

Lithic Studies Society Conference 2023

Abstracts

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Abstracts listed in alphabetical order by speakers' surname. Speaker highlighted in bold.

A New Area of Lithic Scatter near the Devon-Somerset Border

Dr Andy Beckly (Independent)

An isolated arrowhead and the question: is it a wayward shot or something more? Field walking over a steadily expanding area has yielded an assemblage of well over 1000 worked lithics in diverse lithologies transforming existing rare isolated finds into an extensive area of potentially continuous lithic scatter, spanning the Late Palaeolithic, Mesolithic, Neolithic and Early Bronze age, with occasional flintlocks to add confusion. As a retired geologist I have put the emphasis on objective description and illustration: a bottom-up investigation based on the material available. Flint and dark chert lithics rarely exceed 4cm in maximum dimension, and almost always exhibit working, even on primary flakes. The silicified Greensand is abundant and not size constrained but working is often more ambiguous.

A wide variety of tool types are represented but would characterise the evaluation of the assemblage as grouping on 'form' and 'functional morphology', with lithology a key component. Particularly challenging are the microlith sized finds as there are only rare examples that match described types though deliberately formed blade segments, with retouch, are common.

The geological and topographic setting of Wellington make the area an obvious candidate for prehistoric activity and settlement and the extent could be large, but it is virtually unstudied.

The aim is not to provide all the answers, but to advertise the discovery; the opportunities for further exploration or study; and solicit any support or advice in progressing the documentation I have undertaken.

Keywords: *Lithic Scatter; Mesolithic; Neolithic; Somerset*

An Experimental Comparison of Flakes Released from Oldowan-like Cores and in Early Acheulean Handaxe Manufacture

James Clark (Leverhulme Centre for Human Evolutionary Studies, University of Cambridge)

As implied by the term “Large Cutting Tool”, it has long been assumed that bifacial implements evolved for use in specific heavy-duty cutting tasks, particularly (large) animal butchery and woodworking, and their effectiveness in these tasks is confirmed by a number of experimental investigations. Nonetheless, the limited number of use-wear studies looking at bifaces from the Early Pleistocene have indicated their isolated use in distinct tasks in different localities, or a lack of use altogether. Other authors have instead argued that bifaces evolved for use as cores, as an allometric extension of reduction schemes that already existed in the Oldowan. However, no data exists on the potential advantages or disadvantages of producing flakes a) using a large flake as a blank for core reduction, and b) reducing them in a way that produces characteristic Acheulean forms, such as handaxes.

Recent work has emphasised that the study of flake utility, as a marker of raw material economisation, can reveal important trends about the selective pressures acting on lithic technology across time (e.g. Rezek et al., 2018). The present study reports on a standardised method for producing flakes struck from both Oldowan-like cores and early Acheulean-like handaxes, and both cobble and large flake blanks, and employs measures of flake utility to examine morphological differences between the >2000 flakes across groups. The results underline the potential effectiveness of flakes struck from handaxes, but suggest the existence of a series of trade-offs between core size, flake utility, and hominin mobility across individual landscapes.

Keywords: Oldowan–Acheulean Transition; Handaxes; Lower Palaeolithic; Flake Utility; Experimental Archaeology

Geochemical Fingerprinting of Late Upper Palaeolithic Flint Artefacts from a Single Test-pit at Farndon Fields, Nottinghamshire

Simon Chenery ¹, **Daryl Garton** ² and Ian Ross ²

¹ British Geological Survey

² Ice Age Journeys

In 2013, a community group — Ice Age Journeys — plotted a dense scatter of Late Upper Palaeolithic flints during fieldwalking in one of the fields at Farndon Fields. In 2014, 10 small test-pits were excavated to see if any intact deposits survived below the ploughsoil. In two of the test-pits, lots of tiny flint spalls from knapping were found alongside a handful of larger flakes and retouched tools. But were the tools made and used on the spot, or had they been brought in from elsewhere? This issue is normally tackled by re-fitting individual flakes to each other and to their parent cores —a process which may be compared to a very partial jigsaw puzzle but inappropriate to small-scale excavations and fieldwalking scatters. When Simon Chenery saw the test-pit flints laid out, he suggested that geochemistry might be used to see if tools and debitage could be matched, as well as tracking the origin of the parent flint.³ The results will be presented from 53 artefacts (63 readings) subject to LA-ICP-MS (Laser Ablation–Inductively Coupled-Plasma–Mass Spectrometry) and analysed to consider:

