From the *Transactions* of the
Bristol and Gloucestershire Archaeological Society

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2001, Vol. 119, 59-82

Trans. Bristol & Gloucestershire Archaeological Society **119** (2001), 59–82

A Bronze-Age Burnt Mound at Sandy Lane, Charlton Kings, Gloucestershire: excavations in 1971

By MARK LEAH AND CHRISTOPHER YOUNG

With contributions by Richard Bradley, Sue Bridgford, Emma Harrison, Mark Maltby and Jane Timby

Introduction

In 1951 a small-scale excavation was undertaken at Sandy Lane in Charlton Kings, near Cheltenham (at approximately O.S. Nat. Grid SO 95461982), by the staff and students of Oakley Training College. The investigations produced a quantity of Iron-Age pottery, a few sherds of Neolithic and Romano-British material, some struck flint, and a quantity of animal bone, all of which were recovered from a layer of grey sand containing charcoal and overlying the natural sands. No evidence of pits, postholes and structural features was recovered (Purnell and Webb 1950: not published until March 1952; Saville 1984, 154). Over the next twenty years sand quarrying to the north and east and housing development to the south and west destroyed much of the surrounding area. Only *c.* 200 square metres (centred on SO 95461972: Fig. 1) immediately to the south of the excavations were left untouched. In 1971 this area was excavated under the direction of Christopher Young. These latter excavations were funded by the Department of the Environment, although the site was omitted in error from *Rescue Excavation 1938 to 1972* (Butcher and Garwood 1994).

The 1971 excavations at Sandy Lane represented the third component of a research programme concerned with Iron-Age settlement in the north-west Cotswolds and conceived by Mr. Richard Savage of the Gloucestershire College of Art and Design in Cheltenham. It was hoped that the excavations would specifically provide an insight into the nature of lowland settlement. The other two sites investigated as part of the research programme were both hillforts (Leckhampton Hill and Crickley Hill: Fig. 1) and have been, or are in the process of being, published (Champion 1976 and Dixon 1994 respectively). In the event the significant deposits at Sandy Lane proved to be associated with a burnt mound of Bronze-Age date.

Although the site was not brought to full publication, at the conclusion of the excavations a limited amount of post-excavation work was undertaken, including the processing and packaging of the finds and cataloguing of the site records. In addition, the environmental samples were processed and a short report produced. Descriptive and interpretative notes were also made on the excavated evidence and a report on the lithic material compiled by Professor Richard Bradley. Other finds were not described. In June 1995 Cotswold Archaeological Trust approached Dr. Young, who retained the finds and artefact collection, with a view to including the site in its

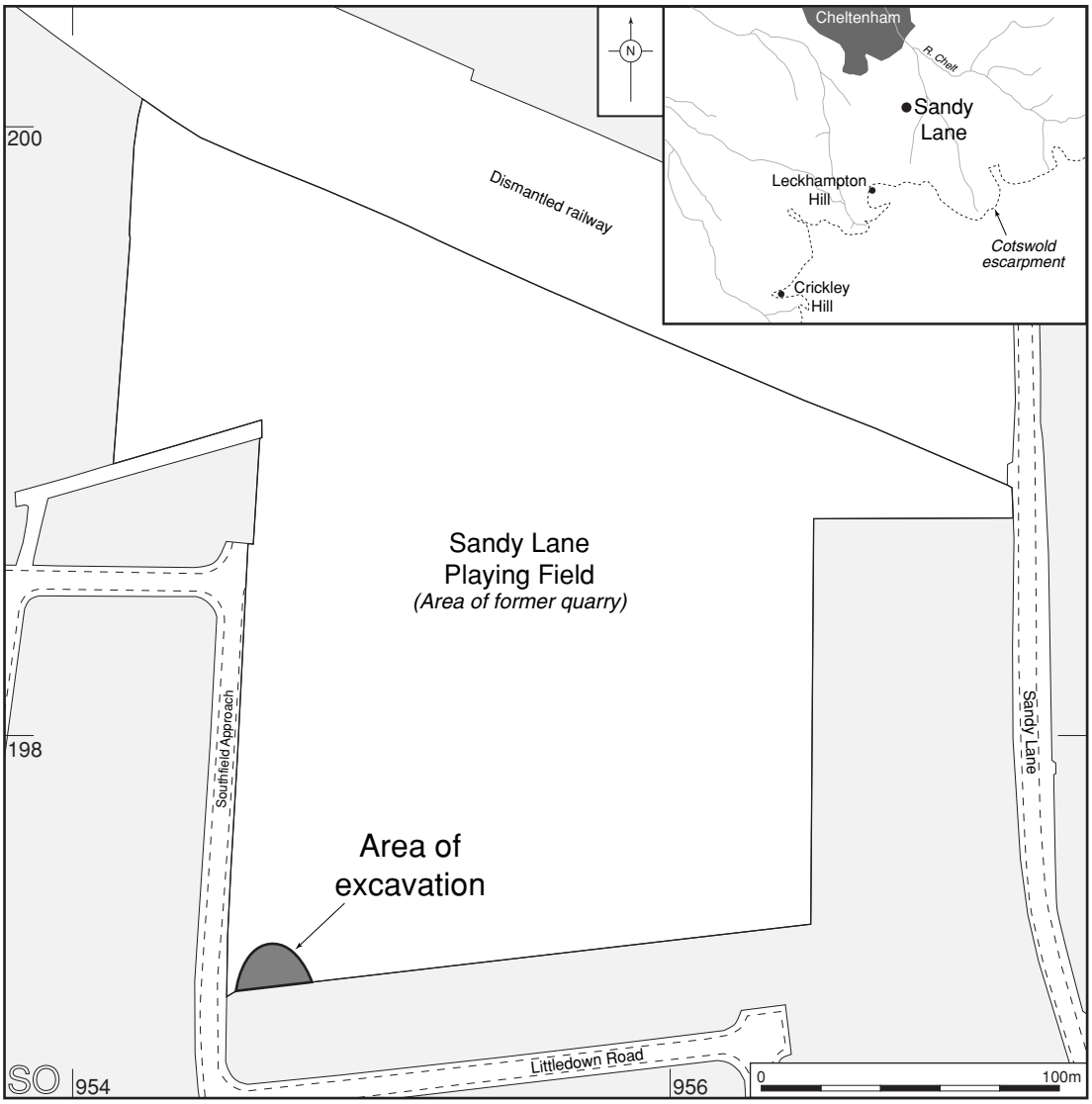

Fig. 1. Site location and extent of excavated area.

publication programme for the Cotswold area. It was agreed that Cotswold Archaeological Trust and Dr. Young would, with financial support from English Heritage, co-operate to bring the site to publication. The site archive, which includes the artefactual material, the original site records and documentation generated during the post-excavation process, is held at Cheltenham Museum (Accession Number 1998.89).

Site Topography and Geology

The site of the 1971 excavations lies *c.* 100 m above sea level, at the base of the Cotswold escarpment and *c.* 1 km from the summit of Leckhampton Hill, the slopes of which rise steeply

to a height of nearly 300 m a little to the south of the site. The solid geology at the base of the Cotswold escarpment consists of Lower Lias clays of Jurassic origin. Across the site and over much of the region around Cheltenham, however, these are masked by the Cheltenham Sands (Geological Survey of England and Wales 1962). The sands are aeolian material deposited during the Devensian glacial (Margretts 1984, 53). A number of minor streams rise on the Cotswold escarpment in the vicinity of Charlton Kings and drain northwards into the river Chelt. One stream rises *c.* 600 m to the south of Sandy Lane and on its present course runs 300 m to the east of the excavation site. The work in 1971 demonstrated that in the Bronze Age a stream channel passed through the excavated area.

At the time of the excavations the northern limit of the site was the edge of a former sand quarry, subsequently used as a rubbish tip, and the area to the south had recently been built over. The trench had a curious shape (Fig. 2) as the northern limits of the excavations were, by necessity, the southern limits of the quarry. It was also established that this quarry edge formed the southernmost extent of the excavations carried out in 1951. It should, however, be noted that in the report on the 1951 excavations (Purnell and Webb 1950), the grid reference refers to an area *c.* 340 m to the south-east and is incorrect. Shortly after the conclusion of the 1971 excavations the rubbish tip was levelled, grassed over and turned into a playing field, a function which it retains today.

