

The Use and Significance of Early Bronze Age Stone Battle-axes and Axe-hammers from Northern Britain and the Isle of Man

By AMBER SOFIA ROY¹

The perforated stone battle-axes and axe-hammers of Early Bronze Age Britain have been used either to interpret the status of individuals they were buried with or have been overlooked; this is especially the case with axe-hammers. Previous understandings have assumed battle-axes were purely ceremonial, while the rougher axe-hammers were neither functional nor prestigious, being too large and too crude to be prestige items. Studies of the 20th century were focused on creating a typology and understanding the manufacture and petrological sources of the stone, concluding that haphazard exploitation of stone was used to create a variety of different shapes of both implements. This paper revisits the question of how these artefacts were used. It presents the results of the first large-scale application of use-wear analysis to British Early Bronze Age battle-axes and axe-hammers, from northern Britain and the Isle of Man. Combining the results of the wear analysis with experimental archaeology and contextual analysis, it is argued that these objects were functional tools, some of which saw prolonged use that might have spanned multiple users. The evidence shows that the few implements found in burial contexts were both functional and symbolic; their inclusion in burial contexts drawing upon relational links which developed through the itineraries of these objects. It is also apparent that use and treatment were similar across all types of battle-axe and axe-hammer, with some regional variation in the deposition of axe-hammers in south-west Scotland. It is concluded that battle-axes and axe-hammers had varied and multiple roles and significances and that it is possible to discover what each artefact was used for by deploying a use-wear analysis methodology.

Keywords: Use-wear analysis, battle-axe, axe-hammer, Early Bronze Age, Britain, experimental archaeology, use-context, burial rites, deposition

Few major works have investigated Early Bronze Age (EBA) perforated stone battle-axes and axe-hammers despite the vast number of stray finds spread across the UK and their presence in EBA funerary contexts. The principal sources have focused on creating a typology and understanding their manufacture, and on the petrological sources of the stone (Roe 1966; 1967; 1979; Saville & Roe 1984; Fenton 1984; 1988). The depositional context of EBA battle-axes and axe-hammers has been used as the basis for previous interpretations of their use and significance. Stereotypical interpretations were often influenced by an awareness of the Single Grave Culture in

Europe arguing that ‘exotic’ artefacts in burials signify an elite (Evans 1897, 185; Greenwell 1890, 159, 298; Mortimer 1905, 159; Smith 1925, 80; Anderson 1886, 80; for the Continental studies of elite see: Brumfield & Earle 1987; Lekberg 2002, 68; Knutsson & Knutsson 2003, 70; Earle & Kristiansen 2010, 4). For example, battle-axes have been found in burial contexts with ‘exotic’ items, such as the copper alloy earrings found with a battle-axe in a burial at Stanbury, West Yorkshire, which was used to interpret the deceased as high status (Richardson & Vyner 2011).

Previous understandings have assumed battle-axes were purely ceremonial (Saville & Roe 1984), while the rougher axe-hammers were neither functional nor prestigious, being too large and too crude to be prestige implements (Leahy 1986). Woodworking, agricultural,

¹43 Dover Street, Norwich, NR2 3LG. Email: Amber.Roy@newcastle.ac.uk

and metal ore preparation roles were also suggested for axe-hammers (Roe 1967, 69; Bradley 1978, 13). However, no study primarily focuses on their use; this significantly reduces understandings of the narratives of these objects and therefore their societal impact.

This paper reports on an assessment of the roles and meanings of perforated ground stone battle-axes and axe-hammers from the EBA in northern Britain and the Isle of Man, based on a new contextual analysis using typological, chronological, petrological, stratigraphic, spatial, cultural, and use-context information. Use-context was explored through use-wear analysis and experimental tests. This is the first time that use-wear analysis has been applied to a large sample of British EBA battle-axes and axe-hammers, providing an opportunity to reassess the role and significance of these objects. The results suggest that they were functional tools, with the potential for prolonged use over extended periods by multiple users. By building on Roe's seminal work (Roe 1966; 1968; 1979), the evidence breaks down the function versus symbol opposition that has affected stone artefact interpretation (for questions of function/symbol of mace-heads, see Anderson-Whymark *et al.* 2017). It indicates that those implements found in burial contexts were both functional and symbolic; their inclusion in burial contexts drew upon the agency of the relationships that developed between the implements and people during their itineraries.

An itinerary approach studies the movement of objects from their point of creation; this includes their physical travel and circulation through actions such as gift exchange, as well as spatial, temporal, and material connections at points in the itinerary (Joyce & Gillespie 2015). This paper will follow the itinerary of battle-axes and axe-hammers, including their manufacture, distribution through mobility and gift exchange, functional use through time, and their deposition, to understand the relational links between people and objects and how their roles and meanings transform across time and space. This is followed by a discussion of significance based on contextual analysis.

BRITISH BATTLE-AXES AND AXE-HAMMERS

A total of 183 battle-axes and 362 axe-hammers are currently known from northern Britain¹ and the Isle of Man (Fig. 1). Battle-axes and axe-hammers are stone implements with a central or off-centre perforation to accommodate a haft. They have a blade

parallel with the perforation at one end and a butt at the opposite end. They are distinguished by size: battle-axes are less than 190 mm long and 80 mm broad, while axe-hammers are larger in either dimension (190–250 mm long and 86–125 mm broad). Their varying forms were divided into types by Roe (1966; Figs 2 & 3).

Chronology

Battle-axes and axe-hammers are regarded as an EBA phenomenon based largely on their material associations in funerary contexts, including Collared Urns and Food Vessels (Roe 1966; Needham 2011). Recent dating projects, most notably the National Museum of Scotland's *Dating Cremated Bones Project*, have securely dated artefacts associated with cremated remains, firmly placing these objects within the EBA (Sheridan 2007). There is no single chronological sequence for the several types of battle-axe (Fig. 4). Apart from the Stage I battle-axe from Barns Farm, Fife (Watkins 1982) and the Stage III battle-axe from Stanbury, West Yorkshire (Richardson & Vyner 2011) which are earlier in date, the remaining dated implements are grouped within a range between the late-1800s and the early to mid-1600s cal BC. Radiocarbon dates are not available for northern axe-hammers because they are rarely found in excavated contexts. However, their similarity to battle-axes in form and the associated depositional artefacts suggest a similar dating sequence.

CONTEXTUAL ARCHAEOLOGY AND ARTEFACT ITINERARIES

An artefact itinerary approach was used to understand the role and meaning of battle-axes and axe-hammers across time and space. This considers different assemblages of which objects were part and how they changed, including how the meaning of objects within them altered, to reveal changing object biographies from their manufacture to their deposition. To do so, analysis of the contextual archaeology is essential to pinpoint defining moments; within this the sequences of manufacture, distribution, use, and deposition are understood. An assessment of contextual information was used, expanding Hodder's (Hodder & Hutson 2003, 173) contextual approach (typological, chronological, stratigraphic, spatial, and cultural) to include use and petrology contexts. This allowed a more nuanced and extensive understanding of possible

A. Roy USE & SIGNIFICANCE OF EARLY BRONZE AGE STONE BATTLE-AXES AND AXE-HAMMERS

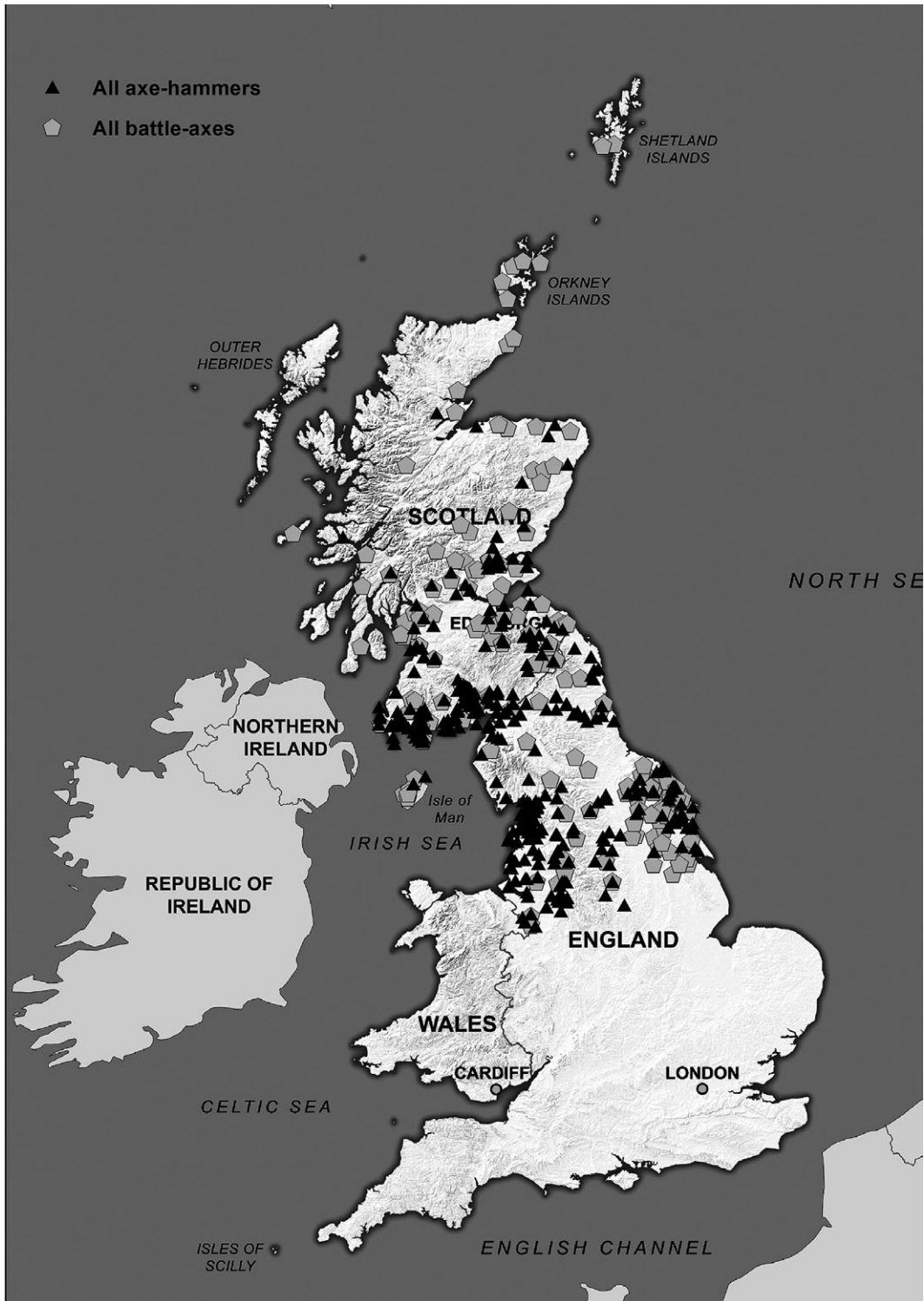


Fig. 1.
The distribution of all battle-axes and axe-hammers from northern Britain and the Isle of Man



Fig. 2.
Axe-hammer from Barrasford, Northumberland



Fig. 3.
Battle-axe from Cairnderry Cairn, Wigtownshire, Scotland

roles, associations, meanings, and significance across time and space from manufacture through to use and deposition (see also Bailey 1987; 2007; Deleuze & Guattari 2004; Ingold 2007; Crellin 2017). A total of 183 battle-axes and 362 axe-hammers were assessed using this approach.