- the signatures of the ‘fresh’ flint core and the outer corticated (post-deposition alteration) surface
- whether joining fragments match to the same statistical geochemical groups
- whether the used tools match the geochemistry of the spalls from knapping
- the geographical origin of the parent flint using the database of regional flint chemistry
- what we might need to do for better future studies.

³ See Pettitt, P., Rockman, M. and Chenery, S. 2012: ‘The British Final Magdalenian: society, settlement and raw material movements revealed through LA-ICP-MS trace element analysis of diagnostic artefacts’, *Quaternary International* 272-3, 275-87.

Keywords: *Flint geochemistry; Late Upper Palaeolithic; Farndon Fields*

A Dog that has Barked in the Night: A Case Study in Public Archaeology and Outreach in Lithic Studies

Paul Ramsay, **Ivan Gray** (The Rainbow Bar Community Research Project)

The Rainbow Bar Community Research Project is centred on the Solent foreshore intertidal feature known locally as Rainbow Bar; this is a recognised Palaeolithic site that, whilst of national importance, has received little attention (Wenban-Smith and Holstead, 2001).

The 2021 Alan Saville Legacy Grant was awarded to the Project to enable it to achieve its primary objective, "... the gathering together and development of learning and educational materials for the use of local schools, colleges, and the general public," through showcasing the lithics of Rainbow Bar and the Meon shore.

Members of the Rainbow Bar team will outline what has been achieved since 2021, their approach to engaging schools and the community in lithic studies, and the approaches to collaborative working taken to engage existing heritage organisations.

The handling collections and curriculum materials produced by the team will be made available to members and they will be invited to contribute to the team's research.

Pupils' work books will be on show.

Keywords: Rainbow Bar; Palaeolithic; Community Archaeology



Surveying Rainbow Bar

Jersey Neanderthals - Title TBC

Dr Josie Mills (Leeds University)

Abstract to come

A Multi Method Approach to Sourcing Chert Artefacts from Northern Belize

Alana Pengilley (The University of Texas at Austin)

Lithic artefacts produced from flint and chert raw material dominate the archaeological record in many regions of the world. The procurement and distribution of these materials are key to understanding the dynamics of the interaction spheres and exchange networks that form the basis of past political economies. Over the last few decades, much development has occurred in the application of chemical and petrological techniques for sourcing lithic material. Often, these methods rely on the application of a single technique to achieve source distinction. However, due to the variable nature of flint and chert, a more refined methodology that incorporates multiple modes of analysis is often required. So far, this approach has been successful at differentiating between flint and chert sources in North America, Europe and Australia. This paper will discuss recent methodological developments in the sourcing of chert material from Northern Belize, with the aim to develop a methodology that can successfully discern between lithic sources optimised by lowland pre-Hispanic Maya populations.

Keywords: *Chert; Sourcing; Maya; Belize*

New Frontiers for the Visualisation, Study and Preservation of Lithic Assemblages: Application of 3D Scanning on Materials from the Middle Pleistocene site of La Cansaladeta (La Riba, Spain)

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In the history of archaeological research, lithic industries have always been visually represented through pen or ink drawings, in which significant technological features and the raw material of blanks were recorded according to conventional traits, and later digital photos. Nowadays, however, there are new alternatives that, using scanning technologies, can avoid the two principal limitations of lithic drawings: the subjectiveness, as scanners record all the surfaces exposed to its laser or light bands, and the one-dimensional perspective, as it is possible to reconstruct accurate 3D models using the scanned information.

