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'Connoisseurs of Stone': Everyday Sarsen Stone in Neolithic Britain

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Sarsen stone boulders are familiar components of numerous British Neolithic megalithic monuments. Non-monumental uses of sarsen stone are, however, less well understood. This paper focuses on non-megalithic sarsen and its roles for communities, using case studies from three sites spanning the Neolithic in Wiltshire. Published data from Windmill Hill causewayed enclosure and analysis, using a new methodology, of recently excavated material from the West Kennet Avenue occupation site, and Marden henge enclosure are used to explore the varied ways in which sarsen was used. Rather than being an expedient 'mundane' stone this analysis demonstrates that non-megalithic sarsen could be just as meaning-laden as other more 'attractive' (larger, exotic) material. Daily encounters with sarsen stone for different purposes and in varied quotidian contexts afforded it with values which likely contributed to its use in monumental contexts. The importance of attending to sarsen in its multiple forms and contexts is thus made clear.

Keywords: Sarsen stone, Neolithic, settlement, Windmill Hill, West Kennet Avenue, Marden henge

Sarsen might be described as a signature stone type of the British Neolithic, capturing geological and archaeological imaginations largely inspired by the Stonehenge and Avebury World Heritage Site (Migoń 2020). So potent is it, that its name has been adopted by present-day businesses such as Sarsen Technology Ltd (producing high-specification computer hardware). The construction of sarsen-built Neolithic monuments, like the chambered barrows of Coldrum, Kent, Wayland's Smithy, Oxfordshire, or the Grey Mare and her Colts, Dorset, likely comprised a suite of events including the selection of story-filled boulders to anchor personal and group relationships in changing landscapes (Field 2005; Richards 2013; Gillings & Pollard 2016). The permanence and solidity of sarsen stone underpinning such associations are part of its attraction to people appropriating some of its aura today and dominate contemporary archaeological narratives of its Neolithic use (eg, Whittle 1997; Parker Pearson & Ramilisonina 1998).

This totemic material has, however, a long use history. Examples include a possible Palaeolithic biface from Winterbourne Monkton, Wiltshire (Young 1960), Mesolithic mace-heads and perforated pebbles (Rankine 1949), a wide range of Bronze and Iron Age portable and non-monumental funerary uses (eg, Cunnington 1923; Dacre *et al.* 1981; Gingell 1992), and Romano-British and early medieval construction (Peers & Clapham 1928; Potter 1998; Fowler 2000). Deployed in medieval and modern low and high status architectural settings ranging from rubblestone barns to Windsor Castle (Whitaker in press), this persistence and variety suggests that sarsen has significance in people's lives beyond the solely megalithic.

Sarsen stone in prehistoric and modern Britain is in fact a quotidian material. Thousands of tonnes go unnoticed under our feet every day in urban areas across southern England in the form of street furniture (King 1968; Allen 2015). Prehistoric engagement with sarsen was highly varied but non-monumental uses are thus far poorly addressed in the literature. In part this

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is due to limited recording and analysis of excavated assemblages. Accordingly, this paper focuses on non-megalithic sarsen and its roles for communities, using case studies from three sites spanning the Neolithic in Wiltshire: Windmill Hill causewayed enclosure, the West Kennet Avenue occupation site and the Marden henge enclosure (Smith 1965a; Wainwright *et al.* 1971; Whittle *et al.* 1999). I take an approach informed by Conneller (2011) and Sillar (1996), intending to draw out some of sarsen stone's varied affordances as they are revealed during technical action. My focus is on moments of human–material interaction in order to show the possible variability of sarsen's meanings to communities in the Neolithic.

RESEARCHING SARSEN USE IN NEOLITHIC BRITAIN

Sarsen stone is distributed discontinuously across southern England and parts of north-western Europe. It is a silcrete formed when near-surface lenses of quartz sands were cemented underground by silica-rich groundwater passing through Tertiary sedimentary deposits. Following subsequent erosion, periglacial action left the dense, hard masses (called 'sarsens') on denuded land surfaces and amongst superficial deposits including Clay-with-Flints (Summerfield & Goudie 1980; Ullyott *et al.* 2004; Nash & Ullyott 2007). Sarsens range from pebbles to boulders, some in excess of 9 m long (Hepworth 1998). Although it has a reputation for conchoidal fracture (Pitts 2000, 215–6), sarsen's homogeneity ensures that boulders can be split in straight lines in most directions (Whitaker in press).

Sarsen's distribution and association with bedrock geologies, including chalk, from which it clearly could not have originated, drove early research interests. Nineteenth and early 20th century pre-occupations lay in recording its distribution, both nationally (for example Rupert Jones 1886; 1901) and regionally (Smith 1884; Bennett 1913). More recent projects tackling the anonymity of sarsen in British Geological Survey mapping, in which it is subsumed in superficial deposits, include the geologically informed Chilterns survey (Davies & Baines 1953) and archaeologically driven Sarsen Stones of Wessex survey, a landscape-scale study focused on early agriculture and Neolithic sarsen use (Bowen & Smith 1977; Whitaker 2020a).

Sarsen was not used solely in megalithic contexts, yet exceptional monuments overshadow exploration of people's engagements with it. Archaeological research concerning sarsen is dominated by stone settings at Stonehenge and Avebury, Wiltshire. Too numerous to cite here, the vast literature on those monuments rarely addresses sarsen stone as a material and, when it does, tends to focus on a restricted range of topics. For example, discussion of where Stonehenge's huge boulders were sourced, how they were worked and transported is legion (examples include Atkinson 1956; Abbott & Anderson-Whymark 2012; Parker Pearson 2016; Nash *et al.* 2020). A far smaller body of literature addresses sarsen tools (Gowland 1902; Pitts 1982; Cleal *et al.* 1995, 386–90; Chan 2020; Whitaker 2020b). Stone types at Stonehenge seem not to matter to Parker Pearson and Ramilisonina, only that stone can be understood as generically suitable to personify ancestors because of its 'durability and enduring nature' (Parker Pearson & Ramilisonina 1998, 310).

Earlier work on monumental sarsen, privileging its hardness and resistance to change, has importantly drawn more attention to sarsen stone, showing how in the Neolithic it may have had ontological significance through some of its metaphorical capabilities (Parker Pearson & Ramilisonina 1998). The development of sarsen's indurate nature as a persistent trope has origins at least as far back as the 16th century in Rastell's (1530) report of the common belief that sarsen may not be cut easily with iron tools, elaborated by Aubrey's note that weathered sarsens 'are so hard that no toole [*sic*] can touch them' (Britton 1847, 44). Sarsen stone is certainly connected to the Neolithic dead through a variety of funerary structures, including sarsen-capped pits in north Wiltshire and chambered barrows across much of its geological range (eg, Smith 1884, 84–5; Whittle 1991). Pollard and Gillings (2010, 34), however, in drawing attention to the inclusion of sarsen pieces amongst the West Kennet long barrow's mortuary deposits, suggest that 'a close and very physical association with bodies might imply a degree of ontological equivalence ('stone-people')', based on possible apotropaic properties of sarsen.

Tilley *et al.* (2007) and Whittle (1997) also make a notable exception to the focus on sarsen's hardness by discussing some of its other properties, including how a rhythmical contrast of stone colour and surface texture makes patterns across Stonehenge's sarsen settings. More work in the Avebury landscape is engaged with sarsen in its own right, influenced by the presence of surface spreads (Field 2005) and

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interests in sarsen biography and ontology, drawing attention towards Neolithic use of a range of worked and unworked sarsen (Gillings & Pollard 1999; Pollard & Gillings 2010). Furthermore, Gillings and Pollard (2016) challenge the characterisation of sarsen as inert petrous matter, emphasising ways that sarsens were active, capricious participants in Neolithic world creation. They suggest the potential significance to Neolithic people of other sarsen properties, such as the locations from whence smaller pieces were moved to be incorporated in deposits (Pollard & Gillings 2010, 34–7).

Routine or daily experiences of sarsen stone are obscured in consequence of the focus on megaliths. In part a result of scholarly focus on large, impressive structures (Pollard & Gillings 2010, 30), the issue is affected by further factors. First is the difficulty of recognising artefactual sarsen during fieldwalking (Whittle *et al.* 1999, 341) and secondly, sarsen's treatment as a 'mundane' stone in the sense of Cooney (2010): ubiquitous, locally available stone that often appears unworked or expediently-used and may not even be retained in archaeological archives.[1] 'The purpose of the pieces of sarsen is unclear' write Powell *et al.* (2005, 265) of small boulders carefully arranged in middle Neolithic pits near Old Sarum, Wiltshire. Nowhere is the apparent mundanity of sarsen pieces so clearly expressed than by the failure to record large deposits of culturally-heated sarsen from the fills of late Neolithic pits at White Horse Stone, Kent (Barclay *et al.* 2006, 74).

SIGNIFICANT STONE

Stone is the pre-eminently durable material of archaeological investigation (Hurcombe 2007) and has long been the subject of archaeologists' typologies at artefactual and monumental scales. Yet stone and stones are also a physical focus for action, a locus of social meaning, and source of cosmological and political powers (Boivin & Owoc 2004; Pollard & Gillings 2010; Cummings & Richards 2021). People go to considerable lengths to access stone that possesses key properties, a trait that is not unique to any one period. Examples include the transport of limestone from Dundry in Somerset across the Irish Sea to construct the 12th century Dublin cathedral (Moss 2000) and the incorporation of stones from war-torn Ypres into English First World War memorials at both Winchester College and Cathedral, Hampshire (Historic England 2022).

The significance for Neolithic communities of different types of stone has received considerable scholarly attention. Much research concerns 'exotic' material, commonly defined by its great distance travelled from source to final resting place whether in megalithic form, such as Stonehenge's Welsh bluestones (first characterised by Thomas 1923) or smaller objects, such as jadeitite axe-heads that were moved across Europe (Petrequin *et al.* 2012). 'Local' stone was, however, just as important, exemplified in early Neolithic dolmen construction to display arrangements of huge *in situ* boulders (Cummings & Richards 2021). Cooney *et al.* (2019) argue that riebeckite felsite, quarried for tools at North Roe (Shetland), was essential to the creation there of Neolithic identity, while Greaney (2019) proposes that the chalk of Cranborne Chase (Dorset) was a powerful material during the middle Neolithic. Later Neolithic examples include the use of triboluminescent quartz at the Hendraburnick propped stone in Cornwall, sourced from the nearby River Camel streambed (Jones & Goskar 2017). The importance of collages of multiple stone types, shapes, and sizes drawn from varied sources is evident at sites including the Ring of Brodgar, Orkney (Downes *et al.* 2013, 105–7), the burial mound complex at Knowth, Ireland (Corcoran & Sevastopulo 2017), and indeed Stonehenge (Whitaker 2019).

