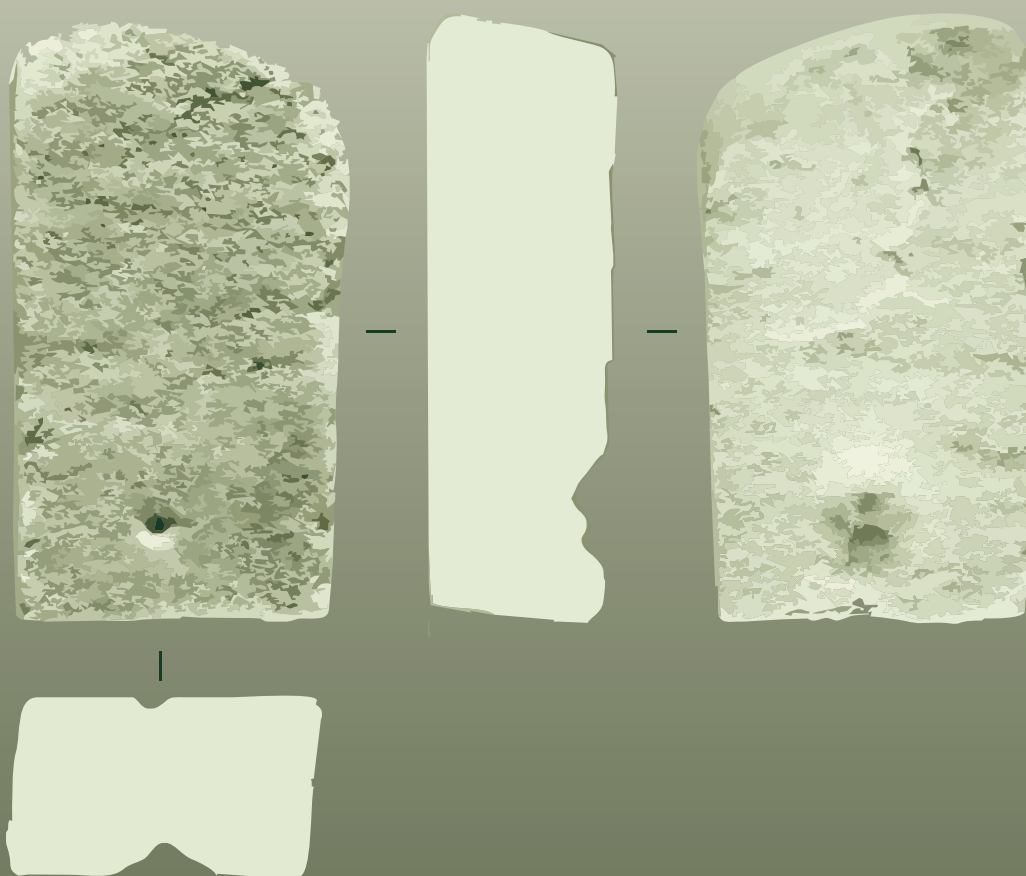


Landscape Evolution in the Middle Thames Valley

Heathrow Terminal 5 Excavations Volume 2

Worked Stone

(Section 7)



by Fiona Roe

SECTION 7

WORKED STONE

by Fiona Roe

Introduction

The worked stone from Terminal 5 amounts to 61 objects and 6 pieces of building stone, together with 362 fragments of burnt stone. These finds range in date from the Mesolithic through to the post-medieval/modern periods and have been summarised in Table 1 (All Tables located at the end of this report). All the pieces were examined with a x10 hand lens to determine the different varieties of stone, but no thin sectioning was considered necessary. The types of object that were recorded, together with the varieties of stone used to make them have been summarised in Table 2, while the burnt stone has been listed in the archive. All the objects are now fragmentary, but the lithic types can be identified and the combination of these and object types can add detail to the picture of everyday life in the area over thousands of years. The emphasis of this report lies with the high proportion of objects from Bronze Age contexts, while there is also a focus on varieties of stone that were imported during the Roman period.

Neolithic

The story of lithic usage at Terminal 5, other than of flint, begins with the Neolithic.

Axe: The butt end of a stone axe (SF 19516; **ILL. 1**) was recovered from a medieval enclosure ditch (599005). Macroscopic examination suggests that it was made from a Cornish greenstone, most probably Group I uralitised gabbro. This axe is most likely to relate to Neolithic activity in the area, although it may be remembered that a complete axe made from comparable rock was found at Perry Oaks deposited in a pit that also

contained Deverel-Rimbury pottery (Roe 2006, CD). Finds of such axes are not unusual in the middle Thames area (Clough & Cummins 1988, 266, Map 2).

Hammerstone: At sites situated on or close to deposits of Thames river gravels (Dewey & Bromehead 1915, 69), pebbles of hard materials such as quartzite and quartzitic sandstone were much used as hammerstones during both the Neolithic and Bronze Age. A hammerstone of quartzitic sandstone (695059) from a Grooved Ware pit is very similar to ones from earlier Neolithic contexts at the Eton Rowing Lake (Roe in prep(a)).

Querns: Two pieces of worked sarsen ((527113) & (527120)), both found in pit [527117], attest to the use of sarsen saddle querns for corn grinding. Both fragments are burnt. One (527120) has a smoothly ground working surface, while the other (527113) has traces of the pecking that was used to prepare the grinding surface of a saddle quern. This piece came from the top fill of pit [527117] and was found with abundant sherds of Mortlake ware and numerous flint flakes and tools. Comparable finds from specific Peterborough Ware contexts are not known at the time of writing. However, traditions in saddle quern usage and choice of materials for making them tended to be very conservative, in contrast to the ever changing styles of pottery, flintwork and other artefacts, and these finds from Terminal 5 are very similar to early Neolithic ones from the Eton Rowing Lake and adjacent sites (Roe, in prep (a)). Here too sarsen quern fragments tended to be burnt. Grinding surfaces prepared by pecking were typical, but some were also worn smooth. A suggested source for this sarsen was Chobham Common, but formerly sarsen blocks must have been more plentiful in the area generally (Dewey & Bromehead 1915, 58).

Miscellaneous: A third piece of stone that appears to be worked (524166) came from the lower fill of the western ditch of the Stanwell cursus and so may relate to earlier Neolithic activity. It is part of a slab of ironstone with a smooth but somewhat uneven surface.