THE EXCAVATIONS

Method of Post-Excavation Analysis

Initially, all material contained in the original site archive was assembled and thoroughly examined. A catalogue of excavated contexts was then produced, containing all information concerning individual contexts, plans, sections, site note book references, environmental samples, finds, and photographs. In addition, a full site matrix was produced based on stratigraphic information recorded in the site note books and on the site plans and sections. Where possible spot dates were assigned to individual contexts on the basis of artefacts (usually pottery) recovered from them. On the basis of this information the site was divided into five broad periods: prehistoric (1), Roman (2), medieval (3), post-medieval (4), and modern (5). A number of samples was taken for radiocarbon dating at the time of the excavations but none has proved suitable for analysis and the technique has therefore not played a part in dating individual contexts or phasing of the site. All of the material generated by the post-excavation analysis has been added to, and deposited with, the site archive.

Excavation Methodology

A machine was used to remove recently dumped material (1A), the topsoil (1B) and most of the uppermost silt deposit (2) over *c.* 330 square metres (Fig. 3). After the stripping was completed the excavations proceeded by hand. The depth and unstable, waterlogged nature of some of the deposits, particularly those associated with an in-filled channel, hampered excavation work and meant that some of the deepest deposits could not be fully explored. All significant parts of the site were, however, adequately sampled and it seems unlikely that any evidence within the excavation limits and relevant to the understanding of the burnt mound was missed.

The Stratigraphic Sequence

The earliest deposits on the site were wholly natural in origin. They were most fully examined in the two sondages sunk at the southern limits of the excavations, in the western part of the

Fig. 2. Plan of the excavated area.

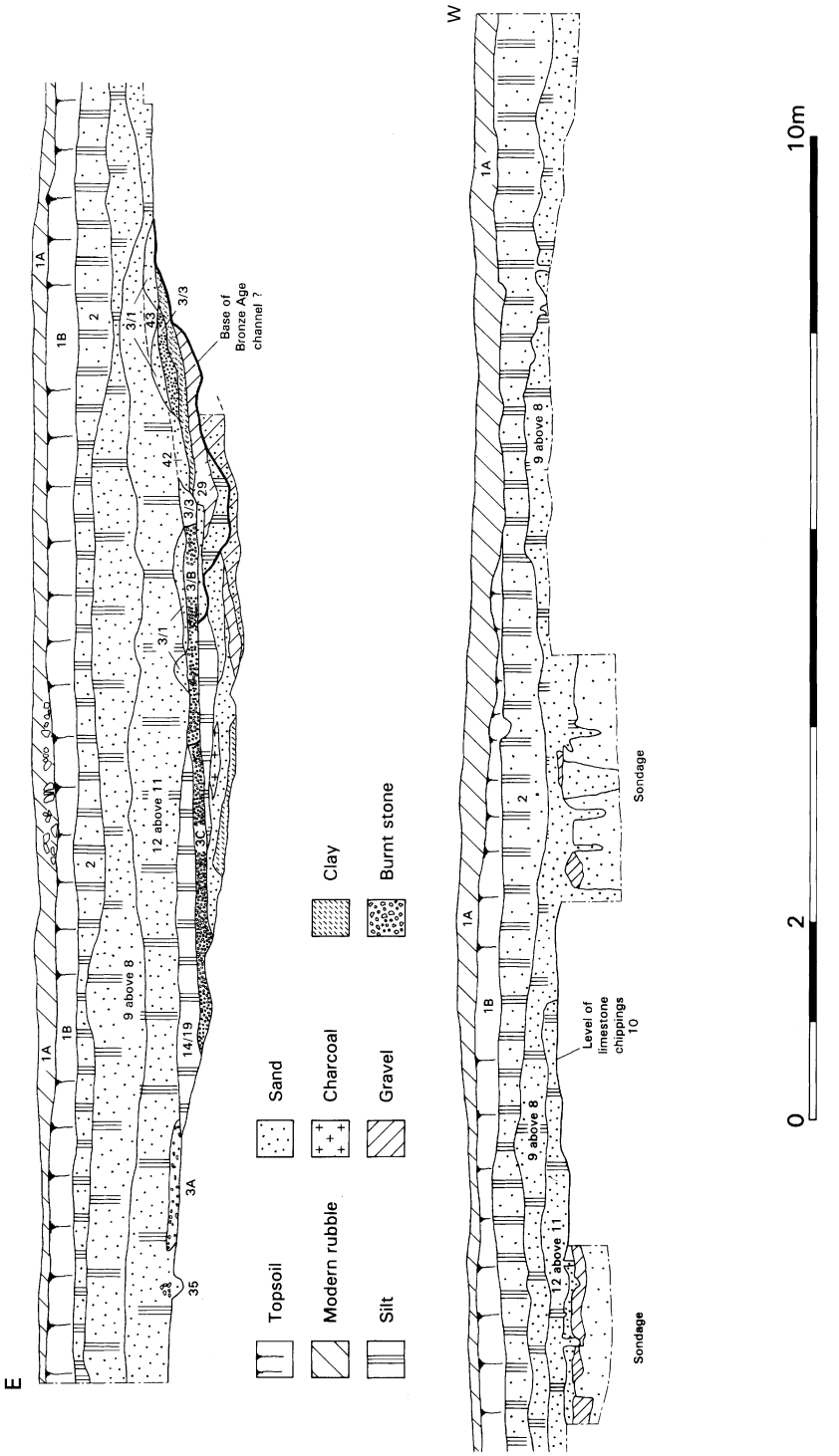

Fig. 3. Section formed at the southern limit of the excavations.

trench (Fig. 3). Flooding prevented the excavation of these sondages below a maximum depth of *c.* 1.6 m and the Lower Lias clays were not encountered. Mixed deposits of clay, gravel, and clean white sand were, however, exposed. These deposits represent elements of the Cheltenham Sands and were much disturbed by vertical intrusions filled with darker material, which perhaps represent periglacial ice wedges.

In the eastern portion of the trench a complex series of interleaved layers of clay, gravel and silt, underlying the later burnt mound, was examined. No artefacts were recovered from this context and it is probable that these deposits represent a former watercourse, with the various layers of silt, clay, and gravel representing variations in the volume and speed of water passing down the channel.

Period 1

By the time that the burnt mound was established, the channel appears to have shrunk to a modest affair (Figs. 2–3). It was bounded to the west by a layer of limestone fragments (10) and to the east by a natural gravel ridge (21). The burnt mound deposits, which were up to 0.3 m thick and covered an area of *c.* 54 square metres within the excavated area, accumulated primarily, although not exclusively, on the eastern side of the shrunken channel. They consisted of a number of layers containing varying amounts of burnt limestone, charcoal, and charcoal-rich silt and sand. These deposits were all given the general context number 3 but were further subdivided into 3A–3H on the basis of subtle variations in their composition. All of these contexts appear to be undisturbed, although some such as 3A were interleaved with water lain deposits 14 and 19, and produced only prehistoric pottery, much of which appears to be of late Bronze-Age date, although earlier material was also present (see below, The Pottery). The sequence is seen to best effect in the accompanying sections (Figs. 3–4), which record the site stratigraphy in the southern excavation limits and the south face of the main E–W baulk respectively.

A number of the burnt mound deposits was excavated. The deposits appear to relate to a later period, when the mound had been abandoned and its constituent parts were being eroded and redeposited in the stream channel. Contexts 3/1 and 3/3 fell into this category and were seen to seal deposit 29 that filled the bulk of the former channel. Both of the eroded mound deposits 3/1 and 3/3 produced Roman pottery, suggesting that intermittent erosion of the mound continued to at least this time, and they were seen to merge with a further layer of silt (45) which filled the rest of the channel within the trench. These deposits all appear on the site plan (Fig. 2), which shows an early stage in the excavation of the mound, when those deposits which had eroded off the mound and those which were essentially intact remained unexcavated, as did the infilled channel.

