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FLINT AND STONE IN NEOLITHIC BRITAIN, CARDIFF
25 - 27 March 1988
by Frances Healy

Nearly sixty participants, including two from the Netherlands and two from the United States, gathered for the first joint meeting of the Neolithic Studies Group and the Lithic Studies Society. The weekend was admirably organised by Tim Davill, Stephen Green, Alan Saville and Alasdair Whittle, supported by Elizabeth Walker of the National Museum of Wales.

An opportunity to handle material from Hazel Paff Warren's excavations at Graig Lwyd elucidated the debitage techniques employed at the site, while Stephen Green suggested that the evidence recorded in Warren's original report may indicate an organization of work comparable to that now reconstructed for the Langdale quarries.

Alan Saville's opening address charted the past progress and remaining shortcomings of Neolithic studies and emphasised the continuing need for higher and more consistent standards of recovery, recording and curation of lithic material, without which its value for the overall understanding of the period cannot be realised.

The subsequent papers, abstracts of which are reproduced below, left participants competing for discussion time and raised several salient points:

1. The extra-functional significance of at least the finer stone and flint axes, seen in the costs of extraction and manufacture, in their final mode of deposition (for example in hoards or in contexts from which they could scarcely be retrieved, such as the bed of the Thames or the East Anglian Fens), and in the presence of exotic axes in areas which had more than adequate local supplies (for example Group VI axes in Ireland).

2. The operation at a single source of different working methods at differing levels of efficiency, although at both Great Langdale and the Sussex flint mines it remains to be seen whether these variations are of chronological or socio-economic significance. It remains also to relate them to variations in scales and patterns of distribution over time.

3. The value of seeing lithic procurement and use in the context of local geography and settlement. Richard Bradley painted a vivid picture of the working of Great Langdale tuff as an aspect of the use of upland summer pasture by communities cultivating the Cumbrian plain and of their communal monuments as centres from which the axes passed into wider circulation. On a more modest scale, John Schofield's division of the Meon valley (Hants) into zones of extraction and settlement and my own use of East Anglian settlement assemblages and fieldwalked collections as a key to the use and dispersal of Grime's Graves flint adopted a similar approach.

4. Our still lamentably poor understanding of flint mine sites. This is at least in part due to the nature of the material extracted from them. Flint, at least in Britain, is seldom macroscopically attributable to a particular source and, more
importantly, might be used for the whole gamut of implement types, while many hard rocks are more-or-less identifiable and most were used almost exclusively for axes and shaft-hole implements. Tracking a multiplicity of possible products in an undistinctive raw material in regions rich in other sources of flint is no small challenge. The need for a reliable, cost-effective method of flint analysis and for its intelligent application is as great as ever. Current research at Sheffield by Ian Brooks on flint micropalaeontology may open new possibilities.

In the much-regretted absence of Robin Torrence, due to illness, Lawrence Barfield gave an eloquent extempore account of his recently begun research into flint-mining in the foothills of the Italian Alps. Circumstances differ from British ones in many respects, notably in the macroscopic identifiability of the mined flint. Nonetheless, many similar themes emerged: diverse methods of extraction and the question of their interrelationship, shifting patterns of dispersal, and the extent to which the output was transported as cores or nodules rather than as finished implements.

Outside the lecture room, two high points of the conference were an excursion to south Glamorgan and Gower and a reception at the National Museum of Wales. The natural beauty of the Gower peninsula showed to advantage in spring sunshine, while, in addition to authoritatively-guided visits to the classic sites of Tinkinswood, Parc le Breos Cwm and the Cathole Cave, there was the home of Anthony Ward's lucid exposition of his ongoing investigation of Bronze Age monuments on the now desolate moorland of Cefn Bryn. The reception provided the opportunity to mingle with the visiting academics and to appreciate the wealth of the Museum's prehistoric collections, which are displayed with a rare blend of scholarship and visual impact.

Thanks are due to all those involved in organizing the conference, especially to Stephen Green and Elizabeth Walker. It is to be hoped that it will be the first of many.

Abstracts

The use of stone tools at the Bronze Age copper mine of Cwmystwyth and its wider perspective

A small excavation and survey were carried out as part of an investigation of an early Cu-Pb mine working on Copa Hill, Cwmystwyth (near Aberystwyth, Dyfed). The site had previously been examined in 1935 by O. Davies, who considered it to be 'of Roman age'.

A recent 12m trench transect through on of the dumps has revealed numerous stone pebble hammer fragments, a small amount of decomposition, and much charcoal, presumably from fire-setting activities, has been dated by three radiocarbon determinations to around 1500 cal BC.

Elsewhere, an earlier channel has been found buried by a prehistoric dump, whilst the survey has revealed a maze of watercourses plus several stone structures of unknown age.