Neolithic/Bronze Age

Hammerstones: With abundant source material, pebbles might receive slight use only as hammerstones before being casually abandoned, as was the case with a rolled quartzite cobble (SF 19502, context 537020). A second hammerstone of quartzitic sandstone (SF 19526, context 557020) was better utilised but then relegated to the burnt stone category. Further up the Thames, at Yarnton, Oxfordshire, similar pebbles from the river gravels were widely used as hammerstones during earlier prehistoric times (Roe in prep(c)).

Querns: An alternative to sarsen as a saddle quern material was iron-stained sandstone or ferricrete which occurs as cemented gravel in the terraces of the Thames (Sumbler 1996, 146). Fairly coarse-grained sandstone of this type was used for a saddle quern or rubber fragment found with a few flints in the secondary deposit of a pit (SF 19524, context 531046).

Bronze Age

There are 21 fragments of worked stone from Bronze Age contexts, together with another two that may be Bronze Age and these have been summarised according to phase in Table 3.

Despite the almost complete absence of worked stone from early Bronze Age contexts, with just two early/middle Bronze Age finds, there is a clear continuation of traditions, both in the types of artefact in use and the choice of lithic materials for making them, but also some innovations, which include the introduction of whetstones and also of polishers. Nearly all the materials utilised are of local provenance but there is also the beginning of some slight evidence for the use of imported quernstone. Again all the finds are fragmentary but they still provide some information about details of daily life during the middle and late Bronze Age.

Hammerstones: Five hammerstones were found in Bronze Age contexts, four of them being retrieved from middle or middle/late Bronze Age ditches, while the fifth came from

a Bronze Age pit. Three of them had been re-used as burnt stone. All were made from pebbles of quartzitic sandstone collected from the Thames gravels.

Miscellaneous: A known quern material, the Bargate stone, was used for a *point sharpener* (ILL. 2) from a ditch of possible Bronze Age date (661013). This may be a re-used piece of broken saddle quern that now has four grooves cut across a worn surface. The Bargate stone originates in the Lower Greensand around Godalming in Surrey and is a calcareous sandstone containing small pebbles, glauconite grains, some of which are large, and a few fossils, while there may be traces of iron staining (Dines & Edmunds 1929, 161). This quernstone is likely to have reached Heathrow by boat, down the river Wey and then down the Thames. The point sharpener came from an unphased context, a ditch of possible Bronze Age date, but it need be no surprise to find Bargate stone in a Bronze Age context at Terminal 5, since there have been comparable finds elsewhere. Bargate stone has occurred at some half dozen late Bronze Age sites, and these finds include a saddle quern found in a late Bronze Age pit at Cookham, Berkshire (Roe in prep (b)), and a number of finds from Runnymede Bridge, Surrey (Needham & Spence 1996 and British Museum). A piece of imported greensand that is also likely to be a quern material was recovered from a late Bronze/early Iron Age pit (663270).

Three quartzite pebbles from the local gravels were selected for use as *polishers* and it is curious that two of these should be banded quartzite, as was an altogether later polisher from a Roman context (525345). One of these banded quartzite examples has a slightly concave worn surface that is now smooth and shiny, and a use as a burnisher for putting the finishing touches to pottery is suggested. This came from the secondary fill of a middle Bronze Age pit (563074). A second, smaller fragment of banded quartzite came from a middle Bronze Age ditch (555196) and appears to have been similarly worn. A pebble of plain quartzite (SF 29742), also from a Bronze Age ditch (695044), has only been slightly utilised. A flint pebble (context 695146) is a suitable size for use as a *slingstone*, but it is more usual for these to occur in groups.

Saddle querns: As might be expected, saddle quern fragments were the most frequently found variety of stone object from Bronze Age contexts. It was noted above that a point sharpener (ILL. 2; context 661013) seems to be made from a re-used quern fragment of

Bargate stone brought to the site from near Godalming in Surrey. Apart from this, the querns are made from local materials, and it is clear that earlier traditions were carried on throughout the Bronze Age. The evidence for this begins with a worked fragment of ironstone (SF 19507) from an early/middle Bronze Age ditch (576058). This piece of ironstone is of the variety sometimes termed carstone, a dense purple-brown stone which when broken may have an almost metallic lustre on the fresh surface. A second saddle quern fragment from an early/middle Bronze Age context came from waterhole 693006 and this one was made from quartzitic sandstone. Querns made from quartzitic sandstone did not occur in earlier contexts at Heathrow, but they were found in Neolithic contexts at the Eton Rowing Lake (Roe in prep (a)) and must have been part of the local stone-working tradition. For the middle Bronze Age, two saddle quern fragments were found. A large piece of quern made again from quartzitic sandstone was deposited over a complete pot near the bottom of a pit (579172). The same material was used for a near complete rubber, (SF 13273, **ILL. 3**), found in a ditch (615046). Another saddle quern was made from ironstone (SF 9001) and was also found in a ditch (559144). Further worked ironstone (carstone) came from a ditch (588106) of middle/late Bronze Age date. A late Bronze Age waterhole (563054/6) yielded yet more worked ironstone (carstone) as well as sarsen, while further worked sarsen fragments, from a possible saddle quern and rubber, came from a Bronze Age pit (527119). The hardness of quartzite would have made it unsuitable as a corn grinding material. Slight wear traces on a quartzite cobble from a ?Bronze Age gully (639006) indicate that an attempt may have been made to use it as a rubber for a saddle quern, but if so the effort was soon abandoned.

There would have been no difficulty in obtaining usable quern materials locally. The former presence of sarsen in the area or from not too far away is attested by its use in local medieval churches (Potter 1998). The local ironstone is quite variable in character, some of it being the dense purplish/brown stone sometimes termed carstone, and again different varieties of ironstone that were available can be seen in local medieval churches (Robinson & Worssam 1989). Quartzitic sandstone is less hard than quartzite and seems to have been selected deliberately from local river gravel deposits to be used for some querns and rubbers as well as for hammerstones and whetstones. At the Eton Rowing Lake cobbles of quartzitic sandstone were often used as rubbers for saddle querns but

sarsen was more likely to have been chosen for the querns themselves, probably because cobbles from the gravels were mostly not large enough for this purpose (Roe in prep(a)). However, at Heathrow greater use was made of ironstone and it can be assumed that there were more plentiful supplies available locally. Similar ironstone was used for querns elsewhere in the area, as for instance on a site at Dorney, Buckinghamshire, where a quern fragment was found in a middle Bronze Age ditch (Roe in prep(b)).