Clearly what matters is not solely the stone source but a suite of properties afforded by each stone or rock type. Cooney (2008) reminds us of the range of scales at which stone was experienced in Neolithic life, from post-packing and floor-stone to walls, cairns, and monuments, continuously forming human–stone relationships with each daily encounter. He nevertheless obscures stone's variety – and thus its potential to be part of different ontological relationships – in an ancestor narrative reliant on one attribute only, its presumed permanence (Cooney 2008, 210). On the contrary, stone can be a mutable substance, its varied properties revealed contextually through bodily and technical engagement with it (Ingold 2007; Conneller 2011). That is especially true of small, portable stone: different technical processes applied to the material make it possible for different properties to come to the fore including impermanence, fragility, and utility for different tasks (Conneller 2011, 82). Sarsen stone, for too long treated as a mundane material, need not be reduced to one role as a signifier of ancestral pasts (Pollard & Gillings 2010, 40) if the variety of its usage and treatments are considered in appropriate detail.

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CASE STUDIES

Sarsen stone is prolific in numerous areas of southern-central and south-east England (Summerfield & Goudie 1980). Worked, modified, and unmodified sarsen is encountered in Neolithic settlement contexts such as the pits at Middle Farm, Dorset (Butterworth & Gibson 2004) and White Horse Stone, Kent (Barclay *et al.* 2006), and is abundant in Wiltshire. There, the breadth of sarsen's availability, *contra* Atkinson's assertion that it is found only near the upper Kennet River (1956, 111), indicates the potential for routine engagement with sarsen during the Neolithic across a wide area (Fig. 1). As well as highly variable surface sarsens encountered in the landscape, people could find boulders, cobbles, and frost-shattered pieces in tree-throws, when gardening, collecting water from streams, digging for clay, and gathering flint, excavating pits and ditches and so on.

Neolithic settlement contexts with sarsen in north Wiltshire include modified blocks in the Hemp Knoll pit group (Robertson-Mackay 1980, 135); tools in pits on Waden Hill (Thomas 1955, 167), and under barrow Avebury G55 (Smith 1965b, 36); culturally-heated sarsen from Neolithic deposits at West Overton (Evans *et al.* 1993, 188), in pits and ditch fills at Cherhill (Evans *et al.* 1983, 55), and amongst late Neolithic occupation material filling Horslip long barrow's ditches (Ashbee *et al.* 1979, 218). In south Wiltshire, it has been found in pits (for example Stone & Young 1948; Powell *et al.* 2005; Wessex Archaeology 2016; Roberts *et al.* 2020) and amongst artefact scatters (Richards,1990, 109–23). Assemblages are, however, rarely retained. Here, three case studies are drawn from published data from the early Neolithic Windmill Hill enclosure (Whittle *et al.* 1999) and two newly excavated assemblages from the middle Neolithic West Kennet Avenue occupation site and late Neolithic Marden henge enclosure, analysed using a methodology adapted from Whitaker (2020b) (Table 1).[2]

Windmill Hill

Windmill Hill causewayed enclosure, on a knoll of Holywell Nodular Chalk at *c.* 195 m OD approximately 2 km north-west of Avebury, was constructed over a period of perhaps two generations in the mid-37th century cal BC. Although close in date, its construction order is probably the Inner enclosure followed by the Outer and then Middle circuits. Over the following centuries its ditches provided spaces for deposits until, in the mid-34th century cal BC, those practices changed and the monumental focus shifted. During perhaps a generation immediately prior to the construction of the enclosure's circuits the hill had been a place for pit digging and filling (Whittle *et al.* 2011, 91, 95). Substantial quantities of material culture deposited in those pits and lower ditch fills of the enclosure indicate that this was a significant early Neolithic place. The location's importance stimulated a community to circumscribe part of the hill as a site for activities using materials gathered from everyday life and death, and into the early Bronze Age it remained a key location for settlement in the region (Smith 1965a; Whittle *et al.* 1999; 2000).

Sarsen stone was one of those materials featuring in the composition of pit and ditch deposits over time. Smith (1965a) and Whittle *et al.* (1999) ascribe its source to the Winterbourne valley, just over a kilometre to the east, but that need not have been the only source. Sarsens probably lie among superficial deposits that ring Windmill Hill a similar distance to the south and west. Around two decades ago groups of sarsens, some fairly substantial, were observed around the edges of the field north of Windmill Hill, apparently having been ploughed up (R. Cleal pers. comm.). Prehistoric and more recent structural use of whole boulders and rubblestone at locations across and below the Lower Chalk plateau further to the north hint at their former wider availability in the landscape, reduced by intensive cultivation since later prehistory (Whittle *et al.* 1999, 1, 13–16) (Fig. 2). There may have been a cluster of boulders on the hill itself, eroded out of the Tertiary formations that formerly covered the chalk; of which small unused sarsens remarked upon by Smith (1965a, 120) might be the last sign. In a glade on rising ground, the setting, amidst special sarsen landscapes (Gillings & Pollard 1999, 182–3; Field 2005, 88–9), was the likely inspiration to visiting groups for story-telling and place-making.

Sarsen tools include saddle querns, rubbers, pounders (hammerstones and mauls), 'discs' (oblate handstones with ground edges, perhaps used to process minerals or as sanding rocks for hide processing), hearthstones, and burnt sarsen pieces probably used as pot-boilers or in other culinary practices. There are also undiagnostic tool fragments and large quantities of miscellaneous sarsen from archaeological contexts, including more than 14,600 small boulders,

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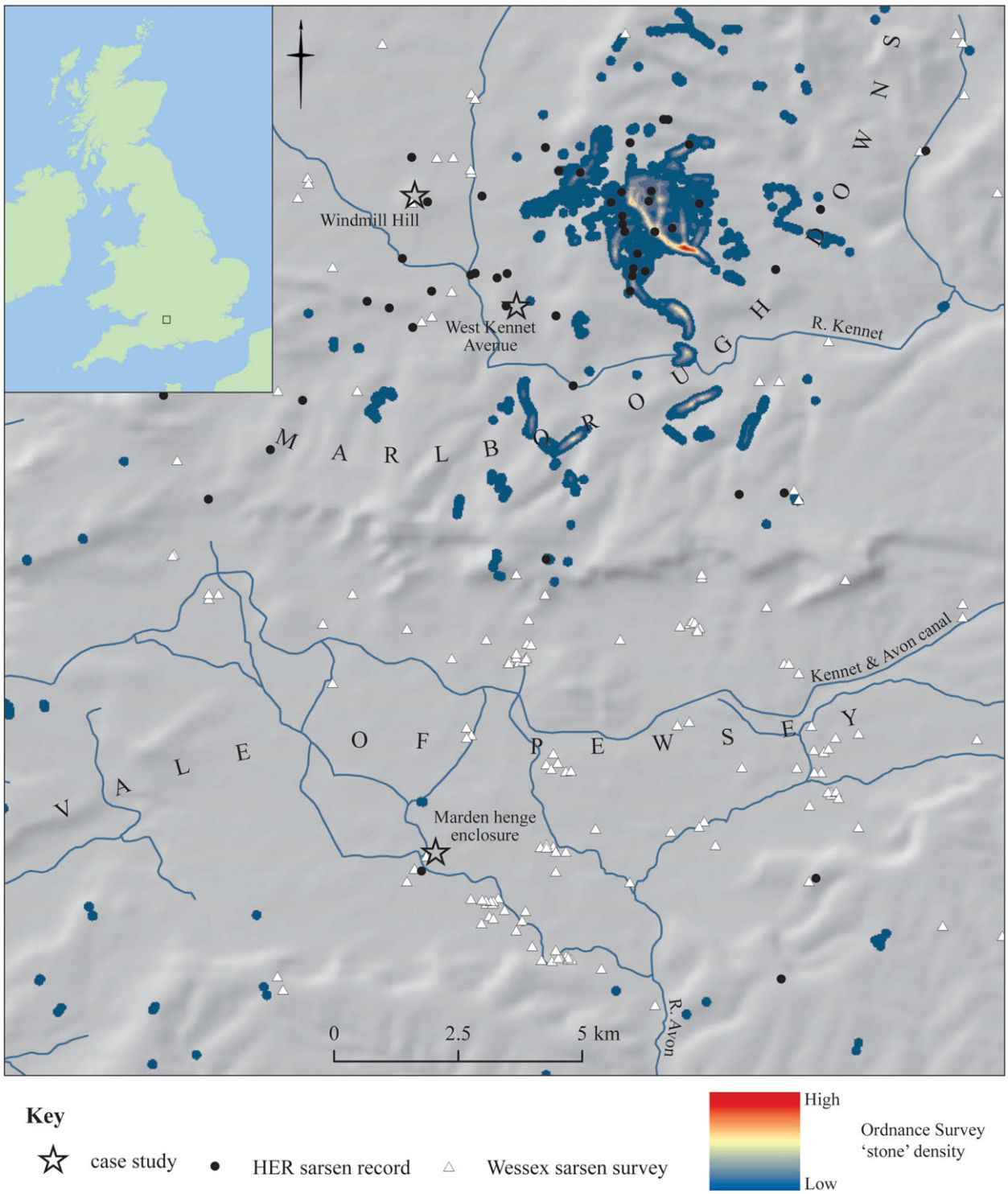

Fig. 1.
Location map of the three case study sites. Modern sarsen stone distribution is indicated by three datasets. Contains data © Environment Agency copyright and/or database right (2022)

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TABLE 1. SUMMARY OF ATTRIBUTES RECORDED FOR EXCAVATED PIECES OF SARSEN STONE

Attributes	*Description*
Site code; trench, square, context, feature & small finds nos	Identifiers allocated during excavation by the fieldwork project
Phase	The phase to which contexts have been allocated as a result of post-excavation analysis
UID	A unique identifier allocated to each sarsen piece during analysis comprising context/sequential no. (eg 1004/001)
L, I, S	The longest, intermediate, & shortest dimensions (mm) of a piece of sarsen, measured orthogonally using a pebble-box (Bunte & Abt 2001)
MPS	Maximum Projection Sphericity: a means to describe stone form in terms of deviation from equancy. Calculated using L, I & S. Sub-equant to equant pieces of stone score 0.6–1.0. Items scoring <0.6 fall into a variety of more elongate or platy form categories (Blott & Pye 2008)
Roundedness	A descriptor for relative roundedness or angularity from a standard visual comparison scale (Powers 1953)
Description	A form factor descriptor based on MPS, ranging from 'blade' to 'equant block/equant spheroid' (Blott & Pye 2008, 49)
Weight	(g). Pieces <1 g counted but not recorded in more detail
Colour 01, colour 02	Colouration of 2 opposing sides of a sarsen piece, using a Munsell Colour Chart. Colour 01 is the cortex, if present
Stone type	Saccharoid, quartzitic or conglomeratic
Cortex	Present or absent
Cementation	Not friable, friable
Condition	Broken fragment or complete pebble/cobble
Use-wear, use location, use degree	The type of use-wear if present, its location & degree of use
Tool type	The identification of tools & tool fragments in an assemblage
Burning	Evidence that a sarsen piece has experienced heating
Percussion	Evidence for percussion

For full descriptions of variables including use wear, use location, use degree, burning and percussion see Whitaker (2020b)

cobbles, and broken pieces weighing approximately 1.2 tonnes (Smith 1965a, 121; Whittle *et al.* 1999, 24–72, 338; 2000) (Table 2). That figure probably under-represents the total amount of sarsen, thought to have been poorly recorded during excavation seasons before Keiller took personal charge of fieldwork part-way through 1927. If similar quantities were encountered during 1925–7 as are recorded from 1928–9 (when *c.* 107 m and *c.* 202 m of the ditch circuits were excavated respectively), then the sarsen total might be nearer 22,000 pieces.[3]

The large number of saddle querns prompted Smith (1965a, 121) to infer that querns were being manufactured on the hill, noting 65 fragmentary and two whole sarsen saddle querns and 61 fragmentary and 28 whole rubbers in Keiller's catalogue. Although it is difficult to reconcile the available data, up to 61 sarsen querns and 90 rubbers can now be accounted for from all 20th century excavations (Table 2). The volume of sarsen waste combined with the quern forms also contributed to Smith's reasoning: querns were made on large sarsen pieces spilt from boulders, flaked to shape before finishing with a pecked grinding surface. Many of the excavated hammerstones, of which up to 100 can be accounted for (Table 2), may have been used in that work and to rejuvenate grinding surfaces.

