



MINING AND QUARRYING IN NEOLITHIC EUROPE, EDITED BY ANNE TEATHER, PETER TOPPING AND JON BACZKOWSKI

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The title might more appropriately have been '*Mining and Quarrying in Neolithic Britain, with a single contribution from Norway*'. Nonetheless, the volume's geographical and thematic coverage at an insular level is admirable, ranging from Sussex to Shetland and from long-familiar mines and quarries to wider questions of raw material use and significance and of interactions between Neolithic communities and the natural world.

Coverage of monumental, rather than artefactual, stone includes a welcome paper by Katy Whitaker on the neglected topic of prehistoric sarsen extraction and working, in which she draws on recent English ethnohistorical records to propose features that could indicate isolation, splitting, and movement of sarsens using pre-modern technology. She also issues a sobering reminder of the extent to which potential source areas for sarsen used in prehistoric monuments have been damaged or eliminated by deliberate clearance.

Mike Parker Pearson and Tim Darvill both describe the identification and dating of late 3rd to 2nd millennium cal BC extraction sites for the various Prescelly bluestones. Given the diversity of bluestones used in Stonehenge and how many of them are now missing, it is surely perfectly possible that both authors have identified quarries relating to the monument.

Artefactual stone occupies the bulk of the volume. The broad canvas of two contributions highlights fluctuating communication networks and raw material preferences over time. In the south-west of England Rosemary Stewart charts how the use of Greensand chert declined through the 4th and 3rd millennia cal BC although its widespread availability remained unchanged. This surely reflects the increased import of flint to the peninsula and the increased prospection and use of local flint sources. Portland chert, distributed beyond both its primary and derived source areas, reaches a peak of use and dispersal in the form of 4th millennium cal BC arrowheads and seems to have had a significance never accorded to Greensand chert, which was habitually put to more mundane uses.

In the north-west of England Fraser Brown, Antony Dickson and Helen Evans show that late 6th/early 5th millennium flint working at Stainton on the outskirts of Carlisle employed not only

relatively local beach pebble flint and Carboniferous chert but also smaller quantities of material from more remote sources in the form of Arran pitchstone, Southern Upland chert, Yorkshire flint and Langdale tuff. The same remote sources provided raw material when activity at the site resumed in the early 4th millennium. The continuity of similar networks across this timespan has implications for the character of the Mesolithic/Neolithic transition, while the combination and early occurrence of the remote raw materials place their sources and the site itself at the start of a pattern of communications in the Irish Sea zone which grew and flourished from the start of the Neolithic, corresponding to the start of the active quarrying of Langdale tuff from the start of the 4th millennium (Edinburgh *et al.* 2020).

Astrid Nyland's account of the continued working of stone quarries in south-western Norway across the transition suggests a similarly unbroken pattern of procurement, contrasting with a different social context in south-east Norway where local sources were to a large extent supplanted by imported flint.

Gabriel Cooney, William Megarry, Mik Markham, Bernard Gilhooly, Brendan O'Neill, Joanne Gaffrey, Rob Sands, Astrid Nyland, Torben Ballin, Jenny Murray and Alison Sheridan present the interim results of a major investigation of the source of riebeckite felsite (petrological group XXII), which was quarried in Shetland; made into axeheads, knives and other implements; and apparently not distributed beyond the archipelago. The benefits of consistent application of portable X-ray fluorescence, both in the field and in the museum, are manifest. Preferential use of a fine-grained, deeper blue facies of the rock and purposeful deposition of some artefacts demonstrate an extra-functional significance. On so far limited evidence, exploitation seems to go back to the start of the local Neolithic in the second quarter of the 4th millennium cal BC.

Flint mines have extensive coverage. Jon Baczkowski usefully summarises the evidence for 4th millennium settlement contemporary with the working of the Sussex mines and makes the case for short-term occupation at the mines themselves. There is a measure of sloppiness, however, in his citation of some calibrated ¹⁴C dates without the original BP measurement, the identification of the sample, a clear context and any associated isotopic measurements. This makes it hard work for others to evaluate or use them.

