified antlers for comparison.

In the following articles, we move closer to the present day. *Osipowicz et al*. compare pointed artefacts and tooth pendants from the grave goods of two Latvian graves (Late Mesolithic vs. Neolithic), while *Baron et al.* analyse 95 finds from five urn cemeteries in SW Poland dated to 1300–550 BC (Late Bronze/Early Iron Age) using micro-traces. *Vinayak* from India presents an interesting analysis of two flat anthropomorphic artefacts with holes (dated from the 6th century BC to the 4th century AD), through manufactured replicas and experimental use. In the following paper by *Buc et al*., we read about pierced antler artefacts from the wetlands around the Paraná River (Argentina), dated to approximately 900–1900 AD, and their microscopic analysis. In *Vitezović's* contribution, we return to the Neolithic, this time to Serbia – she deals with the production processes and typology of awls and finds that the manufacture of these artefacts was largely standardised. In the next article, written by *Gál*, we visit Medieval Hungary. The author presents an example of a rare tool, the antler arrow bolt plane, and presents a list of similar finds from Central and Eastern Europe. One of the most numerous assemblages of bone tools from the Balkans, more specifically from Neolithic Greece, is statistically described in an article by *Arampatzis*. This is followed by contributions on a large assemblage of Bronze Age artefacts from Southern Spain (*Altamirano*), on the production of barbed points (i.e. harpoons) in Neolithic Romania (*Margarit*), and on bone and antler tools for textile production, food processing, and ceremonial activities from the 1st millennium AD in Peru (*Alaica et Bélisle*).

In general, it can be said that both the scientific value and graphic quality of the publication is high. In most contributions, there are numerous photographs of artefacts, or microscopic details of working and use-wear traces or drawings of manufacture processes. The impression is spoiled by occasional typos; and the references are sometimes perhaps too extensive. It is a bit confusing that the general introduction section is followed by Palaeolithic contributions, but then the chronological aspect disappears from the succession of the articles.

The average length of a research article with references is about thirteen pages, so anyone expecting lists and catalogues of artefacts will be disappointed. Instead, most contributions focus on methodology, especially the technology of manufacture processes or use-wear and their detection using laboratory methods and/or experimental replicas. It is not surprising that most studies concern the European area, so research trips to South America or India will be welcomed. However, given that the conference was hosted by South Africa, the lack of African analyses is shocking, with one exception: the identification of early hominin tools. In

terms of time periods, the most represented studies are those concerning Neolithic and Palaeolithic assemblages. Most analyses concern bone and/or antler artefacts; while tooth products are mentioned in only two contributions, ivory and mollusc artefacts are included only in the assemblages from southern Spain, and ostrich eggshell products, due to the absence of African research, are completely absent.

Personally, I consider the article discussing the preferences of the WBRG members unnecessary, but it may be beneficial for others. I am also disappointed by the absence of analyses of Medieval and Post-medieval artefacts. In contrast, I was surprised by some facts – I was struck, for example, by the relatively small size of some early hominin tools, by the complete dominance of sheep/goat bones among tools from Neolithic Greece, and by the fact that tooth pendants in the Neolithic grave from Latvia showed no traces of wear and were therefore intended only as grave goods. Of course, I also enjoyed reading about the use of microscopic techniques and I really liked the article on the manufacture process of harpoon heads from the Neolithic Danube, where they were able to identify not only finished tools, but also production waste, semi-finished tools and even recycled harpoons. I especially appreciate all three articles dealing with the experimental replicas of artefacts, because such demanding work can take the methodology to the next level. Therefore, I recommend this special issue to everyone interested in osseous artefacts, traceology or experimental archaeology.

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