Whetstones: Bronze Age whetstones can often be identified by their rod-like form and by a single perforation at one end. A somewhat crude version of such a whetstone made from a long slab of quartzitic sandstone (SF 19509, **ILL. 4**) seems to have broken, after which an attempt was made to bore a hole through near the broken end. It came from middle/late Bronze Age ditch 598093. Another worked piece of quartzitic sandstone (SF 29741) from a middle/late Bronze Age waterhole (685035) has two facets which have been pecked and then worn smooth, and this too may have been used for whetting. This artefact resembles ones made from similar pebbles and interpreted as possible whetstones from Iron Age contexts at Beckford, Worcestershire (Roe in prep(d)).

Late Bronze/Early Iron Age

The handful of late Bronze/early Iron Age stone objects demonstrates further continuity with earlier traditions of stone utilisation. A hammerstone of quartzitic sandstone came from a ditch (561238) and could be a redeposited item of any period from the Neolithic onwards. A fragment of sarsen saddle quern (context 580292) is also no different from earlier examples. However a fragment of greensand, from a pit containing midden material (663170), is clearly not of local origin and could be evidence for an imported quern material, although a source for the stone, a green calcareous sandstone with a high glauconite content cannot be identified precisely.

A pebble of quartzitic sandstone from an Early Iron Age pit/waterhole (726005) is roughened from wear at one end and also has traces of a ferruginous deposit, as if it had been used for grinding up ironstone or ochre.

Iron Age

The general lack of Iron Age objects from the Terminal 5 excavations extends to a shortage of worked stone, but the indications are that by the early to middle Iron Age traditions were unchanged. Sarsen was still in use as a saddle quern material, as evidenced by a piece with a pecked, concave grinding surface (688003) from a possible early/ middle Iron Age pit (though this pit could in fact be Bronze Age) while further large pieces of burnt sarsen, perhaps also quern fragments, came from the same pit. Sarsen was used elsewhere in the area for Iron Age saddle querns, as for instance at Lower Mill Farm, Stanwell (Jones & Poulton 1987, 7). A flint pebble from a Middle-Late Iron Age penannular Gully 2 [523193] could have been used as a small slingstone.

Late Iron Age/ early Roman

Rotary querns: The two querns from late Iron Age/early Roman contexts were quite different in character from the earlier ones described above. One of them (context 521086), a rotary quern fragment, was made of Lodsworth stone, a variety of Lower Greensand from Sussex (Peacock 1987) and there is another, burnt fragment of this stone (context 676003). The other rotary quern (context 623046) consists of Upper Old Red Sandstone from the Forest of Dean/Wye Valley area (Welch & Trotter 1961, 49). During the later part of the Iron Age, there had been a change from saddle to rotary querns, and for making these, the local quern materials, that had been in use for thousands of years, were abandoned in favour of imported varieties of stone. All three finds from Terminal 5 are fragmentary, but traces of worn concentric rings on the grinding surface of two of them indicate that they come from rotary querns. The choice of these two quern materials is in no way unusual, as they had begun to appear in the area during later prehistoric times (Roe in prep(b)). Finds of Lodsworth stone in particular are typical of late Iron Age/early Roman sites along the Thames, as for instance at Thames Valley Park, Berkshire (Barnes *et al* 1997, 46).

Roman

Rotary querns and millstone: The Roman worked stone objects amount to eleven pieces, of which eight are quern fragments, all of which can be presumed to have been rotary querns. All were made from imported materials. One small fragment (context 651051) consists of Bargate stone, a variety of Lower Greensand from around Godalming in Surrey. This greensand was used for saddle querns, as discussed above, but it is also known to have been widely used to make Roman rotary querns (Clark & Nicholls 1960, 65). The four fragments of Lodsworth stone have also not survived well but there is an identifiable piece of lower stone from a rotary quern with a spindle hole and a grinding surface worn into rings and this was found in an early Romano-British pit (617176). It is likely that some fragments from a millstone of Lodsworth stone (SF 19518) found in a Medieval well (533039) are also Roman, since other Roman millstones made from this stone are known, including one from the Eton Rowing Lake (Roe in prep (b)). The occurrence of two quern fragments of quartz conglomerate from the Old Red Sandstone of the Forest of Dean/Wye valley area is in no way surprising, since this stone was very widely used during the Roman period (Shaffrey 2006). There is also evidence for a quern made from Millstone Grit (context 527339) and again this is frequently recorded on Roman sites and need not be considered out of the ordinary at Heathrow, despite the distance from the source area in the Pennines. There were further finds of Millstone Grit from the Eton Rowing Lake, including millstone fragments (Roe in prep (b)).

Whetstone: A single whetstone fragment was found (SF 12055; context 615162). This was made of Kentish Rag from the Maidstone area of Kent and it cannot have seen much wear before it broke, since it is larger and less worn than most examples. These Kentish Rag whetstones are ubiquitous on Roman sites.

Miscellaneous: A large pebble of banded quartzite (context 525345) was selected for use as a *polisher* and has a concave surface that is now smooth and glossy from wear. Such artefacts are relatively common on Roman sites and may have been used to burnish pottery, though other uses are also possible. It is noteworthy that banded stone was also

chosen for the two Bronze Age polishers described above. A flint *hammerstone* from a Roman ditch (670004) is likely to relate to prehistoric activity on the site.

Medieval

There are five objects and one piece of building stone from medieval contexts.

Counter: A small, flat flint pebble (SF 19510) may have been collected from the local river gravels for use as a counter. It was found in an early medieval post pit (537021), one of ten that were part of a rectangular building. Another possible counter (SF 17022) is a similarly shaped pebble that was unstratified (context 537030).

Millstone: Four burnt fragments from a probable millstone of Lodsworth stone (SF 19518) are likely to be Roman since neither rotary querns nor millstones made from this variety of greensand have been recorded to date on a Medieval site. The fragments were re-deposited in the fill of well 533039.

Rotary querns: Niedermendig lava does not survive well on river gravel sites and all three examples from Terminal 5 are now degraded and fragmentary. Although they lack working traces, they are likely to have come from rotary querns. It was convenient to transport these bulky objects by boat and the Thames provided an ideal route-way, so that there are numerous finds of both Saxon and Medieval lava querns from London and from sites along the Thames, as for instance at Dorney, Buckinghamshire (Roe 2002, 37).

Building stone: Part of a slab with a worn surface (context 555445) has been interpreted as a possible paving stone. Its findspot not far to the south of two rectangular medieval structures would seem to confirm this.

