NEOLITHIC STUDIES GROUP

Autumn Meeting 2017

Extracting more than rock? Insights into the acquisition of stone and flint in the Neolithic

Organisers: Anne Teather, Pete Topping and Jon Baczkowski

The Stevenson Lecture Theatre (lowest level of the Great Court), the British Museum, London
NB Please organise your own refreshments on arrival and lunchtime: we only provide afternoon tea!

10.00 *Coffee (available for purchase at outlets in the Great Court)*

10.20 Welcome / introduction *Timothy Darvill*

10:30 *Langdale and the northern Neolithic* Richard Bradley, Stephen Shennan and Aaron Watson

In the 1980s and 1990s stone axes made in the Langdale fells provided some of the best evidence for the extent of long distance contacts in the northern Neolithic, but now these artefacts must be viewed in a different light. New radiocarbon dates show that they were made between about 3800 and 3500 BC, and a review of the contexts in which the finished products are found suggests that these artefacts might have lost their significance by the Late Neolithic period. If so, they cannot have circulated through henge monuments, as was once believed. They are more likely to be contemporary with earlier structures: long barrows, round barrows, causewayed enclosures and cursuses.

New work has been carried on the rock art at Copt Howe in the valley below the Langdale Pikes. A decorated outcrop was associated with an earthwork mound of unknown date, and a new study of the pecked motifs shows that they are very similar to designs found in Irish passage tombs around 3000 BC. Thus they postdate the production of stone axes. Instead they were associated with a new social network illustrated by the use of Grooved Ware.

10:50 *Crossing the divide: stone procurement in the late Mesolithic and its legacy for the Neolithic of northern Britain*. S. Bradley, F. Brown, V. Davis, A. Dickson, R. Donahue, A. Evans and R. Stewart

A range of lithic raw materials was utilised during the late Mesolithic at the Stainton West settlement site, near Carlisle. Petrological and geochemical analysis of some of this material has identified the use of sources both local to and at distance from the site, particularly from regions in south-west Scotland and north-eastern England. Whilst most of the raw materials were used during chipped stone reduction, several fragments of polished stone axes, derived from Group VI sources in the Lake District, were also recovered from Mesolithic contexts.

At the end of the late Mesolithic settlement, at c 4300 cal BC, the site was inundated by alluvial deposition and it was not until the 38th century cal BC that the site was re-occupied. At this time, a similar range of lithic raw materials was still being used. Therefore, it appears that networks relating to the procurement and movement of particular types of stone were initiated in the late Mesolithic and continued into the Neolithic. This paper will present the evidence for raw materials at the site, their movement within the wider landscape, and their significance during the late Mesolithic and the Neolithic. It will also examine the wider relationships of these activities by recourse to emerging evidence from northern Britain.

11:10 *Beyond the mountain: symmetries of the Neolithic in Cumbria?* Steve Dickinson

The Neolithic stone axe blade extraction sites of Great Langdale, Cumbria, and their products have received detailed studies of their physical nature and attributes (Claris and Quartermaine 1989, Bradley and Edmonds 1993, Davis and Edmonds 2011). Evidence for Neolithic rock art from Langdale, elements of which draw on Irish passage grave art, (Sharpe and Watson 2013), has added a new dimension to addressing the social contexts of blade procurement and production.

A number of studies have draw attention to the way both monuments and rock art resonate with landscape topography and geology (Fahlander 2016, Helskog 2014, Olsen 2013, Meirion Jones et.al., 2011, Tilley 2004, 2008, Chippindale and Nash 2004, Bradley 1998, 2003). Archaeology can contribute effectively to a more nuanced understanding of montane Neolithic stone acquisition and its contexts through refining its ontological perspectives. The properties of materials participate in the interaction between them and people, (Meirion Jones and Alberti, 2016, Wylie and Chapman 2015, Ingold 2011), requiring us to re-evaluate what can be, and has been, categorised as 'nature' and 'culture' (Descola 2014).