A number of pre-enclosure features contained sarsen. They include pits cut by Inner Ditches VIII–X, which are not radiometrically dated, and features under or very close to the edges of the Outer Bank that pre-date it by perhaps no more than a generation (Whittle *et al.* 2011, 95). Pits outside the enclosure to its south may be associated with the similar features atop the hill on the basis of their comparable early Neolithic assemblages (Whittle *et al.* 2000, 141, 146). Four features are described here, selected on the strength of their phased relationship to enclosure circuits or for the specific sarsen use that they illustrate.

A hearth constructed of two layers of heavily burnt sarsen pieces in a shallow, circular depression lay under or very close to the northern-most edge of Outer Bank V. The hearth's chalk packing included

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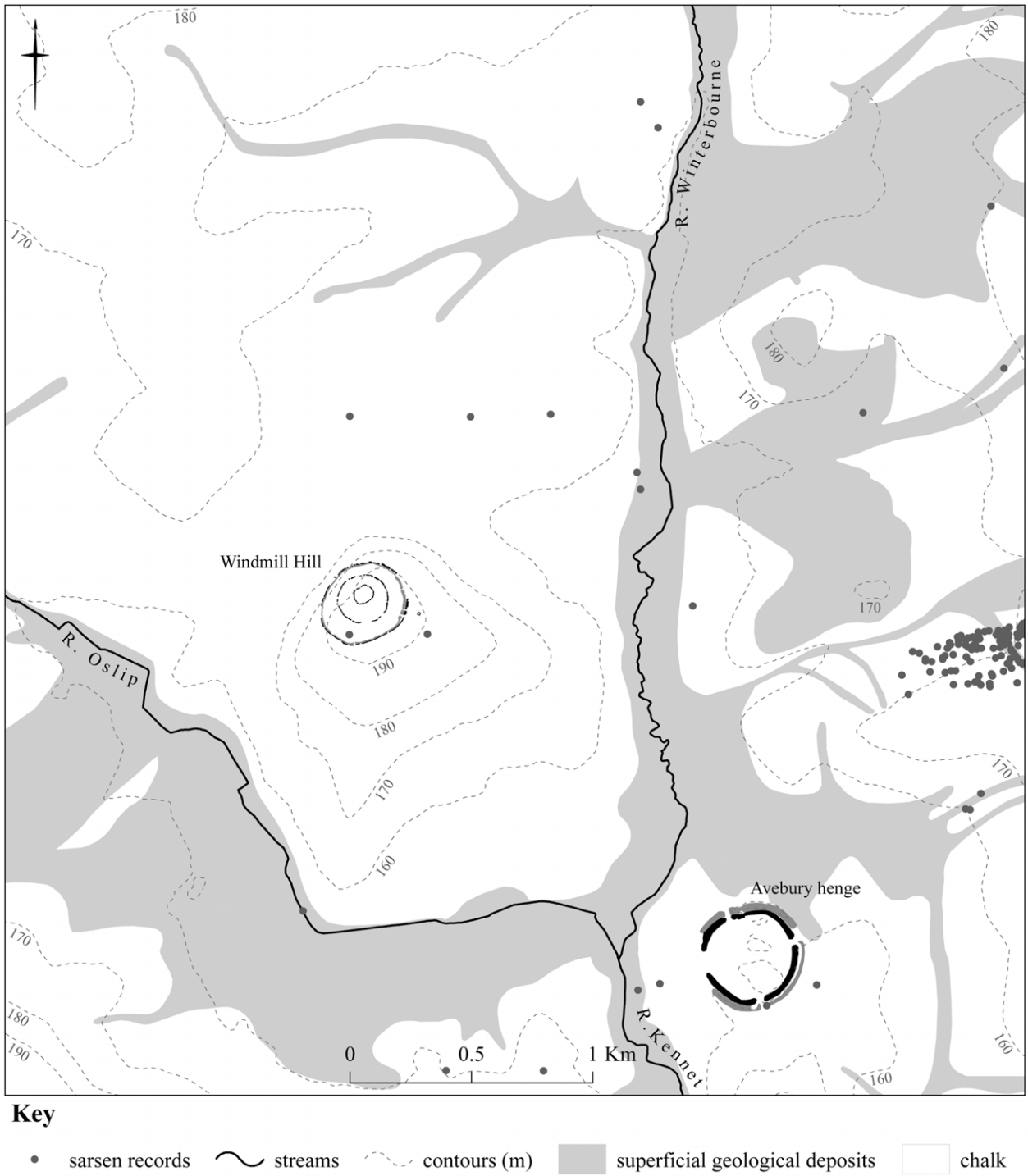

Fig. 2.
Windmill Hill enclosure location map. Contains OS data © Crown copyright and database rights 2022 Ordnance Survey (100025252), Geological Map Data BGS © UKRI (2022)

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TABLE 2. SARSEN TOOLS (WHOLE OR FRAGMENTARY), TOTAL UNDIAGNOSTIC TOOL FRAGMENTS & TOTAL RECORDED UNWORKED SARSEN PIECES FROM WINDMILL HILL ENCLOSURE & PIT CONTEXTS EXCAVATED DURING THE 20TH CENTURY

	*Minimum**	*Maximum***	*Total*
Pounders/discs	63	100	–
Querns	40	61	–
Rubbers	58	90	–
Miscellaneous tool fragments			68
Other sarsen pieces#			14,689

Based on data collated by Pollard in Whittle *et al.* (1999, 24–72, 338), Smith (1965a, 121), and Whittle *et al.* (2000, 154). *minimum number calculated by summing identified fragments in discrete layers; **total number of identified complete and fragmentary items; #not including sarsen pieces mentioned but unenumerated by authors

a few flint flakes and crumbs of early Neolithic bowl pottery. Two similar pieces of sarsen were recovered from adjacent Pit 44, suggesting it was contemporary with or slightly later than the hearth. Its fill also included some undecorated pottery, flints, and a piece of oolitic limestone. Pit 44 was covered by bank material. Also under the bank, at its interface with the chalk bedrock, finds from Outer Bank IV comprised sherds from up to 13 plain bowls, a flint assemblage including broken leaf-shaped arrowheads, approximately 4 kg of animal bone, a small sarsen rubber, a partial sarsen rubber or quern, and three other sarsen fragments (Smith 1965a, 25–7). The fill of Pit 8, one of eight features truncated by Inner Ditch IX, included two plain pottery sherds, bone fragments, flints, a sarsen pounder, and seven sarsen pieces (Smith 1965a, 22).

Sarsen tools and tool fragments are unevenly distributed in the ditch circuits: 61 (19.2%) from Outer Ditch segments, 173 (54.6%) from the Middle Ditch, and 83 (26.2%) from the Inner Ditch. Although the quantities are partly a function of the relative volume of excavated segments, patterns do emerge. The greatest concentration is among segments of the Middle Ditch, where sarsen items conform imprecisely to asymmetrical patterns of deposits noticed by Whittle *et al.* (1999, 369), whereby more material is deposited in ditches to the right-hand side of circuit entrances. For example, while Middle Ditch II contains a far greater proportion of all other types of material culture, Middle Ditch I to the *left* has a higher density of sarsen: at the Inner Ditch entrance, however, greater sarsen density to the right in segment VII than in segments XVI and XV to the left parallels the relative volumes of other material culture (Fig. 3a).

Proportions of types of sarsen tool vary from segment to segment but ditches most often have a mix. Very few contain none and all ditches are likely to include some type of sarsen tool, given that poorly recorded culturally-heated sarsen was found across the site and may well be ubiquitous. The Inner Ditch includes on the whole more miscellaneous tool fragments, suggesting that they are well-broken pieces that are just too small for firm identification. Too little of the Outer Ditch has been excavated to compare confidently with the other circuits but a variety in sarsen use between its segments is indicated. Sarsen deposits in the Middle Ditch, however, have a rhythm: high numbers and similar proportions of tools in Middle Ditch IX–V change markedly from VI to IV, then increase in volume again, although with different proportions, in X and XI (Fig. 3b).

The generalisation of that plan view obscures the temporally distinct detail of grouped sarsen items and placed deposits incorporating sarsen in ditch layers. Four are described here, selected from primary fills to illustrate early practices involving sarsen across the circuits. A whole quern and rubber were placed together in Outer Ditch I layer 6 (*c.* 1.5–1.8 m deep). In Middle Ditch X, one quern fragment was placed in each half of layer 4 (*c.* 0.9–1.2 m deep), with antler pieces, pottery, charcoal, and cattle bones amongst the layer's deposits. Sarsen played an important role throughout Middle Ditch I but, in primary fills, the bone deposit on and close to its base included pieces of burnt sarsen and three large, cleanly-broken, quern fragments placed near the base of its northern end. A placed deposit in the west terminal of Inner Ditch I included a large piece of sarsen, flints, a pottery sherd, animal bones, and a human humerus and ulna (Whittle *et al.* 1999, 34–6, 4–1, 47, 51).