The use-context of battle-axes and axe-hammers in the archaeological record was evaluated through the application of use-wear analysis, optical, and metallographic microscopy. Low power analysis was conducted using a stereo-microscope at $\times 1.5$ magnification. Acetate casts were taken of the relevant areas on the implements to replicate the wear for analysis under high magnifications with a metallographic microscope.

This involved the development of a new casting method (Roy 2019a; 2019b; 2019c). The common replicative method using silicon-based casting products stains porous stone (Dubreuil & Savage 2014) so acetate was used to replicate the wear without staining the stone irreversibly. The previously published methodology using acetate to replicate wear (Knuttsen & Hope 1984) is not effective for use on bladed ground stone artefacts as it does not adhere to the stone surface and, therefore, does not replicate the wear sufficiently well.

The method adopted for this study involves taking a strip of cellulose acetate and dipping it into a bath of acetone for 2 seconds so that it softens and melts into the surface features of the stone when applied. The acetone evaporates and, as the acetate rehardens, it replicates the surfaces with which it is in contact.

A. Roy USE & SIGNIFICANCE OF EARLY BRONZE AGE STONE BATTLE-AXES AND AXE-HAMMERS

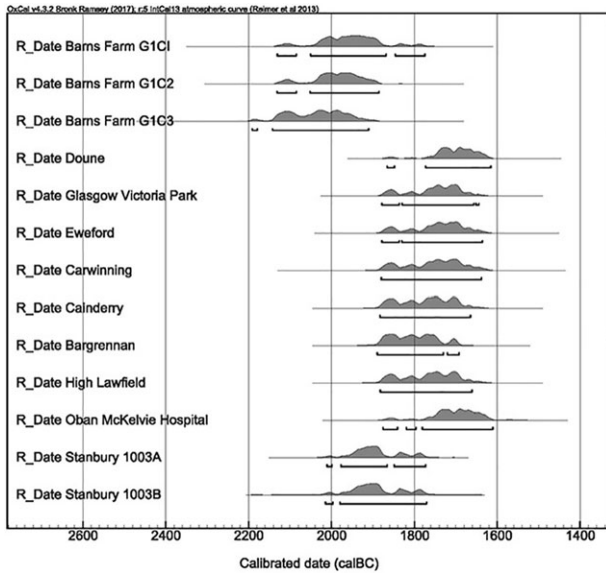


Fig. 4.
Calibrated radiocarbon dates for battle-axes from northern Britain and the Isle of Man

The cast can then be removed and analysed under a microscope. Tests dipping acetate into acetone were carried out for varying periods of time to assess the correct dipping time needed for the acetate to adhere to the ground stone surface and replicate the wear well enough to be interpreted correctly. This was determined by comparison with, and direct analysis of, the artefact. Further, more than 40 acetate casts from various experimental ground stone tools were made to understand the correct drying time for accurate wear replication, which is roughly 2 minutes. After 2 minutes the casts are carefully peeled off and placed between two pieces of cardboard to ensure that they remain flat for analysis under a microscope.

Impartial blind tests were carried out to confirm the accurate replication of wear. Casts were taken of eight experimental ground stone tools; their function remained unknown before and during analysis. The successful interpretation of all acetate casts confirmed the accuracy of the method and the ability for acetate to replicate the three-dimensional micro-wear on ground and polished surfaces. In all cases, the use polish was clearly replicated and correctly interpreted, thus allowing the contact materials to be better understood. This simple method enables researchers to overcome staining problems when analysing ground and polished blades tools and allows high power analysis of objects which cannot be removed from museum

TABLE 1: THE QUANTITIES OF BATTLE-AXE AND AXE-HAMMER TYPES STUDIED WITH DATES

| <i>Implement type</i> | <i>Stage</i> | <i>No.</i> | <i>Associated dates cal BC</i> |
|-----------------------|--------------|------------|--------------------------------|
| Axe-hammer | 1 | 209 | n/a |
| | 2 | 17 | n/a |
| Battle-axe | 1 | 30 | 2160–1850 |
| | 2 | 38 | 1880–1640 |
| | 3 | 28 | 1880–1660 |
| | | | 1870–1610 |
| | | | 1960–1780 |
| | 4 | 22 | 1890–1690 |
| | | | 1890–1660 |
| | | | 1850–1650 |
| | 5 | 12 | 1880–1630 |

collections. In future this has the potential to enhance significantly the accuracy of wear interpretation (Dubreuil *et al.* 2015).

Additionally, experimental tests were used to aid the identification of function, through the creation of a reference collection of wear traces attributed to specific activities and an understanding of effectiveness (Roy 2019a). These included: chopping branches off a pine tree; splitting birch wood logs; clearance of soil that included roots and soil with stones; and an animal slaughter test using an axehead as a poleaxe against pig heads (obtained from a butcher!). At regular intervals throughout the experiments wear formation was analysed using the stereomicroscope, casts of wear were taken for analysis under the metallographic microscope, and the effectiveness of the experiment up to that point noted.

A selection of implements held in a number of museum collections was examined microscopically (Table S4) for wear analysis. In total 62 battle-axes and 55 axe-hammers were selected to represent different typologies, petrologies, and locations. Fragmented implements were not included nor were those which were overly weathered, as weathering removes traces of use. Implements from each county in the study area and the Isle of Man were represented, where available, with 1–2 implements of each type from each county (Table 1). The analysed sample could not include all stone petrologies used for manufacture due to their high number; the sample included 40 out of 68 different petrologies.

Manufacture and petrology

A wide range of petrologies was used to manufacture both battle-axes and axe-hammers. No specific

petrology was limited to a specific type or part of the chronology of either implement. This correlates with Fenton's (1984) finding that the haphazard exploitation of cobbles and glacial erratics was employed in the production of Scottish battle-axes and axe-hammers. Although known petrological groups from identified sources were used, such as Groups XII, XIII, XIV, XVIII, and XXIII, these were not exploited on the large scale seen during the Neolithic (Bradley & Edmonds 1993). Stone was procured and chosen expediently rather than for the significance of a specific rock type or its source. This signifies a marked difference in the process of choice from the later Neolithic and suggests that the stone sources, used to produce polished stone axes in the Neolithic, no longer held the same high prestige. As such, any prestige or significance must have developed during the act of procurement or through later narratives within the objects' itineraries.

The manufacture of axe-hammers is little different to that of battle-axes, although there is a more substantial variation in the types of petrology used in their manufacture. The greater quantity of axe-hammers in the archaeological record may relate to this broader source variation. Within the varied petrology, known groups continued to be exploited, including Groups VI, XV, XIV, XVIII, XXIX, XXVII, XXVIII, and XXX. Group XXVII, from Northumberland, was the most common.

Distribution and spatial context

The distribution of battle-axes made of known petrological groups away from their sources indicates their movement around northern Britain and the Isle of Man. Battle-axes made from Group XVIII (Whin Sill dolerite) were spread widely across northern England and southern Scotland, moving long distances from their source in the north-east of England. Likewise, battle-axes in Group XII (Shropshire/Montgomeryshire border) have been found in Yorkshire and Fife, and battle-axes made of Group XII (Cwn Mawr, Vale of Glamorgan) have been found in Fife, central Scotland, c. 500 miles from source. Clough and Cummings (1979) assessed that stone implements made from Group XXXI were at that time so rare outside of Yorkshire that they were almost unknown. Yet, battle-axes made from this group are found in southern and northern Scotland, which suggests that they travelled well outside Yorkshire

through routes of trade, gift exchange, or mobilisation. Many battle-axes also travelled to the Midlands and southern England: for instance, those of north-eastern Group XVIII, Group XII, from Powys, north Wales, and Group XV (see below).

Group XXVII axe-hammers in southern Scotland, found close to their source, demonstrate that local sources were exploited for local use. The proximity of Northumberland means it is no surprise that Group XXVII axe-hammers were also found there (n=5) (Cummins & Harding 1988). As with battle-axes, axe-hammers from known petrological sources circulated widely (Clough 1988, 9; Williams-Thorpe *et al.* 2003; 2006), including Groups XV, XIV, and XVIII. Mobility, gift, and exchange networks have all been suggested to explain such long distance movements and the movement of people during the British Chalcolithic and EBA has been well demonstrated by isotopic analysis (eg, Evans *et al.* 2006; Parker Pearson *et al.* 2016; Pellegrini *et al.* 2016; Brace *et al.* 2019). The *Beaker People Project* revealed that northern Scotland, Yorkshire, and the Peak District were areas with highest mobility rates out of the studied regions and there was also movement over smaller distances in Scotland (Parker Pearson *et al.* 2016, 630; 2019). This suggests that movement within and between communities was probable, facilitating the movement of many implements within Scotland and nearby northern regions.

The spread of battle-axes and their larger counterparts, axe-hammers, may also reflect extensive, long-established exchange networks (Mauss 1990; Needham 2007, 44; 2011; Brück 2019, 232). Brück's research demonstrates that the significance of exchange during the EBA was related to the construct of identity, as a result of the interpersonal connections that were created through the circulation of objects (Brück 2019, 69–114). The placement of battle-axes and axe-hammers in funerary assemblages drew upon the relational connection between people and objects. Brück (2004) sees such transactions as an extension or continuation of exchange networks between the living and the dead. There is no demonstrable association between the distribution of funerary and non-funerary battle-axes and axe-hammers, or between the context of these implements and any specific petrology, which indicates that movement of these artefacts was not limited to those found in funerary contexts. As such, other moments from within the object itineraries were being drawn upon

during their deposition, although any perceived significance pertaining to their manufacture or distribution cannot be discounted.

However, the possibility that some battle-axes and axe-hammers were made from locally available glacial erratics is equally plausible for many of these implements. Group XVIII, used for both, was sourced from the Whin Sill outcrop in Northumberland but it is also found as glacial erratics scattered across Yorkshire, to the north-west (Manby 1979, 73; Keen & Radley 1971, 27; Williams-Thorpe *et al.* 2006), and as far as the south-east coast of Britain (Williams-Thorpe *et al.* 2003). Thus far, analysis of petrological sites along the Whin Sill, such as Holy Island, is yet to occur; this may reveal different information on the distribution and petrological variation of Group XVIII axeheads. The exploitation of glacial deposits, along with scree and river sources, for the manufacture of battle-axes and axe-hammers further establishes that the stone sources no longer held the prestige they did during the Neolithic and that varied source types, scree, river, and erratic, were also exploited.

Movement of implements commonly occurred in more localised areas, between and within neighbouring communities, such as the movement of Group XXVII from southern Scotland to northern England (Clough 1988). It can be argued that such localised movement would have given the implements a significance specific to that region by demonstrating community and inter-community relationships. As a result, the more axe-hammers or battle-axes that travelled, whether through mobilisation, gift exchange, or trade within and between these communities, the more significant they became.

Use

Roe argued that battle-axes were purely ceremonial, and Leahy maintained that axe-hammers were too large to be functional (Roe 1966; Leahy 1986). However, the experimental tests and traceological assessment carried out here reveal that these implements had, in the most part, a functional context: cutting down trees; working wood; sometimes digging or clearing vegetation; occasionally used for animal slaughter; and occasionally used as weapons (for a general description of the wear that suggest these uses, see Table 2 and Roy (2019c) for a discussion of experimental and use-wear methods and results; Tables S1–S4 for use and context).

