
Introduction: Immersed in Lithics

Elizabeth Healey¹, John Piprani¹, Osamu Maeda², Ellon Souter¹,
Julie Birchenall¹

1. School of Arts, Languages and Cultures, University of Manchester, Oxford Road, Manchester. M13 9PL. U.K
Email: Healey: elizabeth.healey@manchester.ac.uk; Piprani: john.piprani@manchester.ac.uk;

Souter: ellon.souter@postgrad.manchester.ac.uk; Birchenall: julesbirch@live.co.uk

2. Faculty of Humanities and Social Sciences, Institute for Comparative Research in Human and Social
Sciences,(ICR) Tennodai 1-1-1, University of Tsukuba, Ibaraki, 305-8571. Japan.

Email: maeda.osamu.gm@u.tsukuba.ac.jp

The idea of holding a conference to discuss how we can explore what affects our approaches to, and understanding of, lithic artefacts and their analysis emerged from a hands-on workshop entitled *Northern Knap-in* in November 2014. In that workshop we wanted to explore how prehistoric people in the north of England, which is perceived by many as being a (lithic)resource-poor region, might have adapted to the lack of good quality flint and chert for tool manufacture and so we experimented with the working of non-flint raw materials. Many things emerged from that day including how the experimental knapping of materials other than flint allowed us to think outside the conventional box, and how communal knapping and grinding demonstrated some of the different ways that people interacted and adapted to each other's rhythm when making artefacts. We were also struck (excuse the pun) by how much non-lithic specialists contributed to the questions we raise in lithic analysis. This brought home to us the importance of finding other, sometimes non-conventional, ways in which we can engage with the past. This eventually led to the *Immersed in Lithics* Conference in February 2016.

The aim of the conference was to provide a platform for exploring some of the ideas that emerged from the *Northern Knap-In* in more detail and to discuss new ideas and less orthodox approaches in an informal and non-judgmental setting. We wanted to investigate how people, past and present, and seemingly immutable stones, interact and how this might influence our ways of analysing and interpreting artefacts. We were also keen to get the reaction of non-lithicists to the ways in which we study stone tools.

The conference contributions (listed below) show-cased some of the innovative methods and approaches that are now being used in the study of lithic artefacts. It is difficult to categorise the papers as many of the topics overlapped. Broad themes included specific studies using raw material characterisation to identify whether people deliberately selected certain types of stone (Bedford, Bradley, Elliot, Vianello, Stewart), the use of cognitive approaches to identify language and skill development (Cuthbertson & Hoggard, Fairlee), experimentation and replication as a way of understanding ancient technologies (how they were used and adapted) (Piprani, Maeda; Lawrence & Mudd), the recognition of hafting



(Ennos and Slade), the extension of use-wear analysis beyond functional interpretation (Dickinson and Little), the application of these approaches to archaeological material (Dickson) and to how analytical approaches affect interpretation (Preston) as well as a recognition of less tangible, symbolic approaches (Graves-Brown, Little, Mudd). Others took a holistic and biographical approach (Wright, Souter, Healey). What was striking was the inter-disciplinary nature of many of the papers and the willingness to push the envelope.

Some of those papers are published in this volume, but unfortunately others, particularly the newer scholars, who were at an early stage in their research were not ready to commit to paper, while others were reaching the end of dissertations and were inevitably pressurised for time, and yet others, perhaps the more established, had publication planned elsewhere.

Karen Wright's keynote paper *Cultural Lithospheres and Materials Ethnoscience: Geology, Raw Materials and Intersections Between Different Lithic Technologies* demonstrated very clearly the limitations that traditional categories of analysis can often impose on our interpretations, particularly when craft production is involved. Her paper considered whether an approach based on raw materials and technology permits us to investigate ancient cultural perceptions of rocks, minerals and geology in landscapes and whether prioritizing functional interpretation (or assumptions about function) before raw materials and techniques of manufacture was meaningful. She suggested that it may be more useful to think in terms of the intersections of, and complementarity between, different types of lithic technologies. For more detailed discussion of this the reader is referred to her published works (*e.g.*, Wright 2008; Wright & Garrard 2003; Wright *et al.* 2008).