Post-medieval

Whetstone: A fragmentary whetstone (SF 19504) from a late post-medieval context (534049) is made from a variety of Upper Greensand known as the Devonshire Batts. This was quarried in the Blackdown Hills of Devon and the whetstones produced here seem to have been widely disseminated during post-medieval times (Moore 1978, 62).

Building stone: Four small fragments of grey slate are of the type that was widely used for roofing in Victorian and later times, once the railways had become a going concern. Two are from post-medieval features, but two others appear to be intrusive in earlier contexts, one coming from a Bronze Age pit (549199), while the other was found in a Roman ditch (527369).

Modern

Whetstone: A small fragment of whetstone (SF 13146) is of the long, tapered post-medieval variety, which is in keeping with its findspot in a post-medieval/modern ditch (542191). It is made from a feldspathic, quartz sandstone likely to have come from the Coal Measures.

Unphased

Three stone objects were found in contexts that could not be dated.

Counter: A flat flint pebble (SF 17022; context 537030) resembles a possible counter of medieval date (context 537021) and was found with four smaller, polished flint pebbles.

Pounder: Another pebble, of quartzitic sandstone, has a flat end that has been pecked and then worn smooth (SF 29700; context 689005) as if it was used as a pounder or grinder, while one side was additionally used for whetting. It most resembles a grinding

stone from an Iron Age context (726005) but could equally well be a pestle for a medieval mortar.

Building stone: Part of a slab of local ironstone with a worn, flat surface (context 700002) seems best interpreted as a paving stone that is most likely to be medieval or post-medieval in date, though it could be earlier.

Burnt stone

The burnt stone, which amounts to 362 pieces, appears to be subsidiary to the quantities of burnt flint that were recorded. Burnt stone was retrieved from contexts phased from Mesolithic through to Saxon. It is noticeable that much of it, some 60%, came from Bronze Age features, with another 13% from Iron Age features. Burnt stone is of regular occurrence on prehistoric domestic sites and requires little comment. It was usual to make use of any locally available stone and Terminal 5 is no exception, with a mixture of materials that could all have come from the river gravels, as listed in the archive. The main component consists of pebbles of quartzite and quartzitic sandstone, which amount to some 82% of all the recorded burnt stone.

Discussion

Grinding equipment is, as might be expected, the most important component in this assemblage, amounting to 33 pieces. Those living at Heathrow during the earlier prehistoric period knew exactly how to make the best of local lithic materials, while from the Bronze Age onwards they began importing varieties of quernstone from sources outside the immediate area. From the Neolithic until the middle Iron Age, local materials would have been mainly used for saddle querns and rubbers, utilizing all available sources of hard stone suitable for grinding. Sarsen and ironstone came from local Tertiary deposits, while cobbles were collected from the Thames gravels, quartzite ones being usually rejected in favour of less hard quartzitic sandstone. All these materials were

similarly used at the Eton Rowing Lake and other prehistoric sites in the area (Roe in prep (a) & (b)). The use of local stone for saddle querns in the middle Thames area contrasts with other areas where suitable quernstone was not available and had to be brought in from Neolithic times onwards (Roe forth).

It is now known that some imported quern materials started to arrive in the middle Thames area as early as the Bronze Age. There is, as it happens, no evidence from Terminal 5 for the use of either Lodsworth stone from Sussex or Old Red Sandstone from the Forest of Dean before late Iron Age/early Roman times, but elsewhere they have been recorded, even if only in small quantities, from the Bronze Age onwards (Roe in prep (b)). Bargate stone from near Godalming, Surrey is another quern material that appears to have been moved around relatively early, with for instance a saddle quern from a late Bronze Age pit at Cookham, Berkshire (Roe in prep (b)). The evidence from Terminal 5 is ambiguous, but a Bronze Age date would not be out of place for a re-used quern fragment of Bargate stone from a ?Bronze Age ditch here. There is also a fragment of greensand from a late Bronze/early Iron Age pit and this too would have been brought in from outside the immediate area.

With the arrival of rotary querns, probably some time during the middle Iron Age, use of imported quernstone became generally more intensive. At Terminal 5 though, sarsen was found in early/middle Iron Age and middle Iron Age pit and was probably used for saddle querns. Here there is no evidence for imported quern materials until the late Iron Age/early Roman period, when that local quern materials seem to have disappeared, being replaced by rotary querns of Lodsworth stone and Old Red Sandstone. All the Roman quern materials were imported, but, as now can be seen, this was not a Roman innovation, though there may well have been improvements at this time to the distribution system. River transport would always have been important, with Bargate and Lodsworth stone arriving down the Thames via the river Wey. The Roman use of Lodsworth stone probably included a millstone later redeposited. A new grinding material to make its appearance now is Millstone Grit from the Pennines. Niedermendig lava was most probably brought up the Thames to Heathrow, although it does not occur in Roman contexts at Terminal 5, probably because it does not survive well in river gravels. It is however, common on Roman sites generally, including ones in the middle

Thames area, as for instance Silchester (Shaffrey 2003, 153). The same four varieties of quernstone, Lodsworth greensand, Old Red Sandstone, Millstone Grit and Niedermendig lava have been found on Roman sites in Oxfordshire (Roe in prep (e)) and it is a pattern repeated elsewhere. Large quantities of Niedermendig lava appear to have been brought up the Thames during the Saxon period (Roe 2002) and it continued to be of importance for hundreds of years, so that the fragments from Medieval contexts at Terminal 5 are much as would be expected.

As far as the whetstones and other stone artefacts are concerned, the story follows a similar pattern. Whetstones first occur at Terminal 5 during the Bronze Age, when local pebbles were utilised. Iron Age whetstones are absent. By Roman times, Kentish Rag makes its appearance, as it does on many other Roman sites throughout England and particularly on sites in London, no doubt because of proximity here to the source area (Rhodes 1986). The post-medieval whetstone was acquired from Devon, where quarries on the Blackdown Hills were active at that time. Coal Measures sandstone from the Pennines had a very long period of use for whetstones (Moore 1978, 68) and the example from Terminal 5, found in a modern context, is a tapered in shape, suggesting a post-medieval date.