A small number of implements (battle-axes (B-A): 7; axe-hammers (A-H): 1) have undeveloped wear,

signifying either very limited (possibly up to 50 strikes based on the experimental tests) or no use. These were deposited either after production or after the regrinding of the blade to remove all traces of the previous use or to resharpen the use edge. Forty battle-axes and 42 axe-hammers show signs of contact with wood, which is the most common contact material across all types of battle-axe and axe-hammer. Figures 5 and 6 show the distribution of battle-axes and axe-hammers with each kind of wear trace. The results suggest that use was consistent across the study area. Contact with bone (B-A: 4; A-H: 4) and contact with earth and roots (B-A: 3; A-H: 1) are less numerous. The reuse of both implement types is also evident from multiple contact materials and motions of use, such as percussive and chopping motions, or contact with wood and earth and roots. Artefacts were also reground to continue their functionality, after which they were reused (Fig. 7).

Both types of object were used in the same way, despite previous interpretations that distinguish between them. They were not specialised tools or weapons but instead they had more general usefulness as multi-purpose tools in woodworking, land clearance, agricultural, and animal slaughter roles, with a potential to be used as weapons. The small quantity of these implements with wear indicating contact with bone, just 9% of the axe-hammers and 9% of battle-axes analysed, suggests that their functional use as weapons was not the primary purpose. It is also difficult to assess their use as weapons since wear indicative of contact with bone cannot distinguish between human and animal. It is, of course, possible for any object to be used as a weapon irrelevant of the original purpose (for instance a sharp kitchen knife or heavy object such as a brick) but these findings indicate that battle-axes and axe-hammers were hybrid tools with multiple purposes and roles.

The question is whether the use-life of each object was associated with its circumstances of deposition – does use-context influence the variability we see in the funerary contexts of battle-axes and axe-hammers and how similar is the use-context of funerary implements compared to that of the non-funerary ones?

Implement treatment prior to deposition

Most battle-axes and axe-hammers were used and treated in the same manner, despite differences in their depositional contexts. However, there are a small

TABLE 2: OVERVIEW OF THE OBSERVED WEAR FROM EACH USE

| <i>Experiment</i> | <i>Striations</i> | <i>Pits</i> | <i>Rounding</i> | <i>Flake negatives</i> | <i>Polish (high mag)</i> |
|-------------------------------|--|--|---|--|--|
| Chopping wood | Dense, cover blade edges bifacially, u-shaped profile, 10 mm long & in parallel arrangement perpendicular to blade edge. Some at corners are diagonal, pointing towards centre of blade. Interrupted by pits on blade edge | Dense, cover blade tip & extend onto blade edges bifacially, 10 mm, narrow & superficial, those closest to tip are wider & deeper | Along blade tip, at corners & edges of pits of blade top, high topography of flake negative | 1 small, shallow flake negative on 1 corner, edges & high topography rounded | Close density, varying sized patches of domed polish with clear directionality moving away from blade tip, parallel striations on polish orientated in same direction |
| Wedge-splitting wood | Close density, parallel, extend up to 30 mm onto blade edge, interrupted by pits causing them to become intermittent, length varies, small to long, orientated perpendicular to blade tip | Close density, cover blade tip & extend onto edge 30 mm, narrow & superficial, surrounds & interrupts striations on blade edges | High topography on corners rounded | None | Close density, patches of domed polished, small-large size, micro-removals (pits) on patches, clear directionality, parallel striations on polish orientated in same direction |
| Splitting wood | Dense, u-shaped profile, extend 10 mm onto blade edges, bifacially, parallel arrangement orientated perpendicular to blade tip | Dense, cover blade tip & edge, extend 10 mm onto blade edge, narrow & superficial, densest patches occur in 3 groups in centre & towards edges of blade, surround pits | High topography along blade tip & top of pits on blade edge, close to tip, & at corners | None | Close density, large patches of domed polish, with clear directionality moving away from blade tip, patches covered in dense parallel striations orientated in same direction |
| Digging/clearing soil & roots | Dense, thin striations, u-shaped profile, in parallel arrangement, orientated perpendicular to blade tip, those in centre overlap & are orientated diagonally, extend up to 20 mm onto blade edges, bifacially | Dense, cover blade tip & edge, extend 20 mm onto blade edges bifacially, close to striations, pits on tip are wide, shallow & rounded, pits on blade edge are superficial & narrow | High topography & edges of pits on tip & blade edge directly next to tip, rounded | None | Close density, large patches of domed & slightly granular polish, covered in long situations, overlapping & orientated in multiple directions, domed parts of polish have directionality |
| Animal slaughter | Dense, cover blade edges, spread up to 15 mm onto blade edges, bifacially, parallel arrangement, orientated perpendicular to blade tip, mixture of short & longer striations, longer striations orientated diagonally & overlap, large scratches in multiple directions on blade edges | Dense, wide pits close to blade tip, superficial & narrow further from it, spread up to 15 mm onto blade edges, bifacially | High topography & edge of pits on tip rounded | None | Close density, large smooth patches, edges slightly rounded giving domed appearance, dense striations on patches, slightly overlapping |

This table shows the type of wear analysed on replicas at the end of each experimental test (at 2000 strikes); this is similar to wear on moderate to extensively used battle-axes and axe-hammers in the archaeological record

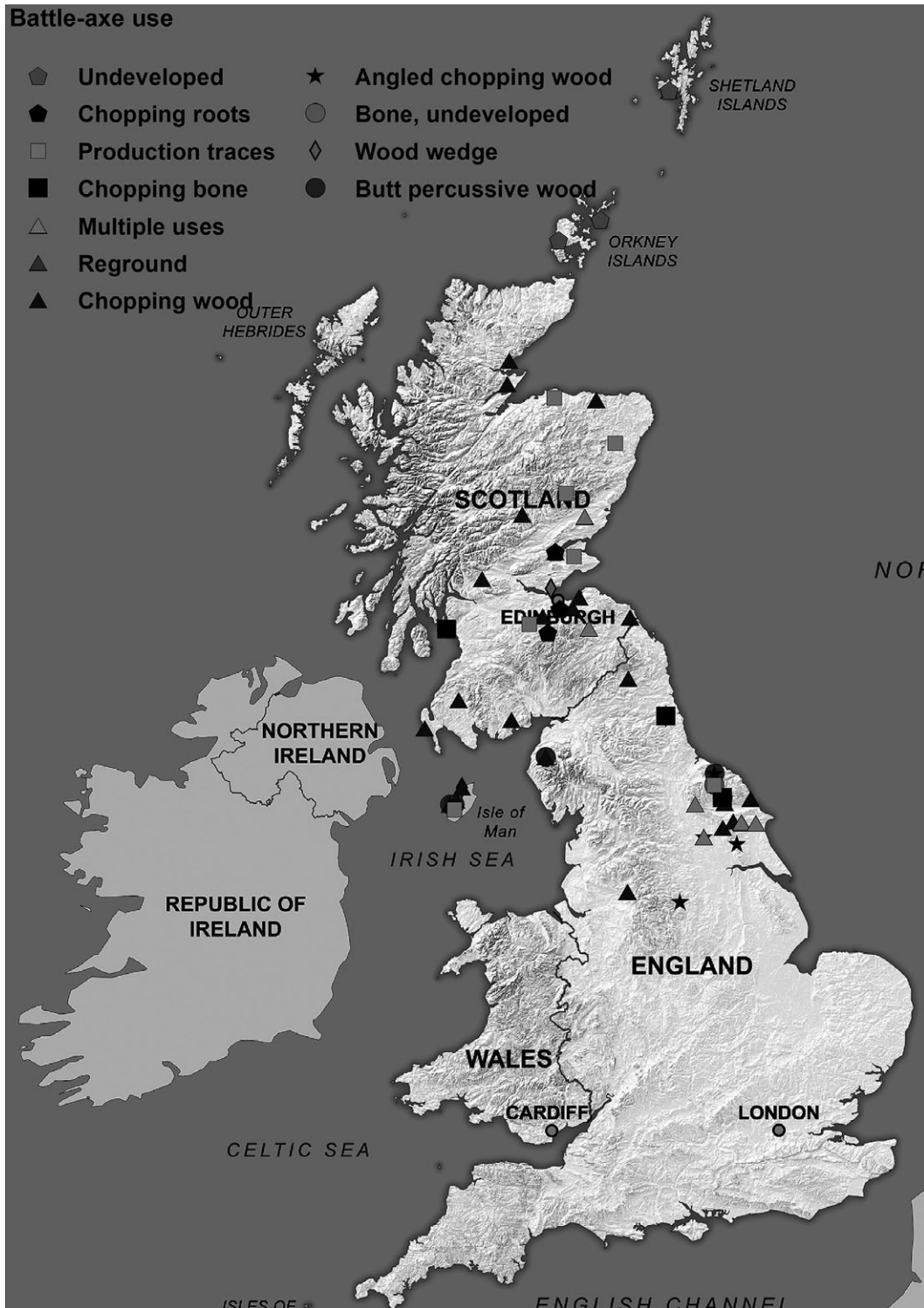


Fig. 5.

Distribution of battle-axes from northern Britain and the Isle of Man used for different purposes

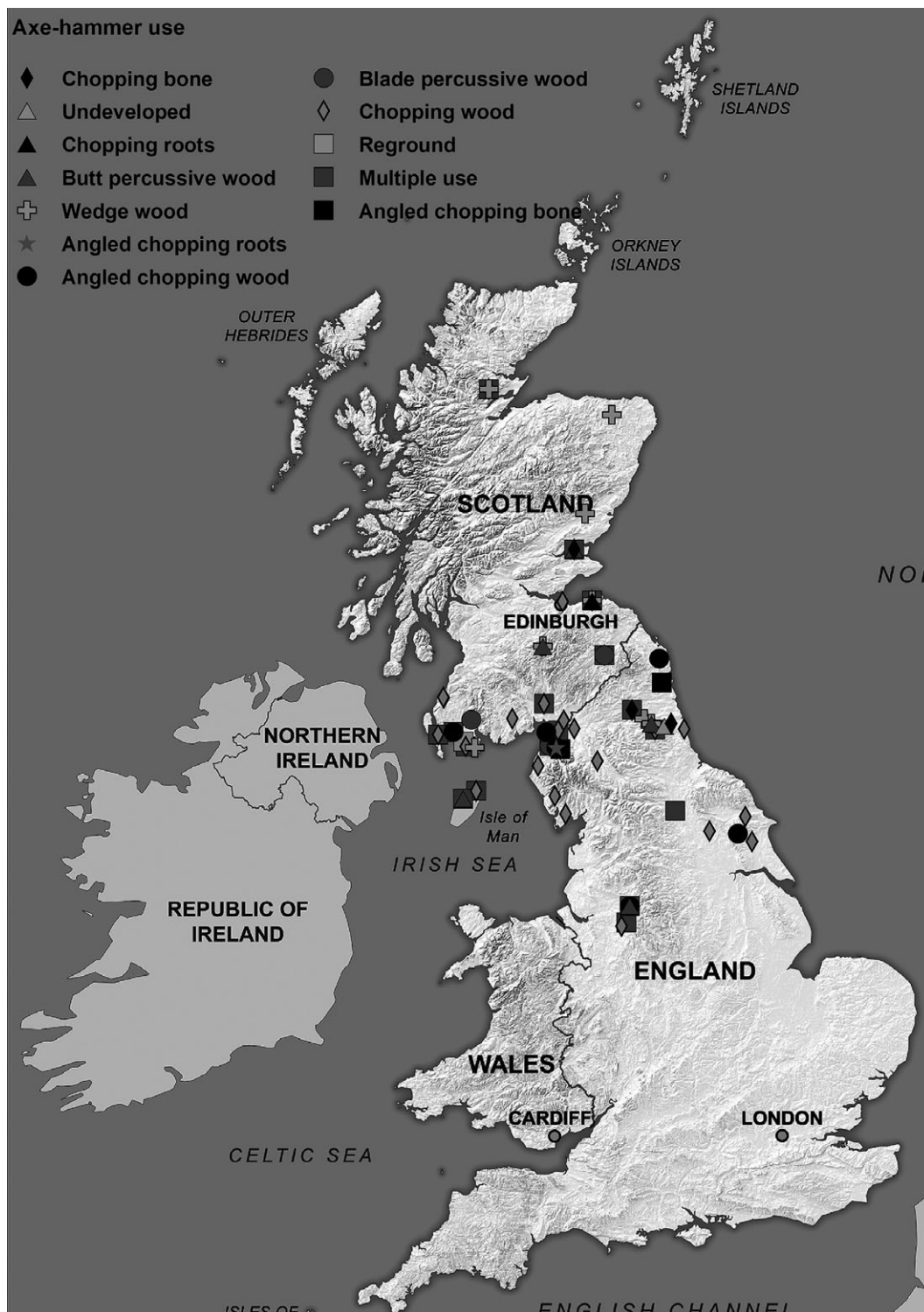


Fig. 6.