Around the eastern and northern periphery of the burnt mound a number of postholes was identified (25 and 33–9). Some (25 and 33) produced prehistoric pottery. None was particularly substantial and no evidence for structures could be discerned. A typical example, 35, appears in section in the southern excavation limits (Fig. 3). Less easy to interpret were two shallow gullies (43 and 42), which extended from the southern limit of the excavations northwards for *c.* 4.5 m. As both gullies were cut into deposits 3/1 and 3/3, which had eroded off the mound to fill the former stream channel and contained later pottery, they must date to a time when the mound had begun to erode. Contexts 3/1 and 3/3 had clearly been disturbed by erosion and water action and had accumulated over a long period. Given these factors, it would be unwise to argue that the gullies were of Roman or post-Roman date, especially as the only finds were two pieces of prehistoric pottery from gully 43.

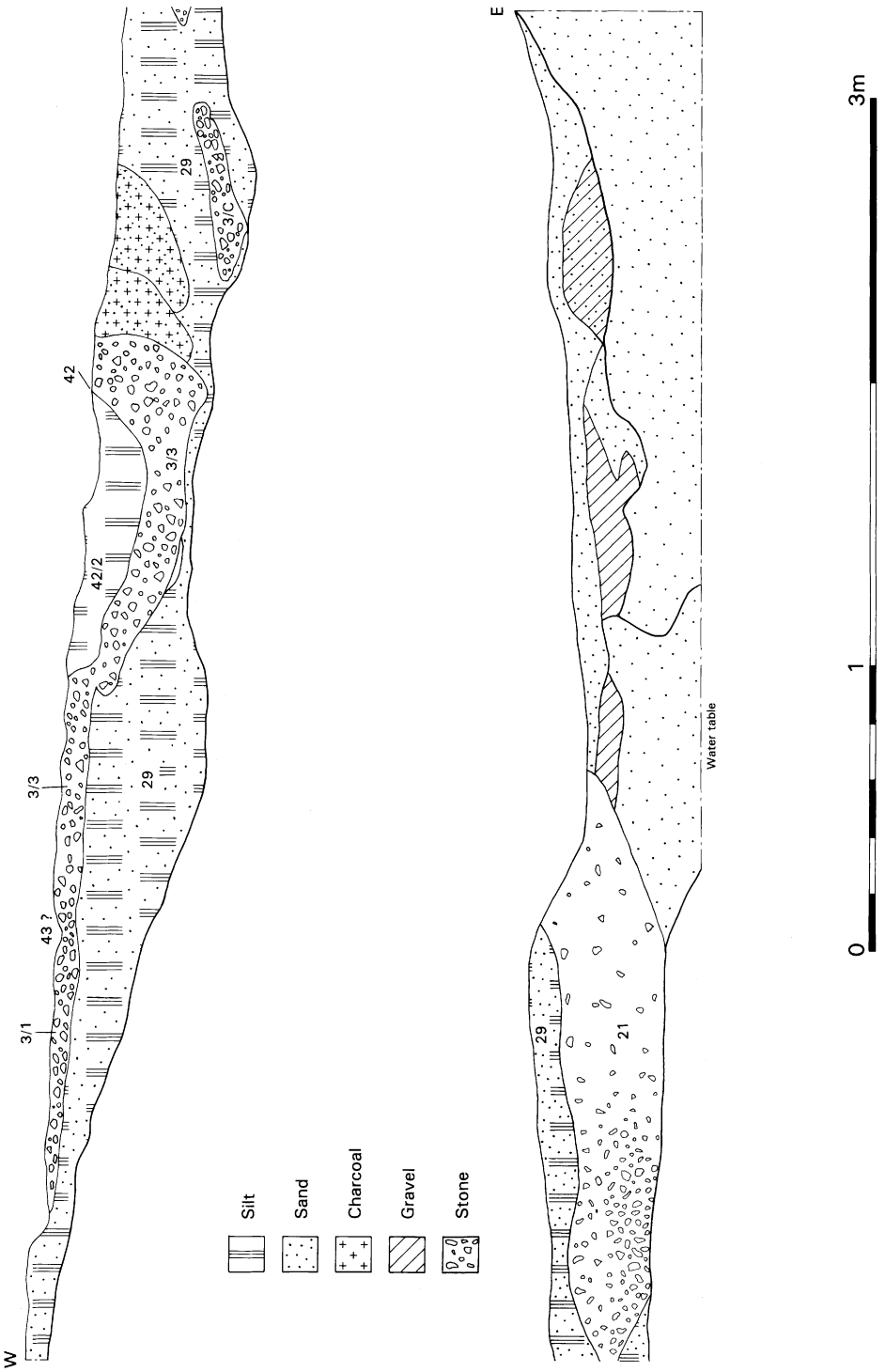

Fig. 4. South-facing section formed by main E-W baulk.

Burnt mound deposits were absent from the western portion of the trench. Here, a layer of unburnt limestone fragments (10) was exposed beneath the silts (11/12) that also sealed the burnt mound deposits further to the east. Initially, it was suspected that this layer of limestone fragments might have been deliberately laid and that the various sand-filled hollows in its surface were stakeholes. It seems more likely, however, that this was a natural layer deposited at the base of the Cotswold escarpment by the process of solifluction (i.e. soil creep; Goudie and Parker 1996, 108). Such material would, however, have formed an ideal source of raw material for the users of the burnt mound.

Evidence for human activity was not, however, entirely absent from the western portion of the trench. Cut into the surface of layer 10 were two shallow, irregular features (5 and 23), which have been interpreted as hearths. Both were *c.* 0.8 m in diameter, up to 0.2 m deep and filled with various black, ashy fills. Bone fragments, including pig, and a red deer antler, plus a possible sherd of Beaker ware were recovered from the fill of hearth 5. It is not clear whether the two features represent peripheral elements of the burnt mound complex, in which case the Beaker sherd was a residual element in the fill of 5, or whether they indicate earlier activity on the site, prior to the establishment of the burnt mound.

Prior to the publication of this report, the excavations were best known for the recovery of a fragment of clay mould for a late Bronze-Age spear and it is in this context that the site has usually been discussed (Ellison 1984, 121; Darvill 1987, 113). A full description of the mould appears in this report; on the basis of the object that it produced it is likely to date to *c.* 1000 B.C. It was found in a patchy layer of gravel (50; not visible in the sections), which sealed the fill of the channel 45 and was in turn sealed by a redeposited layer of burnt mound material.

Periods 2–5

Little evidence for significant human activity post-dating the abandonment of the burnt mound was detected. In particular, no further light was shed on the Iron-Age activity which had been evident in the earlier 1951 excavations. Certainly, a few sherds of Iron-Age pottery were recovered, along with significant amounts of Roman and post-medieval material, and a single sherd of medieval Minety Ware. Most of this material, however, occurred either in the layers sealing the burnt mound (2, 8, 9, 11, and 12), or in its disturbed, topmost layers (3/1, 3/2, and 3/3). It seems likely that most of these deposits are colluvial in origin or, in the case of the topmost burnt mound layers, disturbed by colluvial or alluvial action. The sherds recovered from these deposits may represent material that was incorporated in the topsoil, probably during manuring, and has subsequently been moved down slope as a result of ploughing. Support for this explanation is provided in the most recent work on the geomorphology of the Cotswolds by Goudie and Parker (1996, 96), who draw attention to the abundant evidence on various Cotswold hillsides for shallow mudslide activity caused, they suggest, by medieval cultivation and subsequent soil erosion. They particularly draw attention to the evidence for this phenomenon on the slopes of Leckhampton Hill. The recovery of Iron-Age and Roman sherds from the excavations described in this report suggests that this sort of human-induced erosion began significantly earlier than the medieval period.

Only one securely dated feature (52) belonging to these periods was identified within the trench. This lay at the northern edge of the trench and consisted of a shallow irregular gully; it produced only Roman pottery. The feature appears on the site plan (Fig. 2), along with the prehistoric deposits but may be much later in date.

