Wiltshire Archaeological & Natural History Magazine, vol. 115 (2022), pp. 285–295

Research Highlight

edited by Wil Partridge

The collections of the Wiltshire Museum, Devizes, which is governed by the Wiltshire Archaeological Society, are Designated of national importance and form an unparalleled resource for developing our understanding of the history and archaeology of Wiltshire. Year on year they are accessed by a variety of academics, independent researchers and archaeological professionals, and are often central to their projects. The following is intended to be a yearly feature, highlighting an ongoing or recent research project which has significantly contributed to our understanding of an object or assemblage within the museum collections – demonstrating the continuing research potential of the wider collections, as well as the importance of an accessible archaeological archive for archaeological understanding moving forward.

New insights into Middle Neolithic life from the Wiltshire Museum collections

by Jake T. Rowland

This paper presents microwear analysis of an edge-ground blade knife and antler macehead from the Wiltshire Museum collections. The paper will provide a brief background to the broader PhD research within which this analysis was conducted, alongside more detailed results of the microwear analysis. This will highlight the breadth or information which can gained from the detailed studies of this kind.

About the author

Jake is a Neolithic archaeologist, microwear and lithic analyst, who is currently undertaking a PhD at the Universities of Southampton and Reading, funded by the South West and Wales Doctoral Training Partnership (SWWDTP). While completing his undergraduate and masters at the University of Southampton, Jake worked as a research assistant on the AHRC funded Between the Monuments and Living with Monuments Projects, supervising excavation and post-excavation activities in the Avebury landscape. More recently he has taken up a position on the committee for the Lithics Studies Society and undertakes freelance microwear analysis on behalf of several archaeological units.

Department of Archaeology, University of Southampton, Southampton SO17 1BF. Email: jakerowland@outlook.com

Background to the Research

The Middle Neolithic (*c.* 3500–2950 BC) is now recognised as a period of significant social and cultural change in Britain. In lowland Britain at least, the period witnesses striking changes in subsistence, with a move from mixed agriculture to pastoralism (Stevens and Fuller 2012; 2015; Treasure *et al*. 2019), likely resulting in the increased mobility of groups, and the cessation of activity at flint mines, including the Langdale axe quarries (*c.* 3500 BC) (Edinborough *et al*. 2020), alongside significant changes in mortuary practices, with the introduction of individual burial and personal grave goods, and new monument forms including: round barrows, cremation cemeteries and early henge monuments (Kinnes 1979; Willis 2019). These changes represented a new kind of Neolithic!

Coincident to these developments is the appearance of a range of novel artefact forms. Of these, the ceramics—Peterborough and Impressed Wares—are relatively well-studied (Smith 1956; Gibson and Kinnes 1997; Marshall *et al.* 2009; Ard and Darvill 2015). However, that is not the case with several elaborate artefact forms without indigenous precedent such as jet sliders, antler and stone maceheads, boar tusk implements, transverse arrowheads, waisted adzeheads and axeheads, rectangular knives, and edge-ground blade knives, many of which are marked out by their highly skilled and/or time-consuming manufacture (Manby 1974; Loveday 2009; Loveday and Barclay 2010). These objects occur in a restricted range of contexts, most notably as personal grave goods within mortuary deposits, which raise critical questions about their role.

These artefacts have often been read as status symbols (Clarke *et al*. 1985; Loveday 2009; Sheridan and Brophy 2012), but this ignores their capacity to have acted as more complex markers of identity, responsibility, and connection, and presupposes static value across their use-lives. This paper presents the results of microwear analyses of two Middle Neolithic objects from Wiltshire Museum's collections: an edge-ground blade knife from the Millbarrow long barrow, Winterbourne Monkton (Whittle 1994), and an antler macehead from a secondary inhumation within the Warminster G10 round barrow (Cunnnington 1806, 18). This aims to shed light on the roles these artefacts played in society and enrich our understanding of the communities they were part of.

The results presented here form part of a larger body of PhD research entitled *Beyond Symbols of Power: an integrated, multi-scalar study of the life histories of Middle Neolithic elaborate artefacts*. More broadly, this research explores the life histories of these elaborate objects and the varied roles they played in life and death during the Middle Neolithic. It takes a multi-scalar approach which incorporates both the microscopic traces of use, and macroscopic observations of object manufacture, in addition to investigating the broader societal, regional and interregional scales at which these objects operated. This provides a more nuanced and contextual understanding of the roles of these objects within Middle Neolithic society. The objects analysed in this paper aim to highlight the breadth or information which can gained from detailed artefact analysis of this kind.