Distribution of axe-hammers from northern Britain and the Isle of Man used for different purposes

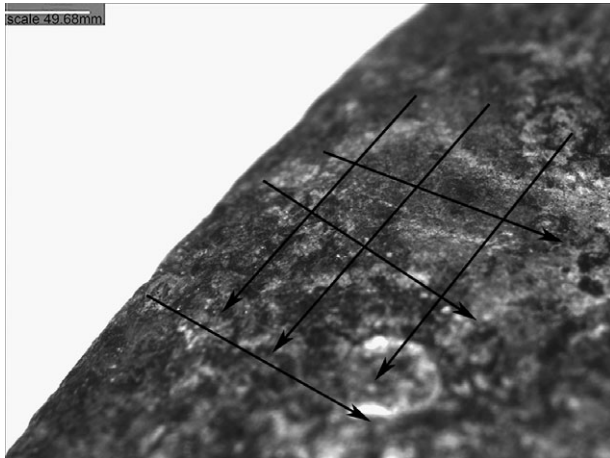


Fig. 7.

Micrograph demonstrating the regrading and reuse of the battle-axe from Sandmill Farm, Wigtonshire ($\times 1.5$ magnification). The arrows parallel with the blade edge indicate the wear (striations) caused by regrading; these are overlapped by striations from reuse, indicated by the overlapping arrows

number of funerary battle-axes ($n=5$) which had been intentionally reground (Fig. 8) before their deposition in funerary contexts (Roy 2019a). This is not the case for axe-hammers, or the battle-axes and axe-hammers from non-funerary contexts. In these contexts, those implements that were reground were all reused afterwards. This shows that they were reground immediately prior to use rather than in advance as preparation for the next use; if the latter were the case, we would find reground but not reused battle-axes in non-funerary settings. A logical conclusion is that reground implements found in funerary contexts were reground prior to, and intentionally for, deposition.

Deposition

Battle-axes and axe-hammers were deposited in both funerary and non-funerary contexts, although the majority are non-funerary (363 axe-hammers and 144 battle-axes). These include stray finds and those from rivers, a shell midden, and the Ness of Gruting house site, Shetland. In contrast, there are eight axe-hammers and 38 battle-axes from funerary contexts (Figs 9 & 10). The battle-axes are found in a variety of funerary contexts including barrows, cairns, pits, cists, and stone circles. Axe-hammers from funerary deposits are from the same feature types as battle-axes, such as cairns and barrows, and have the same

associated artefacts, including cremated remains, cinerary urns, and worked flint. The placement of axe-hammers in similar funerary assemblages suggests that they were part of the same pool of objects used as grave goods. The use of the same rules of engagement is unsurprising, as grave goods in these burial assemblages are in line with funerary deposits across Early Bronze Age Britain (Woodward & Hunter 2015).

Funerary practice

The contexts of funerary battle-axes follow the characteristics of Needham's (2011) Phases Two and Three for Early Bronze Age burial practices when funerary contexts become highly variable (Needham 2011). Diverse groups of grave artefacts accompany battle-axes in different types of feature across the research area. There are 27 different combinations of assemblage out of 31 assemblages where a battle-axe occurs (those that occur in funerary monuments with no known directly associated artefacts are not included). Those assemblages which appear more than once do not do so in the same kind of feature. Despite each assemblage comprising different combinations of artefacts, they all draw from a specific pool of objects which are used in EBA burial assemblages generally. For instance, Collared Urns appear on nine separate occasions with battle-axes and bone pins occur with four. Although fewer in number, axe-hammer funerary assemblages display a similar variability to battle-axe assemblages, which further shows that their placement within funerary contexts was also in keeping with the broader trend for British EBA funerary processes and depositions (Table S1).

This variation in the assemblages suggests that each was created to relay and express a different message, such as through the various associations, the graves goods, burial rite, and burial feature, within the assemblage. Indirect associations with past burials within the feature and others surrounding it may also have been drawn upon. The associations of each implement may have been numerous and highly varied, extending from the moment of creation, through its use-life, to its deposition, and, finally, onwards to its placement within a museum collection. At all moments in their lives, these objects were part of different assemblages with various associations and meanings; this means that objects may have had multiple associations over time and space. As such, there is the potential for both battle-axes and axe-hammers to have had multiple roles and meanings (Bailey 1987; 2007; Deleuze & Guattari 2004; Ingold

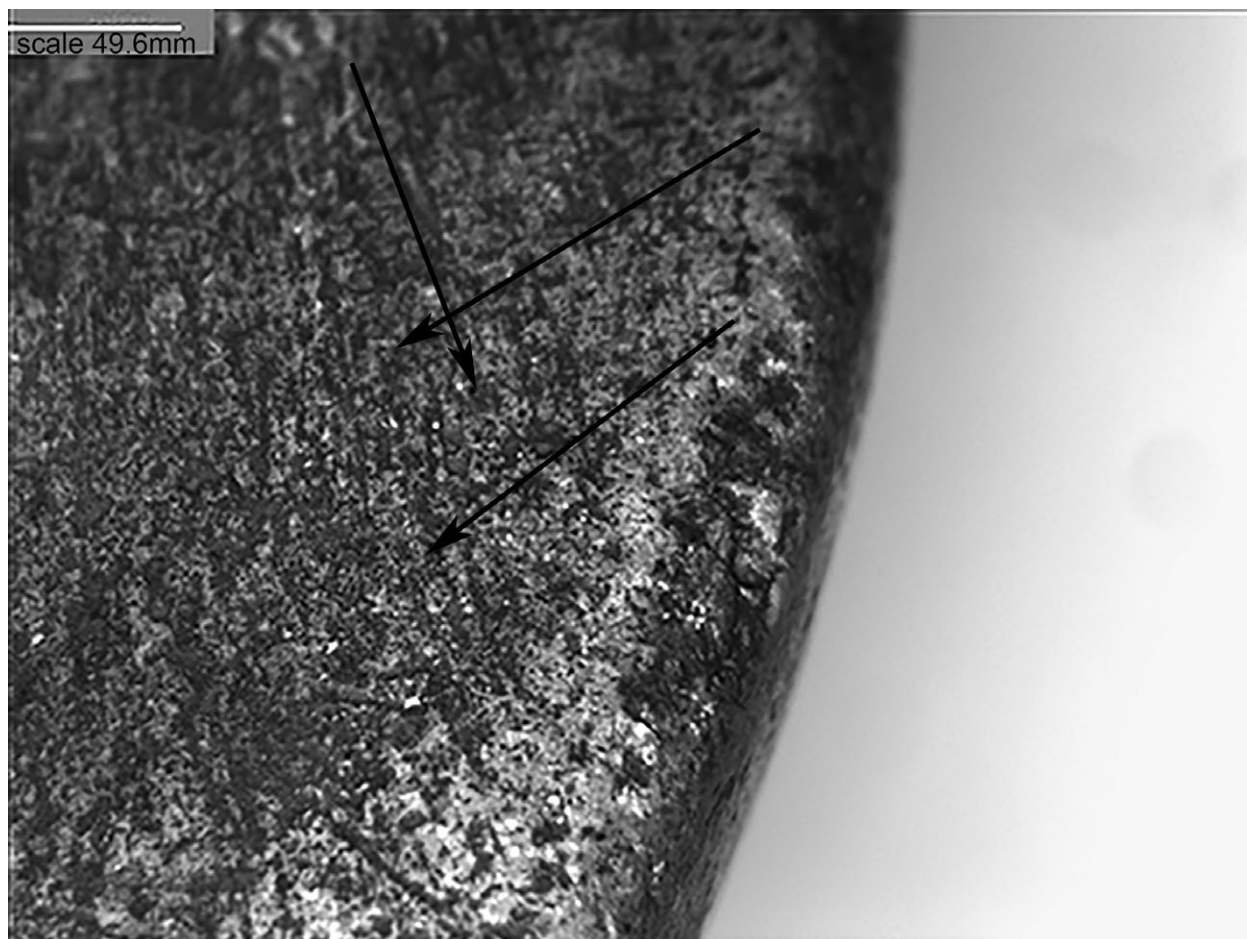


Fig. 8.
Micrograph ($\times 1.5$ magnification) showing the regrinding of the battle-axe from Lauder, Berwickshire, the arrows indicate the wear caused by regrinding

2007; Hamilakis & Jones 2017; Crellin 2017; Harris 2017). The choices to deposit battle-axes and axe-hammers were related to prescribed rules of engagement – specific actions or ways of interpretation – particularly those in funerary contexts (Fowler 2005; 2011). These were determined by those persons depositing each implement, ie, the mourners, and the relationships that built up between people and objects (Brück 2004; Needham 2011). The relationality within the itineraries of these implements might have influenced their deposition in a funerary assemblage and, therefore, an understanding of their use-life is essential.