Some of the sarsen tools had a more complicated history than others. From Keiller's catalogue, Smith (1965a, 123) notes 15 pounders made from broken querns and three made by re-using rubbers. A piece of quern in Outer Ditch V was worn and abraded (Whittle *et al.* 1999, 338), implying a different life history to the fresh pieces placed in Middle Ditch I. This, taken with the high proportion of broken tools overall including the miscellaneous tool fragments so important to the Inner Ditch but present throughout the

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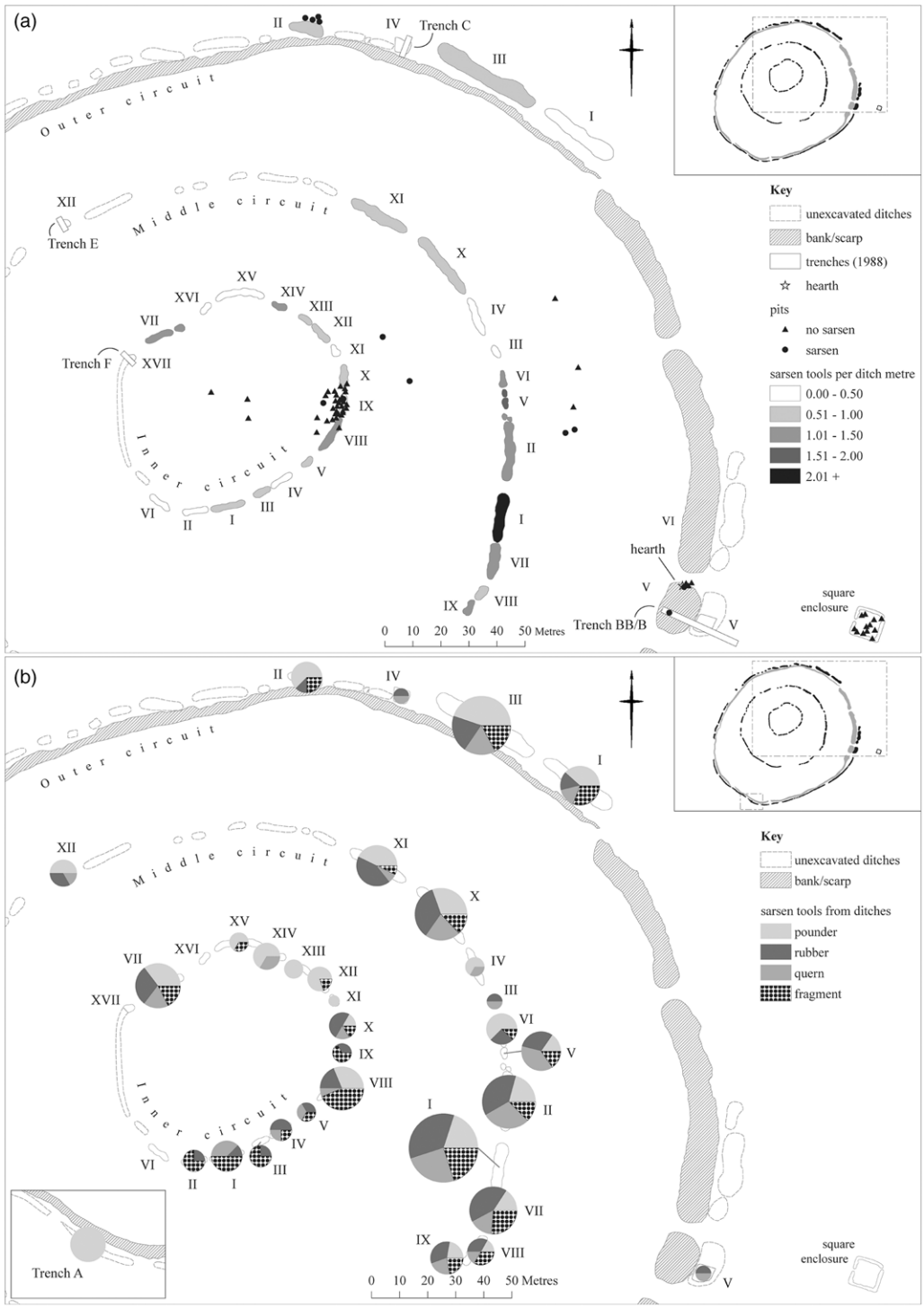

Fig. 3.
Excavated features at Windmill Hill enclosure: (a) sarsen density in ditches; (b) proportions of sarsen tools

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circuits, mirrors the enclosure's broken pottery, processed animal bone, utilised flint, and fragmented human remains.

Sarsen stone distribution in the wider area may have been part of the attraction drawing visitors to the environs of Windmill Hill. It would have been sourced nearby and perhaps on the hill itself to make the numerous tools used there before and during the life of the early Neolithic enclosure. The raw material was transformed into important tools for everyday life. Some tools were themselves turned into different types of tools, with many ending up as broken pieces selected for deposition in cut features on the hill. The tools themselves were used to transform other materials, such as grains into meal or flint nodules into flakes. As querns and rubbers, hearthstones and pot-boilers, sarsen was essential to nourishment. The sheer quantity of grinding tools implies the scale of plant processing (Whittle *et al.* 1999, 341), whilst the frequency of culturally-heated sarsen speaks to complex pyrotechnology used at the site and nearby.

West Kennet Avenue occupation site

An occupation site pre-dating the West Kennet Avenue, Avebury, represented by a prolific artefact scatter, was identified during Keiller's 1934 excavation of the northern third of the later Neolithic stone settings (Smith 1965a). At the east-facing foot of Waden Hill, the scatter extends over *c.* 70 m north–south roughly from Avenue stone pair 27 to 31 (the full east–west extent remains undefined). In addition to characteristic tools such as chisel arrowheads, finely knapped scrapers, and serrated flakes, the predominantly Peterborough Ware pottery assemblage indicates that most of the material accumulated during the middle Neolithic (*c.* 3400–2900 BC). The ceramics and high proportion of tools among the unpatinated flint assemblage indicate the presence of an *in situ* artefact spread largely at the base of the subsoil resulting from settlement activity. Some tools, such as grouped scrapers, had been placed amongst the spread. Recent excavation by the Between the Monuments project (2013–15) extends understanding of the site including the nature of the artefact spread and various cut features (Keiller & Piggott 1936; Smith 1965a; Gillings *et al.* 2015).

The site lies at *c.* 160 m OD on thick Coombe rock deposits overlying bedrock chalk, gently sloping into a now dry shallow valley to the east. For clarity, this un-named valley will be referred to as 'Falkner's Coombe' after the stone circle standing at its heart (Fig. 4). Coombe rock is a granular Head deposit, here incorporating sarsens, resulting from periglacial solifluction (Clark *et al.* 1967; Murton & Ballantyne 2017, 530). A former sarsen spread has been removed largely during agricultural clearance (Colt Hoare 1819, 8; Smith 1965a, 208 fn1; Pollard & Gillings 2010, 39) but many cobbles and boulders remain in the Pleistocene deposits and buried early prehistoric soils (Gillings *et al.* 2008, 135, 146). Molluscan evidence from early–middle Neolithic feature fills at Rough Leaze, *c.* 800 m to the north, and from a middle Neolithic pit F409 adjacent to the Avenue between Rough Leaze and the occupation site, indicates that open woodland persisted here into the middle Neolithic (Allen & Davis 2009; Pollard *et al.* 2012). The combination of tree-throw holes and boulder extraction pits revealed by geophysical survey and excavation of the occupation site hints at the mid-4th millennium BC appearance of Falkner's Coombe's slopes as trees standing amidst a former sarsen spread, as will be depicted in the forthcoming site report from which much of the following information is drawn (Gillings *et al.* in prep.).

Here, the focus is on three features revealed in the recent trenches (Fig. 5a). In Trench 3, F.6 was a sub-circular, bowl-shaped pit 1.0 × 0.8 m on plan and 0.3 m deep (Fig. 5b). It lay to the south side of F.12, a later Neolithic sarsen extraction pit (Gillings & Pollard 2016). The single fill (020) of dark grey-brown clay loam with charcoal flecks contained burnt antler fragments, small patches of darker soil, and 130 pieces of flint including two chisel arrowheads, four scrapers, and a notched flake. Its nine sarsen fragments are small, angular, sub-equant to equant pieces, none with characteristics diagnostic of percussion. Five are burnt and a further three friable, abraded, pieces may also have been (Table 3). That is consistent with the interpretation that (020) was a mix of hearth sweepings, knapping waste, and soil. Radiocarbon measurement on a piece of short-life *Pomoideae* charcoal from the fill provides a date of 3320–2910 cal BC (4413±30 BP; SUERC-59896; 95.4% probability rounded out to 10 years; Gillings *et al.* 2015, 8).

In Trench 4, a steep-sided, sub-rectangular pit, F.55, 0.80 × 0.45 m, had a large sarsen cobble in the top of its upper fill and another beside the pit. At 0.37 m deep, it was a recut of a larger pit [425]. Its upper fill

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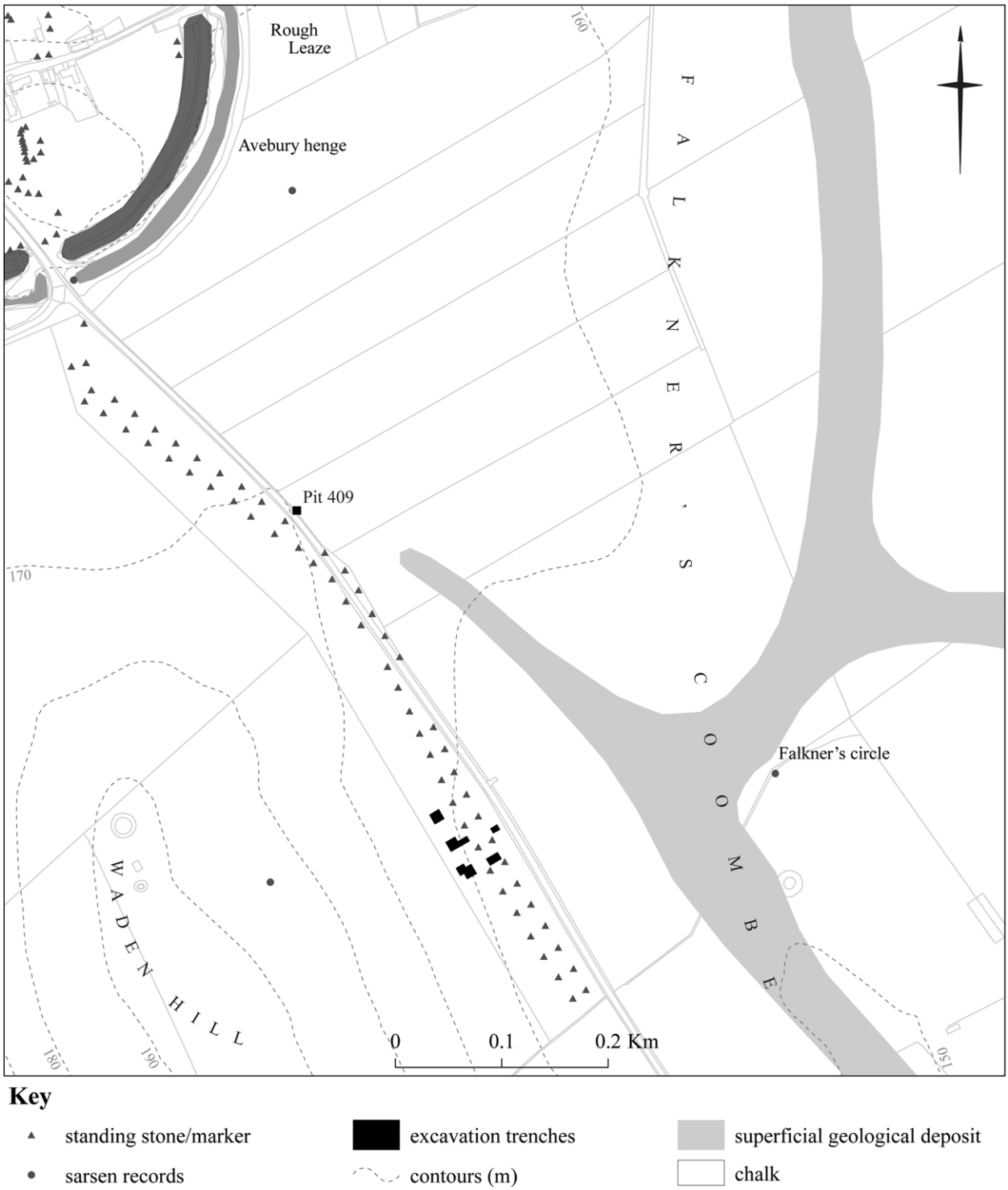

