

## Sheffield and the making of environmental archaeology

The development of environmental archaeology in Britain—and arguably worldwide—is inextricably associated with the University of Sheffield. It was in Sheffield that the first specialised courses in environmental archaeology were pioneered, and a large proportion of the world’s archaeologists currently researching the past relationship between human societies and their natural world were trained in Sheffield. The success of the Sheffield environmental archaeology school rests on the integration of the study of past ecologies with other areas of investigation in archaeology. Rather than being the subject of an independent subdiscipline, the environment is seen as a research theme to be investigated in an interdisciplinary fashion. The Sheffield approach continues to influence the development of archaeological thought across the world.

Sheffield archaeologists have also been very closely associated with the AEA. The very first issue of the journal *Environmental Archaeology* (“Fodder: Archaeological, Historical and Ethnographic Studies”) featured the proceedings of a conference organised in Sheffield, and Glynis Jones was the first editor of the journal, which marked a successful transition from the former *Circaea*. It is fitting that the 2019 AEA conference, celebrating the 40th year

of the organisation, was held in Sheffield. This was very successful, attracting excellent participation and demonstrating that the Sheffield archaeology team had not lost any of its verve. The active contribution of Sheffield young scholars and students was especially heart-warming.

Despite the scaling down of the Department due to under-investment by the University, Sheffield is still seen worldwide as a leading school in environmental archaeology. The hands-on experience combined with a theoretically informed approach continues to attract students and stimulate interest and admiration in the research community. The investment we have put into the creation of some of the most complete and best organised bioarchaeological reference collections in the world helps us substantially in our teaching and research.

The decision taken by the University of Sheffield Executive Board to close the Department of Archaeology will undermine the study of our past, the research prominence of British archaeology, and the academic standing of the university and the city. Students and staff, as well as local, regional, national and international communities, have been united in condemning it as an act of cultural vandalism. Our struggle to save our department carries on with the



support of our Unions and the determination of thousands of conscientious individuals, unprepared to accept the demise of the place they love and admire.

In the following sections, we briefly present some of our core areas of teaching and research in 'environmental archaeology', but it is worth pointing out that an investigation of the environment features in all our archaeological projects.

### ***Zooarchaeology***

Graeme Barker and then, even more prominently, Paul Halstead, developed zooarchaeology in Sheffield, training hundreds of students and creating suitable laboratories and reference collections. They focused on the study of vertebrates, while Paul Buckland and his collaborators developed, in parallel, the field of archaeoentomology, which was especially suited to the understanding of ancient environments. The arrival of Umberto Albarella in 2004 further stimulated the field.

Nowadays, the Sheffield Zooarchaeology Team is famous worldwide and regarded as an example of dynamism, collaboration, and collective decision-making. Sheffield was the best represented team in the world at the last two conferences of the International Council of Archaeozoology, in Argentina (2014) and Turkey (2018). The MSc in Osteoarchaeology (combining the study of human and animal bones) has successfully complemented the MSc in Environmental Archaeology and Palaeoeconomy (now converged into the MSc in Archaeological Science) in establishing many current upcoming scholars in the field. Our famously inclusive and engaging short courses have opened the doors of the university to hundreds of external students, professionals and enthusiasts. We work on many periods and research themes and in many geographic areas.

This is a deliberate choice to make our work flexible and potentially attractive to students coming from all over the globe. The Aegean area, Central

Mediterranean and Britain are areas of special focus, building on many years of research tradition, but we also work in Iberia, the Alpine area, central Europe, Scandinavia, western Asia, North America and Australia.

Our methodological work on issues such as taxonomic identification, butchery, ageing, dental microwear and biometry is especially renowned. We also collaborate with palaeogeneticists and, especially, isotopic specialists; more recently we have ventured into the analysis of geometric-morphometrics. Prominent projects focus on the Stonehenge landscape (ritual, mobility, settlement), patterns of Neolithisation in South-East Europe (domestication, feasting, consumption), the zooarchaeology of transition and cultural transmission (Mesolithic to Neolithic, Mid to Late Iron Age, Iron Age to Roman, Roman to Medieval, Medieval to Modern), and the use of animals in the Middle Ages (social status, hunting, fishing, husbandry development, breed 'improvement'). Our reference collection is world-renowned and arguably the best in the country; the possibility that it could be destroyed or dispersed represents an inconceivable loss for the worlds of archaeology and comparative osteology.