Suitable materials were carefully selected for other basic tools, following patterns already noted elsewhere in the region. Pebbles from the Thames gravels were used for hammerstones, with a preference for quartzitic sandstone, as was the case at Eton (Roe in prep (a)) and further up the Thames at Yarnton (Roe in prep (c)). However pebbles of quartzite were chosen for polishers and curiously 3 of the 4 examples from Terminal 5 consist of banded quartzite, an unusual local variation. These pebbles, with their worn, highly polished surfaces, are not common on Bronze Age sites, so that three such artefacts are also unusual. Polishers are however regular finds on Roman sites. In a culture where nothing was wasted if it could be re-used, it would be routine to make a point sharpener from a quern fragment. Only the stone axe diverges from the established pattern here of using local materials for the earlier prehistoric objects, since this was made of greenstones acquired from Cornwall. This imported object is however entirely in keeping with finds of other stone axes in the area. Altogether the worked stone from Terminal 5 correlates with what is known of stone use from other middle Thames sites,

serving to build up the picture of skilled utilisation through time of the best available lithic materials.

Worked stone illustration catalogue (Fig. 1)

1. Butt end of stone axe, weathered; 70 x 50.5 x 22 mm, 80 g
2. Piece of stone with 4 grooves from use as point sharpener, could be reused saddle quern or rubber fragment; 127 x 79 x 46.5 mm, 535 g
3. Large rubber for saddle quern, incomplete, convex grinding surface which has been pecked and then worn smooth in places, with areas worn glossy at the edges, made from a cobble; 215 x 168 x 86 mm, 3 kg
4. Part of whetstone, rod variety but broken, unfinished hole subsequently started through both sides at broken end, worn sides; 64 x 35 x 21 mm, 85 g

Bibliography

- Allen T, Barclay A, Mortimer S & Welsh K, in prep(a) *Opening the wood, working the land: The Archaeology of a Middle Thames Landscape. The Eton Rowing Lake Project and the Maidenhead, Windsor and Eton Flood Alleviation Scheme, Vol I*, Oxford Archaeology
- Allen T, Barclay A, Mortimer S & Welsh K, in prep(b) *Bridging the river, dividing the land: The Archaeology of a Middle Thames Landscape. The Eton Rowing Lake Project and the Maidenhead, Windsor and Eton Flood Alleviation Scheme, Vol II*, Oxford Archaeology
- Barnes I, Butterworth C A, Hawkes J W & Smith L 1997 *Excavations at Thames Valley Park, Reading, 1986-88. Prehistoric and Romano-British Occupation of the Floodplain and a Terrace of the River Thames*, Wessex Arch Report No **14**
- Clark A & Nicholls J F 1960 'Romano-British Farms South of the Hog's Back', *Surrey Arch Coll* **57**, 42-71
- Clough T H McK & Cummins W A 1988 *Stone Axe Studies, Volume 2: The petrology of prehistoric stone implements from the British Isles*, C.B.A. Research Report No 67
- Dewey H & Bromehead C E N 1915 *The Geology of the Country around Windsor and Chertsey*, Explanation of Sheet 269, Memoirs of the Geological Survey, England and Wales, London H.M.S.O
- Dines H G & Edmunds F H 1929 *The Geology of the Country around Aldershot and Guildford*, Explanation of Sheet 285, Memoirs of the Geological Survey of England and Wales, London H.M.S.O.
- Jones P & Poulton R 1987 'Iron Age Hut Circles Discovered near Lower Mill Farm, Stanwell', *Trans London & Middlesex Arch Soc* **38**, 1-10

- Moore D T 1978 'The Petrography and Archaeology of English Honestones', *Journ Arch Science* **5**, 61-73
- Needham S & Spence T 1996 *Refuse and Disposal at Area 16, East Runnymede, Runnymede Bridge Research Excavations Vol 2*, London, British Museum Press
- Peacock D P S 1987 'Iron Age and Roman quern production at Lodsworth, West Sussex', *Antiq Journ* **67**, 61-85
- Potter J F 1998 'The distribution of silcretes in the churches of the London Basin', *Proc Geologists' Assoc* **109**, 289-304
- Rhodes M 1986 'Stone objects' in L Miller, J Schofield & M Rhodes, *The Roman Quay at St Magnus House, London: Excavations at New Fresh Wharf, Lower Thames Street, London 1974 – 1978*, Special Paper for the London and Middlesex Archaeological Society, 240-5
- Robinson E & Worssam B 1989 'The geology of some Middlesex churches', *Proc Geologists' Assoc* **100**, 595-603
- Roe F 2002 'The worked stone' in S Foreman, J Hiller & D Petts, *Gathering the people, settling the land. The Archaeology of a Middle Thames Landscape: Anglo-Saxon to post-medieval*, Oxford Archaeology, Thames Valley Landscapes Mono No 14, 37-9 & CD
- Roe 2006 'Stone axe' in Framework Archaeology, *Landscape Evolution in the Middle Thames Valley: Heathrow Terminal 5 Excavations Vol !*, Perry Oaks, Framework Archaeology Mono No 1, Oxford Archaeology & Wessex Archaeology
- Roe F forthcoming 'Corn grinding in southern England: what can the querns tell us?' in K Brophy & G Barclay (eds), *Defining a Regional Neolithic: the evidence from Britain and Ireland*, Neolithic Studies Group Seminar Papers **9**, Oxford, Oxbow Books

Roe F, in prep(a) 'Worked Stone, in T Allen, A Barclay, S Mortimer & K Welsh, in prep(a)

Roe F in prep(b) 'Worked stone' in T Allen, A Barclay, S Mortimer & K Welsh, in prep(b)

Roe F in prep(c) 'Worked stone' in G Hey, *Yarnton: Neolithic and Bronze Age Settlement and Landscape*, Oxford Archaeology

Roe F in prep(d) 'Worked stone' in J Wills *et al.*, Excavations at Beckford 1975 – 79

Roe F in prep (e) 'Worked stone' in G Hey, *Yarnton: Iron Age and Roman Settlement and Landscape*, Oxford Archaeology

Shaffrey R 2003 'The Rotary Querns from the Society of Antiquaries' Excavations at Silchester, 1890 – 1909', *Britannia* **34**, 143-74

Shaffrey R 2006 *Grinding and Milling: A study of Romano-British rotary querns and millstones made from Old Red Sandstone*, B.A.R. British Series 409, Oxford

Sumbler M G 1996 *London and the Thames Valley*, British Regional Geology, British Geological Survey, London H.M.S.O.

Welch F B A & Trotter F M 1961 *Geology of the Country around Monmouth and Chepstow*, Explanation of Sheets 233 & 250, Memoirs of the Geological Survey of Great Britain, London H.M.S.O.

