A Round Barrow Cemetery in the Severn Vale: Richard Atkinson's Excavations of Five Ring Ditches at Netherhills, Frampton on Severn, 1948 and their Archaeological Context

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Abstract
The results of the excavations of five ring ditches at Netherhills, Frampton on Severn by Richard Atkinson in 1948 are published here for the first time. The analysis of this material formed part of a wider project funded by English Heritage through the Aggregates Levy Sustainability Fund that assessed the archaeological finds recovered from the Frampton on Severn area during 20th century gravel extraction, and which are now housed in Gloucester and Stroud museums. These artefacts indicate Palaeolithic and Mesolithic inhabitation of the area, with a round barrow cemetery constructed during the Early Bronze Age. This monument complex may have influenced the location of a Bronze Age 'hengiform' enclosure, and might also have formed a focus for Iron Age and Romano-British burials. There is also evidence for Anglo-Saxon settlement and burial in the area.

Additional fieldwork by the Gloucestershire County Council Archaeology Service took place in late 2006 and early 2007 in advance of further gravel extraction, to the south of the area excavated by Atkinson. This revealed further evidence for prehistoric activity spanning the Neolithic and the Bronze Age, as well as later features.

INTRODUCTION

The Frampton on Severn area is rich in archaeological sites and find spots of material dating from the prehistoric to medieval periods, recorded since the 17th century as a result of aggregate extraction (Elrington and Herbert 1972, 139). A series of cropmark sites are also visible on aerial photographs of this area. The village and northern half of the parish sits on the sands and gravels of the third terrace of the River Frome, overlying Jurassic Lias clays, with Pleistocene alluvium from the Severn and Frome to the west and north respectively (BGS 2009). These relatively free-draining gravels support brown earths of the Badsey 1 Association. It is these sands and gravels that are the focus of aggregate extraction. Archaeological excavations have taken place at several sites through the 20th century but these have not previously been fully published.

One such site is that at Netherhills, Frampton on Severn, excavated by R.J.C. Atkinson in 1948 prior to quarrying in 1949. The archive includes important Early Bronze Age material, as well as later finds. The site is just one of a number of aggregate extraction sites in the wider landscape that have produced archaeological remains (Figure 1), including Perryway (St Clair Baddeley 1928), Eastington Gravel Pit (Gardiner 1932) and Park Corner Farm/Townfield Farm (Garrod 1968). In September 2006, English Heritage through the Aggregates Levy Sustainability Fund (ALSF) commissioned Gloucestershire County Council Archaeology Service (GCCAS) to undertake an assessment of the Netherhills archive, and the finds held by Gloucester and Stroud museums, in order to publish the site within its wider landscape context. This was linked to aerial photographic analyses carried out under the auspices of the National Mapping Project.

In late 2006 further extraction commenced in an area of Netherhills Quarry to the south of that excavated by Atkinson, under a pre-PPG 16 planning permission with no archaeological conditions. English Heritage consequently provided further emergency ALSF funding to facilitate rescue excavations in this area. The quarry owners, Moreton C. Cullimore (Gravels) Ltd delayed extraction and provided access, a mechanical excavator and accommodation for the excavation team. These investigations revealed further prehistoric features and allowed a better understanding of Atkinson's excavations and the archaeology of the area.

R.J.C. ATKINSON'S EXCAVATIONS AND ARCHIVE

The Netherhills gravel pit is located close to the junction of Perryway (the B4071) and the A38 Gloucester Road, south-east of the village of Frampton on Severn (O.S. Nat. Grid SO 767 066). The excavations, referred to as 'Whitminster' in the surviving archive, were carried out by Richard Atkinson and his team in September 1948 on behalf of the Ministry of Works, in advance of an expansion of the Netherhills quarry. At that time Atkinson was Assistant Keeper of Archaeology at the Ashmolean Museum, Oxford, and was involved with excavations at Dorchester on Thames (Atkinson 1942, 1947; Whittle *et al.* 1992). He had previously excavated similar cropmark sites in the Oxford region, but how he became concerned with Netherhills is unclear. At least one ring ditch was visible in this area on aerial photographs taken in June 1948, now held in the Cambridge University Collection (CUAP AN46-49, 16/06/1948; Fig. 3), and the site is located within a field called 'The Barrows' on the 1815 tithe map (Gwatkin 1995). The Netherhills sites were excavated under 'salvage'

conditions, but no details survive of the length of time spent on site, the size of the excavation team or the excavation methodology.

Following Atkinson's death in 1994, the Netherhills archive passed to Cardiff University, where he was Professor of Archaeology between 1958 until his retirement in 1983. There it was catalogued and sorted by Matt Leivers (then at the University of Southampton, now at Wessex Archaeology). The archive consists of 33 'small finds' boxes, one large sheet of inked section drawings and two processed reels of monochrome print film. The section drawings consist of a roll of individual drawings on tracing paper, pasted onto a thick paper backing sheet. These were conserved by Christine Palmer of Gloucestershire County Records Office, then unrolled and digitally scanned. The drawings were originally drafted at 1 foot to the inch (all site measurements were Imperial). No plans survive in the archive.

The two rolls of monochrome print film were processed by Matt Leivers and consist of 57 photographs of Sites 1, 2 and 3 under excavation (see below). No photographs survive of Sites 4 and 5, although they appear in one of two general 'working shots' of the quarry under excavation. The archive also includes four apparent close-up photographs of a comb-impressed Beaker sherd (Fig. 8).

PREVIOUS PUBLISHED DESCRIPTIONS OF THE SITES

The site at Netherhills was never written up and published by Atkinson. It appeared as a brief note in the *Proceedings of the Cotteswold Naturalists Field Club* (Clifford 1948, 50), and was listed by O'Neil and Grinsell (1960, 114), who recorded six possible Bronze Age barrows in the Frampton on Severn parish, five of these at Netherhills. The original descriptions from O'Neil and Grinsell are given below:

> "Site 1: 30 paces in diameter. 12-20 ft wide ring ditch with central pit 2½ft in diameter, containing burnt clay daub with wattle marks, 3 fragments of burnt bones (not certainly human), an ox tooth, several burnt unworked flint flakes, and a few sherds of probably at least 2 Beakers of type Bi. Near the pit was an oblong depression which had been dug into the old ground surface and re-filled. No primary interment was found. A secondary crouched skeleton, without grave goods in ditch on N side.
> Site 2: 32 paces in diameter. 5-6ft wide ditch with causeways. There was no evidence for any but the slightest mound. The only internal features found were 3 post holes 6-8ins diameter. The central area could not be examined. Not certainly a barrow." (*ibid.*, 14)

Site 3 was described as a ring ditch 28 paces in diameter, but probably not a barrow and of Roman date. Site 4 was recorded as a ring ditch 25 paces in diameter that produced no finds, and Site 5 as another ring ditch similar in size and again with no finds (O'Neil and Grinsell 1960). Although the Beakers from Site 1 are mentioned in Clarke's corpus of Beaker material from Britain and Ireland (Clarke 1970, corpus numbers 280 and 281), the material is described as fragmentary and as destroyed or lost. A crouched human inhumation from Site 1 is accessioned by Gloucester Museum as number 'Temp 735'. A record card in Gloucester Museum (GCM 1117), dated February 1958, mentions a ring ditch in the area excavated by Atkinson (from the description this appears to have been Site 2), and also notes that 'in a field on the opposite side of the road was a hollow in the ground, which

produced a flint scraper and two flint flakes'. The primary references used by both Clarke and Gloucester Museum are the descriptions of O'Neil and Grinsell, but it is unclear how they identified the Beakers as group Bi.

The most complete account of Netherhills is that of Lewis Wilshire, who published correspondence with Atkinson in his history *The Vale of Berkeley* (1954). This account suggests that at Site 1 a low mound 70ft (*circa*. 21.30 m) in diameter was surrounded by a ditch 12ft (*c*. 3.50 m) wide, and 5ft (*c*. 1.50 m) deep (Wilshire 1954, 7-8). A flat berm 20ft (*c*. 6.00 m) wide separated the mound and ditch, suggesting that the barrow was of bell barrow type. The ditch was flat bottomed, and the crouched skeleton of an adult human male was recovered from near its base. In the centre of the site was a small pit 2ft (*c*. 0.50 m) in diameter, filled with 'tightly rammed' fragments of a baked-clay structure, possibly derived from a small oven or kiln. Although there was no central burial, Atkinson informed Wilshire that sherds of at least five Beakers were recovered from this pit, and that bell barrows were uncommon in Gloucestershire. Indeed, O'Neil and Grinsell (1960, 16-17) listed only one other example from the county at St Oswald's Ring, Marshfield (now in South Gloucestershire), destroyed in 1947 (Russett 1985, 17-20); and now believed to have been a saucer or pond barrow (Darvill and Grinsell 1989, 43).

Wilshire describes another site (probably Site 2) as a causewayed ditch 70 feet (*c*. 21 m) in diameter, dug in a number of discontinuous sections (Wilshire 1954, 7-8). Two deep, steep-sided pits cutting the inner edge of this ditch both contained fragments of Roman pottery and appeared to have been rapidly backfilled. Two other sites are described as having been so damaged by mechanical excavators that no dating evidence could be retrieved (Sites 4 and 5), but Atkinson inferred from their size and shape that they were the remains of round barrows.

EXCAVATION METHODOLOGY AND RESULTS

The surviving site drawings, photographs and finds labels were used to try and reconstruct the excavation strategy and results. Site 1 was the first to be excavated in September 1948, and although there are no overall photographs of it in the archive, Site 1 appears in the background of photographs of Sites 2 and 3 (Fig. 4), and it is thus possible to ascertain how it was investigated. A long, north-west to south-east orientated trench was excavated parallel to Perryway, providing a section across the entire ring ditch. From the site photographs (Fig. 5) it appears that the legs and lower torso of a human skeleton were encountered in part of this trench, which was subsequently extended to uncover the rest of the inhumation. A series of box grid interventions was excavated to the north of the long trench across the surviving barrow mound, to try and locate any central burial. Two small trenches were also opened across the ring ditch to the north and north-east of the box grids.

The finds boxes in the archive are labelled with the 'cutting' from which the finds were recovered (A, B, C and D), and with a small find (SF) number. A 'cremation pit' occurred in the 'wall' between cuttings B and C, so presumably each letter corresponds to an individual compartment of the box grid. SF numbers 1, 6, 7, 9, 13, 14, 21-24, 29, 30, 33, 36, 39, 41, 46, 48 and 50-68 are not present in the archive and were either not used or are missing. Finds labelled as from the 'east' cutting are presumably from the long north-west to south-east trench.

Sites 2 and 3 had already been uncovered by mechanical excavators, although less than half of each feature was revealed in plan. The sites were treated as open area

excavations, and the photographs (Figs 9, 11) suggest that most of the ring ditch fills were excavated, whilst internal features were half-sectioned. No finds were recovered from Site 2, but artefacts were retrieved from at least two pits and the ditch of Site 3. Excavation focused on the ring ditches and their interiors, with no examination of any external features or the relationships between the ring ditches, possibly due to heavy truncation by mechanical excavators. Only two section drawings survive for Sites 4 and 5, suggesting that small slots were excavated across these features. If any plans were drawn during the 1948 excavations, their location is unknown.

Site 1

The drawings for Site 1 comprise a section *c*. 43 m long, presumably NW-SE but not labelled (Fig. 6), as well as two sections across the ditch and through a cremation pit, also unlocated and without levels. A human skeleton was recorded in a secondary context in the 'NE Extension', suggesting that the drawn section is north facing, the skeleton having been recovered from the 'gap' in the section. This suggests that the skeleton was not recovered from the ring ditch, but from above and outside it. This is supported by sherds of Roman greyware and Severn Valley Ware (SF 3, see below) recovered from the 'body level'. There are only five photographs of this crouched burial (Fig. 5), now held in Gloucester Museum as Accession Number Temp 735.

Unexpectedly, analysis of the human skeletal material from the archive box (see Cox below) revealed not only the remains of an adult biological male, but also those of an adult female and a child. The photographs only indicate a single body, so the archive box may have received extraneous human skeletal material from another source. Although it is impossible to be certain, it is likely that the male skeleton is the one from Atkinson's excavations, based on its completeness and similarity to the individual shown in the photographs. Bone samples from the adult male and the adult female skeletons were submitted for AMS radiocarbon dating (see Meadows *et al*. below). Not enough collagen survived in the female sample to return a result, but the male was dated to 2209 $\pm$ 27 BP (OxA-18515, 390 to 190 cal. BC) suggesting that it was indeed much later than the construction of the barrow.

Although not labelled as such, the sections appear to show the barrow mound with a diameter of *c*. 23 m (labelled 'grey soil' on the original drawings), lying below a 'dark red soil' and sealing an old ground surface. The edge of the barrow material is separated from the ditch by a berm *c*. 5 m wide, although an unlabelled deposit lies over both the barrow mound and the old ground surface at the west end of the section. This may have been slumped barrow mound material. The ditch is *c*. 3.5 m wide, with a primary gravel fill up to 0.75 m deep, and a secondary fill the same as the 'dark red soil' overlying the barrow mound. The diameter of the ring ditch is *c*. 38 m.

Approximately 4 m from the north-western edge of the barrow mound and cut into the old ground surface, a small depression filled with barrow mound material may have been stakehole predating the construction of the barrow, though no finds are recorded from it. The corresponding area near the south-eastern edge of the barrow has tree root disturbance, but a similar feature filled with mound material is shown on the section of the cremation pit. It is uncertain if these stakeholes represent pre-barrow features such as a stake circle, or if they were isolated features.

A 'cremation pit' *c*. 1 m in diameter is depicted truncating the old ground surface, and in section appears to have been cut halfway down from the top of the barrow mound. The site photographs, however, show that the pit was cut from the top of the old ground surface and sealed by the barrow mound (Fig. 7), suggesting that the

section drawing is incorrect. The photographs show the excavation of this pit proceeded stratigraphically until a compact fill in its base was encountered in its base, at which point the area around this compact deposit was removed leaving it as an upstanding block. This is the material described as 'tightly rammed' baked clay by Wilshire (1954, 7-8), although none of it is present in the archive.

The finds recovered from the cremation pit (SFs 17, 19, 25, 26, 27, 28, 32, 34 and 35) included fragments of cattle tooth, charcoal, flint, pottery and cremated human bone. The human bone fragments do not represent a complete individual. Atkinson told Wilshire that the pit had contained sherds of at least five Beakers, but only one small fragment of Beaker pottery (SF 5) is present in the archive from Site 1 and that was recovered from the old turf level sealed by the barrow mound, not from the central pit. The archive photographs show at least one Beaker sherd (Fig. 8), but the location of this and other Beaker material from the site is unknown. The worked flint appears to have been a selected assemblage, with waste material (SF 25) deposited in the lower level and a chip, core and scraper (SF 19) in the upper level. The material from the upper level was heavily burnt, suggesting that it may have passed through the pyre on which the cremation took place. Although the pit contained charcoal, this could not be identified to species but a 'nut' from the lower level of the cremation pit (SF 28) proved to be fragments of several charred acorns (Liz Pearson pers. comm.).

Sites 2 and 3

From the archive section drawings for Sites 2 and 3, it is not possible to be certain which sections relate to which site (Fig. 10). The diameters of both ring ditches were similar to that of Site 1, but the profiles of the ditches are narrower and shallower, and they have less complex fills. Photographs (Fig. 9) show Site 2 located to the north-west of Site 1 and north of Site 3. Less than half of the ring ditch of Site 2 appears to have been stripped of topsoil, but *c*. 80 % of the remaining ditch fill was excavated. The ditch appears to have had a causeway or gap in its western sector, and the only features visible in the interior of the ring ditch are three possible postholes and a pit. This pit might correspond to one of the section drawings, but this is not certain. No central burial is recorded from Site 2, but the centre of the ring ditch was probably not excavated, being outside the quarry area in the field to the east.

Site 3 was immediately to the south of Site 2, and roughly half of the ring ditch appears to have been stripped of topsoil (Fig. 11). Approximately 50 % of the remaining ring ditch is shown as excavated on photographs, and two large pits were present in the southern quadrant of the interior. Finds are present in the archive from 'Pit A', 'Pit B' and a 'circular pit', as well as from the ditch. The section drawing and photographs of the most northerly of these pits indicate that it was cut through the ring ditch, but the relationships between the other pits and the ring ditch are uncertain.

A single crumb of undiagnostic pottery was recovered from the fill of Pit A at Site 3, along with fragments of wood (SF 40). Pit B contained sherds of Severn Valley Ware (SF 47) and a sherd of a late 1st to 2nd century AD rim ring necked flagon (SF 43). Three Bronze Age sherds (SF 42) were also recovered from Pit B, but these were probably residual within a later Romano-British feature. Charcoal and two sherds of South Gaulish Dragondorff 29 samian ware from the 1st century AD were found in the circular pit. A single body sherd of Bronze Age pottery (SF 49) was recovered from the 'outer ditch' of Site 3.

Bronze Age pottery from the ring ditch and residual contexts at Site 3 suggests that it was indeed a Bronze Age ring ditch (*contra* O'Neil and Grinsell 1960, 14), albeit with later Roman period activity. No central burial was found but it is not clear if the exact centre of the ring ditch was revealed in plan, and other features may have survived below and to the east of the field boundary at the quarry edge.

Sites 4 and 5

The sole section drawing for Site 4 shows a narrow, V-shaped ditch 1.40 m wide and 0.55 m deep, whilst that for Site 5 indicates a deeper, U-shaped ditch 2 m wide and 0.75 m deep with an asymmetric fill, suggesting it may have silted from one side (Fig. 12). The discrete lenses within the latter are intriguing, and may represent turves from a mound slipping into the ditch. No finds were recovered from either site, and due to the lack of a site plan their exact relationship to the other ring ditches at Netherhills was unclear, although Site 5 has now been located from aerial photographs (see Dickson and Mullin below, Fig. 2).

EXCAVATIONS AT NETHERHILLS 2006-2007

The existing aggregates quarry at Netherhills had pre-PPG16 planning permissions from the 1950s and the quarry was extended in late 2006 into an area south of and on the opposite side of Perryway to that excavated by Atkinson in 1948 (centred on O.S. Nat. Grid SO 766066, Figs. 1 and 14). English Heritage provided PPG16 Assistance funding through the ALSF that allowed GCCAS to undertake an evaluation of this area during 6th-10th November 2006, and significant archaeological deposits were identified at the northern end of the field. English Heritage then funded a 'salvage' excavation of this partly stripped area by a GCCAS team during 3rd-22nd January 2007.

This archaeological work revealed a series of prehistoric and later features (Fig. 14), and although few stratigraphic relationships were established, the artefacts recovered indicated several broad phases of activity. These are discussed below.

Prehistoric

The earliest feature within the excavation area seems to have been a roughly circular pit (1001) with a bowl-shaped profile, 1.10 m wide and 0.58 m deep. Both the lower fill 1015 and upper fill 1014 contained later Neolithic worked flint including two chisel-shaped arrowheads, non-local stone, animal bone and pottery/burnt clay. Charred remains of crab apple, sloe and hazelnuts, as well as oak and hazel charcoal, were also recovered from this feature (see Allen and Clapham below). Some of the animal bone had been subjected to very high temperatures and was probably cremated (see Cox below), though non-cremated bone was also present and included the remains of pig, horse or bovid and the right mandible of a beaver.

The upper fill (1014) of this pit contained pottery which may be undecorated later Neolithic pottery, although the small quantities recovered make precise identification impossible. Radiocarbon dating of the plant macrofossils within the pit returned three dates (SUERC 16590 to SUERC 16592) that clustered between 2910 to 2700 cal. BC. The beaver jawbone, however, returned a Late Neolithic/Early Bronze Age date of 2460 to 2140 cal. BC (SUERC 16582) (see Site Discussion below).

