



## Book Reviews

### **THE ARCHAEOLOGY OF PREHISTORIC BURNT MOUNDS IN IRELAND BY ALAN HAWKES**

*Archaeopress Archaeology. 2018. 327pp, 195 B&W and col figs, pb, ISBN 978-1-78491-986-3, £50.00*

This well-illustrated book, which originated as the author's PhD thesis, is a welcome and long-overdue addition to the literature on burnt mounds (*fulachtaí fia*; 'boiling mounds'; 'pot boilers'). These low mounds of heat-shattered stone and charcoal, which often overlie troughs, pits, hearths and stakeholes, are a particularly Irish and British phenomenon. They have generally been interpreted as sites in which hot stones were used to boil water in lined pits to cook food, but other interpretations have been suggested, including their use as sweat lodges. About 7000 burnt mounds have now been recorded in Ireland, throughout the country, and radiocarbon dates indicate that they date from the early Neolithic (c. 3800–3400 cal BC) to the early Iron Age (c. 800–400 cal BC), with a concentration in the Bronze Age (c. 2100–800 cal BC).

The book first traces the history of Irish burnt mound research, including references in early Irish literature and their influence, antiquarian accounts, and early excavations, interpretations and reconstructions. A discussion of the investigation of burnt mounds as part of infrastructure developments includes a consideration of site formation processes, and excavation strategies and recording methods. It notes that the mound is considered to be a homogenous deposit and excavated as a single context because it is not always possible to recognise stratigraphy. The variety of types now recognised contradicts assertions that the sites are repetitive and uninteresting, and 'just another burnt mound'.

The core of the book is a detailed examination of the archaeological evidence from 1165 Irish burnt mounds excavated between 1950 and 2010, 900 of them as part of infrastructure development (particularly roads and gas pipelines in the Irish Republic) which provided an opportunity for extensive excavations of burnt mounds and their surroundings, and indeed they were the most common site type found in this work. It is accompanied by many site plans and photographs, a sites list and tables which are supplemented by a detailed online database.

The mounds themselves are the result of structured deposition of burnt stone residue, and they may have been deliberately mounded to provide shelter and to make them visible and distinctive. Identification of rock types used shows that some non-local stone was selected for

use on the sites. The author defines nine types of burnt mounds, based on the occurrence of troughs, pits and associated structures. Features interpreted as boiling troughs are mostly rectangular, and some are lined with timber, stone or clay. Other pits may have been used for roasting, baking or steaming, possibly of plant foods. Associated structures represented by postholes and stakeholes are common.

Artefacts are generally sparse at burnt mounds or completely absent, and the sites have usually been dated by radiocarbon. The author offers a critical assessment of the contexts and interpretation of the 1000 or so radiocarbon dates from Irish burnt mounds, assigning degrees of certainty of the association of the samples with pyrolithic/water-boiling technology. This demonstrates that burnt mounds range in date from the early Neolithic to the early Iron Age. Contrary to previous assertions there is no evidence of late Iron Age or early medieval use of pyrolithic technology, but medieval dates from burnt mounds result from opportunist reuse of burnt mounds as dry locations in wet areas for activities such as metalworking and charcoal burning.

Although burnt mounds are often regarded as a single undifferentiated deposit, different layers have been identified within mounds at some sites, separated in some cases by episodes of flooding. Troughs have been recut with knowledge of the location of an earlier but no longer visible trough, which was possibly marked by deliberately building up burnt stones in a crescentic shape. The author identifies evidence for prolonged use; reuse after a short or long interval; and change of use (a water-boiling trough replaced by a stone-lined roasting oven).

Pyrolithic technology was used in burnt mounds to heat water held in open air sunken pits, for cooking and other purposes. Small quantities of bone have been found at some sites, including some butchered pieces, and experimental analysis of lipids surviving on burnt stones has identified fats from large herbivores. In addition to boiling food in a trough, pyrolithic technology could have been used for baking, steaming or dry roasting in a pit.

Of non-cooking interpretations, bathing involving immersion in hot water is considered but thought unlikely. Sweat bathing could also be achieved by splashing water on hot stones or in steam produced by heating water in an enclosed space. Some excavators have suggested that troughs with substantial timber coverings were sweat lodges, but the author thinks these are more likely to be roofed cooking huts, with a possible secondary, opportunistic, use of the steam for sweating. Circular or oval structures with adjoining pits and troughs have been interpreted as sweat lodges, as have 'light tented structures', some with small pits inside, where water could have poured on hot stones within pits to create steam. Large shallow circular pits surrounded by post or stakeholes, suggesting a roofed hut or tented structure, are similar to North American

sweat lodges. The author considers that there is no convincing evidence from burnt mounds for the use of pyrolithic technology for other purposes such as metalworking, leatherworking, brewing, or textile processing.