Fig. 4.
West Kennet Avenue occupation site location map. Contains OS data © Crown copyright and database rights 2022 Ordnance Survey (100025252), Geological Map Data BGS © UKRI (2022)

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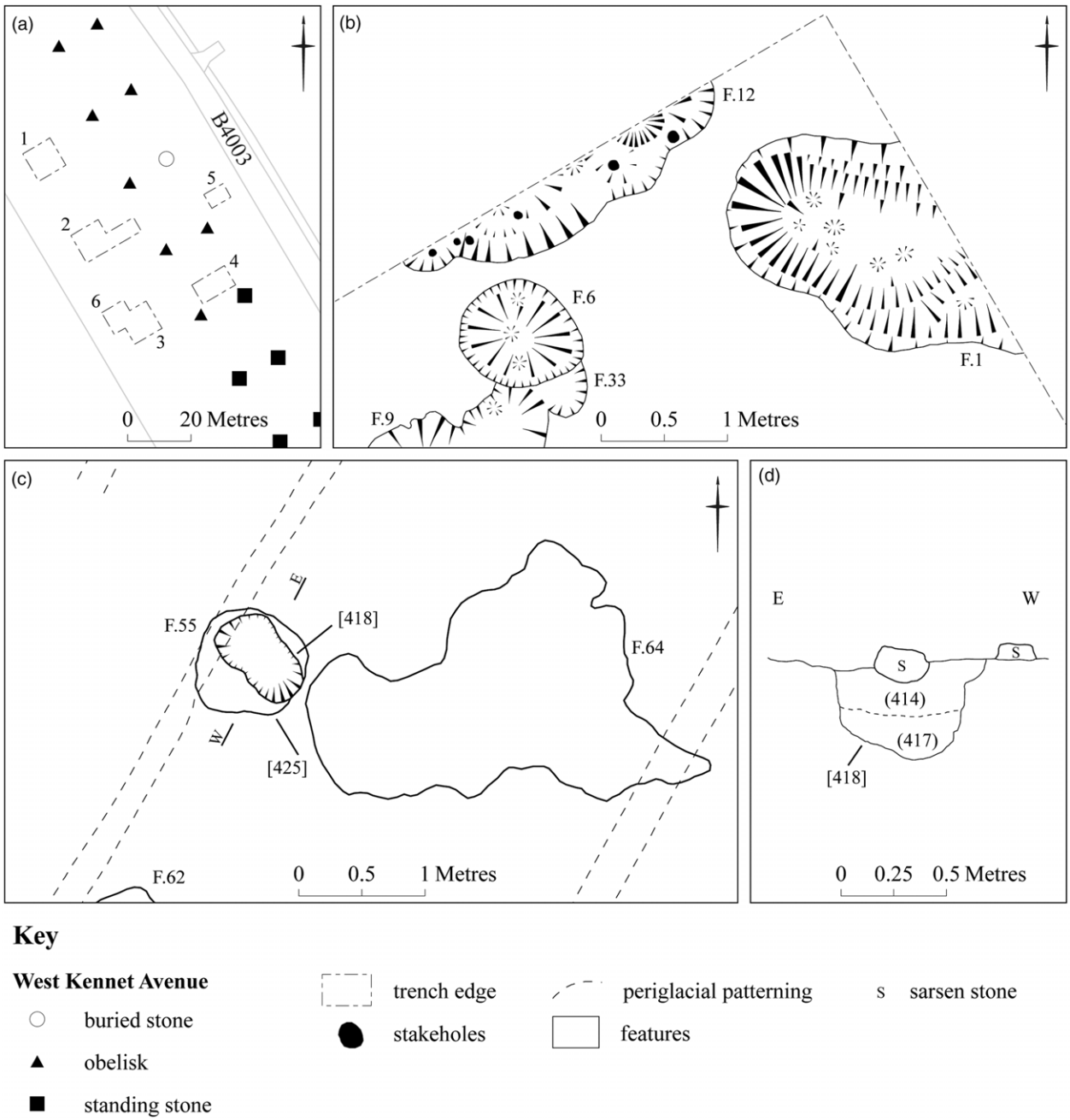

Fig. 5.
West Kennet Avenue occupation site excavated features: (a) trench plan; (b) north-west corner of Trench 3; (c) central area of Trench 4; (d) F.55 section drawing (after Gillings *et al.* in prep.)

(414) was a dark olive-brown, charcoal-flecked, clay loam containing more clayey patches while the lower (417) was a dark brown clay loam (Fig. 5c, 5d). Both fills contained substantial flint assemblages, including eight chisel arrowheads, and sarsen: 13 small pieces in (414) weighing on average 48.8 g and four, slightly smaller (on average 39.3 g) in (417). Approximately half are burnt and those from (417) are more angular

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TABLE 3. CHARACTERISTICS OF SARSEN PIECES FROM SELECTED FEATURES, WEST KENNET AVENUE OCCUPATION SITE

Feature/context	*Count*	*% burnt*	*Mean weight (g)*	*Modal roundedness*	*Mean MPS*
F.6: (020)	9	55.5	101.9	sub-angular	0.75
F.35					
(072)	1	100.0	212*	angular*	0.78*
(077)	3	33.3	115	= angular, sub-rounded	0.73
F.55					
(414)	13	46.2	48.8	angular	0.79
(417)	4	50.0	39.3	very angular	0.63

*actual figures of this single piece

and less equant than the upper fill, hinting at different breakage causes (Table 3). Radiocarbon measurement on a piece of hazel charcoal from (414) gives a date of 3090–2900 cal BC (4354±30 BP; SUERC-70784; 95.4% probability).

The top of F.35, a dished, oval scoop in Trench 2, was ringed by a 0.65 × 0.42 m 'collar' of sarsen and flint blocks (072). The 0.2 m deep pit fill (077) included three small pieces of sarsen and ten pieces of flint debitage. Only one piece of sarsen from the 'collar' is available for analysis, an angular sub-equant block weighing 212 g, probably heated. Pieces from (077) are heated, one possibly part of a hammerstone broken prior to deposit (Fig. 6). These characteristics are commensurate with the interpretation of F.35 as a hearth.

Sarsen stone was prolific in the area when people were visiting Falkner's Coombe during the middle Neolithic, lingering on the east-facing slopes long enough for a mix of daily clutter and placed items to accumulate. The range of their tools hints at the breadth of the community's 'productive activities' (Pollard & Reynolds 2010, 124). Sarsen was being used in various ways which, although appearing more ephemeral because of the nature of the site, nevertheless include culinary practices and as hammerstones, querns, and their rubbers. Cobbles were available to construct features such as F.35, a probable hearth. Pits such as F.6 were dug to take a mix of knapping waste, soil, and hearth debris including bits of heated sarsen. Further material gathered from the surface – incorporating sarsen both burnt and broken possibly by different methods – was combined with flint to fill F.55 which was additionally marked by large sarsen cobbles.

Marden henge enclosure

Marden henge enclosure in the Pewsey Vale is an exceptionally large monument within which are a smaller henge and the site of a monumental mound called the Hatfield Barrow. The *c.* 11 ha enclosure is defined to the north and east by ditches with external banks and by the River Avon to the west and south. All of late Neolithic date, the broadly contemporary features were constructed at *c.* 105 m OD beside the watercourse on soliflucted Pleistocene deposits and Upper Greensand. Subsequent cultivation has significantly reduced the features' monumentality but excavations in 2010 and the recent Vale of Pewsey project (2015–17) investigated areas of the main henge enclosure bank and a complex construction sequence at the inner henge including a Neolithic building (Wainwright *et al.* 1971; Field *et al.* 2009; Leary & Field 2012; Leary 2017; 2018) (Fig. 7).

Without megalithic settings, the enclosure is not normally associated with sarsen stone. Nevertheless, sarsen is present in the Pewsey Vale, its distribution affected by extensive later cultivation in the fertile valley (Fig. 1). During his investigations at the enclosure in 1806, Cunnington (reproduced in Field *et al.* 2009, 75) noticed a number of sarsen boulders in the river. Old buildings in Vale settlements make structural use of sarsen, for example at Stanton St Bernard where its prevalence may be the derivation of the place-name *stan tun* (Knowles 2007, v). Numerous instances of field-edge boulders and small natural clusters were recorded during the Sarsen Stones of Wessex survey, including examples at Marden and nearby villages (Bowen & Smith 1977; Whitaker 2020c). Sarsens continue to be ploughed up to the south of the northern Vale scarp (Field *et al.* 2009, 59). Many are likely to be amongst the soliflucted deposits observed by Wainwright *et al.* (1971, 178–9, 233) and valley gravels (Jukes-Browne 1905, 45). Some boulders were perhaps available in formerly more substantial spreads,

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Fig. 6.
Culturally-heated sarsen pieces from F.35 (077), West Kennet Avenue occupation site

intimated by a farmer's report that, before they were removed, many were visible in a large field to the south of Hilcott (Whitaker 2020c, W203).

In total 901 small boulders, tool fragments, and pieces of broken sarsen were excavated from archaeological contexts during the Vale of Pewsey project. The practice of retaining the stone from bulk samples wet-sieved through a 4 mm mesh provides unrivalled insight into the roles that sarsen played at the site: here, the focus is on material from deposits associated with the demolition of a Neolithic building at the site of the inner henge (Trenches A/A*/A**) and broken sarsen incorporated into the bank of the main henge enclosure (Trench J) (Fig. 7).