Methods

Wear traces develop on the surface of an object through use and the various treatments they undergo throughout their lives. Experiments undertaken using replica objects have demonstrated that the character of these wear traces vary according to the contact material (e.g. bone, antler, wood, bark, non-silicious and silicious plants, mineral, hide, etc.), the activity or motion involved, and the duration and intensity of use (Semenov 1964; Keeley 1980; Vaughan 1985; van Gijn 1990). These wear traces include striations, edge removals, and edge rounding, which provide an indication of the hardness of the contact material and the direction of use, while the character, distribution and directionality of any polishes allow us to interpret the specific contact material involved (*ibid.*). By mapping of the distribution of wear traces across the surface of an object, we can provide details about artefact manufacture, use, reuse, resharpening, hafting, prehension, alongside non-utilitarian traces such as wrapping, sheath wear or storage (Rots 2010; van Gijn 2010; Wentink 2006; 2020).

Microwear analysis of the artefacts analysed here combined low power observations from a Dinolite Edge AM4814ZT digital microscope (magnif. 10–60×) to obtain an overview of the implements and a GT Visions GxM-100 metallographic microscope (magnif. 50–500×) to study the distribution, character and directionality of the

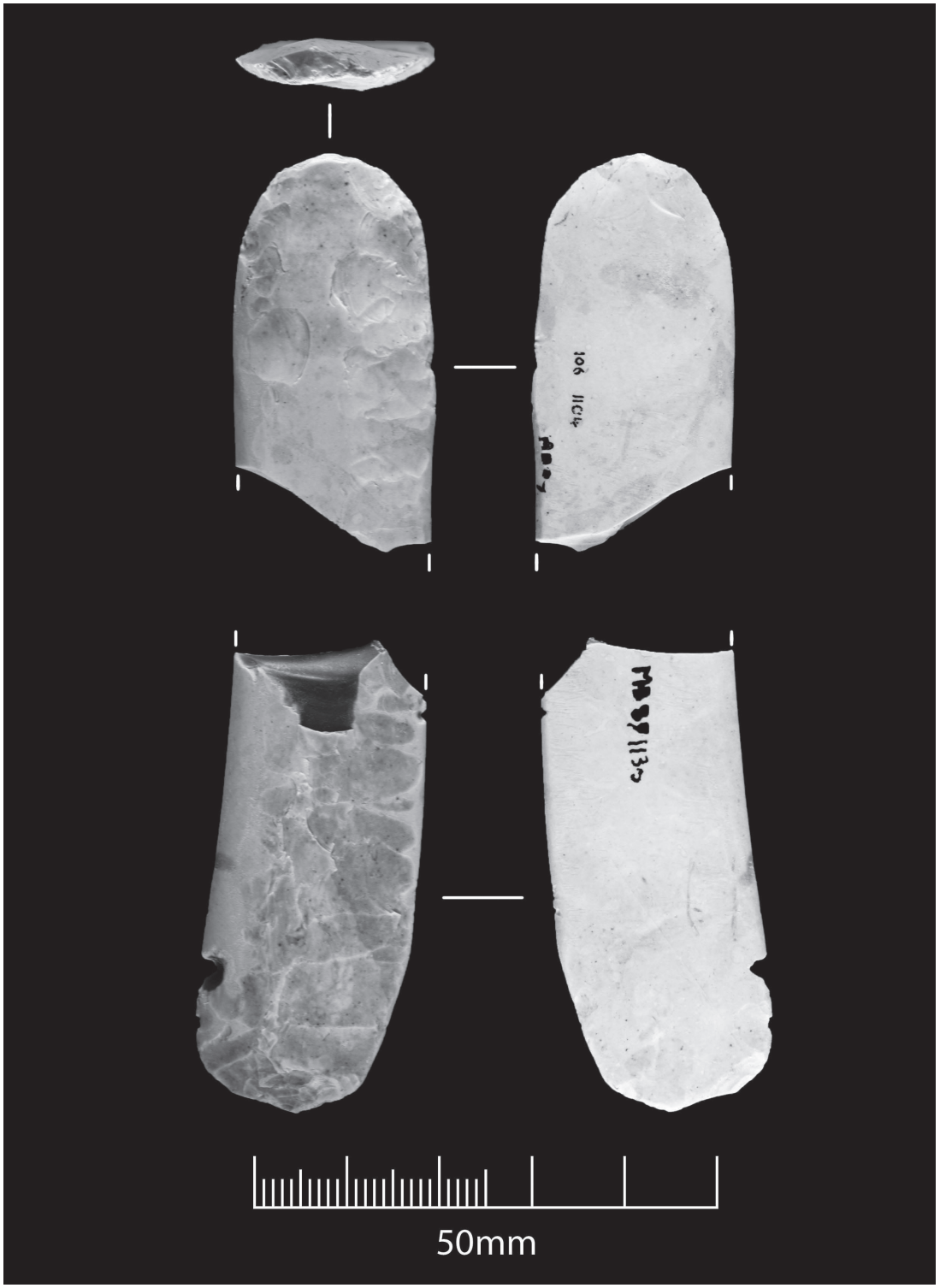

Fig. 1 Edge-ground blade knife from Millbarrow, Winterbourne Monkton. Image: author