The ways that functional (especially use-wear) analysis in conjunction with technological analysis can bring new insights to our interpretation of objects was highlighted by Aimée Little (University of York) in her paper *The Special Treatment of Tools in Graves: A Microscopic Perspective*. Basing her paper on the microwear analysis of an early Mesolithic axe-head from a cremation burial at Hermitage Co. Limerick she demonstrated that the axe-head which was recovered from a posthole associated with the burial was in fact an integral part of the burial, and that it was made and used for that burial; without microwear analysis, however, we might have simply thought that it had been deposited in a ritual way. It is only rarely that we consider the possibility that the tools may have received special treatment and might themselves be connected with the depositional practice. This particular study revealed exceptional insights into mortuary practices and hunter-gatherer belief systems. (See Little *et al.* 2016 for more details.)

Some of the special meanings that materials can have, and how they move in and out of fashion, which in most circumstances elude us, was highlighted by Carolyn Graves-Brown (University of Swansea) in a study of flint in Egypt. She showed how during the Early Dynastic period (c.3150 -2686 BCE) flint was ideologically important, at least partly because of its lustrous nature (*i.e.*, its scintillating qualities of whiteness and shininess). Archaeological evidence shows that pale flint and rock crystal were frequently selected for both grave goods and jewellery and that the lustre of flint was enhanced by polishing. However, this emphasis on the lustrous qualities of flint decreased dramatically around 2600 BCE, the end of the third Dynasty. Not only were objects made of flint no longer used in graves, but archaeological evidence for ritual use of flint also declined. At the same time, objects made of arsenical copper, which is lighter coloured than pure copper, takes the place of those of flint in graves. It seems flint was literally outshone, as elucidated in her previously published paper (Graves Brown 2013).

At a more tangible level, Osamu Maeda's paper (in this volume) investigating the casual way flint was heat treated at Hasankeyf Höyük (an early Neolithic site in south eastern Turkey), showed that what is usually regarded as a highly regulated and skillful process,

could in fact be successfully practiced by anyone, thus once again reminding us not to accept things at their face value.

Chantal Conneller skilfully brought these diverse topics together and opened a lively and thought-provoking discussion, thus establishing the mood of the rest of the conference.

Another of the aims of the conference was to engage the general public with the way we, as lithic experts, think about the stone tools they normally only see in a museum showcase; to this end we continued the conference in (a bit) more relaxed way as a family event in the Manchester Museum (*The Stone Age Big Saturday*) in which we encouraged people to participate in examining lithics in whatever way they felt appropriate to further their understanding. Flint knapping, though paradoxically seen as a redundant technology, was (re-)enacted by James Dilley and, as expected drew in many people as observers. We also ensured that these observers could also become participants through various related activities including grinding axes and decorating pebbles which replicated Azilian designs (popular with the very young upwards). Others were challenged by 3D ‘jigsaws’ to recreate the knapping process by re-fitting blades back onto cores; they also got involved in handling and drawing and describing archaeological stone tools - which proved to be very absorbing. It helped all of us to ask new questions about what we study with regard to stone tools and how we study them, as well as to consider the problems inherent in more traditional approaches. It certainly gave us a different perspective on teaching lithics to our undergraduates and others. The knock-on effect has been tangible. It has for example, encouraged us to make 3D prints of artefacts so that young children can handle them safely, It also led to the University of Manchester’s Prehistory to Primary project (School of Arts, Languages and Cultures (University of Manchester) 2018; The University of Manchester 2020).

The whole conference was rounded off by *Flint Synth*, a performance of “rock music” bring us back full circle to the ideas that gave rise to the conference. This was the brainchild of the OWL project and Invisible Dust. They saw a parallel in the rhythms of knapping when creating an object such a hand axe, and the foundations of music. So, by bringing together experimental knappers and experimental electronic musicians they joined together what they described as ‘the primal act of chipping rock with the considered precision of synthesised music’. The results can be found in the video (Hall & Owl Project 2016; Owl Project 2016a; 2016b).

Another important outcome for us was the realisation that when we combine experimental flint knapping and other media we can see that there is a lot of potential for investigating the sensory and social dimensions of lithic working. This brings us back to the rhythmic grinding axes and the simultaneous striking of flakes from cores which we had experienced at the Northern Knap in. Some of us hope to develop the haptic and auditory approaches and to make stone working more inclusive.