Trenches A/A*/A**, placed over the north-western arc of the inner henge bank, enabled the investigation of a late Neolithic building and associated deposits. These included midden material overlying both the old ground surface and the building's post-holes, and abutting its central packed chalk floor to its south-west side. Post-dating the deconstruction of the building's walls, yet respecting the floor surface, the large quantities of animal bone (some burnt), Grooved Ware sherds, and sarsen pieces in the undisturbed deposit are the likely remains of a single cooking and feasting event (Leary & Field 2012, 62). To the north-east side of the building, a heavily burnt external hearth and charcoal-rich spread of burnt material included substantial quantities of sarsen as well as further Grooved Ware sherds, animal bone, and other material culture. The deposits were quickly covered by the construction of the bank of the inner henge (Leary 2018, 16–22). The midden and burnt spread contexts include in total 441 sarsen pieces, 45.6% of the total sarsen excavated from the site.

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Fig. 7.
Marden henge enclosure location map. Contains OS data © Crown copyright and database rights 2022 Ordnance Survey (100025252), Geological Map Data BGS © UKRI (2022), survey data © Historic England Archive

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TABLE 4. CHARACTERISTICS OF SARSEN FROM MARDEN HENGE

	midden (93031) (1026)	*burnt spread (93003) (1006) (1035) (1038) (2111)*	*pit [2227] SF615*	*pit [2219] SF613*	*pit [2219] SF614*
Count	70*	341**	41	145#	144
% burnt	82.9	76.5	95.1	80.7	83.3
Mean weight (g)	60.0	21.4	54.9	54.9	40.6
Modal roundedness	angular	angular	angular	sub-angular	angular = sub-angular
Mean MPS	0.76	0.67	0.67	0.71	0.69

Midden and burnt spread deposits beneath the inner henge bank, associated with the end of the Neolithic building's life, and from pit fills in the eastern arm of the henge enclosure bank: *and 22 unrecorded pieces weighing <1 g; **and 124 unrecorded pieces weighing <1 g; #and three unrecorded pieces weighing <1 g

The assemblage of 341 largely angular pieces from the burnt spread are quite small (mean weight 21.4 g). Of these, 261 (76.5%) have distinctive colouration and cracking resulting from burning and the high angularity of the rest suggests that they too resulted from the same pyrotechnic process. They are on the whole equant with a mean Maximum Projection Sphericity (MPS)[2] of 0.67; 168 pieces (49.3%) are however slightly more elongate or platy in form than pieces from the midden (Table 4, Fig. 8a), including numerous crescentic pieces, only five of which display possible percussion characteristics. Most are likely to have resulted from exfoliation due to temperature change. The assemblage includes three possible quern or polisher fragments and two possible rubber fragments, all small, of which two and one respectively are burnt (Table 4).

The 70 angular pieces of sarsen from the midden are quite equant chunks with a mean MPS of 0.76; only 15 (21.4%) are more elongate or platy in form although none is mechanically flaked. The majority are larger than those in the burnt spread (mean weight 60.0 g) and burnt (58, 82.9%) with sharp, cleanly fractured faces (Table 4). The mottled interior colour of the largest piece (1277 g) is shared by others from the context, suggesting that much is from the same boulder. Eight pieces conjoin to make three refitting groups, supporting Leary and Field's (2012, 62) suggestion that the midden material derives from one cooking event (Fig. 8b).

Trench J provided the opportunity to excavate the sequence of Neolithic bank deposits forming the east side of the main outer henge enclosure. Cutting primary bank material and a thin sandy colluvial layer, two small pits contained three large sarsen assemblages, SF615, SF613, and SF614. The pits were sealed by a sequence of deposits ending with (2203), the final surviving bank layer (Leary 2017, 15). These pit fills account for 36.6% of all the sarsen excavated from the site, in total 330 pieces (Table 4).

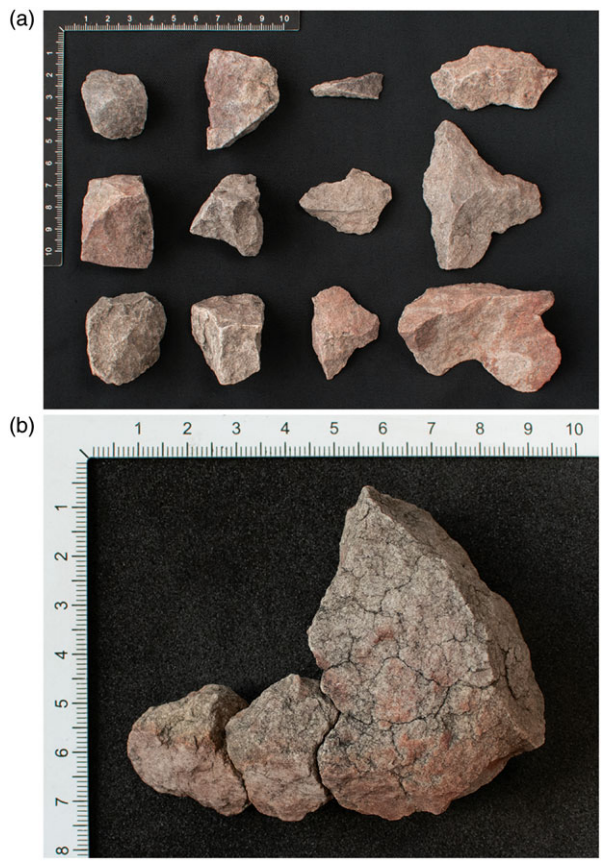

Fig. 8.
Sarsen pieces from Marden henge enclosure contexts: (a) six chunks (left) and six 'flakes' (right) from the burnt spread; (b) typically crazed and cracked burnt conjoining pieces from the midden

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TABLE 5. CHARACTERISTICS OF SARSEN TOOL FRAGMENTS FROM MARDEN (BURNT SPREAD, INNER HENGE) & PIT FILLS (MAIN HENGE ENCLOSURE BANK)

Context & frag. uid	*Tool type*	*Condition*	*Weight (g)*	*Form*
Burnt spread				
1006/010	quern/ polisher	burnt	10	sub-equant
1006/028	quern/ polisher	unburnt	4	blade
93003/011	quern/ polisher	burnt	13	equant
1006/003	rubber	burnt	4	sub-equant
1006/038	rubber	unburnt	14	sub-equant
SF613				
2218/024	quern/ polisher	burnt	42	sub-equant
2218/052	quern/ polisher	burnt	72	sub-equant
2218/042	dressed stone	burnt	79	sub-equant
SF614				
2224/076	hammer-stone	burnt	136	flat block
SF615				
2226/001	quern/ polisher	burnt	12	sub-equant
2226/002	rubber	burnt	92	sub-equant

SF615 in fill (2226) comprises 41 sarsen pieces from pit [2227], only 0.1 m deep and 1.0 × 1.2 m in plan. The majority of the largely angular pieces are burnt (39, 95.1%), including one fragment of possible quern or polisher and one fragment of possible rubber. Three pieces re-fit and although other refits were not observed, some fragments of stone have similar colouration and texture and may be parts of the same parent cobbles. Although on the whole relatively equant, 20 (48.8%) of the pieces are more elongate and platy fragments (Tables 4 & 5) (Fig. 9a).

Although a small feature (1.0 × 1.3 ×0.22 m), fills of pit [2219] contain 289 sarsen pieces. The majority of largely sub-angular, quite equant, pieces in SF614 from primary fill (2224) are burnt (117, 80.7%). SF613 in secondary fill (2218) has a similar profile, although on the whole its pieces are smaller weighing on average 40.6 g compared with 54.9 g in the primary fill. Some 55 (37.9%) pieces in SF613 and 64 (44.4%) in SF614 are more elongate and platy in form. These occasionally crescentic pieces, which do not have platforms or signs of percussive crushing damage, probably resulted from exfoliation due to temperature change (Fig. 9b–c). SF614 includes one piece of possible hammerstone and SF613 includes one small piece of possibly dressed sarsen and two possible quern fragments (Tables 4 & 5).

Although less visible in today's landscape, sarsen stone was available from the environs to provide a range of tools for the people constructing the monuments at the Marden henge enclosure. They include hammerstones and saddle querns with their rubbers. While querns hint at plant processing and food preparation, significance also lies in the heated and highly fragmented nature of much of the sarsen. It seems that a large quantity was heated just outside the Neolithic building where much was left amongst the burnt spread. Depending on their contemporaneity, a proportion of mostly larger, easier to gather, pieces may have been transferred from there along with other material to the midden, leaving behind the smaller fragments and tiniest spalls including 124 pieces weighing under 1 g (Table 4). Alternatively, sarsen pieces in the burnt spread could result from a different pyrotechnic activity. Experience from published (Willies 2002) and unpublished experimental work demonstrates how hot sarsen splashed with cold water cracks and exfoliates: the higher proportion of more elongate, platy pieces from the burnt spread, including crescentic pieces (Fig. 10), may be commensurate with preparation of hot rocks used in the building as a sweat lodge (Leary & Field 2012, 61).

Large quantities of culturally-heated sarsen were also collected up to be deposited in pits amongst the main henge enclosure bank construction layers. Although they cannot be linked precisely in date to events at the inner henge, the sarsen assemblages from the two pits have similar characteristics to the material from the midden and burnt spread and were perhaps

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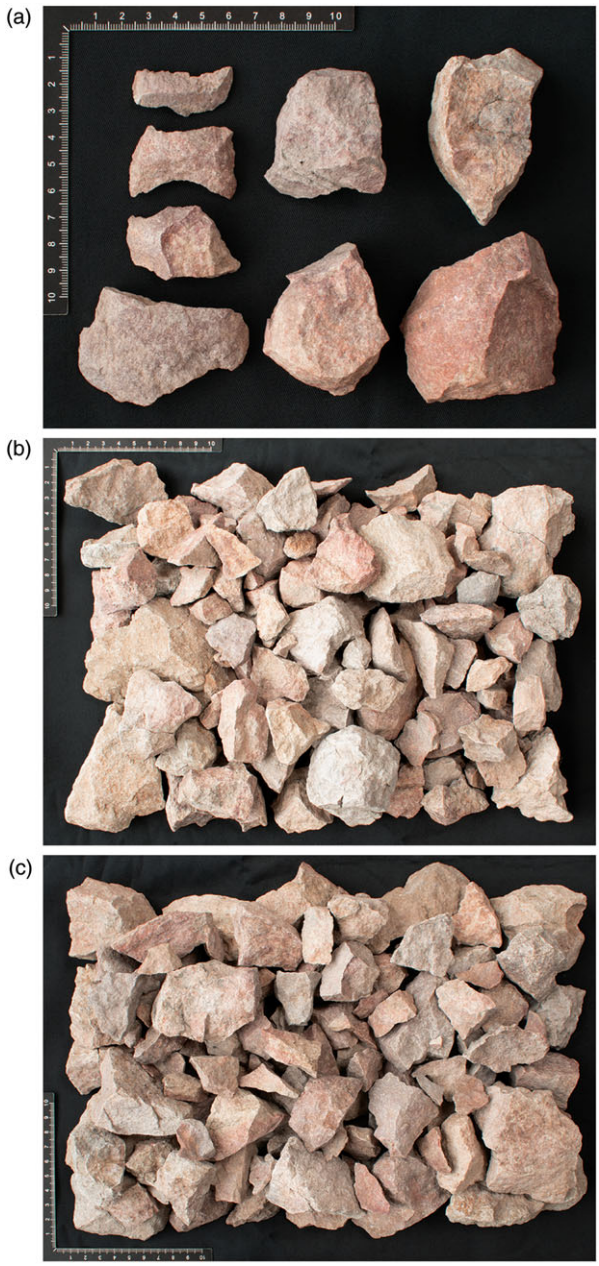