polishes and other wear traces in detail, facilitating the interpretation of specific contact materials. It should be highlighted that all inferences are based on analogy with experimentally obtained wear traces, therefore they constitute interpretations and not identifications (van Gijn 2014). All traces were described and photographed at 200x magnification, using a GXCAM-U3 18MP camera and GX Capture software, and stacked using Helicon Focus 6.8.0 software.

Millbarrow Edge-Ground Blade Knife

The edge-ground blade knife from the Millbarrow long barrow, Winterbourne Monkton (Figures 1 and 2; DZSWS:2018.7), was excavated from the secondary fills of the monument's outer southern ditch (Whittle 1994). The knife, which is broken into two fragments, measures 5mm thick and 22mm wide, with a surviving length of 95mm, but when complete was likely to have been over 100mm in length. The break on the proximal knife fragment is patinated demonstrating the implement broke in antiquity; however, the distal knife fragment was damaged during excavation, resulting in the loss of the medial portion (Pollard 1994). The ancient break surface does not exhibit a diagnostic fracture pattern associated with deliberate snapping of flint flakes (Anderson-Whymark 2011), suggesting the break may have occurred accidentally.

The knife is manufactured from a large, regular blade blank produced on an exceptionally fine-grained, jet black flint (Pollard 1994). A small remnant of the opposing platform has been left at the distal end of the knife indicating the blade ran the full length of what was likely a bipolar core. Bipolar cores provide the knapper with a greater degree of control over the form of the core and its products than their unipolar counterparts, enabling otherwise problematic hinge and step fractures to be removed with relative ease. The striking platform has been carefully facetted and heavily abraded to produce a shallow *en-éperon* style point. The blade exhibits a focussed, lipped bulb, suggestive of either soft hammer, or indirect percussion. Considering that such width, length and thinness are difficult to achieve by direct percussion alone, it is most likely the blade was detached by indirect percussion, with the aid of a punch. This technique is rare in Neolithic reduction strategies and indicates the involvement

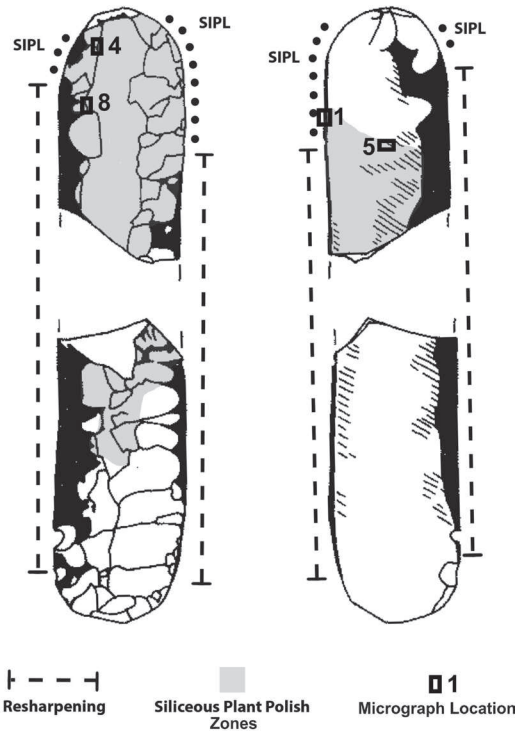

Fig. 2 Distribution of wear traces across the Millbarrow knife, including the location of micrographs. Image: adapted from Pollard 1994, fig. 18

of an exceptionally skilled flint knapper.

The knife has been unifacially retouched, giving the knife a plano-convex cross section, with shallow pressure flaking extending across much of the dorsal surface. Pressure flaking becomes increasingly more invasive towards the distal end of the knife, thinning the blank at this end to produce a more consistent overall thickness. Grinding is restricted to the two lateral edges with no grinding on the distal or proximal end of the knife. The ventral surface of the knife has received little modification except for a narrow bevel ground on each lateral edge. The quality of the blank and invasiveness of the retouch suggests the knife was produced by a highly skilled knapper.

Microwear Analysis

The knife exhibits heavy post-depositional surface modification (PDSM) in the form of patination covering the entire surface of the object. This is likely to have obscured any light traces of wear, however, traces which are well-developed were clearly visible.