A further shallow pit (1003) was located *c*. 9m to the north of pit 1001. This was an ovoid feature 1.40 m long and 1.10 m wide, and its single fill (1016) contained worked flint, cremated animal bone, charcoal and sherds of at least two Beakers. No charred plant remains or short-lived charcoal was present in the fill, and following specialist advice radiocarbon dating was not attempted.

A feature located at the eastern part of the site can also be tentatively assigned a prehistoric date based on its morphology. This consisted of two curvilinear ditches 1004 and 1103, which in plan formed an ovoid feature approximately 8 m long and 8 m wide with opposed 'entrances' or causeways to the north-west and south-east. Ditch 1004 curved from the south to the north-west and was 8.20 m long, 2.40 m wide but only 0.22 m deep and its compacted gravel fill produced no finds. Ditch 1103 was south of 1004, curving from the south-east to the north and was 7.50 m long and 2.00 m wide. The fill of this ditch was also compact gravel containing no finds, and it was cut by later postholes and stakeholes. The ditch fills could not be fully excavated due to time constraints and although they were very shallow and contained no finds or visible palaeo-environmental remains, the feature is similar to small 'hengiform' enclosures of later Neolithic or earlier Bronze Age date that have been excavated elsewhere in Britain.

Romano-British

The east-west aligned ditch 1023 in the northern part of the site had at least 5 m of its length exposed in plan. The excavated terminal of this ditch was 1.60 m wide and 0.80 m deep, the single fill 1025 containing worked flint and Romano-British pottery.

Pit 1008 was just to the south-west of the terminal of ditch 1023 and was an irregular feature approximately 1.35 m long and 1.10 m wide. The upper fill 1022 contained the largest single assemblage of Romano-British pottery from the site and although not closely dateable, the presence of Severn Valley ware, Dorset Black Burnished ware and micaceous greyware suggests a date after the mid-2nd century AD (see Timby below). The primary fill 1027 contained a thick-walled sherd of oxidised ware of indeterminate prehistoric date. A hulled barley grain was identified from the upper fill 1022 and a cereal culm node from the primary fill 1027, and the fills also contained residual worked prehistoric flint. It was cut by medieval or post-medieval linear feature 1006.

Unphased Prehistoric/Romano-British

Over 100 postholes and stakeholes were recorded across the site, with notable concentrations in the southern and south-eastern part of the excavated area, although no definite structures could be discerned. The features varied in diameter from 0.25 m to 0.70 m and in depth from 0.05 m to 0.75 m. None of them contained finds. A single sherd of Roman pottery was, however, retrieved from a deposit sealing one group of postholes, suggesting that at least some of these features may be of earlier Romano-British or prehistoric date. Another group was sealed by the fill of medieval or post-medieval linear feature 1005.

Medieval/Post-medieval

A series of parallel, north-east to south-west orientated linear features (1006, 1005, 1010, 1013, 1038 and 1044) were recorded, truncating some postholes and ditch 1023.

These were shallow, less than 0.20 m deep, and of fairly uniform 1.00-1.10 m width. Although no finds were recovered from their fills, they share the same alignment of the ridge and furrow mapped by the NMP from aerial photographs (see Dickson and Mullin below) suggesting that they were remnants of medieval or post-medieval cultivation.

Post-medieval/Modern

A large, irregular feature 1009 occurred in the northern part of the site, truncating some of the probable ridge and furrow remains. The fill was a mixed deposit of gravel and topsoil suggestive of relatively recent backfilling and it is likely to have been linked to relatively recent gravel extraction, although it is not shown on early Ordnance Survey maps.

A further irregular feature 1019 was also present in the northern section of the site. This was again poorly defined, but cut a medieval/post-medieval linear feature 1006. Its fill 1020 contained prehistoric and Roman pottery, worked flint and a fragment of animal bone, but also modern glass. It too was probably the result of small-scale gravel extraction.

Undated

Pit 1034 was a subrounded feature approximately 0.75 m long, 0.75 m wide and 0.53 m deep. Its loose gravel fill 1035 did not produce any finds. Pit 1047 was a larger circular feature approximately 2.00 m in diameter, but again this contained no finds.

Site Discussion

Though small-scale in area, the 2006-2007 GCCAS excavations provided useful additional information concerning the past inhabitation of the Netherhills landscape, including some intriguing evidence for prehistoric depositional practices.

The beaver jaw from pit 1001 is the first incidence of Late Neolithic/Early Bronze Age beaver recorded in Gloucestershire, and the only radiocarbon-dated beaver remains from south-west England (Coles 2006, appendix iv). The discrepancy between the date of the beaver remains and the plant macrofossils from the pit is difficult to explain. Whilst it may indeed be statistically unlikely that all the plant macrofossils were residual in a later context (see Meadows *et al.* below), the beaver bone was well within the pit fill and is thus unlikely to have simply been accidentally intrusive. Furthermore, although there were some differences in the character of the flint assemblage from each context there were also two knapping refits between flint flakes in fills 1014 and 1015 (see Lamdin-Whymark below), indicating that the flint within the two deposits may have resulted from the same knapping episode and the same production practices if not the same depositional event.

Alternative explanations may, however, be sought in the complex nature of Neolithic depositional practices (e.g. Garrow 2006; Garrow *et al*. 2006; Lamdin-Whymark 2007; Thomas 1991, 1999; Pollard 2001, 2008). It is possible that the pit remained partly open or was still visible as a shallow depression for many decades after it was dug and partially filled, and it may have been re-excavated at a later date during which the beaver mandible was added. This may have coincided with some of the Beaker-period activity elsewhere in the area.

An alternative possibility is that the carbonised plant remains and the flint from both fills were derived from another context such as a midden or the fill of a different cut feature and at a later date were re-deposited in pit 1001, along with contemporaneous material including the beaver bone. The flint exhibited damage from trample and exposure (see Lamdin-Whymark below) and indications of rather varied biographies of production, use, discard and post-depositional changes. Such reworking and referencing using older material or monuments is increasingly recognised as a significant phenomenon in prehistory (q.v. Bradley 2002). The cremated human remains and flintwork at Site 1 also seem to have been subject to a complex series of utilisation and depositional practices.

The undated postholes and stakeholes grouped together as 1012 (Fig. 14) seem to have formed one or more linear structures, possibly fence lines. The postholes and stakeholes labelled as groups 1002 and 1110 also appear to have comprised one or more phases of alignments, whilst the stakeholes clustered around pit 1001 suggests that some were originally associated with it. A series of postholes and stakeholes also seemed to follow the alignment of cut 1103, the southernmost ditch of the possible 'hengiform' feature. This may imply that the ditch was still visible as a shallow depression when the posts and stakes were being inserted, and also perhaps that any bank or upcast from the ditch was on its 'external', southern side.

RE-ANALYSIS OF EXCAVATION ARCHIVES FROM THE FRAMPTON ON SEVERN AREA

Introduction – the Local Context

The excavations at Netherhills in 1948 were undertaken in response to the threat of gravel extraction to recently discovered sites, but these were located within a landscape that had been investigated by earlier archaeologists. St Clair Baddeley carried out excavations in advance of gravel extraction at Perryway, to the east of Frampton Court in the 1920s, and further work was undertaken by Gardiner at Eastington Gravel Pit in the 1930s. Archaeological monitoring took place during the construction of the M5 in the 1960s, and small-scale investigations have been carried out in the Frampton on Severn area over the last 30 years. This work provides a useful context for the Atkinson excavations, and English Heritage ALSF also provided funding to analyse some of the material recovered from these earlier sites.

Perryway

Welbore St Clair Baddeley (1856-1945) published material recovered from gravel workings at Perryway in 1928 (Fig. 1), to the east of Frampton Court (O.S. Nat. Grid SO 754 074). Quarrying began at the site in 1907 but expanded greatly between 1926 and 1928. The site was flooded when extraction ceased, forming a small lake.

Two circular features approximately 20 and 40 yards in diameter (*c*. 18 and 37 m) were noted by St Clair Baddeley at Perryway – rough plans of their locations and photographs of one appear in his published report (St Clair Baddeley 1928, 124). The circular ditches are described as being up to *c*. 3 m wide and 1.5 m deep. The smaller circular feature, not actually seen by St Clair Baddeley and destroyed by quarry workers in 1907, was approximately 20 yards in diameter (*c*. 18 m), and apparently contained the graves of at least 30 human individuals. These burials had no pottery,

beads or coins associated with them, but some were associated with small 'decayed iron' objects, including a possible spearhead (*ibid*., 125). If St Clair Baddeley's informant's recollection of events of 21 years earlier was accurate, the graves were found within the area of the circular ditch.

Subsequent expansion of the gravel workings in 1926 exposed over half of another, larger circle at least *c*. 37 m in diameter. St Clair Baddeley was informed by workmen that 'many bones' but no pottery or coins had been found associated with this feature (St Clair Baddeley 1928, 127). He mentioned that human bone from 'carefully made graves' had been found along with a 'much-decayed' iron sword removed prior to his site visit, but several different bone locations are shown on his published plan south-west, south and south-east of the circular ditch (*ibid*., 124). Several shallow depressions are also noted within the area of the circular ditch that may have contained human remains, but quarry workers did not report any obvious graves. Most finds from the circular ditch were of animal bone, although St Clair Baddeley also recorded fragments of a human jaw. Part of a small pair of iron shears was found later, presumably at this locale (*ibid*., 129).

In 1927, three further adult skeletons were uncovered approximately 137 m south of the large ring ditch. These were close to a NNE-SSW orientated linear ditch at least *c*. 27 m long, 2.75 m wide and 1.20-1.52 m deep, and St Clair Baddeley reported that further graves had been found roughly parallel with this feature. The graves (it is not made clear which) contained adult skeletons with 'excellent teeth' (St Clair Baddeley 1928, 130). In addition to the circular ditches and burials at Perryway, St Clair Baddeley recorded two parallel lines of postholes approximately 6.40 m apart and *c*. 5.5-6.40 m north of the large circular ditch forming a structure *c*. 7.92 m long. These were interpreted as the remains of a rectangular timber building (St Clair Baddeley 1928, 128). At least three subcircular features nearby were *c*. 1.70 m long, 0.91 m wide and up to 1.80 m deep – one produced a human jawbone and other 'small bones'. St Clair Baddeley thought that these were wells, although no traces of any lining survived; and he also noted the presence of several circular depressions 'suggestive of hut-circles' (*ibid*.) in the vicinity.

The bone from Perryway was analysed by Sir Arthur Keith (1866-1955), Fellow of the Royal College of Surgeons and later Hunterian Professor and conservator of the Hunterian Museum who described ox, pig, sheep, goat, a pony-like horse and a large mastiff-dog, as well as human remains (St Clair Baddeley 1928, 129-130). Keith was, unsurprisingly, unable to date the human bones using the methods of the day, but suggested that the remains were of various dates, and identified dental caries on one of the human skulls. The archaeological features at Perryway, though clearly puzzling to all concerned, were interpreted by St Clair Baddeley as the remains of a small settlement with a large circular defensive redoubt and a smaller sepulchral or religious feature. The lack of obvious Iron Age, Roman or Saxon artefacts indicated to him not a 'pioneer colony of Saxon invaders' or even later Danes, but rather 'pre-Danish or Hibernian raiders of the Severn, perhaps from Cornwall or south Ireland' (*ibid.*, 131-132).

St Clair Baddeley proposed that the site continued to the south and west (St Clair Baddeley 1928, 133), and finds were recovered from this area by Brian Frith in 1953. Part of this area was excavated by members of the Gloucester and District Archaeological Research Group in 1968 who uncovered stone footings and five pits – one modern but the others 'pear-shaped' features up to *c*. 1 m deep containing 3rd to 4th century AD pottery, including Glevum and samian ware (Garrod 1968). There is only a brief published note on these investigations.

Gloucester Museum currently holds material donated by Brian Frith, and a selection of material recovered by St Clair Baddeley. The majority of the human remains recovered from Perryway were held by the Royal College of Surgeons but were subsequently transferred to the Natural History Museum where they are now located. Stroud Museum also houses material from the 'Frampton Gravel Pit' which probably refers to the Perryway site. Six slides labelled 'Frampton Gravel pits 1968' were passed to the project team during production of this report, they appear to show at least one circular and one 'pear-shaped' pit as well as a excavated segment of a ditch. They will be offered to Stroud Museum.

Eastington Gravel Pit

Eastington Gravel Pit lies to the east of the A38, opposite the junction with the B4071, centred on O.S. Nat. Grid SO 770 066 (Fig. 1). A flint tool from this area was reported by Gardiner (1932) and identified by Reginald Smith of the British Museum as Late Palaeolithic. A Miss Hopkins of Leonard Stanley subsequently found a 'burial urn' at the site that was donated to Stroud Museum. Gardiner showed these finds to Elsie Clifford from the same family who owned the Perryway quarry and she allowed him to examine the Eastington gravel pit.

Gardiner divided the area into four fields, but found archaeology only in two of these. In Field 1, topsoil and alluvium stripping revealed a series of features including a circular pit *c*. 1.80 m across, which, in line with then current thinking, was interpreted as a 'pit dwelling'. The pit contained a layer of clay and another of carbonised and/or organic material on which were deposited fragments of a large, two-handled pottery vessel. C.F.C Hawkes of the British Museum identified this as Early Iron Age La Tène II-III in date (but see Timby below). Fragments of two other coarseware pots decorated with incised lines were found in gravel next to the pit, associated with an infant skeleton (Gardiner 1932). Further finds included 'pre-Roman fine pottery', Black Burnished Ware and samian. Romano-British pottery was also found in Field 2.

Bone implements including a carved bone pin were recovered from the site in 1927. Two of these pins and a flint knife were found in a pit containing 'black pottery'. An ivory-handled knife; a long piece of polished bone pointed at both ends and two rectangular pieces of bone, polished on the outside face and decorated with circle and dot ornament, fixed together with iron pins, were also recovered from the site. The bone objects were discussed by Ireland (1984) who considered the pointed implement to be a pin-beater and the square, ring and dot ornamented pieces to be strengthening ribs from a composite bone comb. These artefacts, and an annular baked clay loomweight also from the site, were considered to be of Anglo-Saxon date.

Gardiner also recorded a series of 'trenches' in Field 1, consisting of three parallel but sinuous ditches each *c*. 0.90 m wide and *c*. 0.55 m deep, with a fourth, larger ditch roughly 1.30 m wide and 0.75 m deep further to the east. At least 9 m of their lengths were exposed, and they were filled by alluvium. Similar trenches were noted in Field 3, and they were interpreted as defensive palisade slots. One truncated the Early Iron Age pit mentioned above. Russett (1991, 14) suggested that these resulted from medieval gravel extraction but the sinuous 'reverse S shaped' plan may indicate remnants of ridge and furrow from medieval/post-medieval cultivation. Indeed, the 'trenches' planned by Gardiner appear to be continued by a field boundary and surviving furrow earthworks to their south-east, mapped by the NMP from aerial photographs. The situation is complicated, however, as a possibly later phase of more

narrow, straighter ridge and furrow earthworks has also been mapped by the NMP in the same field, on an entirely different alignment.

The foreman in charge of the gravel workings at Eastington also described finding between 30 and 40 skeletons in Field 1, with 'about a dozen more' in Field 3. All were buried separately, apart from in one part of Field 1 where eight were apparently found together. Towards the beginning of December 1929 a single skeleton was found, and the skull donated to Stroud Museum. Another skull, broken by diggers, was recovered later and is illustrated in the published report. Subsequently a complete extended skeleton was excavated but no finds were recovered with it. This was also given to Stroud Museum. Sir Arthur Keith identified this skeleton as that of an adult woman aged about 30, and the earlier skull as belonging to an 'older man'.

Eastington quarry expanded southwards into Field 4 in 1934 and Gardiner (1934) subsequently reported a woolly rhinoceros tooth, a horse tooth, a Neolithic arrowhead and a bronze brooch. The brooch was identified by G.C. Dunning as Roman and *c*. AD 50 in date. All of these finds were donated to Stroud Museum.

The museum collections from Eastington Gravel Pit

A single collection of human bone from Eastington is held by Stroud Museum (Accession Number 50.257), representing the fragmentary remains of a young adult female. No contextual information is available for this material, but this probably represents the remains of the woman, identified by Keith.

Stroud Museum also holds worked flint from the Eastington area, although the only material definitely known to have been recovered from the gravel workings are the two Palaeolithic implements (2012 and 3079) reported and illustrated by Gardiner (1934) and Burkitt (1938), in addition to a Mesolithic backed bladelet (1946.26/7). There is also an assemblage of 178 pottery sherds from Eastington ranging in date from the Iron Age to the post-medieval period. The Iron Age material includes Malvernian tempered jars and grog-tempered ware (see Timby below), along with a fired clay loomweight, which was also present in the collections. Romano-British material includes Severn Valley Ware, but also early greywares and central Gaulish Samian ware. A small amount of medieval and post-medieval pottery is also present.

Other finds held by Stroud Museum include two Roman brooches, a Roman knife and a copper-alloy hand, probably from a statue (see McSloy and Dungworth below). A single Anglo-Saxon spearhead (Swanton H2 form), a clay loomweight and bone comb are also present in the collections, the latter having been discussed by Ireland (1984). There is no detailed contextual or locational information for any of the material from Eastington.

Since the work was carried out on the museum assemblages, Stroud Museum have identified animal bones and teeth marked 'En' within their archives, probably from Eastington. Various pot sherds also marked 'En' appear to belong to Accession 2026, some of which was analysed as part of this project. A human skull and lower jaw marked 1950.260 is probably Accession 2671 and may belong with the seven leg bones (Accession no. 2672) marked 1950.257. A further human skull and lower jaw was also found with these along with a mixed group of human and animal bones, some marked 1950.258, probably Accession number 2073. A tray of human bone that may be from Frampton was also located but the provenance of this material could not be established with any certainty. In addition, a human bone from 'Frampton' was located at the National Waterways Museum in Gloucester by David Rice of Gloucester Museum, but no further details are known.

Additional archaeological material including worked flint and pottery and described as being from Eastington and from Frampton on Severn is held by Gloucester and Stroud Museums. The exact locations from which this material was recovered are uncertain but material is recorded from Middlehall Farm, Eastington; Cress Green, Eastington and Hock Cliff, Frethern.

THE NATIONAL MAPPING PROGRAMME AIR PHOTO ANALYSIS
by Amanda Dickson and David Mullin

Introduction

This report describes the results of the Frampton on Severn aerial survey, funded by English Heritage ALSF, and undertaken according to National Mapping Programme (NMP) standards. The total survey area initially covered two complete O.S. 1: 10 000 quarter sheets, but one (SO70NW) was completed and included in the Forest of Dean NMP survey and is discussed in the report for that project (Small and Stoertz 2006). Only the quarter sheet SO70NE, covering a 5 km by 5 km block centred to the east of the village of Frampton on Severn, is considered here.

Amanda Dickson of GCCAS transcribed and analysed the data. The aim of the project was primarily to enhance understanding of the sites previously excavated by Atkinson in 1948, and to locate and identify other cropmark features within the immediate landscape surrounding Netherhills, most of which have been subsequently destroyed by aggregate extraction. Although some of these discoveries are outlined below, more detailed accounts of the methodology and results of the aerial analyses are contained in the NMP report (Dickson 2006).