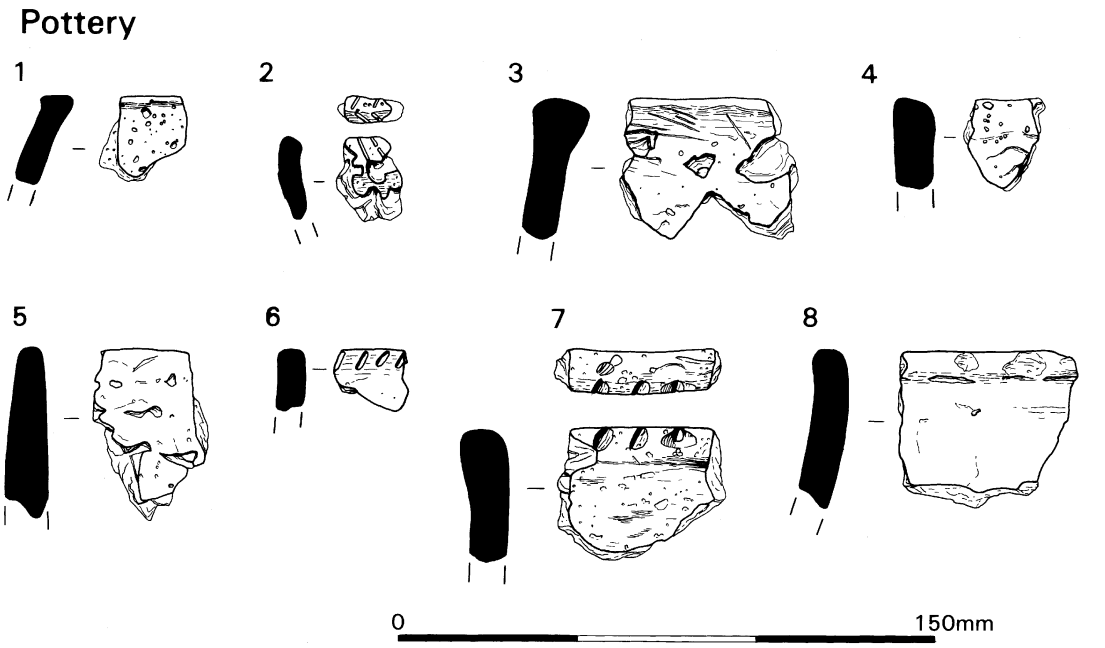

Fig. 5. Prehistoric and Roman pottery.

THE ARTEFACTS

THE POTTERY (Fig. 5) by Jane Timby

The 1971 excavations resulted in the recovery of some 358 sherds of pottery weighing 1,350 gm. Material of prehistoric, Roman, medieval and post-medieval date is present. Most of the sherds had been individually or collectively bagged with a unique finds reference number. Each sherd of pottery was examined macroscopically with the aid of a × 20 binocular microscope and a record of sherd count and weight made against the context information/site phasing. The data has been summarised on an Excel spreadsheet as part of the archive.

In general, the pottery sherds are extremely small and in many cases poorly preserved. There is an exceptionally low average sherd weight of just 3.7 gm. Most fragments, particularly the prehistoric and Roman sherds, were very abraded and it was impossible in many instances to obtain a fresh break to ascertain fabric type. The very fragmentary nature of the material, the lack of featured sherds and the long chronological range hampered identification.

Prehistoric Pottery

The prehistoric material accounted for 68% of the total pottery assemblage by sherd count. A very diverse range of fabrics was present, including examples tempered with fossil shell, limestone, Malvernian rock, grog/clay pellets, grog and shell, sandstone, and quartz sand, as well as fine sandy untempered wares. Twelve fabric groups (P1–12) were defined although some categories were quite broad. Such diversity might hint at a wide chronological range. An additional problem for the identification of wares is the lack of other published groups, particularly of

Bronze-Age date from Gloucestershire. The assemblage is quantified by sherd number and weight in Table 1.

Table 1. Quantification of prehistoric fabric groups.

Fabric	Number	%	Weight (in gms)	%
P1	22	9	49	7
P2	127	51	255	35.5
P3	17	7	59	8
P4	26	10	92	13
P5	2	1	5	*
P6	16	7	133	18.5
P7	10	4	57	8
P8	2	1	4	*
P9	13	5	35	5
P10	1	*	2	*
P11	5	2	12	1.5
P12	3	1	12	1.5
Unclassified	5	2	5	*
Total	249	100	720	100

* = less than 1%

Description of the fabrics

P1 Pale brown/orange or buff fabric with a grey core. Very finely micaceous with a fine sandy texture. Some sherds show frequent rounded orange-red or black ferruginous inclusions up to 1 mm across. A sub-group (P1b) shows sparse linear blackened voids from organic matter. Occasional fragments of a very finely micaceous mudstone/siltstone have been observed in some sherds.

P2 Generally mid-dark brown or black with a darker core. Smooth, soapy fabric distinguished by a sparse to common frequency of irregularly shaped voids from dissolved limestone/shell. Some fine mica but no other visible inclusions.

P3 Orange-brown with a black core/interior. Moderately hard, medium sandy ware with a common frequency of fine, well-sorted, rounded macroscopically visible quartz sand and rare iron.

P4 Red-orange with a mid brown core. Finely micaceous fabric with a fine sandy texture. The surface shows sparse and irregular ill-sorted voids from dissolved shell and occasional grains of iron up to 1.5 mm in size. No quartz is visible.

P5 A fine sandy micaceous ware with a sparse frequency of rounded clay pellets.

P6 A moderately hard ware with a reddish-brown exterior/outer core, black interior/inner core. Thick-walled (12 mm) vessels. The paste contains a moderate frequency of angular Malvernian granitic rock with crushed fragments of feldspar, quartz, hornblende, ill-sorted with the larger fragments up to 5–8 mm.

P7 Mid orange-brown exterior, black interior. Smooth, finely micaceous fabric with sparse fine sub-angular dark orange grog/clay pellets, often less than 1 mm in size.

P8 Orange-brown with grey inner core. Moderately hard with a sandy texture. Sparse fragments of sand-stone (1 mm and less), rare rounded quartz grains and sparse fine black/red-brown iron.

P9 Dark brown-black exterior/core red-brown interior. The paste contains a scatter of fine rounded, well-sorted quartz sand and sparse fragments of oolitic limestone rock (up to 4 mm) or discrete ooliths.

P10 Orange-brown with a grey-brown interior core/surface. Common frequency of discrete grains of oolitic limestone accompanied by finely crushed fossil shell, larger fragments up to 3 mm in size.

P11 A coarser variant of P2 with coarse fragments of fossil shell.

P12 Dark orange with a grey-brown inner core. Smooth, soapy fabric with a sparse scatter of flat surface voids and linear internal voids from decayed shell. Also present is a sparse scatter of rounded to sub-angular dark orange grog/clay pellets.

Discussion

As noted above, there is very little published material available from the area with which to compare the Sandy Lane assemblage. The use of certain tempering materials, particularly limestone and fossil shell, was long-lived from the Neolithic period onwards. Given the limited stratigraphic information there is no perceptible pattern in the associated wares. Whilst most of the prehistoric pottery came from contexts placed in Period 1, there was a considerable amount of apparently redeposited sherds from later horizons, in particular silt 16 of Period 2 and silt 12 of Period 4.

Amongst the putatively earliest material from the mound (3/3) is a small collection of sherds in a very vesicular fabric with a fragmentary rim (Fig. 5, no. 1). Provisionally this is assigned a Neolithic date. Unfortunately the context is a disturbed one with Roman material. Neolithic material described as 'Neolithic B grooved ware' was noted from the general locality (Purnell and Webb 1950) and the use of shell temper has been recorded elsewhere on later Neolithic pottery from the region (eg. Sale's Lot long barrow, Withington: O'Neil 1966, 26). There was no material with a flint temper comparable to the Neolithic pottery recovered from Tewkesbury to the north (Smith 1993, 46).

Two or three sherds of Beaker are also present. One in fabric P2 from silt 30 may be decorated (the very pocked nature of the surface precludes certainty). Another in fabric P7 is from the burnt mound (3C) and shows the edge of a line of twisted cord decoration on the break. A very fragmentary rim with incised lines is from hearth 5 (Fig. 5, no. 2). Only one is in a grog-tempered fabric which may be considered most characteristic of this period although not exclusively so. Further grog-tempered sherds were found in Period 1 (3H and 21), Periods 1/2 (18A), Period 2 (16), Period 4 (12) and Period 5 (1).