Tables

Table 1: summary of worked stone, by period and object type

PERIODS		axe	hammerstone	MISC				point sharpener	polisher	QUERNS						whetstone	totals		Building stone	Burnt stone
				counter?	grinder/pounder	slingstone?	utilised			saddle quern	saddle quern or rubber	rotary quern	millstone							
MESO																		2		
NEO	1	1				1										5		15		
NEO/BA		2														3		9		
BA			5			1			3	1	4	5		2	21			218		
BA?								1		1					2					
LB/EIA			1								1	1			3			3		
IA				1	1						1	1			4			48		
LIA/ER													3		3			9		
RO		1							1				8	1	11			18		
SAX																		10		
MED			1										3	1	5	1				
PMED														1	1	4				
MOD														1	1					
UNPHASED				1	1										2	1		30		

Table 2: summary of worked stone by material and object type

LITHIC IDENTIFICATIONS	axe	hammerstone	MISC				point sharpener	polisher	QUERNS						whetstone	totals		
			counter?	grinder/ pounder	slingstone?	utilised			saddle quern	saddle quern or rubber	rotary quern	millstone						
LOCAL MATERIALS																		
Quartzite		2					4	1									7	
Quartzitic sandstone		7		2				1		2						2	14	
Flint		1	2		2												5	
Ironstone						1				2	3						6	
Sarsen										2	6						8	
IMPORTED MATERIALS																		
Greenstone	1																1	
Bargate stone							1					1					2	
Greensand											1						1	
Lodsworth stone												6	1				7	
Upper Old Red Sandstone, quartz conglomerate												3					3	
Millstone Grit												1					1	
Niedermendig Lava												3					3	
Kentish Rag														1			1	
Devonshire Batts														1			1	
Coal Measures sandstone																1	1	
totals	1	10	2	2	2	1	1	4	2	6	10	14	1	5		61		

Table 3: Summary of Bronze Age worked stone, by phase

	hammer- stone	point- sharpener	polisher	rubber	saddle quern	quern or rubber	slingstone?	whetstone	totals
Q U E R N S									
E/MBA									
ironstone						1			1
quartzitic sandstone					1				1
MBA									
flint							1		1
ironstone					1				1
quartzite			3						3
quartzitic sandstone	3			1	1				5
M/LBA									
ironstone					1				1
quartzitic sandstone	1							2	3
LBA									
ironstone						1			1
sarsen						1			1
BA									
quartzite	1								1
sarsen						2			2
BA?									
Bargate stone		1							1
quartzite				1					1
totals	5	1	3	2	4	5	1	2	23

Full catalogue of worked stone

I: OBJECTS

NEOLITHIC

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	524166	8064	object	Long thin slab with apparent traces of use on one flat side, but rather uneven, purpose uncertain; 201 x 56 x 20 mm, 368 g	ironstone	lower fill of western ditch of Stanwell cursus	524168
PSH.02	527113	-	saddle quern or rubber	Burnt fragment with pecked grinding surface, probably from a saddle quern or rubber; a second burnt fragment of sarsen may belong; 100 x 99.5 x 92 mm, 970 g	sarsen	top fill of pit [527117], with Mortlake ware and struck flints	527113
PSH.02	527120	-	saddle quern or rubber	Burnt fragment with a flat, worn surface, probably part of a saddle quern or rubber; 57.5 x 37 x 49 mm, 147 g	sarsen	deliberate backfill of pit [527117]	527144
PSH.02	599005	19516	axe	Butt end of stone axe, weathered; 70 x 50.5 x 22 mm, 80 g	greenstone, probably Group I	fill of Medieval enclosure ditch	599005
TEC.05	695059	-	hammerstone	Pebble with two areas of battering, probably used as hammerstone; 84 x 60 x 41 mm, 210 g	quartzitic sandstone	Upper fill of late Neolithic pit, with 2 Grooved Ware vessels	599005

LATE NEOLITHIC/BRONZE AGE

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	531046	19524	saddle quern or rubber	Fragment with a flat, worn surface, probably part of a saddle quern or rubber; 117 x 97 x 57 mm, 810 g	ironstone	secondary fill of pit	531046
PSH.02	537020	19502	hammerstone	Rolled cobble with slight traces of battering at one end; 121 x 77 x 86 mm, 975 g	quartzite	secondary fill of pit	557020
PSH.02	557020	19526	hammerstone	Rolled pebble, burnt, battered at one end; 74 x 45 x 34.5 mm, 150 g	quartzitic sandstone	fill of pit	557020

BRONZE AGE

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	527119	-	saddle quern or rubber?	Burnt fragment with small area of pecked grinding surface, could be from saddle quern or rubber; 73 x 65 x 43.5 mm, 150 g	sarsen	pit, BA	-
PSH.02	527119	-	saddle quern or rubber?	Burnt fragment with smooth, worn convex area, could be part of rubber for saddle quern; 75 x 59 x 29 mm, 120 g	sarsen	pit, BA	-
PSH.02	539034	15191	hammerstone	Part of pebble burnt, battered at one end from use as hammerstone; 82 x 58 x 39 mm, 245 g	quartzitic sandstone	ditch, M/LBA	512005
PSH.02	555097	19525	hammerstone?	Small pebble with slight damage at either end, seems to have been used	quartzitic	ditch, MBA	555108