Methodology

The Frampton on Severn NMP ALSF aerial survey involved the digital transcription and systematic recording of all archaeological features from the Neolithic to the Second World War in 1945 that were visible on aerial photographs. This was carried out by detailed examination of all available oblique and vertical photographs derived from a number of sources, including the National Monuments Record (NMR) in Swindon, and Cambridge University's Unit for Landscape Modelling (formerly known as CUCAP). Details of the photographs consulted are listed in the project report (Dickson 2006). Use was also made of Gloucestershire County Council's SMR data and English Heritage NMR data.

As a result of the survey, 43 new monument records were created in the National Monument Records database (AMIE) and 39 existing records revised. The majority of the 43 new sites relate to medieval and post-medieval agricultural land-use and settlement.

Results

The earliest archaeological features visible on the available aerial photographs are the Bronze Age ring ditches excavated by Atkinson in 1948 (Fig. 2). Sites 1 and 2 were mapped from the aerial photographs, and Site 5 was also identified to their north-west, its exact location being hitherto unknown. Site 3 was not identified on any

images, and as Site 4 was only just visible on Atkinson's general view of the gravel workings it was not mapped in the NMP survey.

At least two, possibly three further possible ring ditches of similar form and dimensions to those at Netherhills were noted north of Perryway, along with two or three features with broader ditches and apparent opposed entrances that could be further 'hengiform' monuments (e.g. Dickson 2006, fig. 6a). Faint cropmarks of possible ring ditches were also visible south and south-east of Townfield Farm. These two possible ring ditches had similar dimensions and were *c*. 60 m apart, but were situated within an area now destroyed by quarrying. Together with the known examples, the Frampton on Severn area represents the densest concentration of ring ditches in the Severn Vale in Gloucestershire.

Additional cropmarks identified on the north side of Perryway (Fig. 2) probably reflect inhabitation from the Iron Age and Romano-British period through to the medieval period and include ditched boundaries, trackways and a rectilinear ditched enclosure or field probably dating to the Iron Age or Roman period. Interestingly, this appears to enclose an area containing at least one ring ditch and two possible 'hengiform' features. The features recorded by St Clair Baddeley to the south of Perryway had been removed by quarrying before the earliest aerial photographs.

Rectangular enclosures were also recorded immediately west of Park Corner Cottage but were spread over a large area and possibly span a range of dates. These were partially obscured by cropmarks produced by geological features, as well as by the remains of medieval/post-medieval ridge and furrow. These features have been partly destroyed by aggregate extraction.

The largest numbers of archaeological remains visible on aerial photographs were of medieval, post-medieval and early modern date. Five new possible medieval settlement sites were identified as earthworks of building platforms and boundary ditches. Extensive areas of ridge and furrow were also recorded. Post-medieval archaeology included a brickworks near Bond's Mills, the partly demolished Meadow Mill and early phases of gravel and clay extraction. The survey also recorded the line of a railway constructed in *c*. 1922 to transport gravel directly from the Perryway gravel pit to the Bristol and Birmingham railway at Frocester and to the Gloucester and Sharpness Canal at The Splatt, south of Frampton on Severn. This temporary rail link was demolished sometime before 1946.

Although some Second World War remains in the area had been recorded by the Defence of Britain project, four new pillboxes were identified in the Frome valley protecting the Stroudwater Navigation canal, along with a camouflaged ball-bearing factory (Tucker 2003), a military camp of unknown function and a 'killer' searchlight battery noted in the Gloucestershire SMR but whose location was previously unknown.

In the future, more buried archaeology may become visible from the air as ridge and furrow is gradually plough levelled by modern agricultural practices. A programme of retargeting these areas with new aerial photographic flights along with the known cropmark sites will be important for future conservation and management schemes, especially if aggregate extraction continues.

THE RADIOCARBON DATING PROGRAMME by John Meadows, Christopher Bronk Ramsey, Gordon Cook and Peter Marshall

Introduction

The human remains from Perryway held by the Natural History Museum, a single individual from Eastington Gravel Pit held by Stroud District Museum and the individual from the ring ditch at Netherhills were all sampled for radiocarbon dating by Henriette Johansen of the English Heritage Scientific Dating Team, and Peter Marshall of Chronologies Ltd.

The results are discussed in detail below, but the majority of the burials dated to the Romano-British period, predominantly the 2nd to 3rd centuries AD, although two individuals dated to the early medieval period and another to the Early Neolithic. One of the two individuals from within the ring ditch at Netherhills failed to produce a date due to a low collagen yield, but the other dated to the middle Iron Age.

Methodology

The results shown in the table and figure below are from samples processed and dated by Accelerator Mass Spectrometry at the Oxford Radiocarbon Accelerator Unit (OxA) following techniques outlined by Bronk Ramsey *et al.* (2002, 2004a, 2004b); and at the Scottish Universities Environmental Research Centre (SUERC) in East Kilbride, following procedures detailed in Longin (1971; modified), Stenhouse and Baxter (1983), Slota *et al.* (1987), Vandeputte *et al.* (1996) and Xu *et al.* (2004). The laboratories maintain continual programmes of quality assurance procedures, in addition to participating in international inter-comparisons (Scott 2003). These tests indicate no laboratory offsets and demonstrate the validity of the precision quoted.

The results are presented as conventional radiocarbon ages (Stuiver and Polach 1977), quoted according to the Trondheim Convention (Stuiver and Kra 1986). The corresponding calibrated date ranges were calculated by the maximum intercept method (Stuiver and Reimer 1986), using the program OxCal v4.0.5 (Bronk Ramsey 1995, 1998, 2001, 2008) and the INTCAL04 dataset (Reimer *et al.* 2004). Table 1 shows the calibration of these results by the probability method (Stuiver and Reimer 1993).

One bone sample (TEMP 735-B) did not yield enough collagen for radiocarbon measurement. The C : N ratios in the other bone samples suggest that collagen preservation was good enough for reliable radiocarbon determinations (Masters 1987; Tuross *et al.* 1988). The C : N ratio of SUERC-16589 and SUERC-16582 are outside the range usually quoted as being indicative of good quality collagen preservation (2.9–3.6, DeNiro 1985), but these ratios should only be used as a guide as variability does exist. Other indicators, such as the collagen yields and stable isotope ratios were normal.

Stable isotope measurements ($\delta^{13}C$ and $\delta^{15}N$) were also undertaken on bone collagen subsamples to determine whether or not the diets of these individuals may have included a large marine or freshwater fish protein component that could result in artificially old radiocarbon ages. The results are reasonably typical of bone collagen from individuals with a largely or fully terrestrial diet (Chisholm *et al.* 1982; Mays 2000; Schoeninger *et al.* 1983), and there is thus no reason to suspect that the radiocarbon results are misleading. The relatively low values of both stable isotopes in the beaver sample fit with their strictly herbivorous diets, and the observation by

DeNiro and Epstein (1978) that the fractionation factor is lower for smaller as opposed to larger mammals, which could relate to differences in metabolic rates.

Results

Table 1A: Radiocarbon dates.

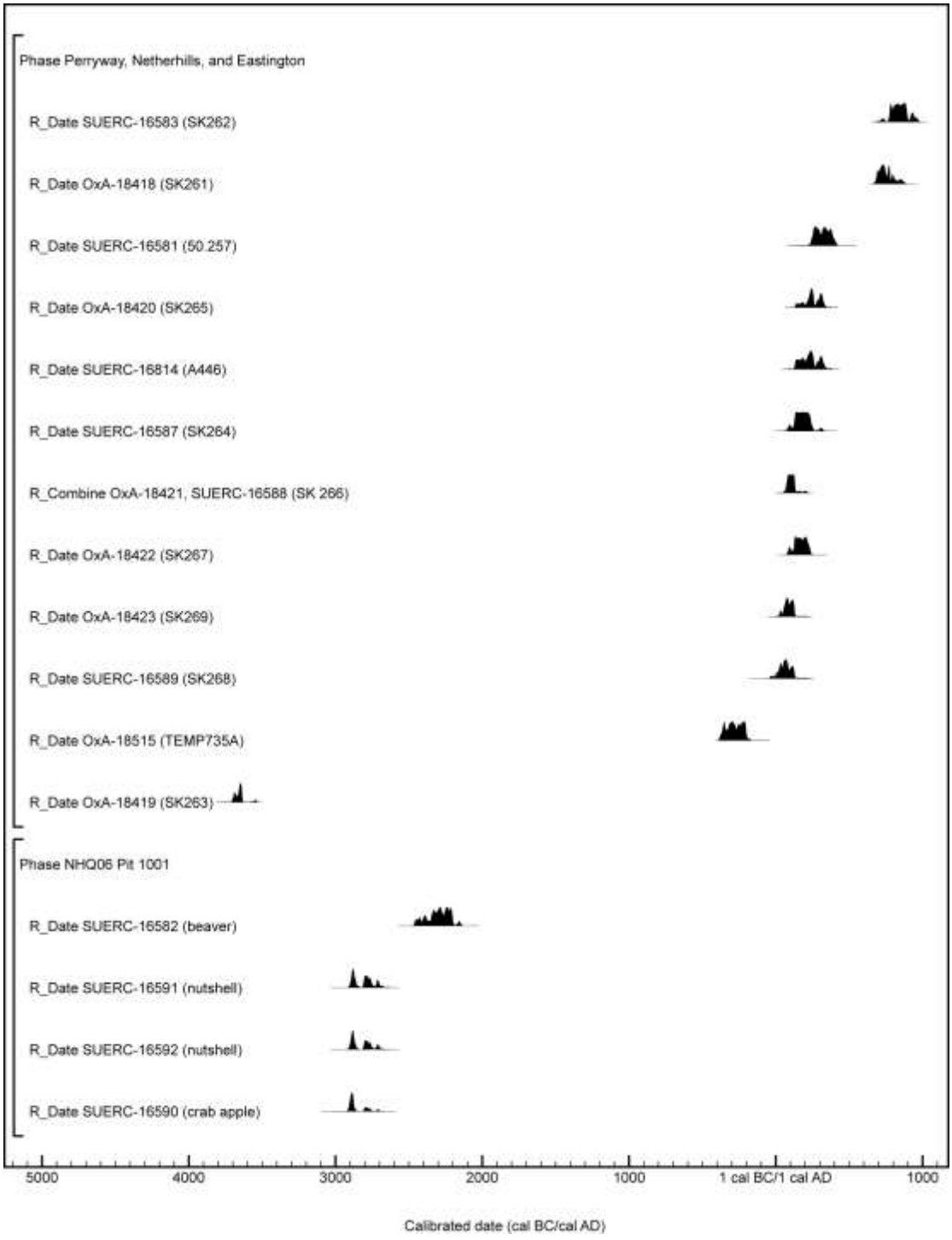

Table 1B: Calibrated radiocarbon dates and details of samples.

Laboratory code	Sample	Material	$\delta^{13}C$	$\delta^{15}N$	C:N ratio	Radiocarbon age (BP)	Calibrated date range (95% confidence)
Perryway							
OxA-18418	SK261	bone, human R femur	-19.6	10.7	3.2	1248 ±25	cal. AD 670–870
SUERC-16583	SK262	bone, human R humerus	-20.2	11.2	3.5	1180 ±35	cal. AD 720–970
OxA-18419	SK263	bone, human L humerus	-20.4	9.4	3.2	4866 ±31	3710–3630 cal. BC
SUERC-16587	SK264	bone, human L femur	-20.4	10	3.4	1830 ±35	cal. AD 80–320
OxA-18420	SK265	bone, human L mandibular condyle	-20.1	10.2	3.2	1780 ±26	cal. AD 130–340
OxA-18421	SK266	bone, human posterior R parietal	-20.0	11.0	3.2	1896 ±27	
SUERC-16588			-20.6	11.2	3.5	1890 ±30	
mean (T'=0.0)			-20.3	11.1	3.4	1893 ±20	cal. AD 60–140
OxA-18422	SK267	bone, human L occipital bone	-19.7	11.2	3.2	1848 ±25	cal. AD 80–240
SUERC-16589	SK268	bone, human proximal L fibula	-20.8	8.8	3.9	1935 ±35	20 cal. BC–cal. AD 140
OxA-18423	SK269	bone, human L occipital bone	-20.1	11.0	3.2	1916 ±26	Cal. AD 20–140
SUERC-16814	A446	bone, human skull fragment	-19.3	10.2	2.8	1790 ±35	cal. AD 130–340
Eastington							
SUERC-16581	50.257	human bone	-20.5	10.9	3.3	1720 ±35	cal. AD 230–420
Netherhills	**Site 1**						
OxA-18515	TEMP 735 (A)	human bone (adult male)	-20.1	10.5	3.2	2209 ±27	390–190 cal. BC
GU-6826	TEMP 735 (B)	human bone (adult female)	sample failed, due to low collagen yield				
NHQ06							
SUERC-16582 Fill 1015	beaver	Beaver (*Castor fiber*) bone	-23.5	3.0	3.9	3835 ±35	2460–2140 cal. BC
SUERC-16590 Fill 1015	macro 1	hazelnut (*Corylus avellana*) shell	-26.1	-	-	4250 ±35	2920–2760 cal. BC
SUERC-16591 Fill 1015	macro 2	hazelnut (*Corylus avellana*) shell	-26.2	-	-	4220 ±35	2910–2690 cal. BC
SUERC-16592 Fill 1015	macro 3	crab apple (*Malus* sp.) seed	-26.3	-	-	4230 ±35	2910–2700 cal. BC

- = measurement not required

The four samples from pit 1001 of the Netherhills 2006-2007 excavation did not give statistically consistent results (T' = 95.0, T'(5%) = 7.8, ν = 3; Ward and Wilson 1978), and the beaver jaw appears significantly more recent than the carbonised plant macrofossils. Given that the latter three samples were statistically consistent (T' = 0.4, T'(5%) = 6.0, ν = 2; Ward and Wilson 1978), it is unlikely that the plant macrofossils were residual in the context. Instead, the beaver jaw was probably later and/or intrusive. The flint and ceramic assemblage found in pit 1001

may therefore be close in date to the plant remains, which appear to date to shortly after 2900 cal. BC. The beaver, on the other hand, dates to the late Neolithic period.

An unexpectedly early date (3710-3630 cal. BC, OxA-18419) was recovered from one human bone from Perryway (SK263) but as the context from which the bone was recovered is unknown it is not easy to place this result in context. Two further individuals (SK261 and SK262) were of early medieval date (cal. AD 670-870, OxA-18418 and cal. AD 720-970, SUERC16583 respectively). A radiocarbon date obtained on the young adult human female from Eastington Quarry was slightly later than the remaining samples from Perryway, although at cal. AD 230-420 (SUERC-16581) this was still within the Romano-British period.

THE POTTERY by Jane Timby

Introduction

This report briefly describes the pottery recovered from various previous archaeological and other interventions in the Frampton on Severn area, including material held by Gloucester and Stroud Museums, along with additional material obtained as part of the project. A catalogue of the individual finds and their location was made for the assessment, and a copy is deposited with the project archive.

The pottery included prehistoric, Roman, Saxon, medieval and post-medieval finds. As was sometimes the case with older finds and museum exhibits, in some instances vessels had been completely 'reconstructed' from single or multiple sherds, but the method of construction obscured the original sherds. In the following report the material is discussed chronologically by intervention. Codes used for the Roman material reflect the National Roman fabric reference collection (Tomber and Dore 1998), and where these do not exist the Gloucester City type fabric (TF) reference collection (q.v. Ireland 1983).

Atkinson's Excavations at Netherhills

The surviving pottery from this site was located from Sites 1 and 3. The ring ditch from Site 1 was noted as having produced sherds from at least two Beakers (O'Neil and Grinsell 1960, 114), and these are also mentioned in Clarke's corpus (1970, no. 280-281) where the material is described as fragmentary and destroyed or lost. These Beaker sherds are indeed not present amongst the material, although a black and white photograph in the site archive shows close-up detail of horizontal lines of impressed decoration on a Beaker sherd (Fig. 8).

The pottery that was located from Site 1 consisted of eight very small sherds. One of these from the 'old turf line' had a very faint single line of comb-impressed decoration suggesting Beaker. The sherd was oxidised with a grey core. The only other potentially prehistoric finds were two very small crumbs that were impossible to identify. The other five pieces comprised three definite and two probable Roman sherds. Amongst these were three rim sherds, one from a Severn Valley Ware (SVW OX) storage jar and two from greyware jars. The two body sherds included one greyware and one sherd of SVW OX. None of the sherds could be closely dated.

The other potsherds that were located all came from Site 3, and comprised four sherds of probable Bronze Age date, eleven Roman sherds, and three crumbs that may have been fired clay rather than pottery and could not be dated. Three thick-

walled sherds came from the fill of pit B (small find no. 42) had fabric and firing pattern characteristic of Bronze Age urn material. A fourth small bodysherd with an oxidised exterior and black interior came from the outer ditch (small find no. 49). The Roman sherds comprised two sherds of South Gaulish samian bowl (Dragendorff type 29) of 1st century AD date; a ring necked flagon (late 1st-2nd century), and seven sherds of SVW OX, which included two storage jar rimsherds.

Frampton on Severn/Perryway

A total of 111 sherds from Perryway held in Gloucester Museum were examined. With the exception of three medieval sherds, all were of Roman date. The majority of the material consisted of Severn Valley Ware, although Black Burnished Ware, micaceous greyware and Oxfordshire ware were also present. Four sherds of Malvernian ware were also identified. The assemblage spanned the 1st to 4th centuries AD, and was from the same general location as the skeletons described above, but no detailed contextual information recording the relationships between features and pottery finds survived in the archives.

The assemblage included 31 sherds of handmade 'native wares' that could date to the pre- or post-conquest period. Such Romano-British pottery continued to be produced well into the 2nd century AD, and cannot be closer dated. Most of the wares were in grog-tempered fabrics (Glos TF 2) but there were four sherds of Malvernian Ware (Gloucester TF 18, 33, 216). Severn Valley Ware accounted for 38 sherds or 35 % of the group, amongst which were dishes, tankards, cordoned jars and bowls. There were some 1st-2nd century vessels alongside potentially later wares. Dorset Black Burnished Ware and South-west Black Burnished Wares were both present and comprised 10 % of the total, with vessels such as plain-rimmed dishes and jars – the latter featured acute and oblique burnished line latticing, demonstrating the presence of 2nd to 4th century products.

The other main ware present was a micaceous greyware (Gloucester TF 5), of local but unknown provenance. This fabric comprised 18 % of the total, and included copies of DOR BB1 and SVW forms. The industry probably dates from the later 2nd to 4th centuries. There were some other wares present in smaller amounts, the most distinctive of which were from the Oxfordshire kilns and included a white ware mortaria (Young 1977, type M17 dated AD 240-300), and at least two bowls/dishes of later 3rd-4th century date.

Eastington Gravel Pit

There were 178 sherds of pottery from Eastington catalogued from the collections at Stroud Museum, all of which were essentially unprovenanced. A Miss Hopkins had donated many finds, and several vessels have been restored from one or more sherds for display purposes. The finds ranged in date from later Iron Age and Roman vessels to the medieval and post-medieval sherds.

The earliest finds in the group included three heavily restored handmade jars in Malvernian limestone-tempered ware (Glos TF 33). There was one especially large vessel, a second smaller jar and a third with two looped handles. The large two-handled vessel was recovered from a pit by Gardiner, but it is not clear if either of the other two vessels represented the 'burial urn' found by Miss Hopkins. The assemblage also included 60 sherds of native handmade wares in grog-tempered (TF 2) or Malvernian fabrics (TF 18, TF 33). The corner of a triangular fired clay

loomweight or oven brick was accessioned in 1971. These ceramics all suggest some form of inhabitation in the location from the early 1st century AD.