Perhaps slightly later in date is a group of 16 sherds of Malvernian rock-tempered oxidised ware (fabric P6) including two rim fragments (Fig. 5, nos. 3–4). Similar material has been found in association with middle–late Bronze-Age metalwork in Herefordshire (Darvill in prep.), indicating an active potting industry in the Malvernian district earlier than hitherto known. Similar sources were certainly exploited from the middle Iron Age (Peacock 1968). The Iron-Age pottery, however, tends to be darker in colour, grey or black, and to have slightly thinner walls which would further support a potentially early date for the sherds found here. Many of the pieces were associated in layers and silt horizons within the burnt mound (3/1, 19, 20, 27, 41 and 48) and gravel 21. Other sherds came from Period 2 (16) and Period 4 (11).

Also from the burnt mound is a single rim sherd (Fig. 5, no. 5) perhaps from a small urn or large jar, which may also be of later Bronze-Age date. The grog and shell-tempered fabric is unusual here, being represented only by this vessel. A similar fabric was present in early Iron-Age material from Saintbridge (Darvill 1986, 54) and possibly Crickley Hill (Elsdon 1994, 207).

There are at least three rims showing impressed or incised decoration which might suggest a later Bronze-Age/early Iron-Age date. They comprise a simple vertical rim (Fig. 5, no. 6) with decoration in a shell/limestone fabric from 14; a squared rim fragment (not illus.) in a fine sandy micaceous clay with limestone and decorated with a line of stab marks on the exterior face below the rim from 41; and a rim (Fig. 5, no. 7) from the burnt mound. There were no early Iron-Age wares comparable to those with incised line decoration recovered from the adjacent excavations (Purnell and Webb 1950).

In conclusion, it would appear that, where it is possible to determine, much of the latest prehistoric pottery associated with the burnt mound would not be out of place in the later Bronze-Age period. Fabric P2 is the most common group accounting for 51% by count of the prehistoric assemblage; the fabric is well-documented at this time, for example at Naunton (Timby in prep.) and Temple Guiting (O'Neil 1967). Similarly limestone/shell-tempered wares formed the dominant component to the later Bronze-Age assemblage from Shorncote (Morris 1994). Of particular interest is the diversity of clays present. It indicates both local production using material from the Jurassic outcrops of the Cotswolds (fabrics P2, P4, P9–12) and trade/contact with the Malverns/Tewkesbury area to the north-west (fabrics P6, P8 and possibly P1). There would appear to be a small amount of earlier material present, most notably Beaker but possibly some Neolithic as well. Similar sites have proved to cover a wide date span from the late Neolithic through to the late Bronze Age. The majority, however, appear to cluster in the later Bronze Age, and Sandy Lane on present evidence would appear to follow this trend.

Catalogue of illustrated pottery (Fig. 5)

1. Very fragmentary sherds from a vessel with a slightly triangular rim. Mid brown, very vesicular fabric (P2). ?Neolithic. Context 3/3, no. 82.
2. Small rim fragment in dark brown, very vesicular ware. Thin-walled with incised diagonal lines on both the upper rim surface and outer rim edge. Fabric P2. ?Possibly Beaker. Context 5/2, no. 197.
3. Slightly thickened rim, in Malvernian rock-tempered fabric (P6). ?Mid–later Bronze Age. Context 3/1, no. 38.
4. Rim fragment from a simple-shaped vessel. Malvernian fabric P6. ?Mid–later Bronze Age. Context 20, no. 56.
5. Rim and two joining bodysherds from a simple vertical-sided vessel in a dark orange ware containing shell and grog, fabric P12. ?Mid–later Bronze Age. Context 3F, no. 137.
6. Rim fragment with diagonal incisions on outer rim face. Orange-brown with a black core/interior. Sparse fine decayed limestone temper, fabric P2. ?Later Bronze Age–early Iron Age. Context 14.
7. Slightly everted rim with impressed notches on the outer edge. Mid brown fabric containing sparse voids from shell fragments (P2). ?Later Bronze Age–early Iron Age. Context 3H, no. 128.

Roman Pottery

Approximately 81 sherds of Roman pottery were present, 24% by count of the assemblage. Recognisable fabrics include Severn Valley ware, Malvernian ware, Dorset black-burnished ware, Oxfordshire colour-coated ware, Savernake, and samian. Also present were various fine oxidised wares, some of which may have also been colour-coats, and grey/black sandy wares. Chronologically the material appears to span the 2nd–4th centuries A.D.

Catalogue of illustrated sherd (Fig. 5)

8. Simple everted rim in a black ware tempered with fine fragments of Malvernian rock (up to 2 mm) (Peacock 1967, Group A). Probably Roman. Context 11, no. 12.

Medieval and Post-Medieval Pottery

A single rimsherd from a Minety Ware cooking pot (later 12–14th century) was present in 10A (Period 3). Post-medieval sherds account for 8% of the assemblage and include mainly 18–19th-century wares, for example, glazed redwares, glazed white earthenware, 'china', Herefordshire border wares, and Westerwald stoneware.

THE FIRED CLAY by Jane Timby

The assemblage comprised 117 small fragments of fired clay weighing 199 gm. Most fragments were too small to draw any conclusions from them. Of particular note are two pieces from silt 12. One (73) with a flat surface and corner may be part of a triangular loomweight. The other (41) has a highly vitrified surface suggesting that it had been subjected to high temperatures.

THE SPEAR MOULD by Sue Bridgford

The mould (Fig. 6, no. 5) was contained in a layer of gravel (50), which sealed the topmost fill (45) of the stream channel and was sealed by redeposited burnt mound material. The condition of the inner face is such that it would appear that the fragment was protected by burial very shortly after use and is unlikely to have been open to abrasion for any length of time. It is however possible that this particular fragment was deposited at some distance from the area where it was used, thus explaining the absence of the rest of the mould.

The clay fabric is fine and sandy with, possibly, some very small micaceous inclusions. The mould was well fired and is mid to dark grey in colour with an area of oxidised brownish-orange on part of the outer surface. There is no trace of a coarser outer wrap attached to this fragment of mould; it may have broken off after casting or, being more friable than the inner mould, may not have survived deposition and excavation.

Although the fragment is very small it comes from close to the tip of the mould for a spearhead. The surface of the inner face is sufficiently well preserved so that the main features of the spearhead are clear. The very narrow angle (14 degrees) between the extrapolated edges formed by the mould fragment indicates that the spearhead would probably have been relatively long and narrow in shape, although there is no clue as to the actual size. There would have been no bevel on the edge of a casting from this mould. Metallographic examinations have shown that most spearheads of the late Bronze Age were hammered and ground along the edge and that only those with very distinctive edge features, such as raised ridges along the inside of a wide bevel or stepped edges, would have had these characteristics incorporated into the mould. The most important diagnostic features present are the two narrow grooves in the mould on either side of the central channel. On the spearhead they would have formed raised ridges on either side of the midrib, which, even though very close to the extreme tip, is clearly rounded.

These features place the spearhead into a category generally referred to as 'fillet-defined' (Burgess *et al.* 1972, 213–14). The proximity of the fragment to the extreme tip, however, means that it is possible that the blade possessed lunate openings or even, though less likely, that the blade possessed 'channels' on either side lower down. A set of mould fragments from a site near Tewkesbury, less than 10 km distant, indicates casting of a long channel-bladed spearhead, without raised ridges, with a sub-lozengic midrib and, probably, basal loops of a class generally associated with the middle Bronze Age (Needham forthcoming), although examples exist in hoards of the late Bronze Age.