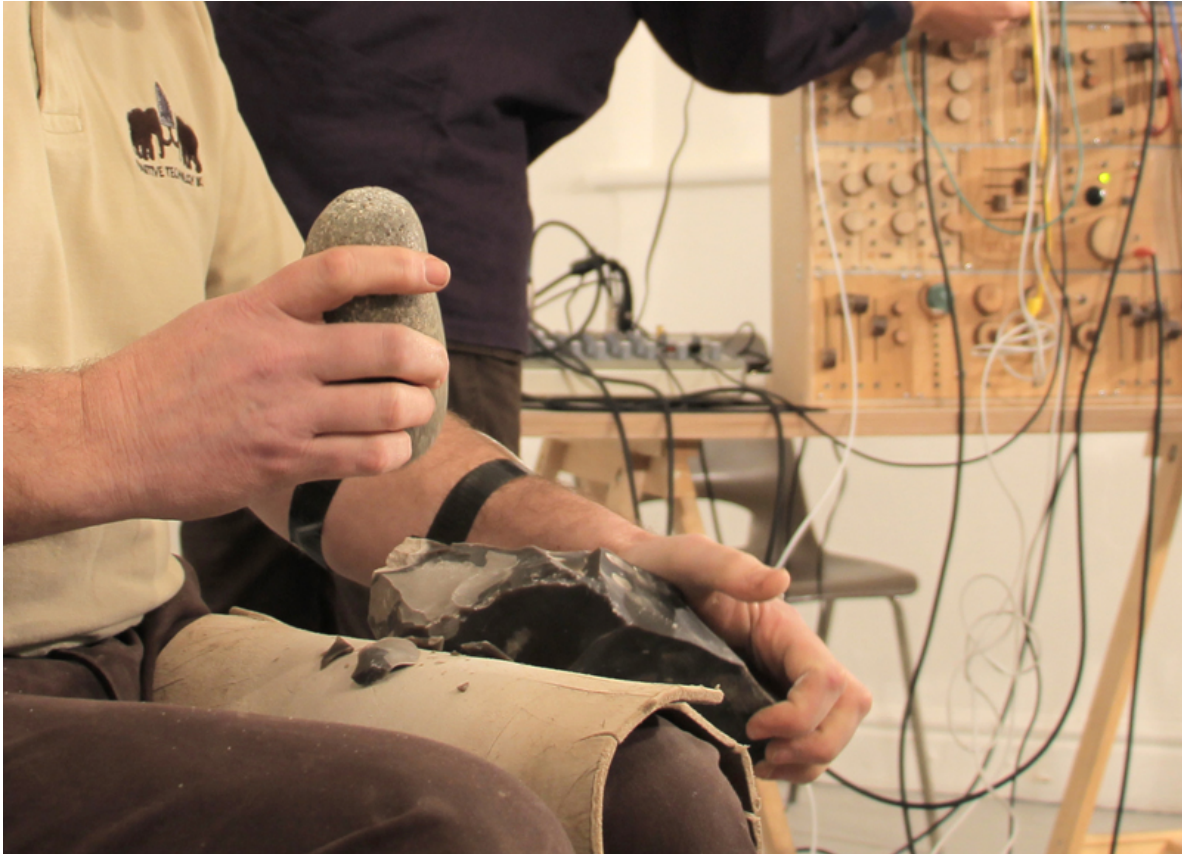


Figure 1. Stone Music: Recording a hand axe. The sensors are strategically placed to record the sound and rhythm of the knapper; a. roughing out the hand axe using a stone hammer (Photograph courtesy of the Owl project and Simon Blackmore.)



Figure 2. Stone Music: Recording a hand axe. Shaping the hand axe using an antler hammer. (Photograph courtesy of the Owl project and Simon Blackmore.)

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Credit for the title *Immersed in Lithics* must go to Ray Nilson (then at the final stages of his PhD, involving the recording tens of thousands of Mesolithic artefacts). The logo and poster were designed by Ellon Souter which also forms the basis of the cover of this volume

Valuable practical involvement came from our own students and staff. Thanks must go to Jamie Farrington for constructing the webpage (*Immersed in Lithics* 2016) and Ellen McGuinness for her help with social media and to those who publicised the conference on their blogs and tweeted while it was in progress.