Heathrow Terminal 5 Worked Stone

						as hammerstone; 49 x 36 x 28 mm, 55 g	sandstone		
PSH.02	555196	-		polisher		Fragment of banded stone with one flat and polished surface, may be burnt; 28.5 x 24.5 x 7 mm, 10 g	quartzite, banded	ditch, MBA	555237
PSH.02	559144	9001		saddle quern		Part of saddle quern made from small boulder, traces of pecking on concave grinding surface, smoothly worn area at edge; 152 x 142 x 67 mm, 2 kg	ironstone	ditch, MBA	559188
PSH.02	563054	19511		saddle quern or rubber		Fragment from saddle quern or rubber, flat working surface with some smooth patches; 61.5 x 54.5 x 44 mm, 210 g	ironstone (carstone)	waterhole, LBA	563060
PSH.02	563056	-		saddle quern or rubber		Fragment, slightly burnt, one flat surface with worn patches, could be from saddle quern or rubber; 108 x 95 x 52 mm, 485 g	sarsen	waterhole, LBA	563060
PSH.02	563074	19522		polisher		Part of pebble, broken and rolled before use as polisher, worn, glossy surface is slightly concave; 45.5 x 43 x 17 mm, 50 g	quartzite, banded	pit, MBA	563062
PSH.02	576058	19507		saddle quern or rubber		Fragment from saddle quern or rubber, flat, worn surface with polished patches; 97 x 91 x 54 mm, 780 g	ironstone (carstone)	ditch, E/MBA	576057
PSH.02	579175	14058		saddle quern		Part of saddle quern, slightly concave grinding surface lengthways but convex crossways, pecked and then worn smooth in patches, especially round the edge, made from boulder roughly chipped to shape; L now 125 mm x 176 x 139 mm, 3 kg	quartzitic sandstone	pit, MBA	579172
PSH.02	588106	-		saddle quern?		2 fragments from possible saddle quern, weathered but traces of concave grinding surface; 137 x 129 x 71 mm, 1240 g	ironstone (carstone)	ditch, M/LBA	588149
PSH.02	593036	19509		whetstone		Part of whetstone, rod variety but broken, unfinished hole subsequently started through both sides at broken end, worn sides; 64 x 35 x 21 mm, 85 g	quartzitic sandstone	ditch, M/LBA	598093
PSH.02	594054	19523		hammerstone		Incomplete pebble, broken into 4 fragments, burnt, battered on one side from use as hammerstone; 58 x 57 x 46 mm, 245 g	quartzitic sandstone	ditch, MBA	594116
PSH.02	594139	-		hammerstone		Pebble, burnt, battered at one end from use as hammerstone; 72 x 58.5 x 38 mm, 185 g	quartzitic sandstone	ditch, MBA	594147
PSH.02	615046	13273		rubber		Large rubber for saddle quern, incomplete, convex grinding surface which has been pecked and then worn smooth in places, with areas worn glossy at the edges, made from a cobble; 215 x 168 x 86 mm, 3 kg	quartzitic sandstone	ditch, MBA	615051
TEC.05	685035	29741		whetstone		Fragment from burnt pebble, two small facets which have been pecked and then worn smooth from probable use as whetstone; 46.5 x 71 x 25 mm, 87 g	quartzitic sandstone	fill of waterhole, M/LBA	685035
TEC.05	693002	29702		saddle quern		Fragment, burnt, probably from saddle quern, pecked concave grinding surface, worn smooth round edge; 71 x 43 x 38 mm, 155 g	quartzitic sandstone	waterhole [693006], E/MBA	693002
TEC.05	693015	29750		hammerstone		Part of cobble, broken and then rolled, slight traces of battering from use as hammerstone at either end; 98 x 60 x 44 mm, 315 g	quartzite, banded	fill of pit, BA	693015

Heathrow Terminal 5 Worked Stone

TEC.05	695044	29742	polisher	Pebble, broken and then rolled, slight traces of burnish on flat, broken surface; 78 x 70 x 44 mm, 290 g	quartzite	fill of ditch segment, MBA	695066
TEC.05	695046	-	slingstone?	Small pebble, shape and dimensions suggest a possible slingstone; 53 x 41 x 41 mm, 100 g	flint	Fill of ditch segment, MBA	695048

BRONZE AGE?

PSH.02 Twin Rivers	639006	-	rubber?	Cobble, broken and rolled, slightly worn surface on flat, broken side from probable attempted use as rubber for saddle quern; 112 x 83 x 65 mm, 780 g	quartzite	gully, unphased (?BA)	-
PSH.02 Twin Rivers	661013	-	point sharpener	Piece of stone with 4 grooves from use as point sharpener, could be reused saddle quern or rubber fragment; 127 x 79 x 46.5 mm, 535 g	Bargate stone, Greensand	ditch, unphased (?BA)	-

LATE BRONZE/EARLY IRON AGE

<i>Site code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	561238	19517	hammerstone	Burnt cobble, battered, probably hammerstone 93 x 88 x 67 mm, 615 g	quartzitic sandstone	ditch, LB/EIA	547279
PSH.02	580292	-	saddle quern	Fragment from probable saddle quern, concave grinding surface that has been pecked and then worn smooth; 102 x 77 x 77 mm, 715 g	sarsen	waterhole, LB/EIA	581168
PSH.02 Twin Rivers	663170	-	quern?	Fragment of probable quern material, weathered; 74 x 57 x 22 mm, 60 g	greensand	pit, LB/EIA	663167

IRON AGE

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	591099	-	slingstone?	Small pebble, possible slingstone; 30 x 23 x 21 mm, 15 g	flint	penannular gully, M-LIA	523193
TEC.05	688002	-	quern?	Large, burnt fragment, now without clear working traces but may have been part of saddle quern or rubber; 170 x 108 x 114 mm, 2932 g	sarsen	pit, E/MIA	688002
TEC.05	688003	-	saddle quern	2 large, burnt fragments, largest one has traces of pecked, concave grinding surface, could be from saddle quern, measures 145 x 135 x 103 mm, together 3078 g	sarsen	pit, E/MIA	688003
LFA.02	726005	-	grinder?	pebble, slightly burnt, also slight staining, traces of wear and of ferruginous material at one end, may have been used for grinding up ochre; 66 x 50 x 34 mm, 155 g	quartzitic sandstone	fill of deposit, IA	726005

LATE IRON AGE/EARLY ROMAN

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	521086	-	rotary quern	Fragment, broken in two, traces of grinding surface with wear into concentric rings, likely to be from rotary quern; 78 x 59 x 17 mm, 60 g	Lodsworth stone, Greensand	waterhole, LIA/ERB	521096
PSH.02	623046	-	rotary quern	5 fragments from rotary quern, burnt, traces of grinding surface with	Upper Greensand	pit, LIA/ERB	623023

Heathrow Terminal 5 Worked Stone

Twin Rivers				wear into concentric rings and possible trace of central hole; largest fragment 94 x 88 x 55 mm, 760 g	Sandstone, quartz conglomerate	
PSH.02 Twin Rivers	676003	-	quern	Small fragment burnt quern material; 27 g	Lodsworth stone, Lower Greensand	-