Simon Timberlake

Stone tools are found in direct association with copper extraction at nineteen British mines: sixteen in Wales, two in Cheshire, and one in the Isle of Man. Two (Cwmystwyth, Dyfed, and Great Ormes Head, Llandudno) have produced radiocarbon dates in the second half of the second millennium BC, and the tools from the other sites are comparable with those found at Bronze Age mines in Ireland and Europe.

The tools can be described under the broad heading of 'hammers', and were used, with fire-setting, in primary hard rock mining. They may also have been used in the secondary processes of ore-dressing. The most common tool type is the unmodified cobble hammer, but five other basic categories have been recognized: notched hammers, notched and cup-marked hammers, partially-grooved hammers, fully grooved hammer, and multiple grooved hammers. These various types suggest a degree of functional complexity within the mining process. The grooved examples, however, are only found at the Cheshire mines of Alderley and Mottram St. Androw, and this raises the possibility of chronological differences between these sites and those in Wales and the Isle of Man.

With the exception of the Cheshire sites, the distribution of stone mining hammers is remarkably restricted. They are locally intensive in Mid Wales and there are isolated occurrences at copper deposits on the North Wales coast and at a single site (Bradda Head) in the Isle of Man. They do not occur in historically important copper-producing areas, as Cumbria, Staffordshire or, surprisingly, Cornwall and Devon. This suggests that such tools might be seen as indicators of an initial phase of mining and mining confined to obvious deposits on the western margins of the Irish sea. Early dating from Cwmystwyth indicate that these operations could have been contemporary with the development of metal mining in Ireland.

Production and Circulation: the view from Langdale

Central Cumbria has long been known as the source of Group VI axes, and study of its products has played a central part in investigations of the 'axe trade'. Unfortunately, it is not always clear that all Group VI axes originated in this area, and in any case it is increasingly obvious that there is no direct relationship between individual fall-off curves and the processes that led to their creation. Recent fieldwork in the wake of the National Trust/Cumbria and Lancashire Archaeological Unit survey has been intended to investigate these processes and the changing relationship between methods of working the stone on site and changes in distribution of Cumbrian axe remains in Britain as a whole. This has involved experimental archaeology, technical analysis, and small-scale excavation.

Richard Bradley

The Langdale survey project

Typological and petrographic studies over more than sixty years have increasingly demonstrated the importance of 'Langdale' products and the constituent, Group VI, raw material in the

John Pickin
corpus of dispersed Neolithic stone axes in Britain. Continuing fieldwork has similarly expanded the area of known axe production sites from Langdale to Scafell Pike and beyond.

Unfortunately, rough-out collecting and erosion have seriously damaged many such sites, and the survival of others is under threat. In response, a survey by the National Trust and the Cumbria and Lancashire Archaeological Unit was carried out from 1984 to 1985.

In total, 572 working sites were identified, recorded and planned, typically forming clusters in specific landscape zones. Sites were examined and assessed in relation to geological, topographic and geomorphic factors, and a fourfold categorisation suggested.

Within each category there is evidence of axe manufacturing that has been broadly categorised. A range of extraction and production strategies is exemplified, from large-scale direct quarrying at mountain crags to small working sites located away from outcrops. Petrographic analysis of accurately surveyed samples from outcrops and debitage has identified the possibility of sourcing dispersed products in certain production areas on the basis of specific lithological characteristics within the Group VII/Seathwaite Fell Tuff Formation.

Philip Claris and Jamie Quartermaine

Scotland: raw material acquisition and exploitation

Although good quality flint sources are lacking in Scotland, many suitable alternative materials are available. Both the ease of extraction and the quality of the different materials vary greatly, however, and a number of techniques for using this resource have been recorded.

Recorded extraction techniques vary from quarrying to the use of nodules gathered from nearby gravels. In some cases locally abundant but poor quality stone, such as quartz, might be used. In other cases, materials were transported, sometimes over considerable distances. Pitchstone, for example, was transported across the length and breadth of Scotland from its island source on Arran; whilst in the west, the localised resource of Rhum, Rhum Bloodstone, was used throughout a smaller area over a period of at least 4000 years.

This variety is reflected in the lithic assemblages as different materials complement each other in the make-up of any one assemblage. In many instances generalised local manufacture can be seen, but there is also increasing evidence for the use of specialised craftworkers. We have long been aware of the importance of stone as a resource in prehistory. We are only just starting to appreciate the very many different roles in which it might have been used.

Caroline Wickham-Jones

The Sussex flint mines: results of recent work

After initial identification as flint mines in the late nineteenth century with the work of General Lane Fox and Canon Greenwell at Cissbury, the other well-known Sussex sites at Blackpatch, Harrow Hill and Church Hill, Findon, were investigated by J. H. Oliver and J. R. Puller, and T. J. Holleyman in the 1920s and 1930s. Since Clark's and Piggott's article in Antiquity (1933), on the dating of the British flint mines, the Sussex sites have receded from the limelight. Several issues, though, remained unresolved, notably concerning the organisation of quarrying and flint tool production.