Non-funerary practice

The majority of battle-axes (79%) and axe-hammers are from non-funerary contexts (98%) and further

demonstrate the similarity in their treatment. A small proportion of these come from known spatial and stratigraphic contexts including the deposit of both types in rivers, and battle-axes in a house site and a shell midden. However, the remaining implements are stray finds with limited contextual information that does not go beyond their petrology, typology, and find location. These may have originated from a closed context, for example, a burial deposit, that has been destroyed through years of ploughing. There is also the possibility that they were intentional single deposits, possibly intended for later recovery, but the lack of multiple objects placed together in these contexts suggests this is unlikely. Alternatively, they may have been deposited in areas associated with their use, such as in an agricultural or pastoral area

A. Roy USE & SIGNIFICANCE OF EARLY BRONZE AGE STONE BATTLE-AXES AND AXE-HAMMERS

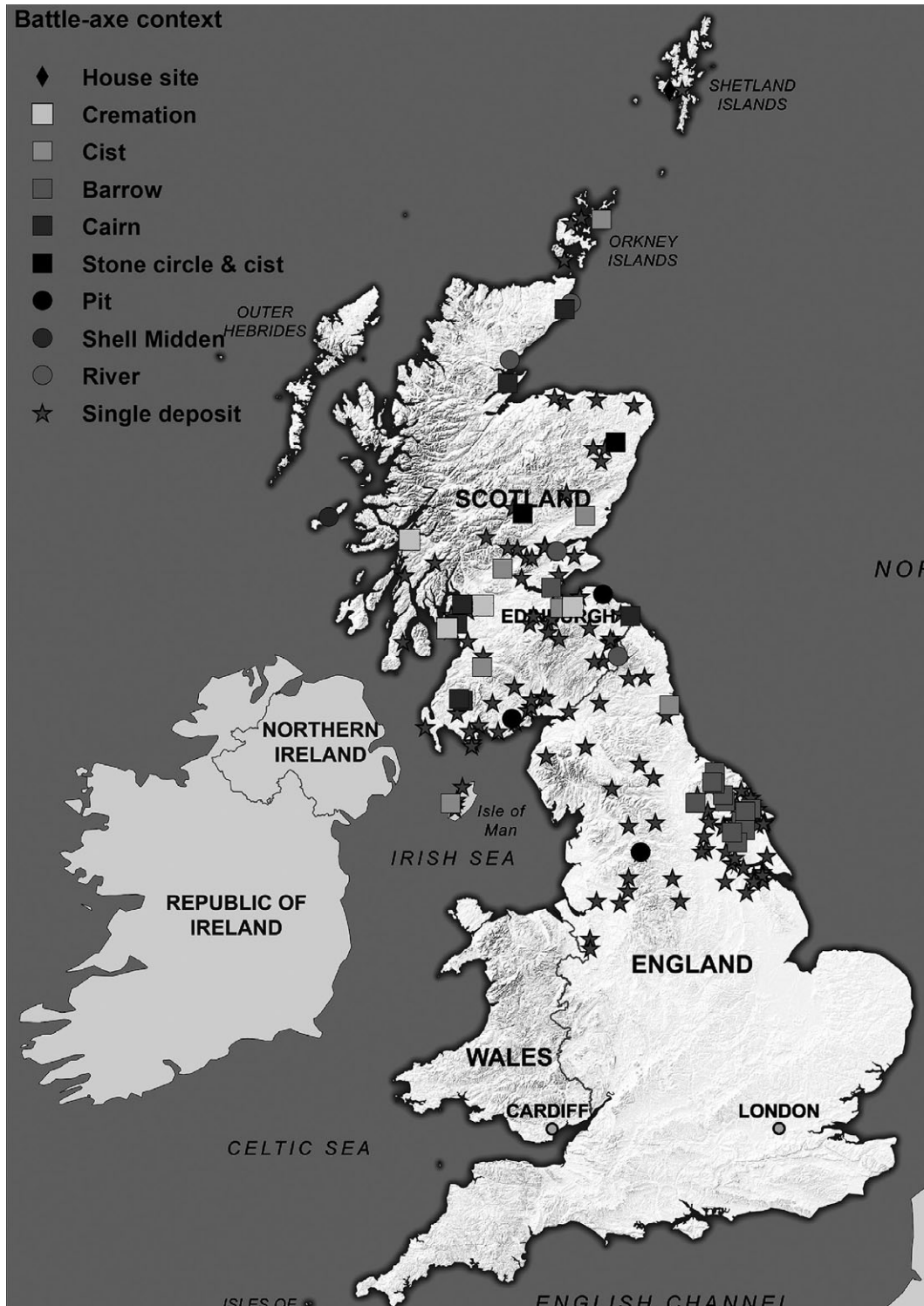


Fig. 9.
Distribution of battle-axes from funerary and non-funerary contexts

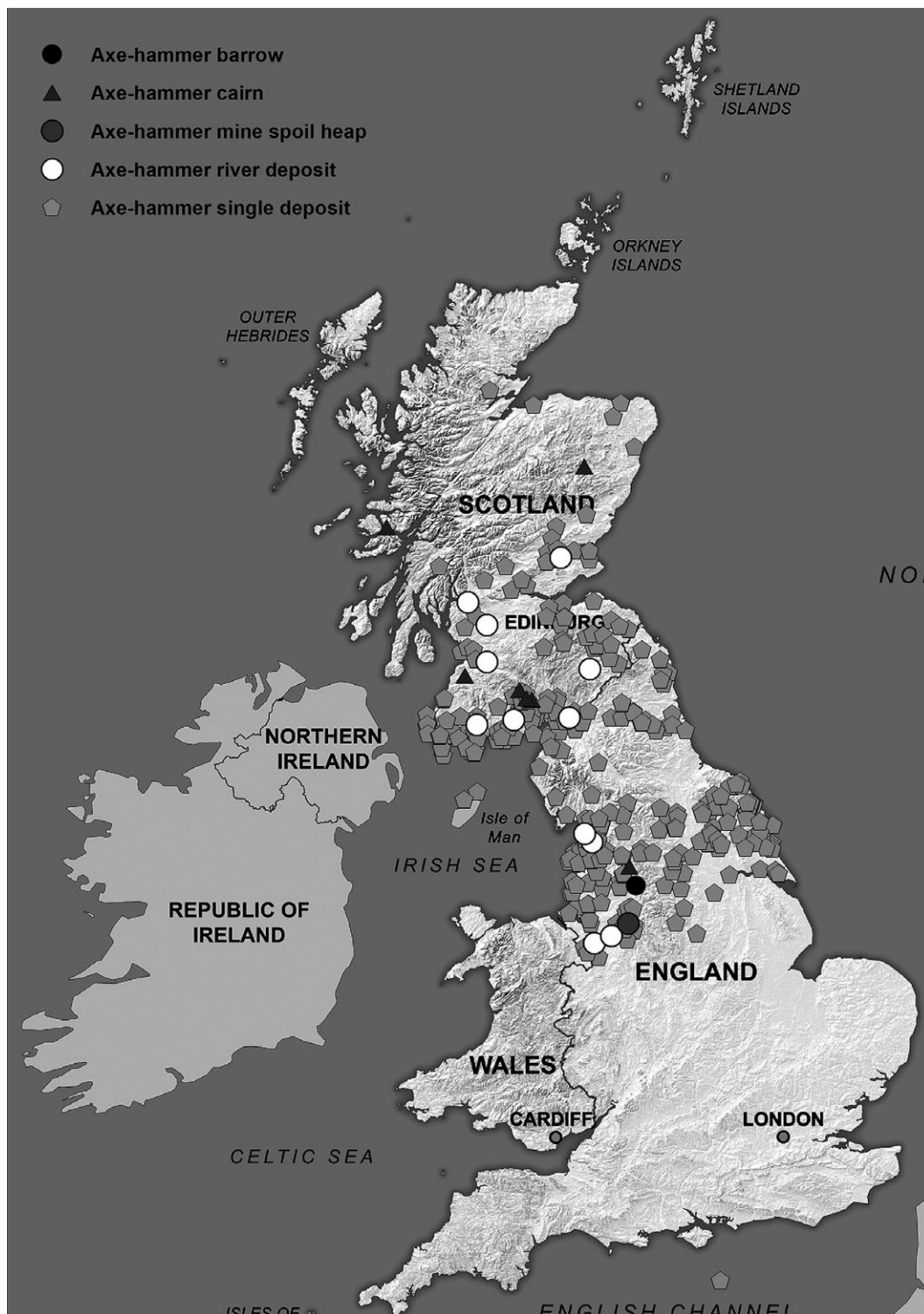


Fig. 10.
Distribution of axe-hammers from funerary and non-funerary contexts

(they are commonly discovered on farmland; those implements from Yorkshire and the Peak District are from areas with some of the earliest signs of agricultural activity such as clearance cairns: Fleming 1971). It is also possible that these implements were deposited near objects of relation or importance such as a particular tree or woodland or on a boundary line. However, the location information for these implements is not reliable and is often too broad to confirm the suggested possible reasons for deposition.

If these artefacts were stray finds, then perhaps they held no special meaning and were discarded when they were no longer needed. However, their absence from Bronze Age rubbish deposits and structured middens implies this is not the case. Some of these stray finds may simply have been lost. Yet, the large quantity of stray finds suggests this is an unlikely scenario for all implements. The wear analysis results also confirm that these implements were deposited after various amounts of use rather than when they were too damaged for their use to continue. Therefore, they may have been deposited for other reasons and, as such, their intentional deposition must be considered.

Information is also lacking for the small number of battle-axes (n=5) and axe-hammers (n=10) which come from river contexts. There are several possible reasons for their inclusion in such contexts. These may have once belonged to grave deposits or were single deposits that have since eroded into the river through flooding events and changes to the river course. However, no information exists for such events. Other reasons include intentional deposition; to secure the axehead to the haft they may have been placed in the river to soak with the intention of retrieval. Intentional structured river deposition of a prestigious nature is also well attested in the Neolithic and Bronze Age across Britain and Europe, particularly with metal hoards as votive offerings (Bradley 1990; 2000; Lamdin-Whymark 2008; Bruck & Fontijn 2013). Stone axes in the Neolithic have also been discovered in rivers, interpreted as votive offerings (Bradley & Edmonds 1993, 204); perhaps battle-axes and axe-hammers were treated similarly?

The battle-axes, one miniature and two unfinished, from the Ness of Gruting house site, Shetland, are unusual non-funerary deposits. They are the only implements from a domestic setting, which suggests that the reasons behind their deposition may have been different from those found in non-domestic settings. However, other associated deposits on this

site include objects also found in funerary contexts, such as a mace-head, polished stone axes, two stone balls, two Bronze knives, and a spear (Calder 1958). The axes were scattered within the house; it may be that this was an intentional deposition at the time of abandonment, perhaps for reasons that may share a similar significance or meaning to those deposited in funerary settings, ie, deposition which draws upon the relationality of the object itineraries. Calder (1958) indicated that this house site was also a stone tool workshop, so the activities that occurred there may also have been related to their deposition. This is further demonstrated by the intentional placement of unfinished battle-axes.

Another uncommon deposit is the intentional placement of a battle-axe in a shell midden on the Isle of Coll. Several other artefacts were also deposited within the mound at various points within its use-life, similar to other shell middens in the area. No information for the location of the implement within the midden exists. Perhaps, the deposition of EBA objects in the mound attested to the reuse of older monuments and to areas that were visibly distinctive, for instance, both battle-axes from Cairnderry and Bargrennan in Wigtownshire were placed in pits associated with the reuse of older cairns (Cummings & Fowler 2007).

The placement of this shell midden on the coast amongst several others may also be significant. Together they would be visible from the sea and thus may have been markers, possibly used as way markers for sea travel. For instance, these monuments may have played a part in establishing and maintaining links between coastal groups, between islands and mainland Scotland. Noble suggests a similar use of coastal monuments in the Orkney Isles (Noble 2006). It could be that all three processes occurred together and resulted in the deposition of the battle-axe in the shell midden. The point to take away here is that there are several possible reasons behind the deposition of implements.

Regional patterns of deposition

There are limited observable regional patterns related to the deposition of battle-axes and axe-hammers (Figs 4 & 5). The use of battle-axes in different features – cairns in Scotland versus barrows in Yorkshire, for example – shows regional preferences in terms of burial practices; in this case, both types of funerary context were treated in the same manner

and demonstrate a regional interpretation of a broader burial trend. There are also noticeably smaller numbers of battle-axe and axe-hammers from northern Scotland compared to surrounding areas though this may reflect fewer findings of archaeological features and artefacts from this mountainous terrain.

In contrast, the few battle-axes in south-west Scotland and north-west England, and the total lack of funerary battle-axes in the latter, could be related to the higher quantity of axe-hammers in this region. Funerary axe-hammers and others with fluted design (which does not occur on axe-hammers elsewhere) have also been found in these areas and suggest that they were treated in a similar manner to battle-axes in the rest of northern Britain, ie, they were being considered equivalent to funerary battle-axes (Fig. 11). The distribution of battle-axes and axe-hammers indicates regional centres where one implement type was favoured over the other (Needham 2011). Outside these areas, there were equal numbers of battle-axes and axe-hammers; regions where battle-axes dominate and others where quantities of both were few, which suggests that the preference for either of these implements varied from region to region, community to community. The similarity in their use demonstrates that the two types of artefact may have been used and interpreted in a similar manner for much of their itineraries.