ROMAN

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	525345	-	polisher	Large pebble of banded stone, with a concave and shiny polishing surface; 158 x 81 x 76.5 mm, 1205 g	quartzite	pit, late Roman	525342
PSH.02	527339	-	quern	2 fragments, one with possible grinding surface and part of handle hole containing trace of iron handle; larger fragment 90 x 84 x 43 mm, together 325 g	Millstone Grit	Upper fill of waterhole, late R-B	527389
PSH.02	553043	-	quern	3 weathered fragments, probably part of rotary quern; 111 x 101 x 36 mm, 455 g	Lodsworth stone, Lower Greensand	ditch, R-B	-
PSH.02	615162	12055	whetstone	Segment from large whetstone, rod variety; 80 x 41 x 39 mm, 195 g	Kentish Rag, Lower Greensand	ditch, Roman	615200
PSH.02	617176	-	rotary quern	Part of rotary quern, lower stone, grinding surface worn into rings, fully bored hour-glass spindle hole; 126 x 125.5 x 64 g, 605 g	Lodsworth stone, Lower Greensand	pit, early R-B	617178
PSH.02	623047	-	rotary quern	3 fitting fragments from rim segment of rotary quern, grinding surface worn smooth; 160 x 104 x 41 mm, 800 g	Upper Old Sandstone, Red quartz conglomerate	pit, S quad, upper fill, early R-B	-
PSH.02 Twin Rivers	642008	-	quern	2 small fragments, now without working traces but a quern material; 5 g	Lodsworth stone, Lower Greensand	pit, R-B	-
PSH.02 Twin rivers	651051	-	quern	Burnt fragment with worn surface, probably from quern; 92 x 46 x 22 mm, 120 g	Bargate stone, Lower Greensand	waterhole, late R-B	-
PSH.02	670004	-	hammerstone	Spherical pebble with slight traces of probable prehistoric use as hammerstone; 53 x 50 x 50.5 mm, 175 g	flint	ditch, Roman	-
PSH.02	671005	-	quern	Burnt fragment quern material; 127 x 101 x 57 mm, 645 g	Lodsworth stone, Lower Greensand	pit, Roman	636124
PSH.02	671007	-	quern	Fragment, now without working traces but a quern material; 65 x 43 x 33.5 mm, 115 g	Upper Old Sandstone, Red quartz conglomerate	ditch, mid-late R-B	-

MEDIEVAL

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	532006	13171	rotary quern	20+ small fragments, probably from rotary quern; 80 g	Niedermendig lava	ditch, Medieval	542197
PSH.02	533041	19518	millstone	4 burnt pieces, 3 fitting, including part of wide central hole, from large rotary quern or more probably a millstone, may be Roman; th 79 mm, 2 kg	Lodsworth stone, Lower Greensand	fill of well [533039], Med	533041
PSH.02	537021	19510	counter?	small, fairly flat pebble with some polish, possible counter; 34 x 31 x	flint	post-pit, early	537021

Heathrow Terminal 5 Worked Stone

PSH.02	538304	-	rotary quern	12 mm, 15 g weathered fragment, no working traces but likely to be from rotary quern; 120 x 117 x 54 mm, 680 g	Niedermendig lava	Medieval fill of [538303], Medieval	538303
PSH.02	592024	19513	rotary quern	2 fitting fragments weathered piece, no working traces but likely to be from rotary quern; 90 x 49 x 48 mm, 230 g	Niedermendig lava	ditch, Medieval	529247

POST-MEDIEVAL

<i>Site code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	534049	19504	whetstone	fragment, damaged, from whetstone of probable tapered, post medieval variety, with rectangular cross-section; 35 x 37 x 34 mm, 45 g	Devonshire Upper Greensand	secondary fill of ditch [514040], late post medieval	514041

MODERN

<i>Site code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	542191	13146	whetstone	fragment from whetstone, probably from post medieval tapered variety, oval cross-section, pink colour possibly the result of burning; 46 x 31 x 28 mm, 55 g	Coal Sandstone	fill of medieval/modern ditch, modern	-

UNPHASED

<i>Site Code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	537030	<17022>	counter?	4 small flint pebbles, 3 of them polished and one larger one resembling a counter; 41 x 36 x 13 mm, 20 g	flint	unphased	-
TEC.05	689005	29700	pounder/ whetstone	burnt piece, worn by pecking and grinding across broken end, one long side also worn and may have been used here as whetstone; 82 x 63 x 49 mm, 335 g	quartzitic sandstone	initial fill of pit [689004], undated	689005

II: BUILDING STONE

MEDIEVAL

<i>Site code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	555445	-	paving stone	broken slab with a worn surface, may have been part of paving stone; 99 x 83 x 29 mm, 260 g	malinstone from Greensand	pit, Med	555453

POST MEDIEVAL

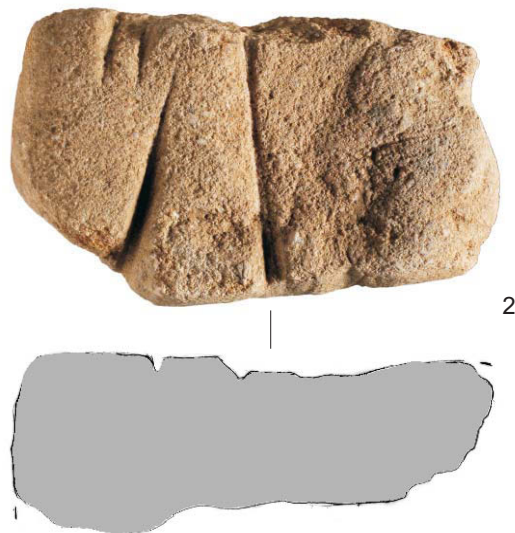
<i>Site code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
PSH.02	527369	-	roofing slate	1 small fragment; 31 x 22.5 x 5 mm, 3 g	slate, grey	ditch, Roman, probably intrusive Post Med	542387
PSH.02	542309	-	roofing slate	1 small fragment; 41 x 22 x 4 mm, 3 g	slate, grey	posthole, Post Med	542308
PSH.02	549199	-	roofing slate	1 small fragment; 43 x 27 x 4 mm, 5 g	slate, grey	pit, BA, probably intrusive Post Med	549198
PSH.02	555592	-	roofing slate	1 small fragment; 62 x 36 x 6 mm, 10 g	slate, grey	ditch, Post Med	555587

UNPHASED

<i>Site code</i>	<i>Context</i>	<i>SF</i>	<i>Identity</i>	<i>Description</i>	<i>Stone</i>	<i>Context details</i>	<i>SG</i>
LFA.05	700002	-	paving stone	part of slab with one flat, worn surface, probably part of paving stone; 135 x 78 x 31 mm, 380 g	ironstone	unphased	-



1



2



3



4

0 50 100 mm

Stone

Landscape Evolution in the Middle Thames Valley Heathrow Terminal 5 Excavations Volume 2

This is one of the
24 specialist reports
provided with
the above publication.

Framework Archaeology
Monograph 3

ISBN 978-0-9554519-2-8



*Framework
Archaeology*

BAA Heathrow 