Fillet-defined spearheads seem to originate in the so-called Wilburton phase of the classification of Bronze-Age metalwork devised by Burgess, Coombs and Davies (1972, 214), although they also owe much to the basal looped tradition. They are not very common but a few examples exist in most major hoards of the Wilburton tradition, including the Wilburton (Cambridgeshire) hoard itself. The practice of defining the midrib with raised ridges, while unusual, is seen in a number of 'hoards' with swords of the Ewart Park metalwork phase, including Heathery Burn (Co. Durham), Duddingston Loch (Midlothian), St Andrew's (Fife), Butts Beck Quarry (Lancashire), Broadward (Shropshire), Blackmoor (Hampshire) and Waterden (Norfolk). There

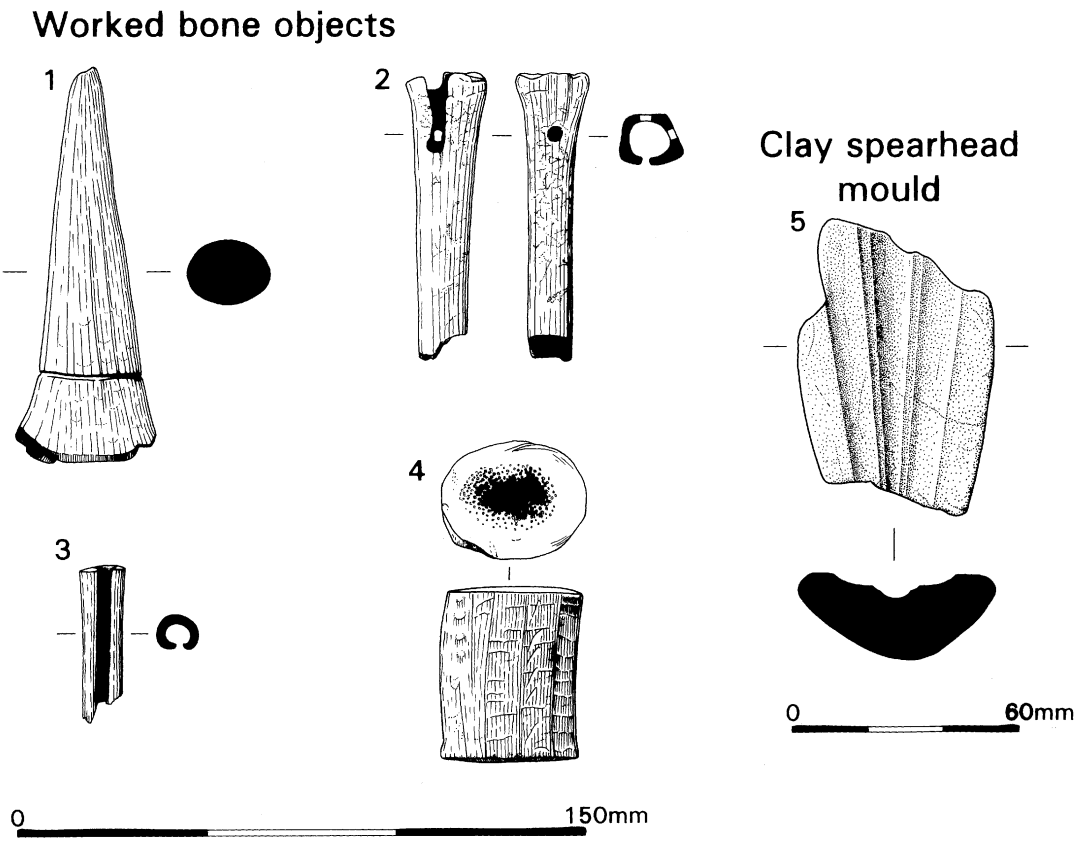

Fig. 6. Objects of worked bone and fragment of spear mould.

are also a number of single finds of fillet-defined spearheads, including some river finds, particularly from the Thames.

Three fillet-defined spearheads were included in a recent dating programme which used the remains of wooden hafts from the spearhead sockets (Needham *et al.* 1998). A single find from Shepperton (Surrey) yielded a date of 1020–810 cal. B.C. (2760 ± 50 B.P. [OxA-4655]), an example from the Wilburton hoard gave a date of 1260–930 cal. B.C. (2890 ± 45 B.P. [OxA-5034]), and a spearhead found in the Thames at Staines (Berkshire) gave a date of 1220–900 cal. B.C. (2850 ± 50 B.P. [OxA-5956]). The dates were calibrated by reference to Pearson and Stuiver 1986 and Stuiver and Reimer 1986. None of the three dated spearheads was found in association with metalwork of the Ewart Park phase and all three are likely to be early types. However, the Ewart Park associations in the larger hoards include items with characteristics deemed early in that phase, such as swords with slotted hilts and spearheads with basal loops and lunate openings. These may indicate relatively early dates for the fillet-defined spearheads associated with them.

Given the likely morphology of the socketed spearhead produced from the mould (a long narrow fillet-defined blade with rounded midrib similar to both the dated Wilburton and Staines spearheads: Colquhoun and Burgess 1988, pl. 146.14; Burgess *et al.* 1972, fig 28.2), a date *c.* 1000 B.C. would be a reasonable assumption for the mould fragment concerned. There is, however,

a remote possibility of a much earlier, middle Bronze-Age, date and a distinct possibility that a date nearer 850 B.C. might apply.

THE WORKED BONE by Emma Harrison

Four pieces of significantly worked bone and antler (Figs. 6, nos. 1–4) were recovered from the site. Two pieces were derived from the silt layer 14/19 that was interleaved between burnt stone deposits 3A and 3C (Fig. 3). The other two came from the surface of the natural gravel layer 21 that formed the eastern bank of the Bronze-Age channel. None has any obvious function.

Catalogue

1. Polished antler fragment with incised ring, length 104 mm. Context 14.
2. Slightly polished sheep metatarsal fragment with three holes pierced at the proximal end, length 76 mm. Surface of context 21.
3. Polished fragment, possible sheep tibia. One end is polished, the other broken. A slit has been cut along one face and the edges polished, length 40 mm, width 10 mm. Context 19.
4. Cut and polished antler fragment, ends also polished from use wear?, length 44 mm, width 35 mm. Surface of context 21.

THE LITHIC ARTEFACTS by Richard Bradley

The material was divided by the excavator into four groups based on the site stratigraphy. Each group contained a quantity of worked flint and chert (Table 2).

Table 2. Quantity of flint and chert recovered from the excavations.

Stratigraphic Group	Number of Fragments
1. Material sealed by burnt stone deposits	133
2. Material associated with burnt stone deposits	672
3. Areas lacking deep stratigraphy	102
4. Unstratified or from surface layers	198
Total	1109

Examination of this material suggests that the four groups have the same characteristics. There is nothing to indicate a protracted sequence on the site, and to judge from the condition of some of the artefacts it is possible that they had been disturbed after they were first deposited. Many of the flakes were broken and those in the upper layers were smaller than the others, perhaps because they had been exposed to later damage.

The industry was based on small, much broken nodules, normally of flint but occasionally of chert. Variations of cortex and surface staining suggest that they may have been obtained from a variety of geological deposits, including both chalk and gravel, especially the latter. Some were obviously collected from the surface and showed signs of frost damage. Since a high proportion of the flakes on the site retained significant areas of cortex, they were probably introduced without much preliminary working. Of the 33 cores in the collection, most had been well worked down. The raw material evidently contained many flaws, but, with few exceptions, it was worked without much expertise and with numerous flaking errors. The only exceptions were three possible blade cores.

The flakes were equally irregular and few of them showed any signs of secondary working. A small number, mainly in chalk flint, seem to have been produced by a blade or narrow flake technique, but the sample is so limited that it is impossible to tell whether they provide evidence for a Mesolithic/earlier Neolithic element in the collection or whether the technique was used to obtain more usable edges from small pieces of flint. The only regular artefacts were 21 flake scrapers, which cannot be dated.

It is ironic that the most likely context for this collection was not recognised until some years after the original analysis took place. The poor quality of the flaking, the predominance of irregular fragments and the rarity of formal implements are all characteristic of lithic technology in the later prehistoric period when stone artefacts were used to supplement bronze tools. Such industries are often poorly made and one of their characteristics is a high proportion of scrapers compared with other tool types (Ford *et al.* 1984). A later Bronze-Age origin seems likely for most, if not all, of this material.

THE ENVIRONMENTAL EVIDENCE

THE MACROFOSSIL AND POLLEN EVIDENCE by Mark Leah

During the course of the 1971 excavations samples were taken from a variety of contexts for both macrofossil and pollen analysis. These were analysed by Gay Wilson, of the School of Botany in Cambridge University, at the conclusion of the excavations and a full report prepared. A copy of the report is in the site archive and a summary of the main results is given below. The most detailed pollen analysis was carried out on sediments obtained from a 0.5 m long monolith taken from the sediments filling the stream channel. Nine spot samples were taken at 0.05–0.07-m intervals through the monolith but all samples proved to be devoid of pollen. In addition, six spot pollen samples were taken from the main E–W section, through the sequence of silting episodes. These also proved to be entirely lacking in pollen evidence.