Upper Eskdale is four kilometres south-west of Great Langdale. It is a vast amphitheatre and south-facing valley, river and ridge system overlooked by mountains traversed by the same blade-producing volcanic tuff as that found in Langdale. Here, survey work from 2015 onwards is revealing prehistoric rock art and complex responses in stone selection and monument creation in relation to this montane environment. This paper explores new questions posed by these discoveries.

11:30 *Beyond the quarries? Understanding Neolithic lithic procurement in southern Norway* Astrid Nyland

In order to understand Neolithic quarrying, it must be understood in relation to preceding practices, related to its contemporary societies, and social setting. Hence, to understand the character of exploitation of specific quarry sites, one must extend the field of investigation. The paper builds on the results from a comparative study of 21 contextualised quarries in southern Norway. Through investigations of the operational chain of lithic procurement, identifying variation in time-depth, scale of extraction, distribution, the actual use in different archaeological, as well as social contexts, significant chronological and geographical differences emerged.

During the Neolithic in southern Norway (c. 4000-1800 cal BC), there are distinguishable regional differences in raw material exploitation and quarrying. Through case studies, I will discuss how this variation can provide insight into the varying processes of Neolithization in the regions of 'western', 'eastern', and 'central Norway'. One such study involves the onset of the Early Neolithic in western Norway. This was marked by the sudden and intense exploitation by hunter-gatherers of a rhyolite quarry atop Mt. Siggjo on the western coast. This practice is contrasted by the conspicuous lack of similar procurement and distribution practices in a more agriculturally influenced eastern Norway. The other case focusses on the dominating exploitation of quartzite in the interior of central Norway and the mountainous area in the Late Neolithic and Bronze Age. This practice has been associated with hunter-gatherers in opposition to a flint using farming society, but this is not necessarily so.

11:50 *Felsite Blues: The role of reibeckite felsite in Neolithic Shetland* Gabriel Cooney, Will Megarry, Mik Markham, Torben Ballin, Joanne Gaffrey, Bernard Gilhooly, Brendan O'Neill, Jenny Murray, Alison Sheridan and Astrid Nyland

A distinctive feature of the Neolithic period in Shetland is the use of a particular stone resource, (riebeckite) felsite, as the major source for stone axes and Shetland knives. This is identified as Group XXII in the Implement Petrology Group (IPG) scheme of British stone implement petrology groups. Extracting and working this source involved quarrying and production of preforms/roughouts at the quarry site at North Roe, Northmavine, Mainland Shetland. Here north-south trending felsite dykes, generally pale blue in colour, intrude into a red granite country rock. The use and deposition or discard of objects made from felsite is known across the archipelago. The objects turn up in a wide range of contexts and there are clear indications of what might be termed 'functional' and 'ceremonial' elements to the uses and patterns of deposition of felsite. The North Roe Felsite Project (NRFP) is using a multi-scalar landscape approach integrated through GIS to investigate the quarry complex and the role of felsite in Neolithic society in Shetland. The paper will focus on the results of recent excavation and survey at the quarry landscape, including systematic petrological and geochemical analysis, experimental knapping and related work on museum assemblages. Key issues to be explored include understanding the patterns of deposition of objects, the movement of felsite across the archipelago and the social significance of the quarry itself. One useful way to begin to think in a different way about the social importance of felsite and appreciate its significance is to see the quarry landscape as the largest Neolithic monument in Shetland.

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12.10- 12.30 *DISCUSSION*

12:30 – 2:00 *LUNCH (make your own arrangements)*

2:00 *What does sarsen stone quarrying look like?* Katy Whitaker

So, what *does* sarsen stone quarrying look like? Sarsen was immensely significant in neolithic and early bronze age life, exemplified in some of Europe's greatest prehistoric monuments as at Stonehenge and Avebury. Yet the bulk of World Heritage Site-centred research and publication treats sarsen tangentially. Research into flint-mining, axe-head production, even bluestone sourcing and quarrying, has shown how valuable it is to locate and describe quarrying activity, in order to interpret past social practices, behaviours, and relationships. The detail of neolithic sarsen quarrying, however, has only very recently begun to be addressed (Gillings and Pollard 2016). Sarsen extraction has, however, continued since prehistory. Identifying early quarrying sites is problematic. Later activity has almost certainly damaged and erased signs of previous extraction. Can we even distinguish prehistoric from modern sarsen extraction?