Analysis provided evidence of multiple phases

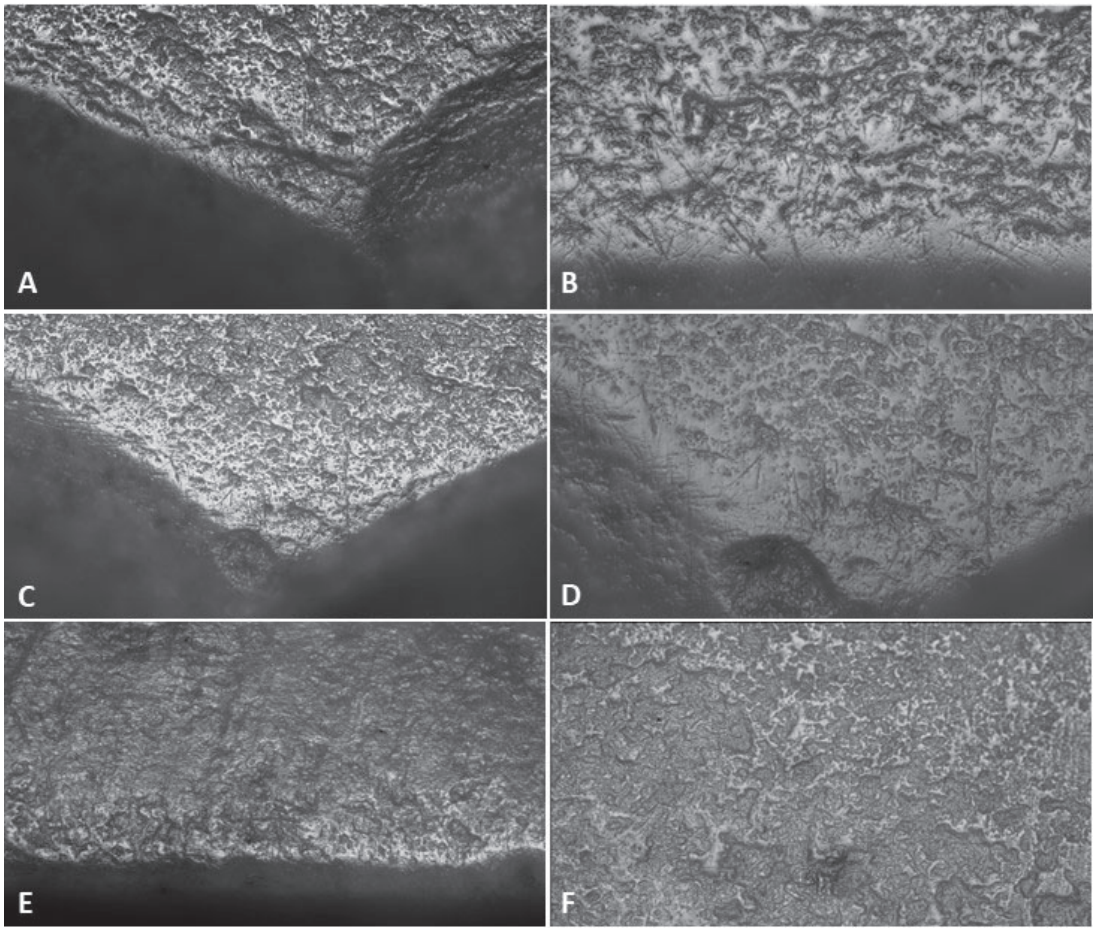

Fig. 3 Wear traces identified on the Millbarrow knife: a) Location 8: a bright, smooth, pitted polish forming over dorsal ridges on the proximal knife fragment (x100); b) ibid. *(x200); c) Location 4: a bright, smooth, pitted polish forming over dorsal ridges on the proximal knife fragment (x100); d)* ibid. *(x200); e) Location 1: transverse grinding striations on the original edge bevel (x100); f) Location 5: a poorly developed bright polish forming over the tops of individual grains on the ventral face of the knife. All images: author*

of grinding to both edges of the knife. The earliest phase consisted of short lenticular striations, filled with a bright rough mineral polish orientated transverse to the long axis of the knife (Figure 3e), likely resulting from the use of a moderately coarse grindstone. The edges of the knife were later re-ground, producing a visible re-sharpening bevel (Figure 4), noticeably wider than the original ground edge bevel. The re-sharpening bevel has also been ground in a transverse motion and finished with a finer grindstone to hone the edge. This was undertaken in a longitudinal motion, resulting in very fine, long, longitudinal striations along the tip of the cutting edge.