There were 89 Romano-British sherds, the greater proportion belonging to the earlier Roman period suggesting continuities of occupation from pre-Roman inhabitation. These included a rusticated greyware jar, a greyware bowl and a pale pink ware decorated with red painted circles, possibly from North Wiltshire. Continental imports included Central Gaulish samian. A heavily restored fine greyware flanged bowl with a broken potter's stamp was likely to have been a good copy of a *terra nigra* import, perhaps made at Kingsholm.

Many of the other sherds were oxidised and reduced varieties of Severn Valley Wares, including a restored black tankard and a carinated bowl. An almost complete small rounded bowl was probably also early Roman. The Dorset Black Burnished wares appeared to be early types, with jars decorated with acute burnished line lattice. Later Roman products (late 2nd century onwards) included some micaceous greywares (TF 5), South-west white-slipped ware (SOW WS) and a wheelmade copy of a DOR BB1 jar in a fine, black micaceous ware. Other Romano-British finds included one fragment of combed box-flue tile and a piece of plain box-flue tile, suggesting that there was a relatively well-appointed, heated building in the vicinity.

A single annular loomweight also appears to have come from the gravel workings at Eastington. Along with part of a bone comb and a bone pin beater, this item was published by Ireland (1984) as possible evidence for post-Roman occupation in the vicinity. She also drew attention to several sherds of organic-tempered pottery recovered from an area north of the Claypits in Eastington (*c*. O.S. Nat. Grid SO 773060) recovered during the construction of the M5 (Travell and Fowler 1971). This pottery could not be located at Stroud Museum. Similar pottery has been found in the general locality at Frocester and Slimbridge, however, reinforcing the likelihood of post-Roman activity in the immediate area.

The Eastington material also included four medieval sherds, and four of post-medieval date. The former included a glazed jug, Malvernian border ware and a Cotswold-type jar sherd. The post-medieval sherds appeared to be Herefordshire Border wares.

MoD Pipeline

A collection of pottery recovered from a pipeline running between Tewkesbury and Frampton-on-Severn by Ministry of Defence employees in 1991 (Glos. SMR 12460) was also examined. There were 44 sherds held by Gloucestershire County Council Archaeology Service, comprising two Bronze Age sherds, 22 Roman sherds, one possible late Saxon/early medieval sherd, thirteen medieval and three post-medieval sherds. In addition, four fragments of probably modern ceramic building material (CBM) were also present.

The two Bronze Age fragments were undiagnostic handmade body sherds, with typical firing characteristics such as oxidised exteriors and black interiors, but were recovered *c*. 5 km to the north-east of Frampton on Severn. The Roman sherds were dominated by SVW OX, which accounted for 20 of the 22 sherds. Vessels included the handle from a tankard, and a cordoned jar. The remaining two sherds were local greywares. Unfortunately, the SVW OX pottery industry was long-lived and spanned the 1st to 4th centuries, and there were insufficient diagnostic sherds present to more closely date the material, although the two vessels were probably earlier rather than later Roman.

A single, sharply everted jar rim in a limestone-tempered, oxidised fabric was late Saxon or early medieval in date. Medieval wares included sherds of Malvernian ware, Gloucester limestone-tempered ware and Minety ware from North Wiltshire. Most, if not all, the medieval sherds were from jars/cooking pots. A sherd of Malvernian Border ware was probably post-medieval.

Gloucestershire County Council Archaeology Service Excavations 2006-2007

The excavation at Frampton on Severn produced 47 sherds of pottery weighing 200 g, accompanied by a few pieces of fired clay and burnt stone. The assemblage was recovered from a total 11 contexts.

The sherds were extremely fragmentary, with an average sherd weight of just 4.2 g for the group. Many of the individual fragments had abraded edges or were quite friable. Diagnostic sherds were limited and this affected the accuracy of the dating, particularly for the Roman sherds.

At least 23 or possibly 27 sherds of Late Neolithic/Early Bronze Age pottery were recovered from five contexts (1003, 1014, 1016, 1020, 1025 and possibly 1027). The most diagnostic are 13 sherds from context 1003 that represented at least two vessels, both Beaker. One vessel had horizontal lines of comb-impressed decoration separating zones with crosses (Fig. 15.1). The second vessel was decorated with lines of fingernail impressions impressed both vertically and diagonally (Figs 15.2, 15.3).

Similar grog-tempered sherds were recovered from 1016, 1025 and 1020. Context 1014 contained six fragments with a very friable, vesicular fabric, with an oxidised exterior and reduced interior. This fabric was originally limestone and fossil tempered, and the firing was characteristic of Beaker ware. A broken sherd of fine, oxidised handmade ware with thick walls of indeterminate date came from 1027. Contexts 1020 and 1025 also produced Roman sherds, suggesting that the prehistoric material was redeposited and/or residual.

Most contexts with prehistoric pottery also produced small fragments of fired clay of indeterminate form and function, and small pieces of burnt stone. This was the only material present in context 1015, and as such it cannot be dated. Collectively, the fired clay amounted to some 41 pieces weighing 92 g.

Catalogue

Fig. 15.1. Three joining bodysherds from a Beaker with a rounded profile. Orange-brown surfaces with a black core. The sherds have a smooth waxy feel. At x20 magnification the paste can be seen to contain a sparse to moderate frequency of pale grey and orange sub-angular to rounded fragments of grog, 3 mm and less in size, and a rare scatter of rounded quartz grains. The vessel is decorated with zones of square toothed comb-impressed crosses defined by two comb-impressed parallel lines.

A possibly similar vessel in terms of design was recovered from Lechmore barrow, near Nailsworth (Clifford 1937, pl. XI.B), excavated in the 19th century.

Fig. 15.2-3. Three bodysherds, two joining, probably from a single vessel. The two joining sherds appear to be near the base angle; the other from the upper zone of the vessel which probably had a slightly flaring profile. The vessel is decorated with seemingly random fingernail impressions. The sherds have orange-brown surfaces and a black core. The fabric is similar to the vessel above being moderately soft and containing a sparse to moderate frequency of grog and rare quartz sand and very rare fine limestone.

Similarly decorated sherds featured in the Beaker assemblage from Roughground Farm, Lechlade (Darvill 1993, fig. 15.11 and 35). Fingernail decorated beaker pottery was also recovered from Condicote Henge (Saville 1983, fig. 7, 1-4).

The Beaker assemblage was small and poorly preserved. The sherds show some affinities in terms of decoration and profile to the domestic assemblage recovered from Roughground Farm, Lechlade, attributed to the middle Beaker phase. This is supported by a radiocarbon date from that site.

Eighteen sherds of Roman date were recovered from five contexts (1012, 1020, 1021, 1022 and 1025). The largest group of 13 sherds came from 1022. Accompanying these were two small vesicular pot crumbs, which may be later Iron Age in date, or belong with the earlier prehistoric material. The assemblage is not closely dateable, although the presence of Severn Valley ware, Dorset Black Burnished Ware and micaceous greyware implies a date after the late 2nd century.

Conclusions

Most assemblages from the archive collections have only a loose provenance, and thus have limited value. It is clear from published notes and other records that much important material has been lost, especially prehistoric ceramics, and the surviving finds in the museums may represent a small fraction of what was originally recovered.

The ceramics suggest a lengthy history of occupation on the gravels, but one that cannot be easily characterised. There is, however, no indication of later Bronze Age or early Iron Age occupation from the available finds, and following the Beaker period the next visible episode of activity dates to the later Iron Age, as evidenced by the handmade native wares in the Hopkins collection. Such wares are quite common in the immediate area and have been documented at Standish (Timby 2005b), Kingsholm (before the establishment of the legionary fortress) and Frocester (Price 2000), as well as slightly further afield in the Tewkesbury area and in small amounts at many other sites.

Most surviving pottery was Romano-British which is harder, more robust and often brightly coloured and this may bias its collection in the first instance, whilst it is also generally more prolific than any other ceramic types apart from medieval and later wares. The range of pottery is typical of the area, and spans the entire Roman period. Three fabrics predominate – Severn Valley wares, Dorset Black Burnished wares, and grey micaceous wares. The same range of material, albeit on a larger scale, has been documented at Frocester (Timby 2000), Oldbury Flats (Allen and Fulford 1992) and between Aust and Oldbury (Timby 2005a). The possible high-status Roman site at Whitminster, previously interpreted as a villa (Fowler and Walthew 1971, 57), was located *c*. 3.5 km to the east of Frampton. Some of the material examined may relate to the archaeological work undertaken there, in particular Roman pottery ranging from the 1st to 4th centuries, and the two box-flue tile fragments. Finds of Forest of Dean sandstone tiles and tesserae from these investigations would also indicate a later Roman building.

The single annular loomweight and two bone artefacts from Eastington, and the handmade pottery from the M5 work (Travell and Fowler 1971), hint at post-Roman activity in the area. There is some evidence for Saxon occupation at Frocester (Price 2000) and possibly Slimbridge (Timby 1999).

Later finds are sparse and not indicative or any focus of occupation but would be expected as a background scatter in any such situation. It is likely that few such finds would end up in a museum.

DESCRIPTION OF OBJECTS IN STROUD DISTRICT MUSEUM by E.R. McSloy and David Dungworth

Introduction

The twelve items examined as part of this study from Stroud District Museum were described as from the parishes of Frampton on Severn or Eastington. Most were studied and drawn at the offices of Cotswold Archaeology, although four items, not easily removable from museum cases (1983.35, 2068/2-2069/2, 2069 and 2086.1) were recorded and drawn *in situ*.

The Stroud District Museum register indicates that antler comb elements 2068/2 and 2069/2 were found during archaeological investigations at Eastington gravel pit (Gardiner 1932). Brooches 1971.20 and 1971.21 appear to have been recovered during the excavations related to the construction of the M5 at Whitminster. The circumstances of recovery of most of the remaining items are obscure, but most were probably found during the extensive gravel workings in the area. Further details were sometimes included with the objects – spearhead 1983.35 was noted as being 'probably dug up at Bloody Vernal, Eastington'; whilst spindle whorl DP101 was described as from 'Whitminster pit'.

A number of items have received attention previously. With the exception of the spearhead, the Anglo-Saxon objects have been briefly described and illustrated (Ireland 1984, 241-243), and Roman figurine fragment 1960.133 is listed in a corpus of statuary for western England (Henig 1994).

Romano-British Objects (Fig. 16)

Fig. 16.1. 1971.20. Copper alloy. Colchester derivative (Polden Hill) type brooch. The bow and ends of wings feature mouldings, those on the bow consisting of complex curvilinear designs. Spring has eight coils. Length 58 mm; width at wings 25 mm.

Fig. 16.2. 1971.21. Copper alloy. Penannular brooch. The pin is missing, although an area of iron staining may indicate that this was of iron. Terminals are indistinct but appear to form a double moulding. Length 40 mm; width 36 mm.

Fig. 16.3. 1960.133. Leaded bronze. Statuette fragment. Left hand broken in antiquity at wrist. Good delineation and naturalistically modelled grasping (missing) round-sectioned object, possibly a spear shaft or sceptre. Hollow cast, the wrist cavity filled with a hard-fired ceramic, a remnant of the casting process. Approximately one third life size. Surviving length 62 mm.

Fig. 16.4. 2086.1. Iron knife with decorated bone handle. Complete, with some damage to blade edge and tip. The iron blade features a slightly angled back, slightly curving edge and central tang. This is held between two iron spacers and secured by hammering the end of the tang. The handle is cylindrical, slightly waisted and probably formed from the long bone (?tibia) of a sheep-sized animal. Decoration consists of five incised bands, the outermost and central in-filled with crosshatch. Overall length 203 mm.

Anglo-Saxon Objects (Fig. 17)

Fig. 17.5. 1983.35. Iron. Spearhead of Swanton's H2 form. Lentoid in section with a low rib extending from below the shoulder to the tip. Socket (mostly absent) is cleft

and contains small portion of mineral-preserved wood. Surviving length 264 mm; width at shoulder 36 mm.

Fig. 17.6. 2068/2 and 2069/2. Antler side-plates from double-sided composite comb. Decoration in form of stamped ring and dot to both sides in un-matching sequence. Seven iron rivets *in situ*, with a further two absent. The size of the plates, the positioning of rivets and of saw marks indicate that these are almost certainly elements of the same comb. Length 163-164 mm; width 19.5 mm.

Fig. 17.7. 2069. Worked bone. Double-pointed 'cigar' type pin beater. Rounded in section with highly polished surfaces. Length 150 mm; diameter (max.) 10 mm.

Fig. 17.8. 2798/1. Fired clay. Complete. Loomweight of annular form. 'D-shaped' in section. Fabric is buff-orange and hard. Common calcareous (?oolitic limestone) inclusions, mostly 1-3 mm across, but larger fragments up to 12 mm. Diam. 104.5-106.3 mm; thickness 45.6 mm.

Medieval Objects

Fig. 18.9. 1981.81. Copper alloy. Shield-shaped harness pendant. The design is heraldic and consists of two diagonal recesses probably intended for enamel, though none survives. This is overlain by a rectilinear design in-filled with blue-coloured enamel. The suspension loop is set at right angles to the pendant and shows some wear. Length 45 mm; width 26 mm.

Undated Objects

Fig. 18.10. 1971.22. Copper alloy. Plain ?finger ring. Round or slightly flattened hoop. D-shaped section. Diameter 27 mm; thickness 4.3 mm.

Fig. 18.11. DP101. Fine ?liassic limestone. Conical spindle whorl. Height 28.9 mm; diameter at base 26.6 mm.

Architectural Fragment

Fig. 18.12. 2781. Limestone. Rough-shaped architectural fragment, most likely a small column capital. Height 102 mm; diameter at top 125 mm; diameter at base 60 mm. Incorrectly described in the Stroud District Museum register as a clay loomweight.

Discussion

Statuette fragment

Fragment 1960.133 is included in Henig's corpus of Roman sculpture for Western England, where it is described briefly as 'Hand, probably from a statuette….probably held a spear or a staff; thus it may have come from a statuette of Mars or Minerva' (Henig 1994, 62). A note in the museum register records its findspot as 'a pond at Eastington'. Although considerable caution must be exercised with such items, particularly where the provenance is uncertain, the fragment is probably Romano-British in origin. The surface pitting, deep patina and iron staining of the object was confirmed by surface X-ray fluorescence, and this analysis detected nothing indicative of a more modern date (Dungworth n.d.). The leaded bronze alloy mix is entirely

consistent with surviving Roman statuary, and compares with 'recipes' recorded in surviving Classical texts. On stylistic grounds, the hand may be attributable to the 2nd or 3rd centuries AD (Martin Henig pers. comm.).

The current research can add little to the question of its attribution other than as this was a left hand, Mars may perhaps be a less likely candidate than Jupiter (Ralph Jackson pers. comm.). Few comparable complete statuettes or fragments survive from Roman Britain. Exceptions include a cupid from Cirencester (Henig 1994, 61); Nero modelled as Alexander from Coddenham, Suffolk (BM 1813 2-131) and a gilt copper Hercules figure from Birdoswald, Northumberland (BM 1895 4-81). No depictions (in metal) of Jupiter have been found in Britain, though several examples modelled with a sceptre held in the left hand survive on the Continent, including one from Brussels 540 mm high that is broadly similar in size (Faider-Feytmans 1980, 49-50).

The few finds of this type are invariably known from secondary deposits, most often in rivers, but such valuable, probably imported items may have adorned public temples or private shrines of the wealthy. If object 2068/1 was deposited in a watery context, than this might have reflected some form of 'structured' depositional practice. Model legs interpreted as votive objects were amongst finds from the shrines at Uley, Gloucestershire (Henig 1993, fig. 88), and many finds from the Continent suggest that images representing afflicted parts of the body were deposited in the hope of divine restoration. In some instances, limbs may have been removed from statues and re-sold for votive use. The deliberate amputation of limbs and heads is a feature of some stone and metal Roman statues that have been found in Britain and Europe, including examples cast into the Thames during the 4th century AD, either for political or religious/ritual reasons (Croxford 2003; Ferris 2007; Merrifield 1977).

Brooches

Brooches 1971.20 and 1971.21 are both described in the Stroud District Museum register as 'from the Whitminster Roman villa precinct, excavated prior to the M5 construction in 1969'.

Brooch 1971.20 is a Colchester-derivative with the spring retained in the Polden Hill manner by means of an axis bar fixed between pierced plates at the ends of the wings and the chord, in this instance secured by a hook. Polden Hill types have been found mainly in western Britain. The size and profile of 1971.20 and the presence of a foot knob indicate that it is a subtype with distribution within the Severn Valley (Mackreth 1994, 163), and dateable to *c*. AD 75-150.

Penannular brooch 1971.21 is more difficult to characterise and date. It is most likely to have been a 'debased' version of Fowler's D1-D5 series, and is closest to her type D3 (Fowler 1960, 152), with only a broad Roman-period date.

Knife

Stroud District Museum records 2068/1 as coming from 'Eastington gravel pit'. The waisted, cylindrical form and construction of the handle was characteristic of a number of Roman examples (MacGregor 1985, 168-169), and the cross-hatched decoration that aided grip was common on cylindrical and scale-tang handles. They cannot be closely dated, but examples have been found across Roman Britain including at Nettleton, Wiltshire (Wedlake 1982, fig. 82, nos 1, 9), Wanborough, Wiltshire (Vaughan 2001, fig. 116, nos 295-300) and Uley, Gloucestershire

(Woodward and Leach 1993, fig. 144, nos 8-11). The blade corresponds to Manning's type 14 (Manning 1985, 115), characterised by a mid-line tang, arched back and slightly convex edge. This form was common throughout the Roman period.

Spearhead

Spearhead 1983.35 conforms to Swanton's H2 form characterised by an angular blade with a concave curve above the angle (Swanton 1973, 107-111). Most examples are thought to date to the late 5th and 6th centuries AD, with a small number probably extending into the 7th century. The type is amongst the most common but also the most geographically widespread from pagan Anglo-Saxon contexts. Numerous examples are known from Gloucestershire – H2-type spearheads and those classified 'H1/H2' comprised seven of the 21 examples found at Butler's Field, Lechlade (Boyle *et al.* 1998), with six examples associated with Phase 1 (6th century) burials. One of the two stratified spearheads from the small 6th century cemetery at Lower Farm, Bishop's Cleeve was also of this type (Ford 2000, 79). The remnants of mineralised wood in the (largely absent) socket of 1983.35 suggest that it was deposited with its shaft in place, perhaps within a burial.

Objects associated with weaving

Two items associated with weaving are often associated with the fills of sunken-featured buildings, especially in Eastern England. Aside from 70 loomweight fragments from Sherborne House, Lechlade (Timby 2003, 63-64), the Frampton finds are extremely rare in Gloucestershire. Loomweight 2798/1 is highly-fired, a factor in its survival. Its perforation to whole diameter ratio is 1: 2.1, and falls within Dunning's annular type most characteristic of the 5th to 7th centuries (Dunning *et al*. 1959, 23-24). Pin beaters such as item 2069 were inserted between warp threads and used to compress the weft (Hoffmann 1964), and this example is typical in its size, 'cigar-shaped' form and highly polished appearance. They have probable Roman origins, but are most common from earlier Anglo-Saxon contexts (MacGregor 1985, 188-189; Riddler 1993, 117).

Comb plates

Comb plates 2068/2 and 2069/2 are derived from a comb of double-sided, composite form. The central tooth plate of antler or bone would have been formed after the whole was riveted together, and the manufacture tooling marks on the side-plates indicate that both sets of teeth were of roughly equivalent coarseness. Similar combs are known from domestic and funerary contexts, with 55 of this type, mostly plain or simply decorated, amongst a total of 85 6th and mid-7th century examples from sunken-featured buildings at West Stow, Suffolk (West 1969, 13-15). Only a few are known from Gloucestershire – three from the Butler's Field, Lechlade cemetery (Boyle *et al.* 1998) and two examples from Foxcote (Donovan and Dunning 1936), though the latter are plain and crudely made by comparison.