Burnt mounds are often in locations which are not themselves conducive for settlement but are within a short walk of a contemporary settlement. A fairly brief discussion of the palaeoenvironmental evidence for the local landscape and human activity reflects the relatively little sampling hitherto undertaken on and around Irish burnt mounds.

A consideration of the cultural context of burnt mounds is largely based on their interpretation as cooking sites. Pyrolithic technology seems to have been introduced in the early Neolithic period. The concentration of burnt mounds in the middle to late Bronze Age corresponds with settlement expansion, but the rapid adoption of pyrolithic technology was related to the social context of their use rather than efficient cooking. Burnt mounds with large troughs covered by structures may have been used for communal feasting. In the later Bronze Age gold and bronze items were deposited at some burnt mounds, and sites considered by the author to be possible sweat lodges develop. The sudden decline in use of pyrolithic water boiling in the 8th century BC coincides with the first use of sheet bronze cauldrons, used for direct cooking over a fire, and probably social change.

The author considers that the study of burnt mounds is not being advanced by traditional excavation and recording methods and sampling strategies currently in use, and that a greater use of scientific analyses is required. For example, soil micromorphology might identify separate phases of mound accumulation and multiple radiocarbon dates from samples with clear stratigraphic relationships would permit Bayesian modelling of episodes of use of the site.

This book makes an extremely important contribution to the understanding of burnt mounds and their significance. The issues it raises will be familiar to any archaeologist who, like this reviewer, has excavated burnt mounds. As Grogan states (2017, 65), burnt mounds were a deeply significant aspect of most peoples' lives in Bronze Age Ireland, there is much more knowledge to be derived from them, and more developed strategies are needed to guide future excavation and research. Hawkes's book contains the detailed information from which such a strategy could be developed.

For this reviewer, the particular strength of the book is its 'back to basics' approach in the detailed presentation and analysis of the archaeological evidence and creation of typologies, and the critical assessment of the practicalities of excavation and the contexts of radiocarbon dates. The acquisition of more dates on future excavations and Bayesian modelling may

provide a chronology for the typologies. It is surprising that relatively little palaeoenvironmental analysis has been undertaken, particularly in view of the damp locations in which burnt mounds often occur, and this is certainly an aspect that needs addressing in future work. The book refers to the work of Brown *et al.* (2016) which draws attention to the potential of chemical analyses to identify likely uses of mounds, and the application of lipid analysis (detailed in Hawkes and Malainey 2018) is a welcome addition to the scientific armoury.

This reviewer was pleased to see the interpretation of some burnt mound structures as sweat lodges, but for the author old habits seem to die hard in that a preferred interpretation as cooking sites permeates throughout, as though there is a reluctance to consider other uses. This contrasts with Ó Néill's (2009) more objective approach. However, the author has undertaken experiments using pyrolithic technology for sweat lodges as well as for cooking, but the structure he constructed for this seems too elaborate for this purpose; other reconstructions of burnt mounds as sweat lodges (eg, Hodder 2004/2011, 39–42) have used stakehole-based structures akin to those described as 'flimsy' in the book.

The book has retained the detail of the original thesis, but it would have benefited from some editing, and the addition of an index would have been helpful. It is unfortunately beset by several typographic errors, including misspelt, omitted and incorrect words, most of which would have been picked up by a spell-checker.

The comparative discussion by the author refers mainly to Scottish burnt mounds and some Welsh sites but not many in England, despite the number of sites excavated in that country. As he notes, there is as yet no study of burnt mounds in Great Britain that is comparable to this book. Summaries hitherto produced have been on a regional basis or are contained within reports on individual sites (eg, Barfield and Hodder 2011). A similar overview to this book is therefore needed for Great Britain, to include, for example, the early Neolithic site at Bradford Kaims and the complex structure found at the Links of Noltland, as well as sites investigated as part of mineral extraction, residential developments and infrastructure projects. In its consideration of a single type of site, this book demonstrates how the vast amount of archaeological data accruing from infrastructure projects in Ireland is transforming understanding of most periods of the country's past (eg, Stanley *et al.* 2017).

## References

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*Mike Hodder*

*Honorary Lecturer in Archaeology, University of Birmingham*

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