Unfortunately, the re-sharpening process has removed any traces of use which may have been present along the edge of the knife, although the need to re-sharpen the implement at all suggests it had likely seen use during its life. The absence of further wear traces developing along the re-ground edges suggests that the re-sharpening occurred a short time prior to deposition. Any subsequent use may have been light and not caused identifiable wear traces to develop, however.

Wear traces, interpreted to have resulted from contact with soft plant material, are present on the dorsal ridges and retouch facets, covering around two-thirds of the length of the knife (Figure 2).

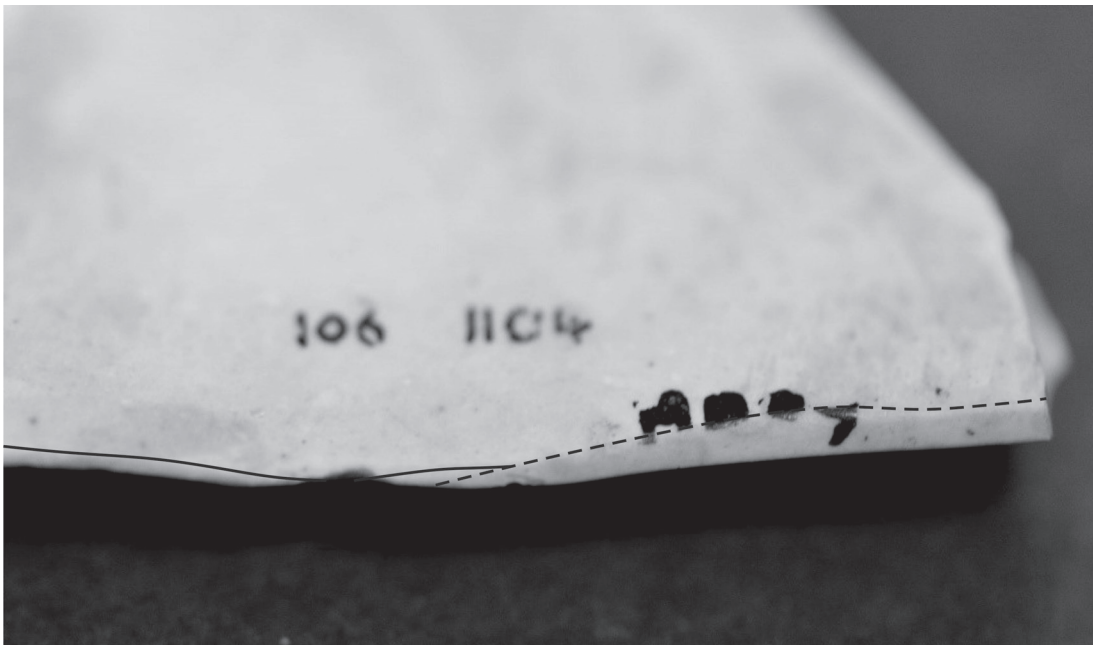

Fig. 4 Re-sharpening bevel (right) cutting through the narrower original edge bevel (left) on the ventral face of the proximal knife fragment. Image: author

These traces consist of a well-developed bright, smooth polish with several rounded pits, diffusing into the lower topography and are associated with rounding of ridges and high points (Figures 3a–d). The traces are also present over a short, proximal section of the cutting edge but have been truncated by the re-sharpening process, as well as the ventral face, where it is significantly less developed, only forming in small unlinked patches (Figure 3f).

The generalised distribution of the siliceous plant traces suggest they are not related to the use of the tool, which would be expected to be confined, primarily, to the cutting edges. The traces are suggestive of the knife being stored in a sheath or container made of siliceous plant fibres or some form of wrapping around the proximal end of the knife to act as a handle. The lack of consistent directionality in the wear traces means this is difficult to establish. Well-developed traces of this kind either through wrapping or storage take an extremely long time to develop and represent several hundred if not thousands of hours of use (Wentink 2006) suggesting the object was curated for a significant period prior to deposition.

Biography of a Flint Knife

The edge-ground knife from Millbarrow has evidently had a long life-history. The knife was manufactured from a regular blade of exceptionally fine-grained, jet black flint possibly from a non-local source. The blade was struck from a bipolar core, most likely using indirect percussion. This technique of blade detachment is typically associated with large blade industries of the upper Palaeolithic and has not yet been identified in British Neolithic reduction strategies. It demonstrates an exceptionally high level of knapping skill and suggests production by an expert craftsperson. Once produced, the blade was then invasively pressure flaked and subsequently ground along its two lateral edges in a transverse motion on a grindstone of moderate coarseness.