Fig. 9.
Sarsen pieces from Marden henge enclosure contexts: (a) four 'flakes' (left) and four chunks (right) from SF615; (b) a sample from SF613; (c) a sample from SF614

created by similar processes. On average, the tool fragments and broken pieces are slightly larger than those from the burnt spread and include far fewer of the very tiniest spalls (only three weighing under 1 g in SF613, Table 4), suggesting that rather than being a dump of

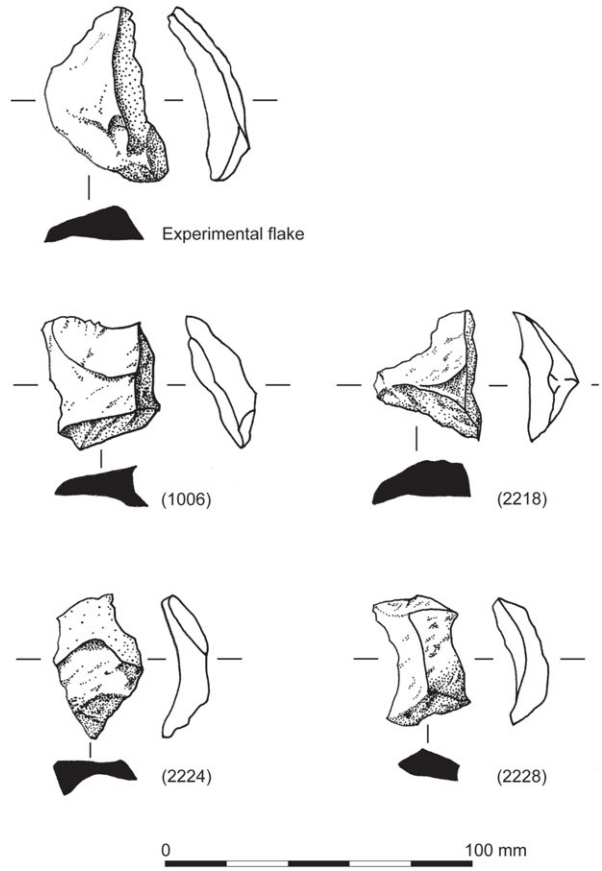

Fig. 10.
Experimental sarsen flake created by exfoliation due to temperature change compared with excavated examples. See text for context details

cleared waste, sarsen was selected from a burning location for deposit in the pits, to be enveloped inside the bank.

DISCUSSION

Cooney (2010) and O'Connor (2010) remind us that dismissive archaeological attitudes to 'mundane' stone risk misunderstanding its social and cultural significance. Local stone that is part of daily life can be just as meaning laden and have as much semiotic potential as other more 'attractive' (larger, exotic) material. As Conneller (2011, 81) points out, the daily use of a type of stone must have informed people's understanding of it in other situations. Here it is argued that sarsen stone was a material so present in Neolithic lives that it could not fail to be wrapped up in ways

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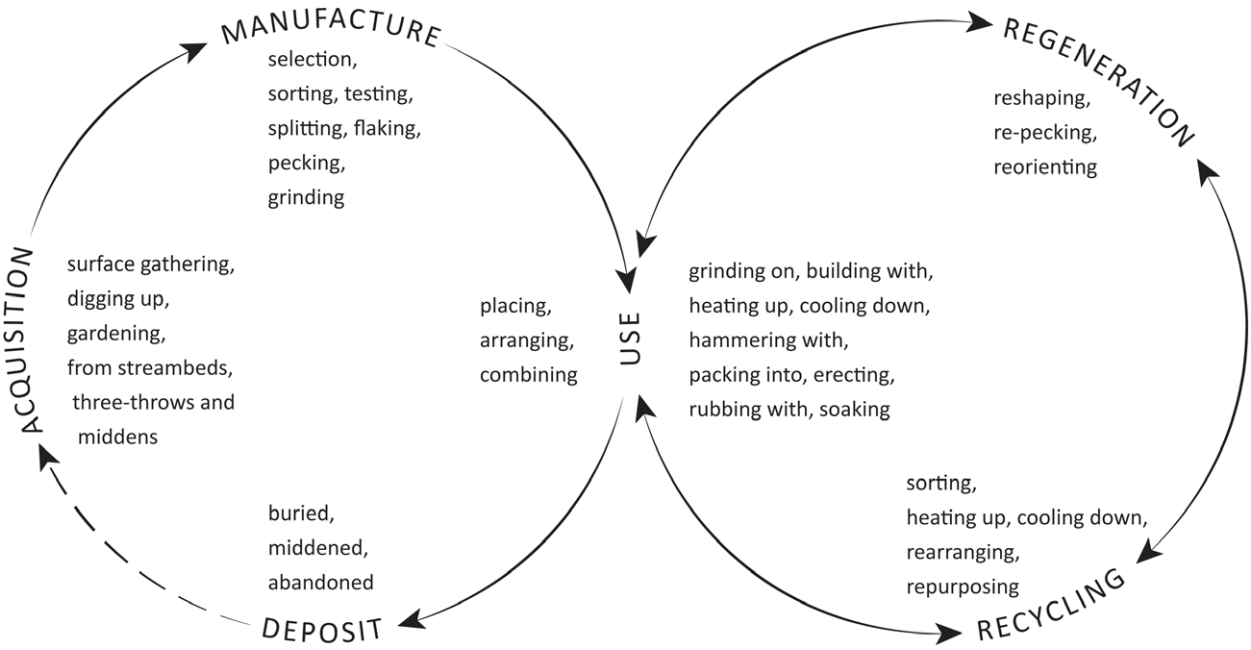

Fig. 11.
A simplified *chaine opératoire* for sarsen uses described in this paper

of doing, knowing, and being. Ordinary relationships with non-megalithic sarsen would have informed extraordinary, megalithic, sarsen encounters.

These case studies draw attention to varied sarsen stone use by Neolithic communities. They include the 'everyday' by which it is meant quotidian encounters with this ubiquitous, useful hard stone including finding and collecting material suitable to make tools; habitually preparing cobbles and large flakes; dressing and redressing surfaces; and expertly managing 'hot rock' technologies. Sarsen offered numerous properties, all revealed through the performance of different tasks. Walking the landscape, exploring upland and woodland, gathering water from streams, digging pits and ditches, all exposed sarsen's general availability in different forms. Cobbles provided hammers, anvils, hearthstones, and packing stones. Sarsen could be changed by hammering, pecking, grinding, and heating to make tools with which to transform other substances. That versatility derives from sarsen's ubiquity; from its homogeneity, allowing it to be shaped in different ways; from its textures and fabric giving different surface effects; from its density and toughness; and its capacity for roles in pyrotechnologies (Fig. 11).

At Windmill Hill, sarsen was part of the suite of materials necessary for various functions, subsequent deposits, and pattern making across the hill. It was being used early on to construct hearths and provide those useful tools that would be placed with other pieces in pits and on the ground surface prior to building the causewayed enclosure. For people digging and filling the enclosure's ditch segments it was an essential element of varied deposition 'styles' (Whittle *et al.* 1999, 368). The sarsen conforms to the profile of the enclosure's flint identified by Bye-Jensen (2019): pieces whose manufacture and use history were known, including repurposed items such as pounders made from quern fragments. Bye-Jensen (2019, 311) emphasises the 'normal-ness' of the flint assemblage, a description that can be extended to the sarsen. Material from familiar sources was already imbricated in activity that monumentalised a place.

Sarsen tools that could be characterised as 'domestic' were necessary components of that behaviour, including when suitably altered. High degrees of tool fragmentation stand out in the Inner Ditch, a theme that continues throughout the duration of ditch-filling with, for example, placement of freshly broken quern pieces in segments such as Middle Ditch I. Although

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similar incorporation of broken tool fragments in deposits at Marden henge could be accidental, most of those pieces are also very small. Watts (2012, 121) comments that querns in particular are unlikely to break accidentally. The intentional destruction of querns in the Neolithic has been noted elsewhere, such as at the LBK site of Geleen-Janskamperveld in the Netherlands: there, the highly fragmented quern pieces suggest the ritual 'killing' of those tools (Verbaas & van Gijn 2007). Quern fragmentation is implicated in other ritualised behaviours in Neolithic contexts (eg, Graefe *et al.* 2009; Tsoraki 2018). Small sarsen tool fragments may be seen in this light.

The sheer volume of sarsen in Windmill Hill's Middle Ditch touches on just how much was regularly being used there by communities. Throughout the segments they made technological associations between food stuffs and sarsen, such as the burnt material in the Middle Ditch I bone deposit, perhaps remains of the cooking that transformed meat into food. In numerous ditch segments, sarsen's associations include pottery that also has a role in feeding, sustaining people who, in Inner Ditch I, may be represented as beneficiaries by the fragments of human bone in the placed deposit. Living practices were quoted in specific placed deposits involving sarsen, such as the paired quern and rubber in Outer Ditch I. Technological associations between heating sarsen and refreshment (whether by cooking food or refreshing the body by cleansing) are also apparent at the Marden henge enclosure, with so much sarsen amongst the burnt spread and midden deposits.

Culturally-heated rock, important at all three sites, is essential to a wide range of activities: as well as hearthstones, cooking stones are used in different roasting and baking methods; boiling stones are necessary to produce food, drinks, medicines, dyes, soap, processed hide, and plant fibres; hot water and steam for personal cleansing, woodworking, and ceremony are generated with hot rocks (see Shantry 2020 for a recent review of hot-rock technology). Such activities involving sarsen were likely part of people's routines at occupation sites, which fixed it at the heart of everyday life. Whittle *et al.* (1999) and Bye-Jensen (2019) invoke the role of domestic material culture at Windmill Hill in building community identity through the way it cites the recent past, which would include the knowledge and memories of sourcing, preparing, and using sarsen. Culturally-heated sarsen was also necessary in substantial quantities for the main Marden henge enclosure bank. Leary and Field (2012, 63) comment on the inner henge bank's mixed materials, ascribing the 'power and the evidence of what went before' to the material culture placed amongst its construction layers. A similar, biographical, narrative may have been cemented when the south-east section of the main henge enclosure bank was built, by the inclusion of sarsen collections SF613–SF615 – transformed by fire, either from some previous event or specially made for the purpose.