The dating of objects 2068/2069 is problematic. The size and proportions of the side plates suggest a period fairly late within the overall date span of the class from the later 5th/6th to the 8th centuries AD. A chronological division based on overall length has been proposed, with longer types (over 180 mm) typically later in date (Ager 1988, 23). Allowing for an additional 10mm on each end provided by the

end plates, comb 2068/2069 would fit best with the later series, spanning the mid-7th to 8th centuries AD. Stylistically the closest parallel is one from Ford, Laverstock, Wiltshire which was similarly, broad and flat and featured elaborate 'clustered' ring and dot motifs (Musty 1969, fig. 5e, pl. 28a). The Ford comb was dated on the basis of metalwork associations to the second half of the 7th century AD.

Harness pendant

Stroud District Museum records the provenance of shield-shaped harness pendant 1981.81 as Eastington, and includes the grid reference O.S. Nat. Grid SO 7725 0550. The register attributes the armorial to the Sudeley family, which had Gloucestershire connections. If this was so, then the blazon of a double diagonal 'bend' would probably have been in-filled with red-coloured enamel and the background gilded, or left as polished metal. The superimposed rectilinear 'label', which X-ray fluorescence indicated was in-filled with enamel coloured blue with cobalt (Dungworth n.d.), denoted an eldest son. Enamelled pendants of this type are usually 14th century in date, their use following the popularising of heraldic decorations by Edward I (Cherry 1991).

Undated

Two items cannot be dated. Object DP101 is a conical spindle whorl made from a soft limestone that is readily available in the area. Copper-alloy object 1971.22, noted in the museum register as 'Whitminster pit 3', is of a suitable size for a finger ring. It is in poor condition, with much of its original surface lost.

Architectural fragment

The provenance of roughly-made stone object 2781 is given as 'Frampton'. Erroneously described as a clay loomweight, it most likely represents a small column capital. Although firm dating is impossible, it could be a column capital from a portico of the type found in higher-status Roman buildings.

THE HUMAN REMAINS by Chris Cox

Introduction and Methodology

The human skeletal remains of 13 individuals were recovered from Perryway, Frampton on Severn, Gloucestershire by St Clair Baddeley in 1928. The surviving remains are curated at the Natural History Museum in London (PA SK261 to PA SK269). The precise origin of skull fragments (A.446) held by Gloucester Museum is unknown but as these came from 'Frampton' in 1928 they are believed to originate from Perryway. Stroud Museum holds a single individual from Eastington Gravel Pit (50.257), and Gloucester Museum retains remains retrieved during the excavations directed by Atkinson, including the individual from the ditch of Netherhills Site 1 in 1948 (TEMP-735 A and B). The cremated human remains also recovered by Atkinson's excavations are currently held by Gloucestershire County Council Archaeology Service as part of the Atkinson Netherhills archive.

All osteological examinations followed English Heritage Guidelines for skeletal reporting (Mays 2002), and the recording standards published by the British Association for Biological Anthropology and Osteology and the Institute of Field Archaeologists (Brickley and McKinley 2004). Skeletal preservation was assessed according to the weathering stages of Brickley and McKinley (2004), and stature was estimated using the regression equations of Trotter and Gleser (1952). Age at death was based on dental development (Moorrees *et al.* 1963; Ubelaker 1978), dental attrition (Miles 1962), auricular surface morphology (Lovejoy *et al*. 1985), cranial suture closure (Meindl and Lovejoy 1985), epiphyseal union (Schwartz 1995), pubic symphysis morphology (Suchey and Brooks 1990) and the diaphyseal length of long bones in subadults (Scheuer and Black 2000). Biological sex was determined through the morphological characteristics of the adult pelvis and the skull (Ferembach *et al*. 1980; Phenice 1969; Schwartz 1995).

The completeness of individual skeletons was assessed and expressed as a percentage of a complete skeleton (e.g. 0-24%, 25-49%, 50-74% and 75-100% respectively) (Mays 2002). The state of preservation of bone surfaces for each of the articulated skeletons was assessed according to the weathering stages recommended by Brickley and McKinley (2004). The majority of the skeletal remains were graded between 0-1, with little or no modification of the bone surface from roots, soil acidity or erosion. The only exception to this generally good preservation was skeleton TEMP 735-A which was graded 5+, indicating extensive erosion and severe modification of the bone surface.

Results and Discussion

A total of nine accessions (PA SK261 to PA SK269) of the human bone held by the Natural History Museum were examined, representing 10 individuals. A range of ages from older child (5-8 years) to older adult (50+ years) were present, with women, men and children all represented. The vast majority of the skeletons were incomplete as they are only represented by skulls and occasional post-cranial skeletal elements. Given the generally good state of bone preservation (Grades 0-1), it is highly unlikely that the bones are missing due to soil acidity. It appears that only a selection of bones have survived, and the rest may have been lost, discarded on site or subsequently disposed of by museums.

The dental health of this population was poor, with calculus, abscesses, caries and periodontal disease all present. Carious lesions suggest the addition of sugar in the diet while the presence of calculus indicates a lack of dental hygiene. This is relatively normal for Romano-British populations (Roberts and Cox 2003), and might reflect changes in peoples' diets and social practices.

There was an under-representation of children within this collection, although this is true of many human skeletal assemblages from many different periods. Ancient populations generally endured high levels of childhood mortality, and nearly half of all deaths probably would have occurred prior to adulthood (Chamberlain 2006). The Frampton on Severn remains contained few sub-adults, but it is possible that the children were accorded separate burial rites. Preservational factors such as the less robust remains of children may also have led to them being under-represented, in addition to the possible discard of excavated remains.

Assessment of the extent of post-cranial skeletal pathology was constrained by the incompleteness of most skeletons. One individual (PA SK263) had healed trauma to the arm and head, and another (PA SK267) displayed slight criba orbitalia –

probably a result of iron deficiency. The Natural History Museum's card index describes PA SK265 (an adult female) as being recovered from a grave containing a fragment of 1st century pottery, and PA SK268 as coming from a grave containing three fragments of a 'small Romano-British cup'. This individual returned a radiocarbon date of 20 cal. BC to AD 140 cal. (SUERC-16589).

Notable exceptions to this pattern were individuals PA SK262 and PA SK261, which returned early medieval radiocarbon dates of cal. AD 720-970 (SUERC-16583) and cal. AD 670-870 (OxA 18418) respectively. PA SK263 returned an unexpectedly early date within the Early Neolithic period (OxA 18419).

Cremated remains

Due to the shape and width of the bone cortex, cremated human remains were identified in (Atkinson Site 1) small finds boxes 26 and 34. Charred cattle (*Bos*) teeth were identified in 27, and a small amount of charred tooth fragments, probably *Bos*, in 26. The *Bos* teeth were complete, including the enamel layer, which is usually burned away through the extreme heat of the pyre. This indicates that the teeth were introduced into the pyre during its later stages, when the temperature was significantly reduced.

British archaeological cremations of human adults generally produce between 0.2-2 kg of cremated bone, with an overall average of 0.8 kg (McKinley 1994). The small amount of cremated remains from Frampton on Severn weighed roughly 0.5 g in total, and were thus below the expected weight ratios. Additionally, all of the cremated human remains were less than 2 mm in length. On average, 50 % of cremated bones once excavated are less than 10 mm in size, with the average maximum size being 45.2 mm (*ibid.*). The Frampton cremated remains were thus far below expected fragment sizes. No material normally associated with pyre debris such as charcoal, burnt pebbles or sooty soil was found.

Together, this evidence indicates that this sample of cremated human remains came from a much larger cremation deposit, and that only a fraction remained. There are two likely explanations for this. Atkinson was excavating during an era in which many archaeologists still held the common misconception that nothing could be gleaned from the analysis of cremated bone (Gejvall 1963; McKinley 1997), and once again it is possible that cremated remains were discarded either at the site, or at the museum. If so, then it is unusual that some very small fragments survived – only the larger remains might have been expected to have been retained. Alternatively, perhaps just a token amount of cremated human remains was originally selected and retrieved from the pyre, a common practice throughout prehistory (McKinley 1989).

Catalogue

Perryway, Frampton on Severn
PA SK261
Older child (5.5-8 yrs). Inventory: mandible, right scapula, left and right humeri, right pelvis, and right tibia. Preservation of the bones is Grade 1 with only slight root damage.

PA SK262
Older child (7-8 yrs). Inventory: parts of the maxilla and mandible, right humerus, 4 vertebrae (cervical 5-7 and thoracic 1), left and right pelvises, and right femur. Two

extra adult bones were also recorded. Preservation of the bones is Grade 1 with only slight root damage. Calculus and one enamel hypoplasia was noted on the teeth.

PA SK263
Old male adult (>45 yrs). Inventory: skull, mandible, left and right humeri, left and right radii, left and right femori, left and right tibiae, left 1st metatarsal and two proximal phalanges. Preservation of the bones is Grade 1 with slight root damage. Stature could not be calculated due to the fragmentary nature of the bones. Ante-mortem tooth loss and total alveolar resorption of the mandible was noted. There is also a healed fracture on the left radial shaft and a large button osteoma on the left parietal bone of the cranium.

PA SK264
Old probable male adult (>50 yrs). Inventory: skull, mandible, right humerus, right ulna, left femur and right tibia. Preservation of the bones is Grade 1 with slight root damage. Stature estimate 1.71 m. Dental pathology showed six abscesses, two carious lesions and calculus, while the skeletal pathology included lipping around the lesser trochanter of the left femur.

PA SK265
Old female adult (>50 yrs). Inventory: skull, mandible, and three cervical vertebrae. Preservation of the bones is Grade 1 with slight root damage. Dental pathology includes a buccally displaced eruption of the right PM_3, and calculus.

PA SK266
Young female adult (20-35 yrs). Inventory: skull, mandible, first cervical vertebrae and left hamate. Preservation is Grade 1 with slight root damage. Dental pathology showed periodontal disease, calculus, ante-mortem tooth loss, alveolar resorption and a sideways impaction of the right upper canine.

PA SK267
Old male adult (>45 yrs). Inventory: cranium, maxilla, and fragment of right scapula). Preservation is Grade 0 (no visible damage to the skeletal elements). Dental pathology includes ante-mortem tooth loss, periodontal disease and a small abscess on the right maxilla. Slight lipping around the glenoid surface of the scapula and slight cribra orbitalia was also observed.

PA SK268
Young male adult (20-35 yrs). Inventory: mostly complete except for the ribs, lower left and right forearms, most of the vertebrae and the left foot bones. Preservation is Grade 1 with slight root damage. Stature estimate 1.75 m. Dental pathology includes considerable calculus, a single carious lesion, periodontal disease, ante-mortem tooth loss and an abscess on the right maxilla. There is slight lipping around the tibiotalar joints on the left and right tibiae.

PA SK269
Mature female adult (30-45 yrs). Inventory: skull and maxilla. Preservation is Grade 0. An abscess and periodontal disease to the right maxilla and ante-mortem tooth loss on both left and right sides of the maxilla were noted.

A.446
Probable young adult (20-35 yrs). Inventory: miscellaneous skull fragments and a first cervical vertebra. Preservation is Grade 0 with no damage to the skeletal elements.

Eastington Gravel Pit

50.257
Young female adult (20-35 yrs). Inventory: right humerus, left and right femora, left and right tibiae, and left and right fibulae. Preservation is Grade 1 with slight root damage. Stature estimate 1.60 m. Included in these human remains was an adult *Bos* tibia.

Netherhills (Atkinson excavations)

TEMP 735-A
Mature male adult (30-45 yrs). Inventory: skull fragments, mandible, right humerus, right radius, fragments of the right scapula, left and right pelvises, left and right femori, left and right tibiae, right talus and left calcaneous. Preservation is Grade 5+ with very little cortical surface remaining on the skeletal elements. Stature estimate 1.66 m. Dental calculus is present and teeth are overcrowded. Marks of animal gnawing are present on the right radius.

TEMP 735-B
Young probable female adult (20-35 yrs). Inventory: fragments of skull, left and right scapulae, and ribs, right distal radius, left proximal femur and the left tibia. Preservation is Grade 1 with slight root damage and erosion of trabecular bone. Stature estimate 1.66-1.69 m. An extra right unfused clavicle and left pelvic fragment of a juvenile (15-16 yrs) were included with these remains.

Site 1 cremation pit
The cremated remains were probably those of a child (<12 yrs). Only 0.5 g of the cremated individual remained for analysis. Only a few fragments of long bone and one vertebral body were identified. The human bones were efficiently cremated to a grey and white colour with no organic material in the matrix. Included within the cremated material from context 34 was a small amount of slag, cattle (*Bos*) teeth, and flint. The *Bos* teeth were charred, not cremated.

THE LITHIC MATERIAL FROM THE EARLIER INVESTIGATIONS AT FRAMPTON ON SEVERN by David Mullin

Introduction

The material in the collection was quantified and assessed using standard descriptions of lithic material outlined in Andrefsky (1998), Saville (1980) and Clark (1960). The descriptions below include the following information – type, length/width, raw material, and description/date.

Clark (1960) divided cores into three categories – single platform, bi-polar and multi-platform, with core maintenance pieces including core rejuvenation flakes and core trimming flakes. The width and breadth of flakes removed from a core can

indicate date but usually only in very broad terms, with a change from narrow to broad flakes from the Neolithic to the Bronze Age for example (Pitts 1978a, 1978b). Flint use continued in a limited fashion into the Iron Age, with a noticeable decline in knapping skills, increased use of local raw materials and a restricted range of tool types through time (Young and Humphrey 1999). Waste material was divided into three classes depending upon its stage in the core reduction process, following Saville (1990, 155); and was further sub-divided into those flakes that retained a bulb of percussion and those that did not – the latter were classified as shatter (Andrefsky 1998, 81-83). Chips were defined as pieces of waste less than 10 mm by 10 mm.

Although small amounts of poor quality gravel flint occurs locally, flint is not native to the Frampton area, and would have had to be imported from the chalk geologies over 50 km to the east (Saville 1982).

Atkinson's Excavations at Netherhills

A total of 49 flints were recorded from Atkinson's 1948 excavations at Frampton on Severn, all from Site 1. The assemblage was composed mainly of debitage, suggesting either a late stage in the reduction process, or that it was selectively derived from a larger waste assemblage, the majority of which was disposed of elsewhere. The material from the cremation pit appeared to have been selected, with debitage deposited in the lower level (SF 25) and a chip, core and scraper placed in the upper level (SF 19). Only material from the upper level was heavily burnt, indicating that it passed through the cremation pyre. Flint was also deposited with the skeleton recovered from the ditch (SF 2 and SF 4). This probably residual assemblage consisted of debitage of light grey flint, although one or two burnt items may represent material derived from the primary cremation.

The retouched items were fairly typical late Neolithic/Early Bronze Age scrapers, and a possible knife (SF 15). Cutting C (SF 15 and SF 18) appears to have had an unusually high proportion of retouched items, including a large Levallois flake (SF 15), a technique that re-emerged during the late Neolithic period. The cores and core-related flakes in the assemblage suggest careful utilisation of the flint resource. Unlike the material recovered from the GCCAS 2006-2007 excavations (see Lamdin-Whymark below), gravel flint was not used. Most items consisted of good quality light grey flint, with a small number of better quality black flint examples.

Eastington Gravel Pit

Stroud District Museum holds the two Palaeolithic implements (accession numbers 2012 and 3079) previously recorded from the site (Burkitt 1938; Gardiner 1934), although only 3079 was listed by Wymer and Bonsall (1977, 420). A Mesolithic backed bladelet (acc. no. 1946.26/7) from the site is also held by Stroud Museum.

MoD Pipeline

A total of 91 flints were recorded in the archive from a watching brief by Andy Young in 1991 along the line of the Ministry of Defence pipeline between Tewkesbury and Frampton on Severn. The flint was recovered from just three areas, assigned the Gloucestershire Sites and Monuments Record numbers GSMR 12480, 12481 and 12484. The flint from GSMR 12480 and 12481 was considered to form part of the same assemblage, although these findspots were *c*. 100 m apart (Young

1993, 18). The flint recovered from GSMR 12484 consists only of two flakes that were recovered from *c*. 600m south-west of GSMR 12480 and 12481.

There was a significant number of narrow blades and blade fragments of probable late Mesolithic date in this assemblage. A backed bladelet from GSMR 12481 and a long end and side scraper from GSMR 12480 are also likely to be late Mesolithic. A thumbnail scraper (12480) may have been associated with the Beaker-period inhabitation at Netherhills *c*. 500m to the south-east. Few other Mesolithic flints have been recovered from the Severn Vale. Another scatter of mixed date but containing microliths was recovered from a gravel island at Leonard Stanley (Gracie 1938) and Mesolithic material from Persh Farm, Maisemore is held in Gloucester Museum (GSMR 5591); but the majority of Mesolithic finds from Gloucestershire have come from the Cotswold uplands and the Forest of Dean.

More than half of the material from GSMR 12480 and 12481 consisted of waste, with some cores and core maintenance pieces represented. Primary waste was scarce, suggesting that pre-prepared flint nodules were imported into the area (Saville 1982), and gravel flint was very rare in the relatively homogenous assemblage.

THE LITHICS FROM THE GLOUCESTERSHIRE COUNTY COUNCIL ARCHAEOLOGY SERVICE INVESTIGATIONS AT NETHERHILLS 2006-2007

by Hugo Lamdin-Whymark

Introduction

Excavations at Frampton on Severn yielded a total of 690 flints from five archaeological features (Table 2). The majority of this assemblage (675 flints) was recovered from the two fills (1014 and 1015) of pit 1001. This material has been dated to the later Neolithic on the basis of diagnostic artefacts including two chisel arrowheads, and technological attributes of the flint debitage. In addition, a further ten flints were recovered from Beaker-associated pit 1003, three flints from ditch 1023, and single flints from pit 1019 and the linear furrow 1006.

The flints from pit 1001 were a comparatively large group for the region, and their analysis provides an opportunity to characterise the attributes of a well stratified later Neolithic assemblage. Recent research has highlighted the potential of pit deposits to reveal temporal patterns of activity, through the analysis and cross-referencing of data from technological, typological, refitting and use-wear studies (Garrow *et al.* 2006; Lamdin-Whymark 2007). This report will thus consider what information the flint from pits 1001 and 1003 can provide regarding the range of activities and the temporal sequence of events prior to and during their deposition.

Table 2: Lithic quantification.