Well-developed siliceous plant traces cover much of the surface of the implement, resulting from either wrapping around the proximal end of the knife to act as a handle grip or from being stored in a sheath or pouch made from siliceous plant fibres. Similar traces resulting from contact with a plant or hide sheath have also been identified on edge-ground blade knives from Oxford Road causewayed enclosure, Oxfordshire and Goathland, Yorkshire which attest to the longevity of their use and circulation (author in prep). Towards

the end of its life the edges of the knife were re-sharpened. Initially this had been undertaken in a transverse motion using a moderately coarse stone and then finished with a finer grindstone, used in a longitudinal motion to more finely hone the knife edge. The clear evidence of re-sharpening perhaps suggest the knife did serve some kind of utilitarian function during its life, although unfortunately the regrinding process has removed any trace of this.

Finally, the knife broke either accidentally or deliberately and ended up in the outer ditch of the long barrow. Given that edge-ground blade knives are often associated directly with human remains as part of burial assemblages, it is possible the knife may have originally been deposited in the central chamber of the long barrow: this area had been heavily disturbed, with only small fragments of human remains surviving (Whittle 1994).

Edge-ground blade knives appear across Britain during the Middle Neolithic in a variety of contexts; burial and tomb assemblages, pit deposits as well as in lithic scatters and domestic sites (Manby 1974; Pollard 1994). While their inclusion within burial contexts indicates these objects were of special importance, their presence within lithic scatters and domestic sites also indicates a role within everyday life. The developed sheath wear traces on the Millbarrow knife suggests the implement was an important possession; kept, and most likely used, for a significant period of time prior to its deposition. Its use and carry likely generated deep ties between the knife and its owner(s), becoming a valued personal possession through its habitual use. This long association with a particular individual(s), alongside the skill evident in its production may have marked it out for deposition. This highlights that the biographies of these implements and the hands through which they had passed were of clear importance to Neolithic communities and may have helped to structure the deposition of particular items.

Warminster G10 Antler Macehead

The antler macehead from Warminster G10 round barrow, also known as Cop Heap (Scheduled Monument No. 1019384) was excavated by William Cunnington and Sir Richard Colt Hoare in October 1809. The macehead (DZSWS:STHEAD.224a) was associated with an adult inhumation, just south-east of the centre of the barrow (Cunnington 1806, 18). The interment was also accompanied by additional fragments of antler and two oblong pieces of flint with polished edges (*ibid.*), most likely referring to two edge-ground knives. Unfortunately, the antler macehead was the only artefact retained from the burial. The antler macehead dating project (Loveday *et al*. 2007) as well as a number of subsequently obtained dates (Sheridan *et al.* 2012; Jones *et al.* 2017; Jay *et al.* 2019) have placed the currency of antler maceheads to the second half of the fourth millennium *c.* 3500–3000 BC. This firmly places the burial within the Middle Neolithic which is also corroborated by the presence of the two edge-ground knives in the burial assemblage.

The macehead is manufactured from the basal region of a naturally shed left red-deer antler, measuring 100mm long and 63mm wide. The brow and bez tines have been removed and the beam of the antler had been cut through the centre of the bez tine. A perforation *c.* 26mm in diameter has been drilled through the antler at right angles to the plane of the tines. The regularity of the perforation suggests the drill was held in some kind of jig to keep it straight, producing parallel sided walls to the perforation. The spongiform core of the antler has also degraded leaving an elongated, sub-rectangular opening at the beam end and a hollow cavity inside the macehead. Because of its shape Cunnington (1806, 18) and Simpson (1996) had suggested this may have been used as a sleeve to haft an adze. However, the absence of any wear on the interior of the antler demonstrates the opening had never been used as a tool haft.

Microwear Analysis

Surface preservation of the macehead varies, with some areas being well-preserved, while others are heavily degraded. The differential surface preservation between the medial and lateral faces in particular may be due to the orientation of the object when deposited, suggesting the macehead had probably lain on its side in the grave. The presence of good surface preservation, albeit not universally, marks the object out as suitable for microwear analysis.

As part of the macehead manufacturing process the coronet and the areas left by the removal of the antler tines and beam have been ground to produce a smooth polished surface. The remaining patches of this ground surface exhibited clear longitudinal striations under low power magnification as a result of the grinding process (Figure 6a). The smooth