THE ITINERARIES OF BATTLE-AXES AND AXE-HAMMERS

If we consider the information from across all 'moments' in the itinerary, it is clear that there is no association between petrology and type during manufacture, nor between petrology and use or type and use. Given that the chronology within the dataset is based on typology this also means there is no evidence for changing use over time. The contact materials, use motions, and amount of wear are not related to any specific artefact, feature, or assemblage type. Instead, the same variable use-contexts exist for funerary and non-funerary battle-axes and axe-hammers. This similarity in the use-contexts of funerary battle-axes and axe-hammers cannot be used to differentiate between the treatment afforded either artefact type. This indicates that use was not a determining factor for deposition. Nor did type or stone petrology determine use or deposition.

The variation in the amount of use also suggests that these implements were not deposited at the end

of their use-lives when they were no longer functional but, instead, at varying stages of use. Therefore, artefact deposition drew upon other points or relationships in the objects' itineraries. This is further demonstrated by several battle-axes and axe-hammers which were used for a prolonged period, as evidenced by the extensive development of use-wear and regrinding (followed by reuse) to continue the functionality of the blade. Such prolonged use could mean that they were handed down through generations or shared between individuals; the reuse of implements and the variation in wear formation demonstrates that multiple users were possible. The repeated functional or shared use of a battle-axe would have secured a link between user and artefact. A different suggestion could be that a link between multiple users might not be relevant if the users do not reflect on the shared use. Perhaps use was reflected on at a later date, such as during deposition of the artefact.

ARTEFACT ITINERARIES AND THE SIGNIFICANCE OF BATTLE-AXES AND AXE-HAMMERS

Recently, interpretations of the Stanbury pit burial in West Yorkshire described the deceased individual as high status because of the apparently prestigious nature of the associated artefacts, including a battle-axe, bronze earrings, a bone belt hook and pin, an accessory vessel, and two Collared Urns (Richardson & Vyner 2011). Saville and Roe (1984, 20) also described battle-axes as highly prestigious and purely ceremonial due to their frequency in burial contexts. The deposition of an object is still widely used to infer the status of the deceased. However, their previous life histories, such as use-context, are ignored, limiting interpretation.

Axe-hammers are rarely interpreted as prestigious or significant items despite the presence of a small number in funerary settings. They are seen as domestic items, too crude to be prestigious (Leahy 1986, 148), and their large size has resulted in suggestions that they were too unwieldy to be functional (Pegge 1773, 126–7). Axe-hammers are much larger than battle-axes and so take longer to make. Needham describes this process as a phenomenal input of labour which attests to their symbolic nature. He has described these implements as 'blunt instruments of power' (Needham 2011), thus implying their prestige within EBA societies. He argues that their origin lay in a symbolic role while any functional use was an



Fig. 11.
Distribution of fluted battle-axes and axe-hammers

added, marginal benefit. However, the use and depositional contexts indicate that all axe-hammers were functionally used, many for prolonged periods. If practical use were just a marginal function then axe-hammers with no signs of use would exist in the repertoire, which is not the case. Perhaps, the size of axe-hammers was used to intimidate others – conferring the user power. On the other hand, if size meant power, why were more not deposited in burials at major monuments or with other grave goods to indicate this significance?

Experimental tests by Fenton (1984, 230) determined that it would take 20–25 hours to create an axe-hammer, or 2–3 days of intensive work, with no great skill involved (Needham 2011). He also found that cobbles were most commonly used to produce axe-hammers, which could be easily collected from rivers. This author does not consider the time scale and ease of production to have been a ‘phenomenal’ input of labour and I suggest that this is not a valid argument for the creation of prestige. As such, there is little difference between battle-axes and axe-hammers in terms of the procurement of stone and manufacture process.

The spatial and stratigraphic contexts show that there is also no differentiation between the movement of battle-axes and axe-hammers. It can be argued that their movement, through processes such as gift exchange, was intrinsically linked with the construction of identity and a sense of self because of the relational interpersonal connections that were created between people, and between people and objects (Brück 2006). The act of constructing a sense of self is significant for those implements involved. The further the implement travelled within exchange networks, the length of time it travelled, and the number of networks it travelled within, would have increased its significance. Mourners drew upon this in the deposition of battle-axes and axe-hammers, alongside other connections, to express the intended meanings of the burial rite.

Yet, the haphazard exploitation of local stone sources also occurred so why did these artefacts move? There is no demonstrable relationship between stone type and circulation, use, deposition, or typology, nor is the form, shape, or size of these artefacts related to their circulation, use, or deposition. Therefore, typology and stone type cannot be seen to have been influencing the movement of battle-axes and

axe-hammers. The more localised movement of objects, such as within south-west Scotland, also suggests a significance related to that region and the people living there, demonstrating community and inter-community relationships. The location of axe-hammers made from Group XXVII, sourced in southern Scotland and found in areas where axe-hammers were more dominant (south-west Scotland and north-west England), suggests that these implements had regional currencies specific to communities and that, in some cases, the identity of communities was related to their choice of battle-axe or axe-hammer for possession, use, and deposition.

Use-context

It is essential to consider that these objects may have had multiple meanings and functions which influenced their deposition in funerary contexts, even if these cannot always be clearly determined. All possibilities must be considered to avoid a narrow interpretation, such as the inclusion of battle-axes in burials to express the relationship between people. In these situations, an assessment of use-context can provide further contextual information which can aid the understanding of the artefact’s life history. As this paper has established, both funerary and non-funerary battle-axes and axe-hammers were functionally used in the same way. Therefore, use does not differentiate between the two artefact types and is not directly associated with their deposition.

Battle-axes and axe-hammers were used functionally for a varying amount of time; the development of wear shows that some axeheads were used for a limited period and others for a moderate or extensive amount of time. Several implements of both types had multiple functions and others were reground to sharpen their blades to be reused, suggesting that they were used for prolonged periods. The more uses and functions of the artefact during its life history, the stronger the relational link between people and objects became. The stronger a link was, the more power and significance the object would have had during the funerary process. If this relationship was reflected upon by the users, then the repeated functional use of an implement could have secured a link both between the users, and between the users and the artefact.

The functionality and variety demonstrable in the use-contexts indicate that there cannot be one specific

meaning attached to these implements. The experiment and wear analysis results suggest that they had numerous functional uses. They could have been used easily and, therefore, their use would not require any special skill or be limited to a select number of people. The ease of haphazard exploitation of scree and cobble deposits for battle-axes and axe-hammer production also suggests that this could be carried out by anyone. However, whilst it cannot be demonstrated from the available evidence, we cannot discount the possibility that other, social, restrictions may have been imposed on artefact procurement, manufacture, and use, such as in terms of specific sections of the community defined by their age and/or sex. These groups may have had defining roles, including those related to coming of age (Topping 2017; Petrequin & Petrequin 2020).

The regrinding of a small number of funerary battle-axes prior to their deposition is the only observed difference between battle-axes and axe-hammers. The previous uses of these artefacts, where visible, were not different to the remaining battle-axes and axe-hammers, indicating that use type was not an influencing factor. Regrinding was an act which separated the deceased and the mourners from the previous use-lives of the implement by removing traces of its functional use. Regrinding also primed an axe for action, whether that was for work to be done by the living or by the dead. In this view, the marks on an axe were not seen as meaningful history; they were something that would be removed when needed or absorbed into the axe through regrinding. Perhaps the new, clean nature of a freshly reground object was essential for the funerary deposit in those cases. Did this open the chance for new relations to form? This was an aspect involved in mourners' choice which followed the same processes or rules that drew upon the relationships associated with these artefacts to determine their selection for funerary contexts.

Depositional context

The relational character of battle-axes and axe-hammers, as expressed through the variation of their funerary and non-funerary contexts, must be considered in order to understand the meaning and significance of these implements. Mourners drew artefacts from a pool of objects that were used in burial rites during the EBA to express the individual relationships between themselves and the deceased, and the

society to which they belonged, to gain, maintain, or break down social and political claims (Brück 2006; 2019; Needham 2011). The status and identity of the deceased in life was not the only reason behind the deposition of specific objects. Relational connections between the mourner and the deceased might have been appropriated in order to draw upon the status of the deceased, however, multiple actions from the itinerary of these artefacts could have also been drawn upon to express the meanings and roles that the mourners intended (Tables S2 & S3).

By drawing upon ties and significances created throughout the life history of the object, the mourner could enhance, create, maintain, or break down the social and political outcomes that were enabled through the implement's use-contexts; the ability to draw on relationships for such outcomes is significant. One might suggest that the ceremonial use of an object to clear land or prepare wood for the funeral pyre would also create a significance related to the act of burial which could then be drawn upon in the burial deposit itself. Burial deposits also included other artefacts to create the assemblage. Each artefact could have been included in order to draw upon relationships and agency in their itineraries, as for the funerary battle-axes and axe-hammers. For example, the inclusion of artefacts which link people to places or exchange networks might have been used to demonstrate and maintain that linkage and, in so doing, contribute to the interpersonal ties that helped shape the identity of those persons involved (Brück 2004; 2006; 2019).

The reasons for the deposition of battle-axes in non-funerary contexts may also vary, suggesting that the significance of their deposition was also variable. For example, if the stray finds were deposited as non-structured rubbish deposits or lost, then their deposition would lack significance. However, if they were votive deposits marking critical points in the landscape, such as to create or maintain links with an area or as an act of thanks for the use of the land and its resources, then there would be importance associated with each act.

Overall, the significance of battle-axes and axe-hammers appears to be related to multiple aspects within their itineraries. That significance grew through the use and movement of objects as they were involved in the formation of relationships between people, between people and objects, and between places and objects. This significance could then be drawn upon

in the deposition of these implements in burials. Likewise, the burial process would give funerary battle-axes and axe-hammers significance which could be drawn upon during their deposition.

The similarity between battle-axes and axe-hammers indicates a similar significance. There is little difference in the use-contexts of these implements, irrespective of the depositional context. The foremost differences come about at the point of deposition, 79% of battle-axes and 98% of axe-hammers are non-funerary, suggesting that the roles and meanings of the funerary implements changed during deposition, taking on the meanings and roles meant for them by the mourners performing the burial rites. This is also demonstrable with the regrinding of certain battle-axes prior to deposition, an act which sets them apart from their use-lives and many have given the implements special significance during deposition. The significance and roles of these implements were, therefore, changeable.

CONCLUSION

This paper provides an up to date and more accurate interpretation of battle-axes and axe-hammers that significantly aids the interpretation of EBA artefacts and the people associated with them. The research demonstrates the results that can be obtained by assessing multiple strands of data – ie, by assessing all contextual information available for the dataset analysed, including chronological, typological, petrological, spatial, stratigraphic and cultural aspects, and use-contexts, which enables a more accurate understanding of the itineraries of battle-axes and axe-hammers. By using all the available data, we can better and more accurately understand object itineraries and, therefore, the changing meanings and functions of these objects through time and space and how this might have influenced their deposition.