	Pit 1003	**Pit 1001**		***Sub-total Pit 1001***	**Pit 1019**	**Linear 1006**	**Ditch 1023**	
CATEGORY TYPE	1016	1014	1015		1020	1021	1025	Grand Total
Flake	3	136	256	*392*	1	1	2	399
Blade	-	2	8	*10*	-	-	-	10
Bladelet	-	2	8	*10*	-	-	-	10
Blade-like	-	6	8	*14*	-	-	-	14
Irregular waste	1	3	1	*4*	-	-	-	5
Chip	3	31	175	*206*	-	-	-	209
Rejuvenation flake tablet	-	1	-	*1*	-	-	-	1
Single platform flake core	-	1	-	*1*	-	-	-	1
Multiplatform flake core	-	2	-	*2*	-	-	-	2
Keeled non-discoidal flake core	-	1	1	*2*	-	-	-	2
Levallois/other discoidal flake core	-	-	1	*1*	-	-	-	1
Chisel arrowhead	-	-	2	*2*	-	-	-	2
End scraper	-	4	7	*11*	-	-	-	11
Side scraper	2	-	-	*-*	-	-	-	2
End and side scraper	-	2	-	*2*	-	-	-	2
Other scraper	1	-	-	*-*	-	-	-	1
Awl	-	1		*1*	-	-	-	1
Piercer	-	-	2	*2*	-	-	-	2
Serrated flake	-	1	1	*2*	-	-	-	2
Notch	-	1	2	*3*	-	-	-	3
Other knife	-	-	1	*1*		-	-	1
Retouched flake	-	3	3	*6*	-	-	-	6
Miscellaneous retouch	-	-	-	*-*	-	-	1	1
Hammerstone	-	1	1	*2*	-	-	-	2
Grand Total	10	198	477	*675*	1	1	3	690

No. of burnt flints (%)*	2	8 (4.8)	48 (15.9)	*56 (11.9)*	-	-	-	58 (12.1)
No. of broken flints (%)*	3	36 (21.6)	112 (37.1)	*148 (31.6)*	-	1	1	153 (31.8)
No. of retouched flints (%)*	3	12 (7.2)	18 (6)	*30 (6.4)*	-	-	1	34 (7.1)

* Percentage excludes chips

Methodology

The artefacts were catalogued according to broad artefact/debitage type, general condition noted and dating attempted where possible. Retouched pieces were classified according to standard morphological descriptions (e.g. Bamford 1985, 72-77; Bradley 1999, 211-227; Healy 1988, 48-49). Additional information was recorded on the condition of the artefacts including burning, breakage, the degree of edge-damage and the amount of cortication. Unworked burnt flint was quantified by number and weight. The assemblage was catalogued directly onto a Microsoft Access database and data manipulated in Microsoft Excel.

Technological attribute analysis was undertaken on 420 complete and broken flakes and retouched artefacts from pit 1001. The attributes recorded were butt type (Inizan *et al.* 1992), the extent of dorsal cortex, termination type, flake type (after Harding 1990), and hammer mode (Onhuma and Bergman 1982). The presence of platform-edge abrasion and dorsal blade scars was also recorded. The dimensions of 274 complete flakes were measured using standard methods for recording length, breadth and thickness (Saville 1980).

A total of 449 flakes and tools were microscopically analysed for edge-damage, using a methodology developed to examine large assemblages for evidence of post-depositional edge-damage, broad patterns of use and hardness of contact materials (Brown 1996). Low magnifications of 20x magnification were used for the identification of damage patterns, and 40x magnification for the categorisation of the hardness of contact materials. This technique allows the rapid assessment of a large number of artefacts, and provides general information on the use and post-depositional history of an assemblage of artefacts, rather than detailed information on the use of a specific artefact. The methodology draws on experimental work on the use of flint and formation of edge-damage (e.g. Akoshima 1987; Cotterell and Kamminga 1979; Grace 1989, 1996; Mallouf 1982; Moss 1983; Tringham *et al*. 1974).

The position of use-damage was recorded in relation to standard flake orientation (left, right, distal, proximal, left proximal, left distal, right proximal and right distal). The position of edge-damage at each location was recorded as either on one side, both sides or on or behind a point, to determine the use action as scraping, cutting/whittling or boring respectively. The hardness of the contact materials can be determined by the nature of the micro-flaking on the flint. Edge-rounding is indicative of use against soft materials. Crescent fractures created by flexion suggest contact with soft materials such as meat and fleshy plants. Large crescent fractures are typical of post-depositional edge-damage. Scalar micro-flaking with less than 10 % step fractures is typical of contact with materials of medium hardness, whilst edge-damage with higher than 10 % step fractures is considered to represent contact with hard materials. As this study does not consider use-polishes and edge-damage only visible at higher magnifications, the overall proportions of use should be considered a minimum for the assemblage.

Raw Material and Condition

Unlike the largely Mesolithic and Neolithic material recorded from Atkinson's excavations at Netherhills and from the MoD pipeline watching brief (see Mullin above), the Bronze Age raw material recorded from the GCCAS excavations was a gravel-derived flint available as small, fist-sized, cobbles. The refitting exercise

identified ten different flint types on the basis of the colour and texture of the flint in combination with different cortical surfaces. The majority of the flint was light to mid-brown in colour, but a small number of flakes from a grey flint were also noted. Most of the flint was of reasonable flaking quality, but some of the raw materials contained cherty inclusions and occasional thermal fractures. The cortical surfaces were all abraded, but some flints retained a thin white cortex up to 5 mm thick, often with a buff-coloured surface. The cortical surface of other nodules was entirely abraded, and grey or mottled bluish-grey in colour. The ten flint types could not be readily equated with the number of nodules present in the assemblage, as different nodules may of course vary in character. Flints from a single nodule were thus considered as belonging to separate flint types, unless refitting demonstrated otherwise. The identified flint types suggest that the assemblage included flakes probably derived from several nodules, with elements of the different reduction sequences deposited together.

The flint assemblage from pits 1001 and 1003 was in fresh condition, although occasional pieces exhibited slight edge-damage. Microscopic inspection revealed post-depositional edge-damage comprising crescent fractures or occasional nicks along the edge of flakes on 18 % of the flints from context 1015 and 27 % of flints from context 1014. This edge-damage was relatively slight, but may reflect some degree of trampling or exposure for a period prior to burial in pit 1001. It is noteworthy that the upper fill contained a higher proportion of edge-damaged flakes, perhaps reflecting exposure for a more prolonged period than the flint in the lower deposit. The flint from ditch 1023, pit 1019 and linear furrow 1006 was in poor condition, with four of the five flints exhibiting post-depositional edge-damage, and one of the flints was also rolled. The degree of cortication was exceptionally variable, even within contexts. The majority of the assemblage was free of cortication, but approximately one third of the flints exhibited either a light speckled bluish-white surface or a moderate to heavy white cortication. Refits and conjoins were made between non-corticated and white corticated flints in pit 1001, indicating that the development of cortication resulted from localised conditions and did not reflect artefacts of differing age.

The Assemblage

Pit 1001

There were 675 flints from pit 1001 recovered from two fills, including 206 chips measuring less than 10 mm². The lower fill 1015 contained approximately two thirds of the flint, with the remaining third in the upper fill 1014. The assemblage from each context was broadly comparable (see Tables 2-9), but the lower fill produced a larger number of chips and its flints exhibited greater burning and breakage than those from the upper fill. Two knapping refits were made between flakes in fills 1014 and 1015, and eight of the ten flint types identified included flint from both 1014 and 1015. This indicates that the flint from the two deposits resulted from the same knapping events, although it is possible the material was deposited in different acts, possibly separated by a period of time.

Table 3: The length/breadth index values for unretouched flakes 10 mm or more in length from 1001, fills 1014 and 1015.

Length to breadth value	Fill 1014		Fill 1015		Pit 1001 combined	
	No.	%	No	%	No	%
<0.6			2	1.2	2	0.7
0.6-1.0	44	38.9	58	36	102	37.2
1.1-1.5	43	38.1	55	34.2	98	35.8
1.6-2.0	20	17.7	27	16.8	47	17.2
2.1-2.5	6	5.3	12	7.5	18	6.6
2.6-3.0			5	3.1	5	1.8
3.1-3.5			2	1.2	2	0.7

Flakes and cores

The flint assemblage from pit 1001 was dominated by unretouched flakes (392) and chips (206). The flake debitage was comparatively small in size, with the average flake over 10 mm² measuring 29.8 mm long, by 24.3 mm wide and 6.4 mm thick – only 33 flints exceeded 50 mm in length. This reflects the comparatively small size of the nodules worked on site, but also indicates that many of the larger flakes, and four of the scrapers, were probably knapped elsewhere and imported to the site.

Production was orientated towards the production of small flakes, and the metrical analysis revealed only 29 flints of blade proportions (>2:1 length to breadth ratio), representing 10.6 % of the total analysed. Moreover, only 1.4 % of flakes exhibited blade scars on their dorsal surface, indicating that the blades were occasional removals from flake cores, rather than repeated products from a blade-orientated core. The low proportion of blades and the emphasis on flake production is typical of late Neolithic assemblages from across southern Britain (Ford 1987). Flakes were still removed with some care, however, as demonstrated by the presence of platform-edge abrasion on 22.2 % of all flakes (69 of 311 flints).

The composition of the flint assemblage in pit 1001, with several cores and a large numbers of chips, indicates the presence of knapping debitage. The high proportion of cortical and partly cortical flakes (48.8 % of flakes, see Table 4) suggests that a complete reduction sequence was represented. A relatively high proportion of the flake assemblage (10.1 %) exhibited more that 75 % cortex on the dorsal surface (Table 4 and 5), representing the flakes removed as part of initial core preparation. The preparation of the cores did not involve the removal of all cortex, however, as indicated by the high proportion of flakes with between 1-75 % cortex (39.7 % of flakes, Table 5); and the presence of numerous side and distal trimming flakes (Table 5).

The flakes were struck mostly from plain platforms (48.9 %), but platforms with two or more facets were also frequent (16.1 %), and this was a distinctive feature of the assemblage (Table 6). Platforms with two or more facets probably represented the working of keeled edges. The presence of five facetted platforms (4.8 % of flake assemblage) indicated a similar method of flaking into the platform, but only one flake reflected faceting for the removal of a Levallois-style flake – this flake was modified into an end scraper (Fig. 19.4). As this artefact was larger then the majority of the flake debitage, the flake was probably manufactured elsewhere. The majority of the flakes were successfully struck and resulted in a feature termination (61.4 % of the assemblage, Table 7). Hinge terminations and plunging removals were relatively frequent, however, occurring on 18.8 % and 16.5 % of flakes respectively. This

indicates that flakes were not always struck at appropriate angles to facilitate a feathered removal.

Table 4: Technological attributes of flint from pit 1001, fill 1014 and 1015: dorsal extent of cortex.

		Dorsal extent					
Context	**Date**	**0**	**1-25%**	**26-50%**	**51-75%**	**76-99%**	**100%**
Fill 1014	LN	76 (49%)	39 (25.2%)	19 (12.3%)	7 (4.5%)	11 (7.1%)	3 (1.9%)
Fill 1015	LN	135 (50.9%)	51 (19.2%)	36 (13.6%)	15 (5.7%)	17 (6.4%)	11 (4.2%)
Pit 1001 combined	LN	211 (50.2%)	90 (21.4%)	55 (13.1%)	22 (5.2%)	28 (6.7%)	14 (3.3%)

Table 5: Technological attributes of flint from pit 1001, fill 1014 and 1015: flake type.

		Flake type					
Context	**Date**	**Preparation**	**Side trim.**	**Distal trim.**	**Misc. trim.**	**Non-cortical**	**Rejuv.**
Fill 1014	LN	12 (7.7%)	30 (19.4%)	19 (12.6%	16 (10.3%)	78 (50.3%)	
Fill 1015	LN	20 (7.6%)	55 (20.8%)	26 (9.8%)	27 (10.9%)	136 (51.3%)	1 (0.4%)
Pit 1001 combined	LN	32 (7.6%)	85 (20.2%)	45 (10.7%)	43 (10.2%)	214 (50.1%)	1 (0.2%)

Table 6: Technological attributes of flint from pit 1001, fill 1014 and 1015: butt type.

		Butt type						
Context	**Date**	**Cortical**	**Plain**	**>1 Removal**	**Facetted**	**Linear**	**Punctiform**	**Other**
Fill 1014	LN	9 (7.4%)	54 (44.3%)	18 (14.8%)	3 (2.5%)	7 (5.7%)	20 (16.4%)	11 (9%)
Fill 1015	LN	15 (7.9%)	98 (51.9%)	32 (16.9%)	2 (1.1%)	8 (4.2%)	17 (9%)	17 (9%)
Pit 1001 combined	LN	24 (7.7%)	152 (48.9%)	50 (16.1%)	5 (1.6%)	15 (4.8%)	37 (11.9%)	28 (9%)

Table 7: Technological attributes of flint from pit 1001, fill 1014 and 1015: termination type.

		Termination type				
Context	**Date**	**Hinge**	**Step**	**Plunging**	**Feather**	**Other**
Fill 1014	LN	25 (18%)	2 (1.4%)	21 (15.1%)	87 (62.6%)	4 (2.9%)
Fill 1015	LN	42 (19.3%)	3 (1.4%)	38 (17.4%)	132 (60.6%)	3 (1.4%)
Pit 1001 combined	LN	67 (18.8%)	5 (1.4%)	59 (16.5%)	219 (61.4%)	7 (2%)

Attempting to establish indentor type, whether hard or soft hammer percussion, proved relatively inconclusive, with indeterminate bulbs present on 61 % of the flakes (Table 8). A larger proportion of the flakes exhibited traits of hard hammer percussion (29 %), as opposed to soft hammer percussion (10 %). This may

reflect the use of a material of moderate hardness, or a knapping technique that did not produce distinctive bulbs. The assemblage contained two small, well-used flint hammerstones weighing 39 g and 40 g, and these may have been used for knapping the flakes in the assemblage. The comparatively light weight of the hammerstones and the use of flint against flint may provide some explanation for the largely indeterminate results observed, but the analysis also highlights methodological issues in the determination of hammer mode and attributes (cf. Onhuma and Bergman 1982; Pelcin 1997).

Table 8: Technological attributes of flint from pit 1001, fill 1014 and 1015: proportion of blades, presence of platform-edge abrasion and dorsal blade scars.

Context	Date	% flakes >2:1 L:B ratio	% flakes with platform edge abrasion	% flakes with dorsal blade scars
Fill 1014	LN	7 (4.5%)	32 (26.2%)	2 (1.3%)
Fill 1015	LN	22 (13.7%)	37 (19.6%)	4 (1.5%)
Pit 1001 combined	LN	29 (10.6%)	69 (22.2%)	6 (1.4%)

Table 9: Technological attributes of selected flint assemblages:hammer mode.

		Hammer mode		
Context	Date	Soft	Hard	Indeterminate
Fill 1014	LN	11 (8.9%)	39 (31.7%)	73 (59.4%)
Fill 1015	LN	19 (10.3%)	51 (27.6%)	115 (62.1%)
Pit 1001 combined	LN	30 (9.7%)	90 (29.2%)	188 (61%)

Pit 1001 contained six cores – four were recovered from upper fill 1014, and two from lower fill 1015. All of the cores were orientated towards flake production, and flakes were refitted to two of the cores (Figs 19.1-19.2). The presence of two keeled cores and a Levallois-style core (Fig. 19.3) was notable, as this reduction strategy is characteristic of the later Neolithic. The cores were all exhausted, and weighed between 25 g and 78 g (average 46.5 g).

The refitting exercise suggested that the evidence for a complete reduction sequence may mask a more complex situation involving the preparation of some nodules and the exhaustion of cores that were predominately worked elsewhere. The refitting exercise identified knapping refits between 21 flints in 8 sequences, and four conjoins were also made between fragments of broken flakes. The knapping refits were identified in six of the ten characterised flint types. The knapping sequences were short, with four flakes representing the longest sequence. This sequence, from flint type 5, consisted of four side and distal trimming flakes, with three from context 1015 and one from 1014; one of the flakes from 1015 was also burnt. Flint type 5 also produced three shorter knapping sequences of cortical and partly cortical flakes. None of the cores in the pit appeared to relate to this flint type, suggesting the nodule was only partly worked and was not deposited, perhaps being removed for further working at another location. In contrast, three flakes were refitted to two cores (flint types 9

and 10, Figs 19.1-19.2), but the early stages of reduction from these cores was notably absent. Indeed, the refitted flakes were amongst the final removals, and were more irregular than many flake scars on the surface of the core. This may indicate that these cores were partially worked when they arrived at the site, but were then fully exhausted and abandoned. It was also notable that 12 of the 21 flints in refitting sequences exhibited evidence of use, and four had slight post-depositional edge-damage.

Retouch

A total of 30 retouched artefacts were recovered from pit 1001, representing 6.4 % of the assemblage, excluding chips. The artefacts were dominated by scrapers (13), particularly end scraper forms (11). The end scrapers exhibited considerable variation in the angle of retouch, perhaps indicating that they were used for a range of different activities. Several of the scrapers were very heavily used and one had a rounded-edge – the use-damage is considered further below. As highlighted above, the scrapers were among the largest flakes in the assemblage and were considerably larger than the majority of the debitage and cores present. The tools, or at least blanks for the tools, were probably brought to the location for use from a knapping event elsewhere.

The retouched assemblage also included a heavily retouched awl (Fig. 20.13), two piercers on flakes, three notched flakes, and six flakes with limited areas of slight edge-retouch. In addition, two chisel arrowheads were present in the lowest fill of the pit. One of the arrowheads was retouched on the dorsal surface and had a distinct barb on the right hand side; the left hand side had a modern break (Fig. 20.10). The second arrowhead (Fig. 20.11) had a strong blade edge with bifacial retouch at the proximal end; the distal end exhibited an un-retouched break from manufacture. Chisel arrowheads generally date to the middle Neolithic and were often associated with Peterborough Ware pottery – this date is broadly consistent with the reduction strategies considered above. The working of plant materials was indicated by the presence of two serrated blades (Fig. 20.12); one of which displayed silica gloss on the reverse of the teeth. A crude and possibly unfinished knife was also recovered from context 1015, along with three conjoining burnt fragments (Fig. 20.14). This tool was manufactured on a large broad flake by retouching the proximal end on the dorsal surface, and removing the bulb as a Janus flake. The ventral surface at the distal was crudely retouched by direct percussion to form a possible cutting edge.

Burning, breakage and intentional breakage

The levels of burning and breakage were relatively high, at 11.9 % (56 flints) and 31.6 % (148 flints) respectively, although this was common in Later Neolithic pits. Throughout the Neolithic pits often contained a charcoal rich fill, but in Later Neolithic pits, particularly those with Grooved Ware associations, the artefacts were also often burnt, and in some cases up to 50 % of the flint assemblage was affected by burning (Lamdin-Whymark 2007). The elevated levels of breakage frequently reflect the effects of burning on the flint assemblage, but this explanation only partly accounts for the level of breakage in the assemblage from pit 1001.

In total, 34 flints from the pit displayed either contact features resulting from percussion, or had broken through flexion (a fracture initiated by ‘bending’ the flint). The contact features resulted from direct percussion on the surface of the flake, and included the presence of a cone or bulb of percussion, incipient cones or crushing at the point of percussion. These attributes only result from percussion, and their presence reflects intentional breakage (see Figs 19.7-19.8). Features resulting from

flexion included wedge-shaped fracture lines, lips on the edge of the breaks and conchoidal fracture marks (Figs 19.7 and 20.9) (Bergman *et al.* 1987; Lamdin-Whymark forthcoming a). Wedge-shaped fracture lines develop on the opposite surface from the point of impact and on occasion, lead to the detachment of wedge-shaped elements (see Fig. 20.9). In contrast, the lip develops on the surface of impact or compression. Flexion fractures without contact features cannot be definitively attributed to intentional breakage through percussion. Replication experiments have demonstrated that 25 % of flakes broken intentionally through flexion do not exhibit contact features, however, and some flexion fractures may therefore result from intentional breakage (Bergman *et al.* 1987). Moreover, wedge-shaped fracture lines and wedge-shaped elements normally only develop as a result of impacts of considerable force. Therefore, whilst actions such as trampling may explain some of the flexion breaks in the assemblage, other fractures, particularly on squat flakes of more than a few millimetres thickness, were more likely to have resulted from intentional percussion (e.g. Fig. 20.9).