Anne Teather could sometimes be more punctilious here too. She also manages other sloppinesses. She writes, for example, of 'the insertion of at least one Iron Age burial' in the top of a mine shaft at Grime's Graves, when in fact there were two, one cut into the other and both dated. She also asserts that 'The transition to farming in western Europe and Scandinavia was accompanied by major changes in production technology, including the production of ceramics and polished stone tools. It is now acknowledged that for both Britain and Scandinavia . . . flint

mining appears to anticipate the start of these changes perhaps by as much as 200 years (Whittle *et al.* 2011). But Whittle *et al.* actually present flint mining in south-east England as starting *after* the introduction of pottery, cereal cultivation and house-building (*ibid.*, fig. 14.179). This tempts one to mutter '*falsa in uno falsa in toto*'. Peter Topping cites the same source correctly.

There are touches of naïvety in ignoring the possibility that layers of backfill, as distinct from basal deposits, in a mineshaft may consist of spoil and discarded implements from previously excavated shafts; in submitting samples of horse bone to contribute to the dating of a Neolithic shaft when it is difficult to find securely dated horse in Britain between the 7th and the 2nd millennia cal BC (Bendrey *et al.* 2013); and in the submission of a sample from a disarticulated pig mandible at Church Hill which unsurprisingly proved later than a sample from an underlying layer.

That said, there is a real contribution to the history of the Sussex flint mines in the demonstration that shaft 4 at Church Hill was either excavated *de novo* or was emptied and further worked at the turn of the 3rd and 2nd millennia cal BC, on the evidence of dates for vole bone from an owl pellet found in a gallery and for a poplar wood bowl from near the top of the fill. I would suggest that the so far undated Stoke Down mines may also be late, on the evidence of the technology of their struck flint.

Robin Holgate emphasises the extent of Late Neolithic flint working at Church Hill and some other Sussex mines, whether of freshly mined or of scavenged raw material. He also underscores the 'special' character of early 4th millennium flint-mining, with mines located on some of the highest hills on the southern Chalk and exploiting some of the deepest flint seams, from which axeheads and single-piece sickles were made. For him, this was part of the '... belief system of the newly-established early farming communities in southern England for creating identities and, through the votive deposition of a number of these axeheads, ensuring their well-being and continued reproduction'.

Peter Topping takes the extra-functional aspects of mining and quarrying up several notches. His baseline is a distillation of 168 ethnographic studies from which he draws a series of traits which characterise mine and quarry sites as 'storied locations' as well simply extraction sites. These can easily be matched in the British record, although he is sometimes a little over-enthusiastic in ticking off each item on the shopping list against each site. For him, the early, pre-monumental, appearance of already-developed deep mining techniques in southern England marks them as part of an ideology shared with the near continent and brought to Britain as part of 'being' Neolithic.

Beyond this volume, the early introduction of established mining and quarrying skills and practices is adumbrated by Edinborough *et al.* (2020), who add Great Langdale to the tally of early 4th millennium cal BC extraction sites. They too see extraction as part of the primary insular Neolithic. They diverge, however, in concluding that mining and quarrying were demand-driven, a response to the need of incoming settlers for axes with which to clear woodland. Here I, and I think several contributors to this volume, would disagree. There is no need to climb a mountain in Cumbria or to sink mine shafts in Sussex to obtain raw material for axe manufacture. Furthermore, the craftsmanship and visual impact of many flint and stone axeheads, whether from mined or superficial sources, go far beyond the functional. The burial of some axeheads in hoards and other 'special' contexts and the transmission of others hundreds of miles from their sources go beyond practical need. Extensive forest clearance remains difficult to see in the vegetation history of the early 4th millennium; the area of the Sussex mines, for example, seems to have remained wooded at this time (Allen & Gardiner 2012, 99–100). Whatever the reasons that made it imperative for early 4th millennium settlers to mine and quarry on this island, not all of them were practical, and the language of market economics lacks the appropriate vocabulary to interpret them.

Reverting to this volume, Susan Greany's integration of the natural, the monumental, the subterranean and the human into a single living landscape in Cranborne Chase and Steve Dickinson's view of people working in reciprocity with mountains in Cumbria propose insights into how 4th millennium populations engaged with the earth and its products. Both would elide any distinction between the natural monumentality of outcrops on Prescelly or Langdale, the consequent monumentality of flint mine spoil heaps, and the built monumentality of earthworks.

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