It has long been known that battle-axes were associated with funerary deposition while axe-hammers have a more elusive nature due to the high percentage of stray finds. In the past, interpretation of their use and significance has focused on the depositional context, using understandings of the single grave culture in Europe to aid the interpretation that battle-axes were prestigious implements related to an elite. This paper has presented evidence for the functional use of these EBA artefacts which does not distinguish between their inclusion in funerary or non-funerary

contexts. It has argued that their potential meanings and roles were numerous, including in making claims to, signalling, and negotiating prestige. The approach builds on Hodder's five contexts (Hodder & Hutson 2003, 173), with an addition of use-context and petrological context, for a more nuanced understanding of the itineraries of these implements, from the moment of their creation to their use through to their deposition. The results of wear analysis and the experimental tests prove the clear functionality of battle-axes and axe-hammers; they were both used for similar activities, such as woodworking, land clearance, and animal slaughter. The results provide the basis from which to draw inferences about the use-context of these artefacts. As a result, it is now possible to produce a much-improved consideration of these two EBA artefact types. It is evident that both types had similar functions and meanings and it is clear that the similarities in use between battle-axes and axe-hammers reinforce the idea derived from a similar treatment that they had parallel cultural significances. These objects were capable of being prestigious and functional at the same time, as demonstrated by the inclusion of obviously functional battle-axes and axe-hammers in burial deposits. The variability in the web of relationships that these implements existed within and the variable functional uses of these versatile tools suggests that the people who used and owned them were also versatile. They were able to use these objects in varied ways to mould and express their potentially fluid identities in life and death.

Many more battle-axes were deposited in funerary settings compared to axe-hammers. Only a small number of axe-hammers were deployed in the same kinds of funerary contexts as battle-axes. In south-west Scotland and north-west England, axe-hammers were being used in burial contexts instead of – or in preference to – battle-axes. This is an area where battle-axes rarely occur in quantity or in funerary contexts. In life, battle-axes and axe-hammers were similar and, for these few funerary axe-hammers, they were also similar in terms of funerary deposition. It is in death – their mode and context of deposition – that the change in significance is apparent.

Acknowledgements: Many thanks to Dr Annelou van Gijn and the Material Culture Laboratory at Leiden University, and Drs Chris Fowler, Andrea Dolfini and Rachel Crellin for their support and guidance. I offer great thanks to those who supported this research project; it is greatly appreciated. The organisations and charities who kindly funded my

research trips to museums was integral to the project completion, I would like to thank the Isle of Man Natural History and Antiquarian Society, The Catherine Mackichan Bursary Trust, the Sir Richard Stapley Education Trust, and Materiality, Artefacts & Technologies in Culture & History (MATCH), Newcastle University. The following museums granted me permission to access and analyse the battle-axes and axe-hammers in their collections, for which I am grateful: British Museum; Great North Museum, Newcastle; Tullie House Museum and Art Gallery, Carlisle; Sheffield Museum; York Museum; Manchester Museum; National Museum of Scotland; Stranraer Museum; Dumfries Museum; Manx Museum.

SUPPLEMENTARY MATERIAL

To view the supplementary material for this article, please visit <https://doi.org/10.1017/ppr.2020.5>

NOTE

1. Northern Britain was defined as an area including Scotland, the Scottish Isles, and the north of England as far south as, and including, Yorkshire, Lancashire, and Cheshire. Wales was not included in the study area.

BIBLIOGRAPHY

- Anderson, J. 1886. *Scotland in Pagan Times: The Bronze and Stone Ages*. Edinburgh: David Douglas
- Anderson-Whymark, H., Clarke, A., Edmonds, M. & Thomas, A. 2017. Process, form and time: Maceheads in an Orcadian context. In R. Shaffery (ed.), *Written in Stone: Papers on the function, form, and provenancing of prehistoric stone objects in memory of Fiona Roe*. Southampton: Highfield Press
- Bailey, G. 1987. Breaking the time barrier. *Archaeological Review from Cambridge* 6, 5–20
- Bailey, G. 2007. Time perspectives, palimpsests and the archaeology of time. *Journal of Anthropological Archaeology* 26, 198–223
- Brace, S., Diekmann, Y., Booth, T.J., van Dorp, L., Faltyskova, Z. et al. 2019. Ancient genomes indicate population replacement in Early Neolithic Britain. *Nature Ecology and Evolution* 3, 765–71
- Bradley, R. 1978. *The Prehistoric Settlement of Britain*. London: Routledge
- Bradley, R. 1990. *The Passage of Arms: An archaeological analysis of prehistoric hoards and votive deposits*. Oxford: Oxbow Books
- Bradley, R. 2000. *An Archaeology of Natural Places*. London: Routledge
- Bradley, R. 2016. *A Geography of Offerings: Deposits of valuables in the landscapes of ancient Europe*. Oxford: Oxbow Insights in Archaeology 2
- Bradley, R. & Edmonds, M. 1993. *Interpreting the Axe Trade: Production and exchange in Neolithic Britain*. Cambridge: Cambridge University Press
- Brück, J. 2004. Material metaphors: The relational construction of identity in Early Bronze Age burials in Ireland and Britain. *Journal of Social Archaeology* 4, 7–33
- Brück, J. 2006. Death, exchange and reproduction in the British Bronze Age. *European Journal of Archaeology* 9, 74–100
- Brück, J. 2019. *Personifying Prehistory: Relational ontologies in Bronze Age Britain and Ireland*. Oxford: Oxford University Press.
- Bruck J. & Fontijn D.R. 2013. The myth of the Chief: Prestige goods, power and personhood in the European Bronze Age. In A. Harding & H. Fokkens (eds), *The Oxford Handbook of the European Bronze Age*, 193–211. Oxford: Oxford University Press
- Brumfield, E. & Earle, T. 1987. *Specialization, Exchange, and Complex Societies*. Cambridge: Cambridge University Press
- Calder, C.S.T. 1958. Stone Age house-sites in Shetland. *Proceedings of the Society of Antiquaries of Scotland* 89, 373–5
- Clough, T. 1988. Introduction to the regional reports: Prehistoric stone implements from the British Isles. In T.H. McK. Clough & W. Cummins (eds), *Stone Axe Studies vol. II: The petrology of prehistoric stone implements from the British Isles*, 1–10. London: Council for British Archaeology Research Report 67
- Clough, T.H.McK. & Cummins, W.A. (eds). 1979. *Stone Axe Studies: Archaeological, petrological, experimental, and ethnographic*. London: Council for British Archaeology Research Report 23
- Crellin, R. J. 2017. Changing assemblages: Tracing vibrant matter in burial assemblages. *Cambridge Archaeological Journal* 27 (1), 111–25
- Cummins, W.A. & Harding, F. 1988. The petrological identification of stone implements from north-east England. In Clough & Cummins (eds) 1988, 78–84
- Cummings, V. & Fowler, C. 2007. *From Cairn to Cemetery: An archaeological investigation of the chambered cairns and early Bronze Age mortuary deposits at Cairnderry and Bargrennan White Cairn, south-west Scotland*. Oxford: British Archaeological Report 434
- Deleuze, G. & Guattari, F. 2004. *A Thousand Plateaus: Capitalism and schizophrenia*. London: Continuum
- Dubreuil, L. & Savage, S. 2014. Ground stones: A synthesis of the use-wear approach. *Journal of Archaeological Science* 48, 139–53
- Dubreuil, L., Savage, D., Delgado-Raack, S., Plisson, H., Stephenson, B. & de la Torre, I. 2015. Current analytical frameworks for studies of use-wear on ground stone tool. In J.M. Marreiros, J.F. Gibajo Bao & N.F. Bicho (eds), *Use-wear and Residue Analysis in Archaeology*, 105–58. Dordrecht: Springer
- Earle, T. & Kristiansen, K. (eds). 2010. *Organizing Bronze Age Societies: The Mediterranean, central Europe, and Scandinavia compared*. Cambridge: Cambridge University Press.
- Evans, J. 1897. *Ancient Stone Implements, Weapons and Ornaments of Great Britain* (2nd edn). London: Longmans, Green & Co

- Evans, J.A., Chenery, C.A. & Fitzpatrick, A.P. 2006. Bronze age childhood migration of individuals near Stonehenge, revealed by strontium and oxygen isotope tooth enamel analysis. *Archaeometry* 48, 309–32
- Fenton, M.B. 1984. The nature of the source and the manufacture of Scottish battle-axes and axe-hammers. *Proceedings of the Prehistoric Society* 50, 217–43
- Fenton, M.B. 1988. The petrological identification of stone battle-axes and axe-hammers from Scotland. In Clough & Cummins (eds) 1988, 92–132
- Fleming, A. 1971. Bronze Age agriculture on the marginal lands of North East Yorkshire. *Agricultural History Review* 19 (1), 1–24
- Fowler, C. 2005. Identity politics: Personhood, kinship, gender and power in Neolithic and Early Bronze Age Britain. In E. Casella & C. Fowler (eds), *The Archaeology of Plural and Changing Identities: Beyond identification*, 109–34. Boston MA: Springer US
- Fowler, C. 2011. Personhood and the body. In T. Insoll (ed.), *The Oxford Handbook of Ritual and Religion in Archaeology*, 133–50. Oxford: Oxford University Press
- Greenwell, W. 1890. Recent researches in barrows in Yorkshire, Wiltshire, Berkshire, etc. *Archaeologia* 52, 1–72
- Hamilakis, Y. & Jones, A.M. 2017. Archaeology and assemblage. *Cambridge Archaeological Journal* 27 (1), 77–84
- Harris O.J.T. 2017. Assemblages and scale in archaeology. *Cambridge Archaeological Journal* 27, 127–39
- Hodder, I. & Hutson, S. 2003. *Reading the Past: Current approaches to interpretation in archaeology*. Cambridge: Cambridge University Press
- Ingold, T. 2007. Materials against materiality. *Archaeological Dialogues* 14 (1), 1–16
- Joyce, R. & Gillespie, S.D. 2015. Making things out of objects that move. In R. Joyce & S.D. Gillespie (eds), *Things in Motion: Object itineraries in anthropological practice*, 3–20. Santa Fe NM: SAR Press
- Keen, L. & Radley, J. 1971. Report on the petrological identification of stone axes from Yorkshire. *Proceedings of the Prehistoric Society* 37 (1), 16–37
- Knutsson, K. & Hope, R. 1984. The application of acetate peels in lithic use-wear analysis. *Archaeometry* 26 (1), 49–61
- Knutsson, H. & Knutsson, K. 2003. Stone age transitions. Neolithisation in central Scandinavia. *Documenta Praehistorica* 30, 48–78
- Lamdin-Whymark, H. 2008. *The Residue of Ritualised Action: Neolithic deposition practices in the Middle Thames Valley*. Oxford: British Archaeological Report 466
- Leahy, K. 1986. A dated stone axe-hammer from Cleethorpes, South Humberside. *Proceedings of the Prehistoric Society* 52, 143–52
- Lekberg, P. 2002. *Lives of Axes, Landscapes of People: A study of landscape and society in the Late Neolithic of central Sweden*. Uppsala: Institutionen för arkeologi och antik historia.
- Manby, T.G. 1979. Typology, materials, and distribution of flint and stone axes in Yorkshire. In Clough & Cummins (eds) 1979, 65–81
- Mauss, M. 1990. *The Gift: Forms and functions of exchange in archaic societies*. New York: Routledge (reprint of 1950 edition)
- Mortimer, J. R. 1905. *Forty years' Researches in British and Saxon Burial Mounds of East Yorkshire*. London: A. Brown and Sons
- Needham, S. 2007. Isotopic aliens: Beaker movement and cultural transmissions. In M. Larsson & M. Parker Pearson (eds), *From Stonehenge to the Baltic: Cultural diversity in the third millennium BC*, 41–6. Oxford: British Archaeological Report S1692
- Needham, S. 2011. Material and Spiritual engagements: Britain and Ireland in the first age of metal, in 2011 *Rhind Lectures*, Available at: <https://www.youtube.com/watch?v=HFTttc48g9c> [Accessed 01 April 2020]
- Noble, G. 2006. Harnessing the waves: Monuments and ceremonial complexes in Orkney and beyond. *Journal of Maritime Archaeology* 1, 100–17
- Parker Pearson, M., Jay, M., Chamberlain, A., Sheridan, A. & Evans, A. 2019. *The Beaker People Project: Isotopes, mobility and diet in prehistoric Britain*. Oxford: Prehistoric Society Research Paper 7
- Parker Pearson, M., Chamberlain, A., Jay, M., Richards, M., Sheridan, A., Curtis, N., Evans, J., Gibson, A., Hutchison, M., Mahoney, P., Marshall, P., Montgomery, J., Needham, S., O'Mahoney, S., Pellegrini, M. & Wilkin, N. 2016. Beaker people in Britain: migration, mobility and diet. *Antiquity* 90 (351), 620–37
- Pegge, S. 1773. Observations on stone axe-hammers. *Archaeologia* 2, 124–8
- Pellegrini, M., Pouncett, J., Jay, M., Pearson, M. & Richards, M. 2016. Tooth enamel oxygen 'isoscapes' show a high degree of human mobility in prehistoric Britain. *Scientific Reports* 6, 1–9
- Petrequin, P. & Petrequin, A. 2020. *Ecology of a Tool: The ground stone axes of Irian Jaya*. Oxford: Oxbow Books
- Richardson, J. & Vyner, B. 2011. An exotic Early Bronze Age funerary assemblage from Stanbury, West Yorkshire. *Proceedings of the Prehistoric Society* 77, 49–63
- Roe, F. 1966. The battle-axe series in Britain. *Proceeding of the Prehistoric Society* 32, 199–245.
- Roe, F. 1967. The battle-axes, mace-heads and axe-hammers from south-west Scotland. *Transactions of the Dumfriesshire & Galloway Natural History Antiquaries Society* 44, 57–80
- Roe, F. 1968. Stone maceheads and latest Neolithic cultures of the British Isles. In J.M. Coles & D.D.A. Simpson (eds), *Studies in Ancient Europe*, 145–72. Leicester: Leicester University Press.
- Roe, F. 1979. Typology of stone implements with shaftholes. In Clough & Cummins (eds) 1979, 23–48
- Roy, A. 2019a. *The Use and Significance of Early Bronze Age Battle-axes and Axe-hammers from the Northern British Isles*. Unpublished PhD thesis, Newcastle University.
- Roy, A. 2019b. *Using Cellulose Acetate to Replicate the Surface of Groundstone: A new methodological approach*