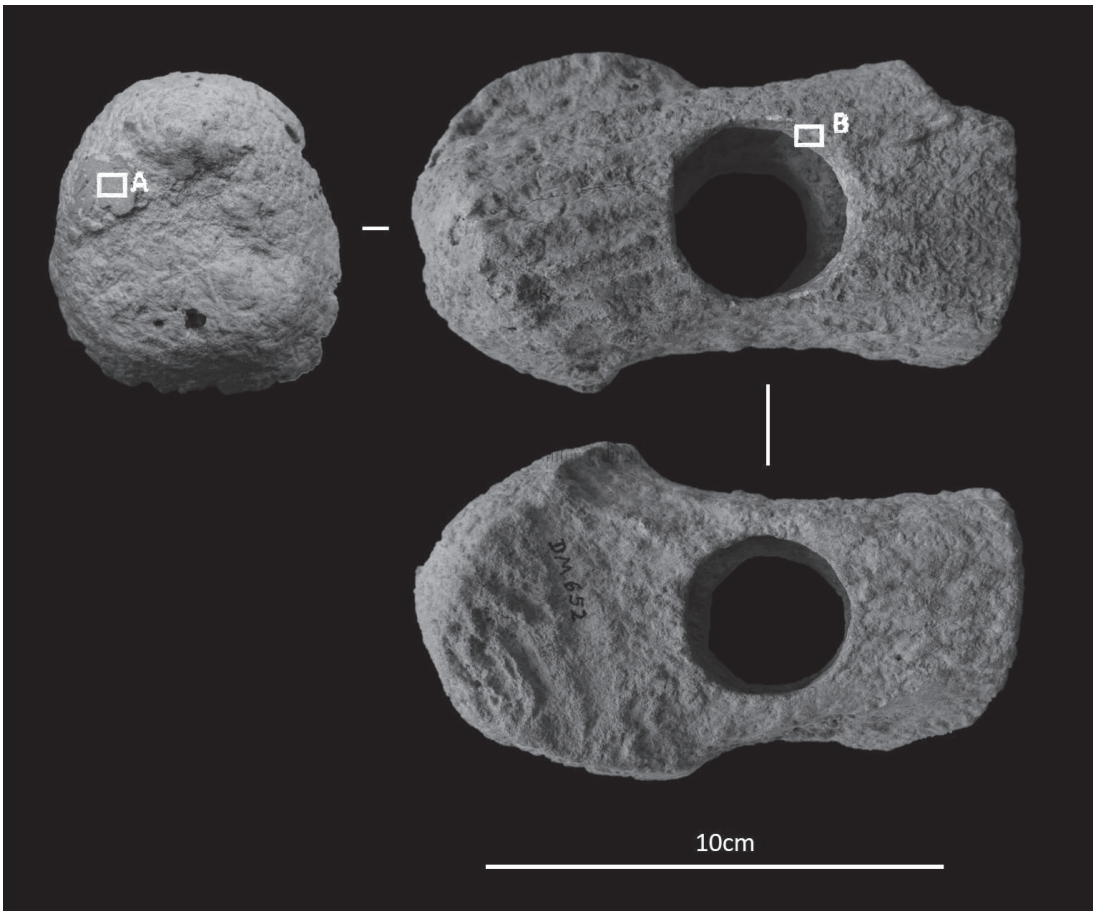

Fig. 5 Antler Macehead from Warminster G10, Warminster. Image: author

polished appearance of these surfaces would have provided a stark contrast with the rough appearance of the natural antler surface.

Some concentric rilling marks, resulting from the drilling process, were present in the interior of the perforation. The edge of the perforation was also heavily rounded (Figure 6b), this may be a by-product of friction generated between the macehead and a possible haft, but may equally be a result of PDSM. Unfortunately, it was not possible to assess the interior of the perforation with the equipment used in this study.

The face of the coronet has been subject to extensive impact damage from heavy use. This was also noted by Cunnington (1806, 18), who suggested the macehead appeared to have been used as a hammer. This has left a large irregular indentation in the centre of the coronet and, in some areas, has worn through the outer cortical layer of antler to the spongiform core beneath. The burr has also been worn away because of this intense use. Unfortunately, more detailed microscopic examination of the face of the coronet was not possible due to the degradation of the surface of the antler in this area, leaving the exact contact material unknown. The absence of impact marks overlying the ground and polished areas of the coronet (Figure 6a) suggests that the grinding occurred after impact damage had been sustained. This indicates the macehead had not been manufactured from a freshly shed antler but from an antler hammer, or perhaps an antler pick, which had seen intensive prior use.