The aim of the study is the comparison of two different equipment, not designed specifically for archaeology, but which, through the selection of options proposed by the software during the image elaboration process, can be easily adapted to obtain objective and scientifically reliable results. Here we present the comparison between the scanning process and final 3D models of lithic materials from the Spanish site of La Cansaladeta (La Riba, Spain) realised using both the Artec Space Spider laser scanner and the Breuckmann structured light scanner. La Cansaladeta displays conservation issues in most of its lithic assemblage and was chosen precisely because one of the primary potentials of 3D scanning, apart from the opportunity to apply geometric morphometric analyses, concerns the possibility of building virtual collections of materials, which can also facilitate data sharing and allows industries to be replicated through the use of 3D printers for educational, research, and musealization purposes.

A Molehill Survey for Human-worked Flint at Belton House, Lincolnshire

Ian Ross, Daryl Garton and C. Gallimore (Ice Age Insights Charity)

Belton is a National Trust estate comprising 1,317 acres of designed parkland. Lidar shows that the land was ploughed prior to its enclosure for deer in 1690. Nowadays, it is unploughed grassland for sheep and deer. Occasional, human-worked flints were recorded in the past, but without locations. Our aim was to identify and geolocate flint in the park as revealed by fossorial animals.

CG surveyed the park in the 1990s within defined areas. INR, a National Trust volunteer, re-surveyed a larger area using GPS-recorded locations 15m accuracy. Worked flint was found mainly on molehills but was also surfaced by rabbit and badger activity. Over 200 flint finds were examined. The chronological periods were identified from the knapping technology and the form of the retouched tools.

The items vary from heavy white cortication through milky to none. Some were fire-cracked. The earlier material like microliths and small blades tend to cortication. The width of one heavily corticated, blade fragment (30mm wide, butt missing) with edge-damage or use on one side, posits a Late Upper Palaeolithic origin. The Mesolithic is represented by chronologically diagnostic microliths. Their size and form reflect the Later Mesolithic. Later periods are suggested by uncorticated flakes, cores and some retouched tools. Two flint clusters were found, one near the River Witham, the other on a former Witham tributary.

This study confirms the utility of molehill archaeology. The finds help to inform a project that is restoring and reconnecting river corridors through the urban reaches of Grantham to Belton. ¹

¹ Blue Green Corridor Grantham 2023. Accessed 23 June 2023

<https://www.withamsleabluegreencorridor.co.uk/belton-wetland-creation>

Keywords: *Palaeolithic; Mesolithic; Neolithic; Witham; Lincolnshire*

Localization of Global Technology: Assessing the Regional Variability in Acheulean Techno-complex at the South-eastern Margins of the Thar desert

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Technological innovations are one of the most crucial aspects of understanding human adaptations to environmental fluxes and cultural evolution. The Exogenous hypothesis raises several questions for understanding the first hominin migrations and adaptation of coherent lithic technologies across the old world. However, the earliest defined Acheulean techno-complexes from South Asia occur at Attirampakkam (1.5 Ma) in peninsular India ³. This aforementioned data notably widens the scope of finding much earlier assemblages in a stratified context in the North-Western uplands of the Indian subcontinent.

The primary objective of this paper is to investigate and represent the Acheulean industry at some newly discovered sites along the Great Boundary Fault (GBF) at the south-eastern margins of the Thar desert, Rajasthan. The sites incorporate a large number of LCTs and bifacial stone implements dominated by large cobble based blanks. Multivariate morphometric analysis yielded significant values implying higher variability within the assemblages. A comparative study of elongation and refinement with Acheulean sites across the Indian sub-continent and a few Old World sites has been done to identify regional variations within the Acheulean techno-complex.

³ Pappu, S., Gunnell, Y., Kumar, A., Braucher, R., Maurice, T., Demory, F., & Thouveny, N. 2011: 'Early Pleistocene presence of Acheulean hominins in South India', *Science* 331-1596 (2011). Doi:10.1126/ Science.1200183