At the West Kennet Avenue occupation site, behaviours involving sarsen may have been targeted at communicating information into the future. The site's pits, along with pit F409 *c.* 300 m to the north, have similarities with other middle Neolithic pits like those at King Barrow Ridge, Wiltshire. There, a mix of everyday and specially made items including large numbers of flint tools, Peterborough Ware sherds, and modified and natural sarsen were deposited by over-wintering pastoralists who may have left each pit's chalky up-cast as markers to return to (Roberts *et al.* 2020). Falkner's Coombe would have presented a similarly attractive place, the occupation site's archaeology perhaps resulting from the accumulated residues of a seasonally frequented locale. The durable flint and sarsen of the midden-like artefact spread, characterised by Pollard (2005, 111) as a 'technology of remembering', both transmitted information to visitors that reinforced connection to the place (see Pope & Roberts 2005) and provided material with which to compose markers for the future, such as pit F.55 ensigned by its prominent sarsen cobbles. We might imagine a family, or the young people of a kin group, hustling pigs amongst Autumn pannage or caring for over-wintering cattle in the valleys; stopping in Falkner's Coombe, a place they might be reluctant to leave; who at the necessary time dug a pit (F.6) in the lee of a sarsen boulder in which they placed certain collected materials, perhaps to commemorate their departure or to ensure a safe return next season.

Mixes of 'natural' and 'cultural' sarsen speak to the material's social significance. O'Connor (2010) questions the line drawn between 'artefactual' and 'natural' stone, drawing attention to significant meanings afforded to unworked stone in numerous settings. The hybridity expressed in archaeological contexts such as Neolithic pits containing worked and unworked sarsen appears also above ground. Both Beckhampton Road and South Street long mounds near Avebury include modified and unmodified

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non-structural sarsens (Ashbee *et al*. 1979; Pollard & Gillings 2010). Teather shows how sarsen *polissoirs* incorporated with other boulders into chambered tombs were not merely expediently used rocks but 'active social media in their own right' (2008, 179). Falkner's Circle combines erected sarsens and naturally recumbent boulders from the adjacent spread (Gillings *et al*. 2008, 151). In these places, distinctions between worked and unworked sarsen, natural and cultural, break down.

The significance of the everyday is further revealed in sarsen's capacity to develop grinding surfaces, worn out and regenerated by repeated cycles of use and repecking, clearly important throughout the Neolithic. Such surfaces would have had multiple uses not limited to milling but including processing other plants and minerals, grinding edge-tools, shaping bone and antler tools, and so on. Highlighting this expedience is not meant to imply an economic determinism in the selection of sarsen as a necessity of daily life. Rather, it emphasises the importance of technical contexts of sarsen uses and their affordance to provide technical representations (Sillar 1996); metaphorical understandings of the world, generated through experience of technological practice, that can be applied to other technical arenas. In the context of selecting, shaping, and dressing sarsen for those productive, lively, activities, the shaping and dressing of Stonehenge's sarsens by the same techniques can be seen as a life-giving process of making and renewing the world for nourishment and sustenance necessary to guarantee the future.

CONCLUSION

In the Neolithic, sarsen's ubiquity in certain landscapes ensures that it could not fail to be wrapped up in daily life, the arena in which relationships, identities, responsibilities, and beliefs are habitually learned, worked through, and developed. Regular experience of sarsen stone included relations with landscapes, soils, and technologies. Sarsen was central to a wide range of productive practices, sitting at the intersection of an entangled assemblage of numerous other materials and creative activities in a way that perhaps no other substance – other than the human body itself – did. Used for flaking and polishing other stone, perhaps grinding clays and tempers or burnishing ceramics, processing plant and animal products, cooking food, hammering in stakes and posts, heating and cleaning people, it also marked places, contained bodies, created, and supported structures. Accordingly, sarsen's routine use must be considered to understand its monumental use.

That is not to say that non-megalithic and megalithic sarsen, or worked and unworked material, necessarily had the same ontological relationship with people living in sarsen landscapes across the span of the Neolithic. Sarsen spreads could have been strange and mysterious places full of mythologised boulders (Field 2005; Pollard & Gillings 2010) while sarsen in different forms held other significances: for Neolithic 'connoisseurs of stone' (Adams 2022) sarsen clearly could be many things, including a key material in 'aesthetics of depositional practice' (Pollard 2001, 316). Detail from the three case studies presented here contradicts conventional and uniformly applied tropes of an indurate material that metaphorically petrifies people's pasts. Neolithic engagement with sarsen was varied and its meanings likely contingent to the context of use. Its different properties become apparent in its many different tasks, through which it was afforded values; here, strands including nourishment, transformation, and place-making have been foregrounded. Examining non-megalithic sarsen stone casts light on communities' encounters with this versatile material, emphasising that it should be afforded scholarly attention in the same way as other stone types, situated as it was at the heart of Neolithic technologies.

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NOTES

[1]It is difficult to identify a suitable collective term for the range of small, worked, and unworked sarsen pieces that this paper addresses. 'Non-megalithic' is too cumbersome to use in every instance. Sometimes 'sarsen tools' or 'sarsen pieces' are used depending on context. Where 'artefactual sarsen' is used it is not meant to ignore that fact that megaliths are also artefacts; and although the term 'portable' is sometimes used to refer to smaller, more easily moved sarsen items, this does not mean that sarsen boulders are not portable.

[2]Broken sarsen pieces are invariably chunky and irregular, making them difficult to describe and categorise consistently. Terminology

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derived from knapped flint analysis is less applicable: describing items as 'flakes', for example, risks implying mechanical action which may not be relevant. The key attributes recorded to address research questions thus include a proxy for form using Maximum Projection Sphericity (MPS) (Blott & Pye 2008). MPS avoids a process-based classification of form based on assumptions about mechanical fracture and deals with the continuum of shapes which are not easily divided into hard and fast classes. It describes how a shape deviates from equancy on a scale from 0 (least equant) to 1 (equant) and can be combined with form factors to describe, for example, how platy, elongate, or blade-like a piece of stone is.

[3]For example, Keiller went to some trouble to count and record sarsen from ditch segments excavated in 1927. His field notes show how often large quantities of sarsen were encountered and how commonly the material showed signs of heating and burning. As well as tools and associations with other materials, he recorded fabric similarities and differential burning on sarsen pieces; hinting at the analytical potential had more detail been recorded, or more material retained in the site's collections (Historic England Archive, ALK01/02: a copy of a notebook belonging to Alexander Keiller, which contains notes on sites of archaeological interest, including those in Keiller and Crawford (1928)).

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RÉSUMÉ

« Connoisseurs de la pierre » : la pierre sarsen au quotidien dans la Grande-Bretagne néolithique, par Katy A. Whitaker

Les blocs de pierre de sarsen sont des éléments familiers de nombreux monuments mégalithiques du Néolithique britannique. Les utilisations non monumentales de la pierre sarsen sont cependant moins bien comprises. Cet article se concentre sur les artefacts en sarsen et leurs rôles pour les communautés, en utilisant des études de cas de trois sites couvrant le Néolithique dans le Wiltshire. Les données publiées de l'enceinte à fossé interrompu de Windmill Hill et l'analyse, à l'aide d'une nouvelle méthodologie, du matériel récemment mis au jour du site d'occupation de West Kennet Avenue et du henge de Marden sont utilisées pour explorer les diverses manières dont le sarsen était utilisé. Loin d'être une pierre « banale », cette analyse démontre que les artefacts en sarsen peuvent être tout autant chargés de sens que d'autres matériaux plus « attrayants » (plus grands ou exotiques). Les rencontres journalières avec la pierre de sarsen, à des fins différentes et dans des contextes quotidiens variés, lui ont conféré des valeurs qui ont probablement contribué à son utilisation dans des contextes monumentaux. L'importance de l'attention portée aux artefacts en sarsen apparaît ainsi clairement.

ZUSAMMENFASSUNG

„*Kenner der Steine*“*: Sarsengestein im Alltag im neolithischen Großbritannien*, von Katy A. Whitaker

Blöcke aus Sarsengestein sind vertraute Bestandteile zahlreicher megalithischer Monumente des britischen Neolithikums. Die Nutzung von Sarsengestein für nicht-monumentale Zwecke ist dagegen weit weniger bekannt. Dieser Beitrag fokussiert auf Artefakte aus Sarsen und ihre Rollen in den Gemeinschaften auf Basis von Fallstudien aus drei neolithischen Fundstellen in Wiltshire. Genutzt werden publizierte Daten vom Erdwerk von Windmill Hill und Untersuchungen mit neuartiger Methodologie von jüngst ausgegrabenem Material vom Siedlungsplatz bei der West Kennet Avenue und vom Marden Henge Erdwerk, um die unterschiedlichen Nutzungen von Sarsen zu erforschen. Die Untersuchungen demonstrieren, dass Sarsen kein üblicher Alltagsstein war, sondern die Artefakte aus Sarsen ebenso bedeutungsgeladen gewesen sein konnten wie solche aus anderen, „attraktiveren“ (größeren, exotischeren) Materialien. Der tägliche Umgang mit Sarsengestein zu unterschiedlichen Zwecke und in verschiedenen alltäglichen Kontexten verlieh ihm Werte, die wahrscheinlich zu seiner Nutzung auch in monumentalen Kontexten beitrugen. So wird deutlich, wie wichtig es ist, sich Sarsen-Artefakten zu widmen.

RESUMEN

'Conocedores de piedra': la piedra sarsen en el Neolítico de Gran Bretaña, por Katy A. Whitaker

Los cantos rodados de piedra de Sarsen son habituales en numerosos monumentos megalíticos del Neolítico británico. Los usos no monumentales de esta roca, sin embargo, son menos conocidos. Este artículo se centra en los artefactos realizados a partir de esta materia prima y su papel para estas comunidades presentando, como casos de estudio, tres yacimientos neolíticos en Wiltshire. Los datos publicados del recinto de Windmil Hill y el análisis con una novedosa metodología de los materiales recientemente excavados del sitio de ocupación de West Kennet Avenue y el recinto de Marden nos permiten explorar las distintas actividades en las que este tipo de roca se utilizó. En lugar de ser una roca 'mundana', este análisis demuestra que los artefactos realizados en roca de sansen podrían haber estado dotados de un gran significado al igual que otros materiales 'atractivos' (de mayor tamaño, exóticos). Los usos cotidianos de la roca de sarsen, para diferentes propósitos y en una gran variedad de contextos cotidianos, le otorgaron valores que probablemente contribuyeron a su uso en los contextos monumentales. La importancia de prestar atención a los artefactos realizados con este tipo de roca queda así manifiesta.

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