This paper presents new research into what we *do* know about sarsen quarrying. This includes the archaeological signatures of the varied ways that sarsen has been quarried across its geological distribution in southern Britain at different times. It asks which of these, if any, might be useful analogies for neolithic sarsen extraction. And it suggests how neolithic sarsen quarrying might appear, if we go looking for it. This enquiry is the essential precursor to finding sarsen quarries, fundamental to gain insights into the lives of the sarsen-builders, informed by landscape context and the significance of place, similar to the progress made over the past 30 years for other stone acquisition.

2:20 *A new ethnoarchaeological model for lithic extraction* Pete Topping

The social context of mines and quarries is fundamental to the interpretation of Neolithic stone extraction. To address this question 168 global ethnographic studies were analysed to identify common trends in traditional extraction practices and produce robust statistics about the material signatures of these sites. Repeated associations emerged between storied locations, social networks and the organisation of extraction practices on the one hand, and features of the material world on the other (e.g. landforms, extraction practices, structured deposition), suggesting that we can now *probably* identify sites which were storied locations, seasonally used, and practising ritualised extraction - all leading to product objectification. A second stage of analysis compared the ethnography to 223 global archaeological sites which produced similar material patterning, while suggesting limits to interpretation. These constraints led to a revision of the interpretive framework which was then used to analyse the published excavations of 79 flint mines and 51 axe quarries in the UK and Ireland.

This analysis suggested that many extraction sites were special places, deliberately distant from settlements. They followed common practices and assemblages were carefully deposited which the framework suggests reflects technical skill and ritualised practises, but also exclusivity – the sites probably controlled by clans or technical specialists. Previous analyses, particularly of stone axes, demonstrates that many extraction site products travelled long distances, were often unused and deposited in non-settlement contexts. Conversely, artefacts knapped from expedient surface sources are generally discovered in a domestic setting, which confirms the special nature of extraction sites and their products. Overall, this statistically-robust ethnographic probability analysis provides a more confident foundation to model the social context of extraction sites through detailed analysis of their setting, composition, structures and assemblages.

2:40 *Supply and demand in the Neolithic quarry and mine production of Northwest Europe* Stephen Shennan, Mike Parker Pearson, Andrew Bevan, Tim Kerig, Ralph Fyfe, Kevan Edinborough and Peter Schauer

What factors influenced non-agricultural production in prehistory? Explicitly or implicitly this has long been a topic of debate in prehistoric archaeology, because it relates to the question of whether people in prehistoric societies had 'economic' motivations and what those might have been. The paper will address this issue by presenting the first results of the NEOMINE project, which is analysing the evidence for stone quarrying and flint mining and the factors affecting consumption of their products by Neolithic early farming communities in Britain and North West Europe over the period c.5300-2000 BC. The project's aim is to evaluate what economic

factors, if any, had an influence on their scale and intensity, and in particular the extent to which the amount of material they produced varied over time in response to external demand.

On the basis of newly collected and newly updated radiocarbon data on the dating of Neolithic mines and quarries in the region we will test whether their periods of use correlate with periods of high population and therefore high demand in the area surrounding the mine, using summed radiocarbon probabilities as a population proxy while taking into account sampling variation and fluctuations in the calibration curve. We will go on to explore the factors affecting the distribution of products of known source, focussing on the Implement Petrology Group data for Britain.

3:00 *"It shouldn't have been found there!": the trouble with Greenwell's axe* Martyn Barber

When William Greenwell began excavating at Grime's Graves in 1868, the idea that the Stone Age was divisible into earlier and later phases - Palaeolithic and Neolithic – was just a few years old. A key piece of evidence supporting Greenwell's suggestion Grime's Graves belonged to the Neolithic was *"a hatchet of basalt…the marks of its cutting edge were distinctly seen upon the sides of the gallery"*. The polished stone axe quickly became accepted as a type-fossil of the Neolithic, causing difficulties for those who favoured different dates for flint-mining. Greenwell's account of the axe's discovery (and the authenticity of some of his other finds) was being questioned as early as 1873, and came under further scrutiny during the 1890s, a process that included obtaining additional accounts from Greenwell and others, and clearly had the potential to undermine the authority of Greenwell as a reliable witness to his own excavations.