Intentional breakage in the pit 1001 assemblage can be sub-divided into two categories – the production artefacts or flake tools, and the breakage of utilised retouched artefacts and flakes. The use of intentional breakage for the production of tools is most aptly demonstrated by the presence of two chisel arrowheads in the assemblage. These tools were most commonly produced transversely on flakes that had been intentionally broken at the proximal and/or distal end. The example shown in Fig. 20.10 was probably broken at the distal end and the edge was subsequently retouched, whilst Fig. 20.11 is an example probably broken at both the proximal and distal ends. The proximal end exhibited bifacial retouch, whilst the intentional break at the distal end was left as an unmodified break. Some of the intentionally broken flakes within the assemblage may represent debitage from the manufacture of transverse arrowheads. Intentional breakage might have also been employed to create flake segments, used as single artefacts or as parts of composite tools. There were too few broken fragments in the assemblage to identify a regular form or size of flake segment, and so it was not possible to determine if intentional breakage was utilised to create usable flake segments.

Intentional breaks were also present on retouched and well used artefacts, but rather than reflecting part of the production process, the breaks occurred after the artefacts had been utilised, and would have often rendered the tools beyond further use. Twelve of the retouched tools were broken (35.3 % of all retouched tools), and five (excluding the chisel arrowhead, considered above) exhibited breaks with contact features or resulted from flexion (14.7 % of the retouched tools). In contrast, 31.7 % of flakes (139) displayed breaks, of which 28 (6.4 %) were possibly intentional. This demonstrates that retouched tools were more likely to be broken and to have possibly intentional breaks. The five broken tools consisted of an end scraper (Fig. 19.7), an end and side scraper (Fig. 19.8), two scrapers of unclassifiable form (other scraper, see Fig. 20.9), and an edge-retouched flake that may have been the proximal end of a scraper. Two of these scrapers had bulbs of percussion in addition to attributes of flexion, and may have been broken by intentional blows to the ventral surface (Figs 19.7-19.8). The end and side scraper (Fig. 19.8) was broken by two separate blows and two fragments were refitted, but the missing element was not present in the assemblage. The other three retouched tools only exhibited traits of flexion, but all bore evidence of wedge-shaped fractures and were on flakes measuring 3 mm, 9 mm and 9 mm thick respectively, suggesting that they were broken with some force. One of the scrapers was a wedge-shaped fragment, burnt after breakage (Fig. 20.9).

Use-wear

A total of 449 flakes and tools from pit 1001 were examined for use-wear. Forty-nine of these flints were either too burnt for assessment, or exhibited edges with modern damage. In total, 201 flints (50.3 %) of the flints examined exhibited traces of use. These flints displayed 259 use actions, representing an average of 1.3 utilised edges per utilised flake. The retouched tools all bore evidence of use, along with a wide variety of flakes; the smallest of the latter only 13 mm long and 11 mm wide. As noted above, 12 of the 21 knapping refits also exhibited use-damage.

The use actions were dominated by cutting and whittling (74.2 %), followed by scraping (23.5 %) and boring (2.3 %) (Table 10). Materials of medium hardness were those most commonly worked (65.9 %), but hard materials were also frequently worked (23.9 %), whilst actions against soft materials were only present on 10.6 % of utilised edges. The common combination of use and material was the cutting and whittling of substances of medium hardness (58.3 %), followed by scraping hard materials (15.2 %), and cutting or whittling soft materials (9.1 %). The scrapers were all used for hard scraping, with the exception of one soft scraping action. In addition to the scrapers, two edge retouched flakes, two notched flakes and seven flakes all had evidence of hard scraping actions.

Table 10: Patterns of use among utilised flakes in pit 1001, context 1014.

Hardness of contact material	**Action**			
	Cut/whittle	**Scrape**	**Bore**	**Grand Total**
Soft	12	2		14
	(9.1%)	(1.5%)		(10.6%)
Medium	77	9	1	87
	(58.3%)	(6.8%)	(0.8%)	(65.9%)
Hard	9	20	2	31
	(6.8%)	(15.2%)	(1.5%)	(23.9%)
	98	31	3	132
Grand Total	(74.2%)	(23.5%)	(2.3%)	(100%)

Table 11: Patterns of use among utilised flakes in pit 1001, context 1015.

Hardness of contact material	**Action**			
	Cut/whittle	**Scrape**	**Bore**	**Grand Total**
Soft	19	4		24
	(15.3%)	(3.2%)	1 (0.8%)	(19.4%)
Medium	75	6	1	82
	(60.5%)	(4.8%)	(0.8%)	(66.1%)
Hard	7	11		18
	(5.7%)	(8.9%)		(14.5%)
		21	2	124
Grand Total	101 (81.5%)	(16.9%)	(1.6%)	(100%)

There were also variations between lower pit fill 1015 and upper deposit 1014. In fill 1015, only 105 of 292 flints examined (42.2 %) were utilised, whilst in the upper fill 1014, 96 of 157 flints were used, a higher proportion of the total (63.5 %) (Tables 10-11). The difference probably reflects the higher proportion of flakes in the lower fill, particularly those of small dimensions. The actions and hardness of contact materials were broadly similar between the two deposits. This indicates that the flint in each fill was created by similar, possibly the same activities. Hard scraping actions were slightly more prominent in fill 1014, but this probably reflects the different proportion of scrapers to flakes between the deposits. Deposits 1014 and 1015 had similar numbers of scrapers (6 and 7 respectively), but fill 1015 contained a higher proportion of flakes, including several that were used for cutting and whittling.

Table 12: Patterns of use among utilised flakes in pit 1001 (contexts 1014 and 1015 combined).

Hardness of contact material	**Action**			
	Cut/whittle	**Scrape**	**Bore**	**Grand Total**
Soft	31 (12%)	6 (2.3%)	1 (0.4%)	38 (14.7%)
Medium	155 (59.7%)	15 (5.8%)	2 (0.8%)	172 (66.4%)
Hard	16 (6.2%)	31 (12%)	2 (0.8%)	49 (18.9%)
Grand Total	202 (78%)	52 (20.1%)	5 (1.9%)	259 (100%)

Pit 1003

Pit 1003 produced a small flint assemblage comprising three flakes, three chips, a piece of irregular waste, two side scrapers and a broken fragment, possibly of a third scraper. The two side scrapers were both manufactured on broken flakes and were of relatively limited proportions, measuring 30 mm by 17 mm and 22 mm by 31 mm respectively. The flint recovered from this pit was not intrinsically dateable, but the composition of the assemblage was appropriate for the Beaker date indicated by the pottery.

Ditch 1023, pit 1019 and linear furrow 1006

These features contained four flakes and a broken retouched flake. The retouched flake exhibited invasive retouch along the right-hand side, and slight abrupt retouch on the left-hand side. It was not possible to determine the original form of this artefact from the surviving fragment, but it is possible that it formed part of a projectile point.

Conclusions and Discussion

The flint assemblage from pit 1001 indicates a flake-orientated industry, with some evidence for the working of keeled and discoidal cores. The flint assemblage from pit 1001 can be broadly dated to the later Neolithic on the basis of the reduction strategy, flake morphology and the presence of two chisel arrowheads (Ford 1987; Pitts and

Jacobi 1979). The raw materials available were of comparatively small size and variable quality. The resulting flake assemblage was thus also of relatively small size in relation to those from areas with access to larger, better quality raw materials, although the reduction strategies employed were similar. The small, locally available nodules were worked to supply flakes for immediate use as unmodified tools. In contrast, the flake tools, particularly scrapers, were among the largest flints in the assemblage and were probably imported as artefacts, or flake blanks, from a region with better flint sources. Neolithic people were thus aware of the limitations of the local flint nodules, and imported tools that they could not make from those materials. This may also reflect wider patterns of human movement around the landscape.

The flint assemblage resulted from distinct events in the later Neolithic for pit 1001, and early Bronze Age for pit 1003. The limited numbers of residual and unstratified flints from features elsewhere indicate that the flint assemblages in the pits probably resulted from relatively brief, discrete events.

The evidence suggests that the deposits in pit 1001 result from a series of activities performed over a relatively discrete period of time. A series of partly worked cores, flint nodules and a toolkit of flakes and/or tools were brought to a nearby location, probably relatively close to pit 1001. Cores were then knapped, with some being exhausted and abandoned, whilst other pieces of raw material were prepared into cores that ultimately were not deposited. The flint knapping was undertaken to supply tools for a task or tasks being undertaken at the same location, resulting in the use of a good proportion of the debitage. The flints were utilised for a variety of activities, particularly cutting and whittling materials of medium hardness and scraping hard materials, whilst two serrated blades from plant working were also present.

Once used, these flints were abandoned among the unused knapping debitage, alongside several well-used tools. Some of the flakes and tools were then intentionally broken before deposition. Many of the flints were burnt in a fire, including one flint in a refitting sequence; this flint was therefore burnt after the knapping event. The presence of post-depositional edge-damage indicates that some flint was exposed on the surface for some time before it was deposited in pit 1001, in two discrete events resulting in fills 1014 and 1015. The different levels of post-depositional edge-damage between the lower and upper fill suggest the flint in the upper fill was exposed for a longer period that the flint near the bottom of the pit. The composition of the assemblage and evidence from refitting, however, suggests the flint in each fill was drawn from the same surface deposit.

The intentional breakage of flint tools is increasingly recognised as a common feature of pit deposits, particularly those of later Neolithic date (Lamdin-Whymark forthcoming a). For example, at Blewbury in Oxfordshire, a scraper was broken in half and a piece placed in each of a pair of pits (Halpin 1984), whilst at Eton Rowing Course in Buckinghamshire, a Grooved Ware-associated pit contained a quarter of a scraper that had been broken in half, burnt, and then broken into a quarter by a second intentional blow (Lamdin-Whymark forthcoming b). Other examples were noted at Barrow Hills, Radley in Oxfordshire (Bradley 1999, 217), and at South Parks Road, Oxford (Lamdin-Whymark 2005).

The reason for the intentional breakage of tools prior to deposition is unclear. There may be a functional explanation resulting from aspects of use or hafting. A field survey on the Berkshire Downs recorded that 8.3 % of all flint scrapers recovered were broken, compared to 4 % breakage amongst flakes. The breaks were often propagated from retouched edges, possibly due to the use of scrapers as the

working edges of a hafted implement substituting for larger core tools (Gaffney and Tingle 1989, 47-48). This explanation is not appropriate for tools broken by blows to the ventral or dorsal surface, however, as this damage was unlikely to have occurred during use. Breakage might have occurred whilst trying to extract worn-out tools from hafts, but intentional breakage may also have been one of a series of ritualised or symbolic acts associated with pit deposition (Thomas 1999). Such practices are being increasingly recognised across Britain (Garrow 2006; Garrow *et al.* 2006; Lamdin-Whymark 2007; Lamdin-Whymark *et al.* forthcoming).

THE ENVIRONMENTAL REMAINS by Michael J. Allen and Alan J. Clapham

Introduction

During the 2006-2007 excavation at Netherhills undertaken by the Gloucestershire County Council Archaeology Service, bulk samples of disturbed soil and monoliths of undisturbed samples were taken to aid the recovery of a range of palaeo-environmental remains. Samples included those for land snails, large bulk samples (20-60 litres) for charred plant and charcoal remains, and a series of monoliths for geoarchaeological and pollen analysis.

The samples were processed by M.J. Allen (Allen Environmental Archaeology) and A. Mann (Historic Environment and Archaeology Service, Worcestershire County Council) using standard flotation techniques (Allen 2007), with flots retained on 300 μm or 500 μm mesh sieves, and residues on 1 mm mesh. Land snail samples were processed following standard methods (Evans 1972). Unfortunately, as the site was located on relatively free-draining and acidic gravels supporting typical brown earths of the Badsey 1 Association, land snails were poorly preserved (Davies and Allen 2007), and only robust exines of pollen were present (Scaife 2007). In the event, charred plant remains and charcoal were present in only one sample from the primary fill (context 1015) of Late Neolithic pit 1001.

Charred Plant Remains and Charcoals by Alan J. Clapham

Introduction and methodology

A single sample rich in plant remains was selected for analysis following an original assessment of eight samples (Clapham 2007). Full analysis of the remains from the primary fill (1015) of late Neolithic pit 1001 was undertaken on behalf of Allen Environmental Archaeology for GCCAS, in order to determine the nature of the local environment of the time, and its exploitation as both a food and fuel resource.

The flot and residue were scanned using a low power MEIJI stereo light microscope, and the plant remains identified using modern reference collections maintained by the Service and a seed identification manual (Cappers *et al.* 2006). Nomenclature for the plant remains follows Stace (1997). The cell structure of all the selected charcoal was examined in three planes under a high power microscope, and identifications were carried out using a reference text (Hather 2000) and reference slides housed at the Worcestershire Historic Environment and Archaeology Service.

Analysis of the charred plant remains

Table 13: Charred plant remains from the primary fill (context 1015) of Late Neolithic pit 1001.

Latin name	***Family***	***Common name***	***Habitat***	***1015***
Cereal sp indet culm node	Poaceae	Cereal	F	1
Corylus avellana shell fragments	Betulaceae	Hazelnut	C	1338
Chenopodium album seed fragments	Chenopodiaceae	Fat hen	AB	2
Prunus spinosa stone fragments with flesh	Rosaceae	Sloe	C	5
Prunus spinosa stone fragments	Rosaceae	Sloe	C	1
Malus sylvestris seed fragments	Rosaceae	Crab apple/apple	CF	1
Malus sylvestris fragments	Rosaceae	Crab apple/apple	CF	34
Malus sylvestris flesh fragments with seeds	Rosaceae	Crab apple/apple	CF	6
cf. *Bupleurum rotundifolium* mericarp fragments	Apiaceae	Thorow-wax	AB	1

Key to Table 13
Habitat
A= cultivated ground
B= disturbed ground
C= woodlands, hedgerows, scrub etc
D = grasslands, meadows and heathland
E = aquatic/wet habitats
F = cultivar

Table 14: Charcoal identifications from the primary fill (context 1015) of Early Neolithic pit 1001.

Species	***Common name***	***No. of fragments***	***Weight (gm)***
Quercus	oak	153	12
Corylus	hazel	16	1
Fraxinus	ash	4	1
Too distorted	unidentified	8	3
Total		181	17

The sample (sample 10) from the primary fill (1015) of Late Neolithic pit 1001 contained a large number (1338 fragments) of charred hazel nutshell fragments (*Corylus avellana*). Charred sloe (*Prunus spinosa*) stone fragments were also identified, although fewer in number, with five fragments still having charred flesh attached (Table 14). Crab apple (*Malus sylvestris*) seeds and flesh fragments, some of which contained endocarp and seeds, were also recovered. No cereal remains apart from a cereal culm node were recorded. Other plant remains (Table 13) identified included two fragments of fat hen (*Chenopodium album*), and a possible fragment of a mericarp of thorow-wax (*Bupleurum rotundifolium*). These species are both associated with cultivated and disturbed ground.

Charcoal analysis

A total of 181 fragments of charcoal were identified (Table 14). None of the charcoal identified was of roundwood, and it was thus not possible to identify any indications of woodland management. The majority of the charcoal identified (153 fragments)

was of oak (*Quercus* sp.), along with 16 fragments of hazel (*Corylus avellana*) and four fragments of ash (*Fraxinus excelsior*). Eight fragments of charcoal were too distorted by high temperatures to permit any identification.

Discussion

Hazelnuts are common finds at British Neolithic sites (Jones and Rowley-Conwy 2007). The dominance of hazel nutshell fragments and the presence of apple seeds and fruit fragments, along with sloe stone fragments, all suggest that these were the remnants of gathered wild foods discarded and burnt after processing/consumption, and then dumped into the pit. Crab apples are largely inedible when unprocessed, but can be made more palatable through roasting on a fire. The sloe stone remains may have been spat onto a fire after the flesh was eaten.

The presence of the fat hen and thorow-wax may indicate some cultivation in the area, but without any cereal remains or crop processing waste, this is highly tentative. During later prehistory and the Romano-British period, fat hen was cultivated or tolerated amongst cereal crops. It has nutritious seeds, and its leaves can be eaten raw, cooked or used as animal fodder (Mabey 1998: 21). It grows in well-manured soils or on the edges of dung heaps and middens (Reynolds 1979: 65). It may have been useful 'insurance' against hard times, but in this instance the remains most probably reflect part of a 'background flora'.

The charcoal remains may represent fuel gathered locally from drier areas. The species composition suggests an oak-dominated forest with some ash. It is most likely that there were either cleared areas or gaps in the canopy, as indicated by the presence of hazel, for this requires full light in order to flower and therefore produce fruits (Rackham 2003).

The Local Environment by Michael J. Allen

The poor pollen preservation (assessed by Dr Rob Scaife) and land snail survival (Rona Davies and Dr Michael Allen) prevented attempts to characterise the local contemporaneous environment and land-use for Netherhills. This poor preservation is a factor also highlighted by Bell's review of land snail data in the south-west (Bell 1984) and environmental reviews of the region (Bell 1987; Wilkinson and Straker 2008). Evidence for the local Netherhills, Frampton on Severn area is therefore lacking.

Nevertheless, work at Neolithic sites such as Chedworth 1 long barrow (Allen 1998), Hazleton North long barrow (Bell 1990) and Condicote henge (Bell 1983) all indicate woodland was present prior to Neolithic monument construction, with some traces of Neolithic human activity in the wider environment. The sparse pollen remains from Hazleton long cairn (Scaife 1990) provide the same picture as did that from the Churn Valley, although the latter were poorly dated (Scaife 1999). The charcoal and pollen evidence from Hazleton (Scaife 1990; Straker 1990) indicated the presence of open woodland principally of hazel (*Corylus avellana*) and hawthorn type (Pomoidae), with some oak (*Quercus*) and lime (*Tilia*). Although this information cannot be directly transposed to Netherhills, the presence of hazel is significant, along with the importance of the hazelnuts that were found at both Netherhills and Hazleton, and which are a feature of Neolithic sites in Britain generally.

The presence of charred crab apple flesh is also a relatively common occurrence in Neolithic contexts. Similar, albeit less rich, Neolithic charred plant

assemblages have been found at other Gloucestershire sites such as Birdlip Quarry and Duntisburne Grove (Pelling 1999). Debates about the relative importance of cereal cultivation and consumption during the British Neolithic continue (e.g. Fairbairn 2000; Jones 2000; Jones and Rowley-Conwy 2007), but it is clear that many communities were still reliant on wild food resources (Moffett *et al.* 1989). The charred acorn fragments from the lower level of the cremation pit at Site 1 suggest that wild plant foods were still utilised during the Early Bronze Age; and might even have had some symbolic significance.

THE ANIMAL REMAINS by Chris Cox

Non-cremated Animal Bone

Three non-cremated deposits [1014, 1015, and 1020] were assessed from the 2006-2007 Gloucestershire County Council Archaeology Service excavations at Netherhills. The state of preservation of bone surfaces for each of the articulated skeletons was assessed according to the weathering stages recommended by Brickley and McKinley (2004, fig. 1). The majority of the skeletal remains were graded between '5' and '5+', indicating that there had been extensive erosion which had resulted in the modification of the bone surface, probably due to acidic soil conditions and root action. All of the animal skeletons were incomplete, with only a very small proportion of each individual animal represented. Included in the assemblage was a mandible fragment, several rib fragments, and an upper limb all belonging to various animal species.

Species, Minimum Number of Individuals (MNI) and Age at Death

One beaver (*Castor fiber*), two pigs (*Sus* sp.), and a larger animal (i.e. horse/bovine) were present within the assemblage, making a total of three species and at least four individuals (MNI).

Within this assemblage, three of the animals were adult (one pig, the beaver and the horse/bovine), as evidenced by the epiphyseal fusion of the long bones. The remaining pig specimen was a foetus/neonate due to its small size and the lack of epiphyseal fusion.