### ***Archaeobotany***

Archaeobotany was introduced to the Sheffield Department by Robin Dennell, and later taken up by Glynis Jones in 1984, shortly after the MSc in Environmental Archaeology and Palaeoeconomy was initiated. This course, augmented by Mike Charles, Kevin Edwards and Rob Craigie, went on to train generations of archaeobotanists and palynologists (as well as other environmental specialists), many of whom have gone on to environmental positions at university archaeology departments and archaeological units across Britain, the rest of Europe, and more distant institutions in places such as Western Asia and the USA.

The Sheffield archaeobotanical laboratory benefits from extensive reference collections (seeds,

charcoal, roots/tubers, pollen, phytoliths and starch) as well as a microscopy imaging suite and flotation facilities. Sheffield Archaeobotanical Consultancy (SAC), established in 2010 within the Archaeology Department, provides professional services to academic research projects, commercial archaeological units, government organisations and community heritage groups. SAC is involved in the Stonehenge research project investigating ancient foodways and the recent discovery of Stonehenge's origins in the Preseli Mountains. In the local area, SAC has provided environmental analyses for the Sheffield Castle and Sheffield Manor Lodge investigations, two nationally important excavations.

The Sheffield Centre for Archaeobotany and Ancient Land-use hosts a number of major interdisciplinary research projects, funded by the ERC, NERC and other national and international funding bodies. The most recently completed projects include an evolutionary approach to the origins of agriculture, in collaboration with the Department of Animal and Plant Sciences at Sheffield, which emphasises the role of plant ecology in driving the domestication process; and the final resolution (thanks to the meticulous work of our collaborators at the University of Manchester) of the previously intractable identification of an extinct glume wheat found only at early archaeological sites in Europe and Western Asia, which has significant implications for our understanding of past crop diversity and agricultural origins. The results of both projects were published in 2021 and have already attracted considerable interest both within and beyond the archaeological community.

Current archaeobotanical field projects focus on urbanism and identity in the Bronze Age Levant through the site of Tel Beit Yerah (Tel Aviv University), and highland agriculture and cultural transitions in the Bronze Age Caucasus at the sites of Chobareti and Rabati (Georgian National Museum and the University of Melbourne). Other research projects include a British Academy Postdoctoral Fellowship researching cultural connections across

the Bell Beaker horizon through the crop choices and cultivation strategies at Bell Beaker and contemporary sites, and the ERC-funded ADAPT project (PI Terry Brown, Manchester) examining how crops from Western Asia adapted or failed to adapt to new environmental conditions as agriculture spread across Europe.

### ***Geoarchaeology and Palaeoenvironments***

The Department of Archaeology at Sheffield has a rich and long history of international geoarchaeological research and excellent postgraduate teaching. David Gilbertson joined Sheffield in the 1970s as one of the first physical geographers to be based in an archaeology department, undertaking some of the most innovative geoarchaeological research projects with colleagues in the department and wider university (from Creswell Crags to the Outer Hebrides). The 1990s saw the appointment of Charles Frederick to teach geoarchaeology and who further developed the profile of geoarchaeological research, most notably on projects in the Aegean and North America. He was followed by Gianna Ayala who collaborates on international landscape projects focussing on human impact throughout the Mediterranean, Aegean and central Asia.

Geoarchaeology at Sheffield has always spanned different subject areas and has been a key component of postgraduate degrees in Environmental archaeology and Palaeoecology, as well as Landscape archaeology. Since the 1970s geoarchaeology teaching at Sheffield has provided students with unique field and laboratory experiences. In the early 2000s Sheffield was home to one of the few Geoarchaeology MSc programmes that were taught jointly within the Archaeology and the Geography departments. In 2009, the two departments co-hosted the Developing International Geoarchaeology conference. Students have been supported to develop their own independent geoarchaeological projects for undergraduate and MSc dissertations projects through to doctoral research, exploring broad themes including how

agricultural practices have transformed the landscape, pollution and environmental degradation caused by metal working, historic responses and adaptation to climate change, and historic water management. Students have also conducted research with department staff on large international projects investigating Neolithic landscape development and adaptation to climate change (Çatalhöyük, Turkey), site formation processes along with the use and construction of domestic spaces (Bronze Age Knossos, Crete) and sustainability in fluvial systems (Vulci, Italy).

'Futures Fens', funded by NERC, includes a project applying palaeoecological research techniques to identify habitat and land-use regimes that could form models for future sustainable conservation management of fenland landscapes. Another NERC PhD project based in west Wales is using diatoms, foraminifera and pollen to reconstruct Holocene sea-level change and its impacts on vegetation and human settlement. We are also using a

geoarchaeological approach to research the historic charcoal industry of Yorkshire.

These examples only scratch the surface of the multitude of approaches that the Sheffield team is using for the study of past human communities in their ecological contexts. The curtailing of this cutting-edge research would represent a major blow to the development of archaeology in Britain and beyond.

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