Reappraisal of Neolithic flint mining over the last 20 years has relied heavily on archival research. That research into the published and unpublished records of excavations and other fieldwork undertaken from the mid-19th to the later 20th century has mainly focused on determining what those records can tell us about what happened at those sites in prehistory. However, the circumstances in which those records were created also require scrutiny. How sure can we really be about the actual circumstances of Greenwell's *'basalt hatchet'*?

3:20 – 3:40 *AFTERNOON TEA (provided by NSG)*

3:40 *A whiter shade of pale: powerful relationships between Neolithic communities and the underworld at Monkton-Up-Wimborne, Dorset* Susan Greaney

The enclosed pit circle at Monkton-Up-Wimborne, within the complex of Neolithic monuments to the south of the Dorset Cursus, was excavated by Martin Green in 1997. This unique site may provide an insight into the relationships that Neolithic people had both with the underworld and with each other. The perspective adopted in this paper is that certain 'natural' substances or occurrences could have been perceived as powerful by Neolithic people and were therefore intimately bound up within their relational social network. This is becoming a relatively common way for archaeologists to characterise relationships between humans and their environment. It will be tested here through a detailed exploration of materials and activities at Monkton-Up-Wimborne to see if it can also shed light on relationships between humans, particularly where there are imbalances of power and unequal relations.

The form of the Monkton-Up-Wimborne monument, the carefully selected deposits placed within the shaft and pits, and the lives and burials of the four people interred there, all point to a deep knowledge of chalk and a deliberate engagement with the underworld. People were extracting flint nodules from this chalk and exporting elsewhere, particularly to the Mendip hills. The paper will explore the idea that the monument could have been part of a complex triangle of relations between communities living on the Mendips, people on Cranborne Chase and the flint-giving chalk.

4:00 *Breaking chalk: archaeological investigations at Long Down and Harrow Hill, West Sussex, 1984-86* Jon Baczkowski and Robin Holgate

The results of fieldwork at Long Down and Harrow Hill in the mid-1980s will be presented. At both sites, a single flint-working area was discovered and sample-excavated, with axe roughouts proven to be the main product. Drift mines were also revealed at Harrow Hill adjacent to the flint mines, the only known examples in

southern England. Early Neolithic pottery was recovered from Long Down, whilst sample excavation of flint mines yielded antler and bone implements that produced radiocarbon dates corresponding to the Early Neolithic period. Further radiocarbon dates were obtained recently on antler picks from the 1950s excavations at Long Down, the results of which have implications for the mining chronology in Sussex. The excavations provide an important insight into the output and dating of flint mining and the earliest Neolithic 'horizon' in southern England, where mined flint was used to fabricate axe heads for circulation amongst early farming communities.

4:20 *Are all flint mine shafts equal? New radiocarbon dating on Blackpatch Shaft 1, Sussex* Anne Teather

Shaft and gallery flint mining in primary chalk deposits creates a very particular archaeological morphology that appears to have started at the beginning of the Neolithic. Dating of these sites is complex due to the depth and volume of shaft fills and gallery spaces. This paper relates the results of recent dating of Shaft 1 at Blackpatch which was excavated in 1922. The archive, held at Worthing Museum and Art Gallery, lay largely untouched until the 1990s. New dating of this archive has taken place in two phases. The first yielded surprising results that indicate that mining may have commenced in Sussex prior to the commonly accepted date of the earliest British Neolithic of 4100 cal BC and moreover, 5 more dates are in progress for the shaft fill. This paper will relate the likely story of Blackpatch Shaft 1, in the context of other dates gained on flint mines, to begin to build a narrative of flint mining activity at the beginning of the Neolithic.

4:40 – 4:50 *DISCUSSION*

4:55 *CLOSE*