- for wear analysis. Unpublished manuscript: available from the author
- Roy, A. 2019c. *Using Wear Analysis and Experimental Tests to Assess the Use of Ground and Polished Early Bronze Age Stone Battle-axes and Axe-hammers from Northern Britain and the Isle of Man*. Unpublished manuscript: available from the author
- Saville, A. & Roe, F. 1984. A stone battle-axe from Wotton-under-Edge, and a review of battle-axe and mace-head finds from Gloucestershire. *Transactions of the Bristol & Gloucestershire Archaeological Society* 102, 17–22.
- Sheridan, A. 2007. The pottery. In Cummings & Fowler (eds) 2007, 97–107
- Smith, R. A. 1925. The perforated axe-hammers of Britain. *Archaeologia* 75, 77–108.
- Topping, P. 2017. *The Social Context of Prehistoric Extraction Sites in the UK*. Unpublished PhD thesis, Newcastle University.
- Watkins, T. 1982. The excavation of an early Bronze Age cemetery at Barns Farm, Dalgety, Fife. *Proceedings of the Society of Antiquaries of Scotland*, 112, 48–141
- Williams-Thorpe, O., Webb, P.C. & Jones, M.C. 2003. Non-destructive geochemical and magnetic characterisation of Group XVII dolerite stone axes and shaft-hole implements from England. *Journal of Archaeological Science* 30, 1237–67.
- Williams-Thorpe, O., Webb, P.C. & Jones, M.C. 2006. Preseli dolerite bluestones: axe-heads, Stonehenge monoliths, and outcrop sources. *Oxford Journal of Archaeology* 25 (1), 29–46.
- Woodward, A. & Hunter, J. (eds). 2015. *Ritual in Early Bronze Age Grave Goods: An examination of ritual and dress equipment from Chalcolithic and Early Bronze Age graves*. Oxford: Oxbow Books.

RÉSUMÉ

Usage et signification des haches et haches-marteaux de combat de l'Age du Bronze ancien de la Grande Bretagne septentrionale et de l'Île de Man, de Amber Sofia Roy

Les haches et haches-marteaux de combat perforées de la Grande-Bretagne et du début de l'Age de Bronze ont été utilisées soit pour interpréter le status d'individus avec lesquels elles avaient été enterrées ou 'ont pas été prises en considération, ce qui fut particulièrement le cas avec les haches-marteaux. De précédentes compréhensions ont supposé que les haches de combat étaient purement cérémonielles, tandis que les haches-marteaux, plus rudes, n'étaient ni fonctionnelles, ni prestigieuses, étant trop grosses et trop rudimentaires pour être des objets de prestige. Les études du 20^{ème} siècle se concentrèrent sur la création d'une typologie et la compréhension de la fabrication et les origines pétrologiques de la pierre, concluant qu'une exploitation au hasard de la pierre était utilisée pour créer une variété de formes différentes de ces deux outils. Le présent article revisite la question de savoir comment étaient utilisés ces artifacts. Il présente les résultats de la première application sur une grande échelle de l'utilisation de l'analyse de l'usure sur des haches et haches-marteaux de combat du début de l'Age de Bronze britannique en Grande-Bretagne du nord et sur l'île de Man. En combinant les résultats de l'analyse de l'usure avec l'archéologie expérimentale et une analyse contextuelle, les auteurs argumentent que ces objets étaient des outils fonctionnels dont certains avaient subi une utilisation prolongée qui pourrait s'être étendue à de multiples utilisateurs. Les témoignages montrent que le petit nombre d'outils trouvés dans les contextes d'inhumation étaient à la fois fonctionnels et symboliques, leur inclusion dans les contextes d'inhumation s'appuyant sur les liens relationnels qui s'étaient développés à travers les itinéraires de ces objets. Il est aussi apparent que l'usage et le traitement étaient similaires à travers tous les types de hache et hache-marteau de combat avec des variations régionales dans le dépôt des haches-marteaux dans le sud-ouest de l'Ecosse. Nous concluons que les haches et les haches-marteaux de combat avaient de multiples et divers rôles et significations et qu'il est possible de découvrir ce à quoi servait chaque artifact en déployant la méthodologie de l'analyse de l'usage et l'usure.

ZUSAMMENFASSUNG

Nutzung und Bedeutung frühbronzezeitlicher steinerner Streitäxte und Hammeräxte aus dem Norden Großbritanniens und der Isle of Man, von Amber Sofia Roy

Die durchlochenden Streitäxte und Hammeräxte aus Stein aus der Frühbronzezeit Großbritanniens wurden entweder herangezogen, um den Status jener Individuen abzuleiten, mit denen sie begraben worden waren, oder sie wurden übersehen; dies gilt insbesondere für Hammeräxte. Bislang wurde angenommen, dass Streitäxte ausschließlich zeremonielle Funktionen hatten, während die größeren Hammeräxte als weder funktional noch

prestigeträchtigt galten, da sie zu groß und zu roh für Prestigeobjekte waren. Im 20. Jahrhundert fokussierten die Untersuchungen auf das Erstellen einer Typologie und das Erfassen der Herstellung und der petrologischen Quellen der Steine und kamen zu dem Schluss, dass eine wahllose Nutzung von Gesteinen zu einer Vielfalt unterschiedlicher Formen beider Gerätearten führte. Dieser Beitrag untersucht erneut, wie diese Artefakte genutzt wurden. Er legt die Ergebnisse der ersten umfassenden Anwendung von Gebrauchsspurenanalysen auf Streit- und Hammeräxte der britischen Frühbronzezeit aus dem Norden Großbritanniens und der Isle of Man vor. Auf Grundlage der Kombination der Ergebnisse der Gebrauchsspurenanalyse mit experimenteller Archäologie und Kontextanalyse wird argumentiert, dass diese Objekte funktionale Werkzeuge waren, von denen einige über längere Zeit und möglicherweise von verschiedenen Nutzern gebraucht worden waren. Die Ergebnisse zeigen, dass die wenigen in Grabkontexten gefundenen Exemplare sowohl funktional als auch symbolisch waren; mit ihrer Verwendung im Kontext der Bestattung verweisen sie auf Beziehungen, die durch die Biographien der Objekte entstanden waren. Es wird zudem deutlich, dass Benutzung und Behandlung bei allen Typen von Streit- und Hammeräxten gleich waren, mit manchen regionalen Unterschieden bei der Deponierung von Hammeräxten in Südwestschottland. Es wird der Schluss gezogen, dass Streit- und Hammeräxte unterschiedliche und vielfältige Rollen und Bedeutungen hatten und dass es möglich ist festzustellen, wofür jedes Artefakt gebraucht wurde, wenn Gebrauchsspurenanalysen angewandt werden.

RESUMEN

El uso y significado de las hachas de guerra y los martillos-hacha en piedra del norte de Gran Bretaña y la Isla de Man, por Amber Sofia Roy

Las hachas de guerra y los martillos-hacha de piedra perforados del Bronce Inicial de Gran Bretaña se han utilizado para interpretar el estatus de los individuos con los cuáles fueron enterrados o, por el contrario, han sido ignorados, especialmente en el caso de los martillo-hacha. Interpretaciones previas han asumido que las hachas de guerra eran puramente ceremoniales, mientras que los irregulares martillos-hacha no eran ni funcionales ni de prestigio, siendo demasiado grandes e irregulares para ser considerados elementos de prestigio. Los estudios del siglo XX se centraron en la creación de una tipología y en la comprensión del proceso de manufactura y la identificación petrológica de la roca, concluyendo que rocas, de explotación fortuita, fueron empleadas en la elaboración de una gran variedad de morfologías diferentes de ambas herramientas. Este artículo revisa la cuestión de cómo fueron empleados estos artefactos. Se presentan los resultados de la primera aplicación a gran escala de análisis funcionales a las hachas de guerra y los martillos de la Edad del Bronce, desde el norte de Gran Bretaña a la Isla de Man. Combinando los resultados del análisis de las huellas de uso con la arqueología experimental y el análisis contextual, se sostiene que estos objetos son útiles funcionales, algunos de los cuales vieron un uso prolongado que podría haber abarcado múltiples usuarios. La evidencia refleja que algunas de las herramientas procedentes de contextos funerarios fueron tanto funcionales como simbólicas; su inclusión en los contextos funerarios refleja los vínculos de relación que se desarrollaron a lo largo de los itinerarios seguidos por estos objetos. También es evidente que los usos y tratamientos fueron similares en todos los tipos de hachas y martillos, con algunas variaciones regionales en la deposición de los martillos hacha en el suroeste de Escocia. Se concluye que ambos útiles tuvieron papeles y significados variados y múltiples y que es posible descubrir para qué se empleó cada artefacto mediante la metodología propuesta de análisis de huellas de uso.