The samples for macrofossil analysis were taken from sediments in the stream channel and a variety of other contexts around the site. They proved to be only slightly more informative than those taken for pollen analysis. Unsurprisingly, wood charcoal fragments proved to be ubiquitous in all the samples but fragments were generally too small to allow species identification. Where, in a small number of cases, identification of macrofossils was possible, they proved to come from genera that include species which grow in wet places (sedge, dock, and hemp). Only one sample, that taken from the fill of a posthole 61, produced evidence for cultivated plants in the form of a carbonised spikelet fork and a glume base from an unidentified cereal.

THE ANIMAL BONE by Mark Maltby

Methods

All animal bones identified to species from the excavations were recorded individually onto a database, which forms part of the site archive. Where appropriate, the following information was recorded on each fragment: context; bag number; feature type; period; species; part of anatomy; part of bone present; proportion of bone present; gnawing damage; surface condition; fusion data; tooth-ageing data; butchery marks; metrical data; other comments. Where necessary, identifications were confirmed by reference to the comparative skeleton collection housed in the School of Conservation Sciences, Bournemouth University. Toothwear descriptions followed the method of Grant (1982). Measurements are those recommended by von den Driesch

(1976) with a few additions. Unidentified fragments were counted but not described in detail in the archive.

Period 1—Prehistoric

Contexts from this period produced the majority of the animal bones. The bones were found in several different types of deposit, although burnt layers and silts produced the largest numbers of fragments (Table 3).

Table 3. Species representation by context type in Period 1 by number of bone fragments.

Context Type	Cattle	Sheep/Goat	Pig	Horse	Dog	Red Deer	Undentified	Total
Burnt layer	38	18	11	2	1	8	199	277
Clay	12	5	2	1	1	1	109	131
Ditch/Gully	5	2					15	22
Gravel	7	9	2			4	63	85
Hearth			6			2	34	42
Pit	3	1					6	10
Posthole	7	3				3	31	44
Sand	5	3				1	32	41
Silt	40	11	11		1	3	203	269
Other	5		3			1	11	20
Total	122	52	35	3	3	23	703	941
% Identified	51	22	15	1	1	10		

The total of 941 fragments from Period 1 included 703 that were unidentified. This reflects a high degree of fragmentation and poor preservation of the bones. Many fragments bore evidence of erosion caused by weathering of the bones as they lay upon the ground or just below the ground surface. Further destruction and fragmentation had been caused by dogs. At least 37 of the surviving identified bones bore evidence of gnawing. Many of the unidentified fragments had also been gnawed and many more would have been destroyed completely. A total of 32 of the bone fragments, recovered from a variety of contexts, had been damaged by burning.

Cattle were the most frequently identified species, contributing 51% of the identified fragments. They were the most common species in all types of deposit except gravel layers and hearth deposits (Table 3). However, sample sizes were too small to investigate whether there were significant variations in the species representation in different types of deposit. The poor preservation conditions would have biased the assemblage towards the recovery of cattle bones.

The cattle assemblage was itself biased towards more robust elements (Table 4). Loose teeth contributed 31% of the cattle sample. Loose teeth survive better than bones in poorly preserved deposits and this high percentage confirms the poor representation of many kinds of bone. The best represented bones were the mandible and shaft fragments of metatarsal, tibia and humerus. These are dense elements, which survive better than many other bones in these conditions (Lymon 1994).

Mandibular tooth ageing data were limited. From evidence of the eruption and wear of the cheek teeth, it was concluded that two specimens belonged to mature adults, two to younger adults over four years old, and one belonged to an animal probably killed in its third year. Three fused proximal tibiae and one fused distal radius indicated the presence of cattle of over four

Table 4. Species and anatomies represented in Period 1 deposits by number of bone fragments.

	Cattle	Sheep/Goat	Pig	Horse	Dog	Red Deer
Antler/Horn Core	1	1				13
Maxilla			1			
Other Skull	3		1			1
Mandible	19	3	2		1	
Loose Teeth	38	23	13	2	2	2
Humerus	10	1	6			1
Radius	2	1				
Ulna	1	1				
Scapula	5	1				
Pelvis (Os coxae)	2	1				
Femur	7	1	1			
Tibia	10	10	4			2
Carpal	2		1			
Astragalus	1	2	1			
Calcaneus		1				
Metacarpal	4	1	1	1		1
Metatarsal	11	4	1			2
Metapodial	1					
Lateral Metapodial	1					
1st Phalanx	3	1	2			1
2nd Phalanx	1					
Atlas			1			
Total	122	52	35	3	3	23

years of age (Grigson 1982). Again, however, poor preservation is likely to have biased the sample towards the denser fused bones of older animals. Although no immature cattle were represented by unfused limb bones, calves were represented by porous scapula, humerus and metatarsal fragments.

Observed butchery evidence from this assemblage was restricted to knife cuts on the ramus of a cattle mandible. Although surface damage to the bones could have destroyed evidence of butchery marks, the low incidence of butchery is surprising given the fragmentary nature of the assemblage. Fine incisions, probably made with metal knives, are a common feature of Iron-Age assemblages in southern England (Maltby 1989). Their apparent absence from this earlier assemblage is worth noting.

Another unusual feature of the cattle assemblage is the fact that three out of six lower third molars possessed only the vestigial remains of the posterior cusp. This probable genetic trait, originally noted in archaeological assemblages by Andrews and Noddle (1975), has been observed in many later prehistoric and historic assemblages from southern England but not in such relatively high frequencies, albeit in a very small sample.

Measurements were taken on seven cattle bones from this period. They included two metatarsals with greatest lengths of 211 mm and 220 mm. These had estimated withers heights of approximately 115 cm and 120 cm respectively (von den Driesch and Boessneck 1974).

Sheep/goat fragments were the second most common category identified, providing 22% of the identified assemblage (Table 3). The fact that 44% of the sheep/goat sample consisted of

loose teeth (Table 4) testifies to the poor preservation of their bones. The tibia was the only other element commonly recovered and this was represented mainly by dense shaft fragments. A horn core fragment probably belonged to a goat and one metacarpal definitely belonged to a sheep. Another sheep was represented by a metatarsal, which had small holes drilled through three aspects near the proximal end. None of the other fragments was diagnostic to species. Two mandibles possessed third molars in an early stage of wear and belonged to animals probably killed in their third year. Two astragali had greatest lateral lengths of 24.3 mm and 27.8 mm.

Pig provided 15% of the identified assemblage (Table 3). Most, if not all, of the pigs represented probably were domestic stock, although an unfused distal humerus was from a large animal and the presence of wild boar cannot be ruled out. Again, loose teeth (37%) formed a substantial part of the pig assemblage. Other relatively common elements were the dense parts of the shafts of the humerus and tibia (Table 4). A tibia with a greatest distal breadth of 26.1 mm was the only measurable bone. One mandible only had the first of the molars in an early stage of wear and belonged to a pig probably under six months old; a maxilla also only had the first molar in wear and was probably under a year old (Bull and Payne 1982). Several immature pigs were also represented by two unfused distal humeri, two unworn incisors and an unworn second molar. An adult pig was represented by a worn third molar.

Only three specimens of horse were identified. Two were worn loose teeth and the other was a third metacarpal from a clay deposit. Although domestic horses are believed to have been introduced to Britain before 2000 B.C., their bones have not been found commonly on most Bronze-Age sites. They tend to form higher proportions of assemblages in Iron-Age samples.

Dogs were represented by two loose teeth and a mandible of an adult animal. Two lower carnassials (1st molars) had greatest lengths of 20.2 mm and 22.2 mm. The presence of dogs is also attested by the evidence of gnawed bones.

Red deer was represented by 23 fragments (10% of the identified species: Table 3). Thirteen were antler fragments and another the pedicle at the base of the antler. At least five of the antler fragments showed signs of working. In some cases there was evidence of shaving and polishing; in others there was evidence of incisions or chop marks. Most of the antler fragments appear to be offcuts, indicating that antler working was taking place on the site. Two of the antlers had been cast.

Red deer bones and teeth were also found in unusually high numbers for a later prehistoric assemblage (Table 4). This indicates the exploitation of the carcasses as well as the antlers. Red deer usually contribute less than 1% of the identified bones in Iron-Age assemblages (Maltby 1996).

Period 2—Roman

Only 16 fragments were recorded from this period and only four cattle and one pig fragments were identified to species.