Antler Macehead in Context

The grave assemblage from Warminster G10 is somewhat anomalous. While the edge polished knives associated with the Warminster G10 interment have a strong association with southern

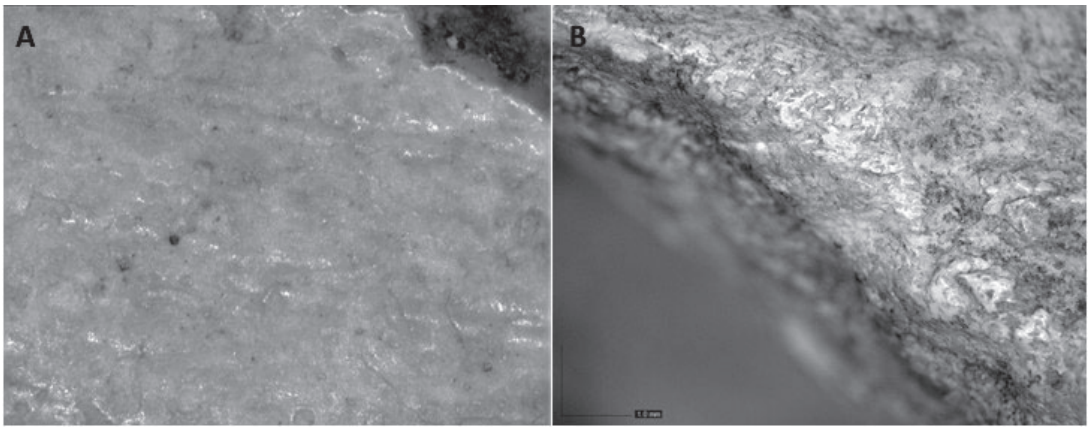

Fig. 6 Wear traces identified on the Warminster G10 Macehead: a) Grinding striations on the coronet (x50); b) heavy rounding to the rim of the perforation (x50). Image: author

burial assemblages, antler maceheads are otherwise unheard of in a southern Neolithic burial context. Although large numbers of antler maceheads were deposited directly into and around the river Thames, *c.* 100km east of the site, these don't appear to have been associated with human remains (Simpson 1996). Notably, Warminster G10 is *c.* 215km from the nearest burials accompanied by an antler macehead, perhaps suggesting that the macehead find reflects more distant connections and practices.

Only five other Neolithic burials are associated with antler maceheads and all are from northern Britain; Duggleby Howe Burial G, Ayton East Field Burial 4, Cowlam LVII Burial 4, Aldro C76 Burial in Yorkshire, Liffs Low in Derbyshire, and Crosby Garrett CLXXIV Burial 4 in Cumbria (Bateman 1848, 41–3; Conyngham 1849; Greenwell 1877, 214–21, 389–91; Mortimer 1905, 71–3). The presence of the antler macehead with the Warminster G10 interment shares clear parallels with these northern British depositional practices. The macehead itself may have been transported in from elsewhere, or reflect that the deceased or those mourning at the graveside were non-local. In the absence of human remains to conduct stable isotope analysis these conclusions remain tentative.

The clear impact damage exhibited by the antler macehead from Warminster G10 suggests the macehead was manufactured from a heavily used antler hammer or antler pick. This may have been a significant object in its own right, perhaps used in crafting refined flint artefacts or the construction of monuments, with a long use-life prior to being turned into a macehead. It is likely this object carried its own set of relationships to people, places and events, which may have also been transferred into the macehead, giving the object enhanced significance. Such relationships can be paralleled ethnographically; in Papua New Guinea and the Torres Strait Islands objects used by the deceased are occasionally combined or recycled into new objects to be deposited with the dead (Haddon *et al.* 1912, 52). The long use life of the macehead, evident through its transformation from antler hammer or pick, likely contributed to its selection for deposition with the deceased.

Conclusions

The wear traces present on the Millbarrow knife and Warminster G10 macehead clearly demonstrate these objects had long use-lives. Neither object appeared to have been manufactured specifically for deposition but were both well-used, likely generating relationships to specific people, places and/or events throughout their object lives. In the case of the Warminster G10 macehead the artefact may have accumulated relationships from multiple object-lives through the reworking of an already heavily used antler hammer or pick.

The results indicate the biographies of these objects, their relationships and the hands through which they passed were likely central to their selection for burial. They also highlight the potential for other elaborate objects to have similarly multi-facetted life histories, emphasising that elaboration

does not necessarily preclude use or life beyond deposition. Moreover, detailed interpretation of these types of artefacts are key to understanding Middle Neolithic sociality and materiality, and by extension the start of new ways of living in the world that culminate in the great monuments of later Neolithic Britain.

Acknowledgements

With great thanks to Lisa Brown and the Wiltshire Museum for providing access to the artefacts for analysis and their assistance in supporting this research, without which it would not have been possible. Thanks go also to my supervisory team; Professor Joshua Pollard, Dr Benjamin Chan, Professor Andy Jones from the University of Southampton and Professor Duncan Garrow from the University of Reading for their invaluable support and encouragement throughout this research. The author is also incredibly grateful to the South West and Wales Doctoral Training Partnership for funding this research.

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