The conference delegates were welcomed on Thursday evening, 25th February, and expertly looked after by some of our students (Jon Dobbie, Stephanie McCulloch, David Thompson, Jade Beresford, Paul Henry, Scott Peers, Hannah McGuire and Nichole Chan).

We must also thank the various anonymous reviewers of each contribution and the editorial staff of the *Journal of Lithic Studies* for their patience, support and guidance in preparing this volume for publication.

Of course, the conference could not have happened without the participants and we thank them wholeheartedly; we must also apologise for the delay in publication which perhaps reflects the issues of committing new ideas to print.

*Elizabeth Healey,
John Piprani,
Osamu Maeda,
Julie Birchenall,
Ellon Souter
(organisers)*

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Programme

Organisers

Elizabeth Healey, John Piprani, Osamu Maeda, Julie Birchenall and Ellon Souter.

Key note speakers

Chaired by Chantal Conneller

Katherine (Karen) Wright

(University College, London)

Cultural lithospheres and materials ethnosience: geology, raw materials and intersections between different lithic technologies

Osamu Maeda

(University of Tsukuba, Japan)

Technological failure in lithic production: a case of flint heat treatment

Caroline Graves-Brown

(University College, Swansea)

Lustre, flint and arsenical copper in Dynastic Egypt

Aimée Little

(University of York)

The special treatment of tools in graves: a microscopic perspective

Presentations and posters

Clare Bedford, David Robinson, Jennifer Perry

(Lancaster University)

In search of a quarry - A pXRF examination of chemical variation in chert from South Central California.

Julie Birchenall

(University of Manchester)

Putting the People back into Stone Tool Production (Poster)

Seosaimhín Bradley

(University of Central Lancaster)

Geochemical provenancing of flint within Britain and Ireland: comparison of inductively coupled plasma-mass spectrometry (ICP-MS) and portable X-ray fluorescence (pXRF)

Cory M. Cuthbertson and Christian S. Hoggard

(University of Southampton)

Empirically assessing language ability from lithic assemblages

Paul Dickenson

(University of Leicester)

Through A Glass Darkly Finding values in stemmed tools from New Britain, Papua New Guinea

Antony Dickson

(Oxford Archaeology North)

Stainton West, Carlisle, Cumbria: lithic assemblage

Tom Elliot

(University of Winchester)

The Mesolithic in the Marches: lithic sourcing in the Wye Valley

Roland Ennos

(University of Hull)

Using wood mechanics to understand the development of the Neolithic axe

Joanna Fairlie and Lawrence Barham

(Department of Archaeology, Classics and Egyptology, University of Liverpool)

Re-framing the transition between palaeolithic reductive stone tools and hafted technologies: An observational analysis of the relationship between the two types of tool-making activity and their underlying cognitive processes

Elizabeth Healey

(University of Manchester)

More than just a tool-stone: ground and polished objects of obsidian in the Near East

Christian Hoggard

(University of Southampton)

Traditional and geometric morphometric approaches to concurrent Middle Palaeolithic technologies

Thomas Lawrence¹ and David Mudd²

(1. Oxford Archaeology/University of Reading, and 2. University of Reading)

Before the fire was lit: deconstructing disturbed palimpsests and prehistoric site activities by analysing the differential effects of heated flint at Lyminge, Kent, England.

Melissa Metzger

(University of Bradford)

Investigating the function of polished flint discoidal knives

David Mudd

(University of Reading)

Symbols, identity and place: using ethnography to interpret the decorated stones of Wadi Faynan 16

Aidan Parker

(Oxford Archaeology North)

Cass ny Hawin II: a Mesolithic pit house on the Isle of Man

John Piprani

(University of Manchester)

Experimental production: developing understanding; developing engagement

Paul Preston

(Lithoscapes)

Unshackling the '*chaînes*'. A new approach to the technological organisation of the British Mesolithic

Alan M. Slade

(University of Southampton)

To haft and to hold: evidence for the hafting of Clovis fluted points.

Ellon M Souter

(University of Manchester)

The transformative nature of ground stone tools: disentangling sequences of modification and meaning in Chalcolithic to Bronze Age Cyprus (3500 - 1600BC)

Rosemary Stewart

(University of Reading)

Artefacts of Greensand chert and Portland chert

Andrea Vianello and Robert H. Tykot

Prehistoric transitions: moving away from obsidian in southern Italy