Period 4—Post-medieval

Eighty-one fragments were recorded, of which 41 were unidentified. Eighteen cattle bones were identified, and also present were sheep/goat (13), pig (4), horse (1), red deer (2) and domestic fowl (2). Details of the bones are stored in the archive.

Conclusions

The faunal sample from this site was small and poorly preserved. The prehistoric material is, however, unusual in several respects. The relatively high percentage of red deer fragments contrasts with the proportion in most later prehistoric settlement assemblages, in which red deer fragments rarely contribute more than 1% of the assemblage. This is partly the result of the disposal of worked antler offcuts. The additional presence of two worked bones in the assemblage may imply that some antler and bone-working was taking place nearby. Another unusual feature is the presence of several abnormal cattle lower third molars in such a small assemblage. The sample is too small, however, to provide detailed information about the patterns of exploitation of the animals.

DISCUSSION

When the excavations at Sandy Lane were undertaken in 1971, the burnt mound as a distinct class of prehistoric, Bronze-Age monument had been recognised and the diligent researcher could find examples of excavations on burnt mounds (Bullows 1930), evidence for their detection by fieldwork (Cantrill 1913) and experimental work to ascertain their function (O'Kelly 1954). On the other hand the publication of probably the two best-known and most comprehensive burnt mound excavations, at Liddle and Beaquoy on Orkney (Hedges 1975), was still some years away. In similar fashion, the work of Barfield and Hodder (1989) in the Birmingham area, which served to demonstrate how common these sites are in lowland England and in what particular environments they might be found, was in the future. In addition, the question of the function of burnt mounds—whether they were best seen as the remnants of cooking places (O'Drisceoil 1988) or of saunas and steam baths (Barfield and Hodder 1987) or whether they might be identified with an activity such as fleece processing (Limbrey 1987)—remained a matter for future debate.

Given these circumstances it is not surprising that some uncertainty surrounded the precise nature of the deposits uncovered at Sandy Lane in 1971 and that this uncertainty persisted until the preparation of the present report. Interpretation of the site was not helped by the fact that whilst all relevant deposits within the area of investigation were fully explored, it was clear that deposits of burnt stone continued beyond the southern excavation limits. This may explain the absence of what is usually taken to be one of the crucial components of a burnt mound site: the boiling pit or trough. This would commonly take the form of a pit adjacent to the mound and might be unlined or lined with clay, timber or stone.

Those who favour the cooking hypothesis argue that large joints of meat could be cooked by adding heated stones to the water-filled trough until it reached boiling point. More hot stone would be added to maintain the temperature until the food was cooked. Those who favour the sauna hypothesis would see the trough as a source of steam generated by the adding of hot stones to the water. There is a strong possibility that at Sandy Lane a pit or trough still survives beyond the southern excavation limits and underneath modern housing. If so, the wet conditions encountered during the original excavations suggest that such a feature might still contain well-preserved waterlogged remains. Other possibilities are that the trough lay to the north of the mound and was quarried away without record or that it was eroded away by the stream after the abandonment of the mound. Also worthy of consideration is an interpretation that the mound was formed from waste generated by a process that was being conducted beyond the limits of the excavated area. An excavation on the site of the Reading Business Park, Berkshire, in 1995 found by the side of a stream course a low mound, 85 m long by 12 m wide, formed

from fire-cracked flint, earth and charcoal. It appeared to have been a created by dumps of burnt deposits from a process that was being conducted elsewhere. As at Sandy Lane, no trough or pit was found in association with the mound (Oxford Archaeological Unit 1996, 16; Brossler and Early in prep.).

Examination of the other classes of data recovered from the site adds few clues as to its function, although it does confirm the late Bronze-Age date of the deposits. Thus, the flintwork appears typical of a late Bronze-Age assemblage, although no artefacts were present to indicate the activities that might have been undertaken on the site. Similarly, the pottery assemblage from undisturbed mound deposits is characteristic of the late Bronze Age. Artefactually, most interest attaches to the spear mould, which appears to date to *c.* 1000 B.C. It must be stressed, however, that there is no other evidence, such as slag or furnace debris, that the mound was associated with bronze casting. The fact that none of the samples taken for radiocarbon dating has proved suitable for this technique means that no absolute dates are available. The site is therefore dated to the late Bronze Age on the basis of its artefactual associations alone. A few postholes were present but these did not resolve themselves into any patterns suggestive of structures, such as fences or slight buildings, and the possibility that some may represent later intrusions by tree roots cannot be entirely ruled out. The two shallow features 5 and 23, detected in the western part of the site, may be the remains of hearths used to heat the stone prior to use, although the recovery of Beaker pottery from one may indicate earlier activity on the site.

The environmental samples shed little light on activities at the site. It was no surprise that in an area of calcareous geology pollen preservation was non-existent but one might reasonably have hoped for more information from the macrofossil samples. These were rich in charcoal fragments but contained little else other than a few remains of wild plants characteristic of wet environments. Information on whether the surrounding area was wooded or open was, therefore, not forthcoming.

A more useful approach to examining the function of the site might be to consider its location at the foot of the Cotswold escarpment and adjacent to a watercourse (the latter is an essential ingredient in the processes associated with burnt mounds). This would have placed the mound at the boundary of two different zones: the Severn Vale and Cotswold Hills. Pollen evidence from Ripple Brook, alongside the river Severn and just over the border in Worcestershire, indicates that whilst small clearings were present in the Vale in the second millennium B.C., permanent deforestation only began from about 900 B.C. A particularly sharp fall in tree pollen during the 5th and 6th centuries B.C. was accompanied by an equally sharp rise in cereal pollen (Brown and Barber 1985, 93).

It thus seems likely that whilst parts of the Severn Vale were beginning to be opened up when the Sandy Lane site was in use, much of this lower-lying area was still tree covered. The Cotswold uplands lack the peat deposits necessary for pollen analysis, but it has been suggested that during the Bronze Age much of that area was open ground used for grazing and hunting by communities based in the lower lying areas to the west and east (Darvill 1987, 121). Perhaps the Sandy Lane site was intended to exploit one or more of the resources offered by one or both of these contrasting zones. It may be no coincidence that the only similar site presently known from Gloucestershire occurs at the Buckles, Frocester, where a trough or pit from a middle Bronze-Age burnt mound has been examined (Darvill 2000, 193–210). This too lies at the base of the Cotswold escarpment, some 20 km to the south-west of Sandy Lane. A valid distribution pattern cannot be claimed on the evidence of two sites but the data do at least provide the basis for a hypothesis on the distribution of burnt mounds in Gloucestershire, which can be tested by field survey. In the meantime, one strongly suspects that other burnt mounds lie unrecognised at the base of the escarpment, alongside small palaeochannels and sealed by

layers of later colluvium and alluvium. As at Sandy Lane and the Buckles these later deposits may have entirely masked the sites and made their recognition and recording all the more difficult, whilst at the same time protecting them from levelling by later ploughing.

Quite what resources sites like Sandy Lane were seeking to exploit remains obscure but a hint may be provided by the animal bones. This small assemblage contained domestic animals but 10% of the identified fragments were of red deer, a high proportion for a later prehistoric site. Perhaps the site was concerned, at least in part, with the processing of deer carcasses both for meat and antler working. The small size of the assemblage means that this conclusion must remain speculative but the topic is another that might usefully be explored in any future research on a type of site that is surely more common in Gloucestershire than is presently recognised. It is to be hoped that the publication of the present article will act as a spur to the recognition and recording of this hitherto neglected class of monument.

Acknowledgements

We are grateful to the supervisors who assisted in the running of the excavation, Elizabeth Leedham-Green, Chris Gingell, Bas and Sue Roscoe and Judy Young, and to Richard Savage and Philip Dixon for inspiring the project, making the arrangements that enabled it to happen, and for their support during it. Thanks are owed to Neil Holbrook, Timothy Darvill, the Editor and his referee for reading and commenting upon the text; Andrew Davison, Tom Cromwell and Jan Summerfield of English Heritage for their support in bringing the results of the excavation to publication; and Alex Bayliss of the Ancient Monuments Laboratory for her advice on radiocarbon dating. The illustrations were prepared by Peter Moore and Rick Morton.

The Society gratefully acknowledges a grant from English Heritage towards the cost of publishing this report.

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