Plough damage to some of these sites prompted the Institute of Archaeology Field Archaeology Unit, University College, London, to carry out a programme of surface artefact collection, ground survey and sample excavation in 1982 and 1983. Of these sites, the Susset A site was a settlement site. Although good quality flint sources existed in England, many such sites, and the survival of others is threatened. In response, a survey by the National Trust and the Cumbria and Lancashire Archaeological Unit was carried out from 1984 to 1985.

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East Anglia: lithic resources and use

Flint is almost ubiquitous in East Anglia, although of variable size and quality. Igneous and metamorphic rocks are confined to the erratics of the Hunstanton Till, which barely reached the extreme north-west of the region.

The two major concentrations of imported stone implements (one in the coastal Sandlings of south-east Suffolk and north-east Essex, the along the south-eastern edge of the Fens) are not a straightforward reflection of settlement foci and may reflect some constraint on the availability of such artefacts. Some implements of Group XVIII (Whin sill dolerite), which show an exceptionally diffuse distribution, may have been made locally on erratics from the Hunstanton Till.

Although Grime’s Graves is perhaps the largest flint mining complex in Britain, its output, estimated at a minimum of six to eleven tonnes a year, remains tantalizingly close to invisible, despite its characterization in the course of the British Museum’s Lithic analysis programme.

The macroscopic characterization of flint used in local settlement assemblages, imprecise as it is, permits the formulation of broad impressions which may eventually be tested by more rigorous means:

1. The bulk of any industry was made on the nearest, most readily available raw material, regardless of quality.

2. Exceptions were (a) some ground axes, often of a distinct flint from the industries in which they occur and traceable to till or gravel deposits, (b) the few ground axes attributed to distant or local quarry sites by flint analysis, and (c) rare flakes and implements of what may be mined flint.

3. A primitive process of elimination suggests that the difficulty of recognizing local flint mine products must reflect their transportation in largely non-cortical form.

4. This near-invisibility extends even to the Fens, the part of the region to which, at least from the late Neolithic onwards, flint would have to have been transported. In collections made by Bob Silvester in the course of the Fenland Survey from sites up to 6km out from the flint-bearing ‘upland’, the frequencies of the various classes of debitage and of finished implements vary little from those found in assemblages from settlements sited on flint sources. Neither is there an appreciable fall-off in size. This suggests that flint was freely available on fen-edge sites, and was probably collected in the course of frequent movement between fen and ‘upland’.

5. The Fenland collections differ from upland assemblages in another respect: they contain far higher proportions of both completely cortical and completely non-cortical flakes. This reflects the use of two broad categories of raw material; fine-grained and certainiy, weathered nodules or thin superficial sources, generally so small as to yield relatively little flint in proportion to their surface area; secondly, and more tentatively, larger, sounder material, probably introduced in the form of prepared, generally non-cortical cores. This would help to account for the low visibility of Grime’s Graves flint, since the material concerned would have slipped through the net of the flint analysis programme, which examined only ground axes, and would escape positive macroscopic identification, since it would be largely without cortex.

6. This short-range transport of raw material is a reminder that the movement of flint between flint-rich and flint-poor areas on a national scale must have been substantial, although its extent can only be glimpsed. There is evidence for the transport of flint at every stage of the reduction sequence, a fact which deserves consideration in any future application of flint analysis.

Frances Healy

The tool production cycle: evidence from surface collection in Hampshire

The question of what flint scatters represent has received much attention over the past few years, with current opinion tending towards the argument, ‘well, if “sites” don’t exist, what is the alternative?’ It is towards this problem that the paper is directed, with a particular emphasis on the evidence for Neolithic activity on the Hampshire chalklands, and on how that evidence might be best interpreted.

Surface collection in the upper Meon valley in south-east Hampshire has produced large quantities of worked flint. Within this collection it has been possible to distinguish between domestic and industrial activity on the one hand, and between different stages of the core reduction sequence on the other. It is argued that, by adopting the individual collection unit—the hectare or at smaller scale the continuous line—as a framework, and by looking for variation not only in density but also in composition between collection units, such patterns may begin to emerge on a much wider scale than has so far been the case.

A.J. Schofield

ANNOUNCEMENT

Copies of two of my publications have been remaindered, so that I can offer them to interested members at exceptionally low prices:

- Palaeolithic sites of East Anglia (Norwich, Geo Books) 1985, paperback £4.50 + £1.90 postage

Alternatively, to save the cost of postage, I could bring ordered copies to the next LBA meeting.

J.J. Wymer
Norfolk Archaeological Unit, Union House, Gressenhall, Dereham, Norfolk NR20 4DR