Cut Marks

On one of the rib fragments, cut marks were observed on one surface. The species of this bone fragment is not known due to the lack of characteristic features.

Cremated Animal Bone

Three deposits of burnt/cremated animal bone (from contexts 1004, 1015 and 1016) were assessed from the 2006-2007 Netherhills excavations. Due to the small quantity of cremated remains and the tiny fragment sizes, it was not possible to determine the minimum number of species, sex, age at death or any pathological data.

Colour and efficiency of the cremation process

The effectiveness of the cremation process is reflected primarily in the colour of the bones (Shipman *et al.* 1984). Full oxidisation occurs when bones have been fully burnt on the pyre and they become buff-white in colour, whilst colours of blue, grey, brown, and black indicate varying degrees of oxidisation. The colour of the cremated remains from Netherhills ranged from scorched (light black and bone-colour) to grey and white. This indicates that whilst some of the bones were only slightly seared by the flames, others were effectively cremated with temperatures of 645-940° C. These temperatures are consistent with other Bronze Age cremation burials.

Weight and maximum fragment size

The small amount of cremated bone from Netherhills weighed 29.03 g in total, far below expected weight ratios especially when taking into consideration the number of different species contained within the deposits. Additionally, the cremated remains were less than 2 mm in length and as such were far below expected fragment sizes. Only one fragment of semi-cremated bone was longer than 2 mm.

Preservation and completeness

Cremated bone is not subject to the same destructive forces in acidic soil due to the reduction of organic components and its subsequent dehydration which leaves a mineralised matrix after the cremation (McKinley 1989, 1994). The Netherhills cremated animal remains fell within the expected preservation range. Only a few cremated long bone fragments were identified.

Fragment sizes and bone weights fell below expected averages indicating that entire skeletons were *not* buried. A few bones were only partially cremated while the majority were grey to white in colour which is indicative of a pyre temperature of 645-940ºC.

Table 15: Animal bone.

Feature	Name of Bone	Age	Species	Notes
NHQ06-1015	Upper first molar	Adult	Pig	-
	?side/position molar	Adult	Pig	-
	Rib fragment	Adult	-	Cut marks on the shaft
	Right mandible	Adult	Beaver	-
	Ulna	Adult	Pig	-
	Humerus	Adult	Pig	-
	Carpals	Adult	Pig	-
	Rib fragment	Adult	Horse/Bovine	-
	Misc. fragments	Adult	Pig	-
	Femur fragment	Neonate/Foetal	-	-
				-
NHQ06-1020	Rib fragment	-	-	Very poor preservation (5+)
NHQ06-1016	Misc. bone frags.	0.35 g	-	White = fully Oxidized, no organic matrix
NHQ06-1014	Misc. bone frags.	2.05 g	-	Grey-white = mostly oxidized with slight organic matrix
NHQ06-1015	Misc. bone frag.	0.71 g	-	Black and Bone colour = Partially scorched: no oxidization, full organic matrix
	Long bone frags.	13.39 g	-	Black = Mostly scorched: no oxidization, full organic matrix
	Misc. bone frags.	12.53 g	-	White = Cremated: full oxidization, no organic matrix

DISCUSSION – NETHERHILLS AND ITS WIDER LANDSCAPE AND ARCHAEOLOGICAL CONTEXT by David Mullin

The Palaeolithic and Mesolithic

The earliest evidence for human inhabitation of the Frampton on Severn area comes from Palaeolithic flint and faunal finds recorded from Eastington, including at least two flint tools (Burkitt 1938; Gardiner 1934), and remains of woolly rhinoceros (*Coelodonta antiquitatis*) and horse. Woolly rhino, aurochs (*Bos primigenius*), horse and mammoth (*Mammuthus primigenius*) remains were recovered from Cainscross, Stroud (Clifford 1948; Gardiner 1932, 12), but no other material of this date is known from this part of the Severn Vale. The nearest site at Barnwood, Gloucester (Barton 1997; Clifford 1930, 209-212) had a similar faunal assemblage associated with at least four Upper Palaeolithic flint tools, alongside earlier and later material. There have also been isolated finds of Palaeolithic stone tools at Longlevens (Gloucestershire SMR 4823), but the Palaeolithic period in Gloucestershire remains poorly understood (Hosfield *et al.* 2008, 39).

Mesolithic flintwork has been collected from Eastington, Alkerton and Arlingham/Frethern. A multi-period flint scatter containing microliths was identified on a gravel island at Leonard Stanley (Gracie 1938) and possible Mesolithic material from Persh Farm, Maisemore is held by Gloucester Museum (GSMR 5591), but the majority of finds from this date are from the Cotswold uplands and the Forest of Dean. The presence of waste material and cores amongst the lithics recovered from the wider Frampton on Severn area indicates tool production and maintenance and the Severn Vale would have offered a rich variety of resources during this period, but detailed palaeo-environmental sequences are lacking from the Frampton on Severn area. Evidence from the wider Severn Estuary indicates human use of river edge, reed swamp, alder carr and fen woodland and drier mixed woodland environments (Bell 2001, 2007; Brown 2007), including deliberate manipulation through burning and clearance and the exploitation of natural clearings including those created by beavers.

The Neolithic

The earliest evidence for Neolithic activity in the Frampton on Severn area is burial PA SK263 recovered by St Clair Baddeley from Perryway. There is little stratigraphic information available for this individual but the Early Neolithic radiocarbon date of 3710-3630 cal. BC (OxA 18419) is contemporary with the construction of long barrows in southern Britain between 3800-3400 BC (Whittle *et al.* 2007). The nearest known long barrow, however, is at Randwick almost 6 km east of Netherhills on the upper edge of the Cotswold Scarp (Gloucestershire SMR 350). The relatively large number of surviving bones of burial PA SK263 suggests that these were not residual in a later context and may have been an Early Neolithic inhumation.

The Late Neolithic pit (1001) from the GCCAS excavations at Netherhills is the only feature of this date from the Severn Vale in Gloucestershire to have been extensively sampled for environmental remains. Such features are rare in the region – an Early Neolithic pit is known from Gloucester (Hurst 1972), and pits containing Peterborough Ware and other items were found at Lower Knapp Farm, Cam (Smith 1968) and the Sabrina Cinema Site, Tewkesbury (Hannan 1993). None were sampled for radiocarbon dating or palaeo-environmental remains. At Duntisbourne Grove on the Cotswolds work associated with A419/A417 improvements revealed three pits

containing Peterborough Ware, sandstone rubber fragments, a chisel arrowhead, burnt clay and hazelnut fragments that yielded dates of 3650-3490 and 3640-3360 cal. BC (Mudd *et al.* 1999). Other plant remains recovered included wheat and barley, a hawthorn stone and hawthorn charcoal.

The Early Bronze Age

Richard Atkinson's excavation at Netherhills Site 1 revealed that the ring ditch visible from aerial photographs was probably a barrow with a central, Beaker-period cremation burial pit, and an Iron Age inhumation within its ditch. The central pit contained cremated human bone, flint, charcoal, cattle teeth, charred acorns and sherds of Beaker pottery. Burnt clay daub with wattle marks and/or baked clay also seems to have been recovered from the primary fill. Neither this material nor the two to five Beakers that were probably also present have survived. The only Beaker material known is a small sherd (SF 5) recovered from what may have been an old ground surface and sealed by the barrow mound.

The association of Beaker pottery with a cremation burial under a round barrow is unusual, the dominant rite for Beaker burials being crouched inhumation. Inhumation burials with Beakers and other artefacts were found below a round barrow at Ivy Lodge in King's Stanley (O'Neil and Grinsell 1960, 14-15), beneath a ploughed-out barrow at Barnwood, Gloucester (Clifford 1930), at Shorncote Quarry (Barclay *et al.* 1995) and at Clemenson Memorial Hall, Lechlade. At the latter site, two burials accompanied by late-style Beakers were dated to 2020-1730 and 1920-1630 cal. BC (Holbrook and Thomas 1998). Further afield, cremated human bone in association with Early Bronze Age ceramics including Beaker sherds was discovered at Ferry Fryston and Ferrybridge, West Yorkshire (Brown *et al.* 2007, 28-29, 32-33; Wheelhouse 2005, 38, 41).

The only other reliably dated Beaker contexts from Gloucestershire, however, consist of two pits from Trinity Farm, Bagendon, with dates of 2550-2190 and 2470-2130 cal. BC (Mudd *et al.* 1999, 26); and a single pit at Roughground Farm, Lechlade dated to 2470-1820 cal. BC (Allen *et al.* 1993). The 'Lechmore' round barrow at Horsley consisted of a primary pit containing cremated bone, with the mound material itself containing Beaker pottery, flint flakes and cattle teeth (O'Neil and Grinsell 1960, 119), although the finds from the mound may be residual. Beaker pottery was recovered from secondary contexts within long barrows at Notgrove and Eyeford (O'Neil and Grinsell 1960, 16), and accompanying a skeleton in a grave cut into the long mound at Sale's Lot (O'Neil 1966). Beaker pottery is known from funerary contexts such as flat graves at Slaughter Bridge, Bourton-on-the-Water (Dunning 1932), Shurdington gravel pit (GSMR 3799) and Prestbury (Clifford 1938).

Beaker material has been recovered from pits excavated in the Tewkesbury area. At Holme Hill, a pit associated with a penannular ditch contained sherds in a shelly fabric from a vessel 'with Beaker affinities', together with the remains of an animal burial (Hannan 1976). Several worked flints, including a barbed and tanged arrowhead, were found at this same location in 1974 (Hannan 1975). A heavily truncated pit containing two Beaker sherds was excavated at Bredon Road, Mitton (Barrett 2004) and residual Beaker pottery was also recovered from Rudgeway Lane (Barber 1993). Within the wider Severn Vale, postholes containing flint and Beaker sherds were recorded at Saintbridge, Gloucester (Garrod and Heighway 1984, 22-25), and a single residual sherd of Beaker was found at Gloucester Business Park Link Road (Thomas *et al.* 2003). Beaker sherds were also excavated from the area of a

burnt mound at Sandy Lane, Charlton Kings, Cheltenham (Leah and Young 2001, 59-82).

The amount of cremated remains at Netherhills Site 1 was very small and may be a token deposit of bone, the majority of which was disposed of elsewhere. Grimes (1960) noted such token deposits at three round barrows in the Burn Ground cemetery, and from a cist at Chedworth Down. O'Neil and Grinsell (1960, 19) also drew attention to this practice in other areas such as Somerset and Berkshire. Indeed, most prehistoric cremation burial deposits do not represent the full quantities of burnt bone left by individuals on cremation pyres (McKinley 1989).

The pit at Netherhills Site 1 also contained other material buried with the token human remains. The flintwork was probably selected from a larger assemblage in a structured deposit with waste material in the lower part of the pit and a chip, core and scraper in the upper level. Only the flint from the upper fill was heavily burnt, suggesting that it accompanied the body on the pyre. The cattle teeth in the pit had not passed through a pyre and might also have been chosen from a larger group of remains. The rare charred acorn fragments might indicate the use of oak in the funeral pyre and that the wood was collected in the autumn. Selective clearance of oak in the Early Bronze Age elsewhere in the country may have been connected to its use in the cremation process (Mullin 2003, 90). Oak might have held symbolic significance in addition to its flammable qualities.

At *c*. 23 m in diameter, the barrow at Site 1 at Netherhills is large for a Beaker period monument which tended to be smaller in size (Case 1986), but roughly average for an Early Bronze Age round barrow. The berm between the barrow mound and its surrounding ditch suggests that it was a bell barrow, usually associated with the rich graves of the Early Bronze Age (*c*. 1900 to 1500 BC) of central southern England. Bell barrows were discussed by Grinsell (1934) and Ashbee (1960), but a lack of good dating evidence hinders understanding of their development and chronology, existing classification schemes being based on typology alone. The sequences of construction and the actual effort involved in creating these monuments might have mattered more to prehistoric people.

A small number of bell barrows have been claimed to have Beaker burial associations (Ozanne 1972, 55-56), and it has been suggested that the construction of bell barrows begins in the Late Beaker period *c*. 2100 to 2000 cal. BC (Bradley 1984, 85). The turf mounds of Amesbury barrow 58 and Amesbury barrow G.71 both contained Beaker sherds (Ashbee 1985; Christie 1967), but these were probably residual within the material used for mound construction, especially given the later date for the former primary burial. Beaker pottery associated with primary deposits within bell barrows is extremely rare, with a single example cited by the English Heritage Monument Class Description (English Heritage n.d), from the Bincombe Barrow in Dorset (Payne 1944). Although this site is a bell barrow the primary inhumation accompanied by a Beaker cannot be stratigraphically related to the encircling ring ditch. Recent work by Oxford Archaeology (Dave Score, pers. comm.) immediately adjacent to the barrow revealed several Beaker flat graves suggesting that the burial below the barrow may pre-date its construction by several centuries.

Only a single bell barrow was recorded in Gloucestershire by O'Neil and Grinsell (1960) at St Oswald's Tump, Marshfield, but this has been reclassified as a saucer or pond barrow (Darvill and Grinsell 1989, 43). Bevan's Quarry, Temple Guiting, however, is a possible bell barrow. Excavation revealed a complex sequence of construction, with a primary, 'token' cremation burial within a rectangular pit, covered by a turf mound that was retained by a circle of stakes (O'Neil 1967). The

mound was subsequently surrounded by a clay bank and covered by a stone cairn, and encircled by a rock-cut ditch separated from the cairn by a 3.5 m wide berm. The site was used for the deposition of cremation burials in the Middle Bronze Age, and also produced evidence for Roman and Anglo-Saxon activity. Although no dating evidence was recovered from the primary burial at Bevan's Quarry, a construction date in the Early Bronze Age between 2000 and 1500 cal. BC is possible.

Like Netherhills Site 1, the bell barrow at Bevan's Quarry was located within a small group of round barrows. Bell barrows in Wessex tended to be associated with other barrows, often forming part of large cemeteries spanning lengthy chronological periods. Site 1 at Netherhills was close to at least two other ring ditches (Sites 2 and 3), and may have formed part of a cemetery of up to five barrows. These form the only known round barrow cemetery in this part of the Severn Vale (O'Neil and Grinsell 1960), the only other complex of ring ditches from the valley within England being a group of five at Holt, Worcestershire. Excavated during the 1970s in advance of gravel extraction, these produced cremated human remains and Collared Urns (Hunt *et al.* 1986). The two ring ditches reported by St Clair Baddeley (1928) at Perryway cannot be verified.

Barrow cemeteries are also uncommon within Gloucestershire as a whole, although examples are known from Hull Plantation, Burn Ground, Colnpen and Cow Common on the Cotswolds (O'Neil and Grinsell 1960). Clusters of round barrows occur around Condicote, Lechlade and at the headwaters of the River Cam, but round barrows more usually occur singly (Fig. 21). The two barrows at Court Hill, Standish (O'Neil and Grinsell 1960, 130), and three ring ditches recorded from aerial photographs at Slimbridge (GSMR 20395), Cam (GSMR 20389) and Deerhurst (GSMR 5541) are the nearest examples to Frampton on Severn within the Vale.

Given the lack of parallels for Beaker-period bell barrows it is possible that at Netherhills Site 1 the bell barrow was later in date than the Beaker burial which it covered. The cremated human bone, Beaker pottery and associated material might have been deposited in a pit (in effect a 'flat grave') that later became the focus of a possible stake circle, with a barrow subsequently constructed over both. It is also possible that the ring ditch too was Beaker in date, and the central mound added later. There is no direct stratigraphic evidence for this, however, and it is impossible to assess the time periods that might have elapsed between these events. The reuse or referencing of Beaker graves by later features is increasingly recognised (Gibson 2004). At Field Farm, Burghfield in Berkshire a Beaker ring ditch was the focus for Middle Bronze Age cremation burials (Butterworth and Lobb 1992), whilst at Barrow Clump, Wiltshire a bell barrow was constructed over a smaller Beaker ring-ditch, with a Beaker inhumation at the edge of the mound (Last 2005, 18-19). The Beaker pit recorded during the GCCAS investigations at Netherhills confirms activity of this date in the immediate vicinity. The assemblage from pit 1003 at Netherhills was rather different to that from Netherhills Site 1, however, and the missing Site 1 Beaker sherds means it is difficult to assess the relative chronology of these features.

Undated Bronze Age

Feature 1004/1103 excavated during the GCCAS investigations at Netherhills can be classified as 'hengiform', a rather clumsy term for a series of broadly similar but poorly understood monuments that have been found across Britain. Harding and Lee (1987) suggest that these features are similar in morphology to henges but generally much smaller with an average diameter of 5-20 m. Class I hengiforms are defined as

having a single entrance and can be confused with small, penannular ring ditches but do not contain a central burial. Class II hengiforms have two opposing entrances and are less common than Class I hengiforms. The example at Netherhills has affinities with Class II hengiforms in having two entrances, a small diameter and no finds.

Broadly comparable 'hengiforms' with two opposed entrances and generally lacking finds or internal features have been excavated elsewhere at locations as geographically diverse as Fargo Plantation, Wiltshire (Stone 1938), Site E at Llandegai near Bangor, Wales (Lynch and Musson 2004, 83-86), and Alnham, Northumberland (Jobey and Tait 1966, 37-42). At Whitemoor Haye, Staffordshire, the ditches of a similar feature contained worked flint, a single sherd of Peterborough Ware, three Beaker sherds and six Early Bronze Age sherds (Hewson 2006). A series of 'hengiform' monuments excavated at Ferrybridge in West Yorkshire appeared to cluster around the Ferrybridge henge, along with several timber circles. Class I and II and more irregular hengiform features were all represented but did not produce any finds or any firm dates (Wheelhouse 2005).

Sherds of possible Bronze Age pottery were identified amongst the ceramic material recovered from Atkinson's Site 3, the 2006-2007 GCCAS excavations at Netherhills and the MoD pipeline (see Timby above), but could not be dated more closely.

The Iron Age

Late Iron Age pottery was recovered from the pits excavated at Eastington (Gardiner 1932), but it was not possible to correlate the Iron Age material in Stroud District Museum with the location of any particular feature. The notes regarding the excavations, however, suggest that some finds might have represented the deliberate, careful deposition of material (q.v. Cunliffe 1992; Hill 1995), rather than casual discard. Iron Age and Roman material similar to that at Eastington was recovered from alongside Ermine Street at Barnwood (St Clair Baddeley 1920; Clifford 1930, 1934) where a pit containing Iron Age pottery, daub, animal bone and flint was excavated. These finds indicate Iron Age occupation in the general vicinity, probably associated with some of the enclosures and other features mapped from aerial photographs by the NMP survey.

The inhumation burial of skeleton TEMP 735-A in the upper fills of the ring ditch at Netherhills Site 1 was unexpectedly found to date to the middle Iron Age (OxA-18515, 2209 ± 27BP, 390-190 cal. BC). Although it is possible that its location was coincidental there is increasing evidence across Britain for Iron Age activity focused on earlier prehistoric monuments (e.g. Brown *et al*. 2007; Maloney *et al*. 2003; Thomas 2008; Wheelhouse 2005).

The Romano-British Period

Two large pits of uncertain function within the interior of Atkinson's Site 3 belonged to the Roman period and pit 1008 and ditch 1023 at the GCCAS 2006-2007 Netherhills excavations produced Romano-British pottery. The pottery recovered from Perryway in the 1920s was all of Roman date and human burials PA SK265 and PA SK268 found by Atkinson were associated with Roman pottery, with the latter returning a Late Iron Age/Early Romano-British date. Roman pottery of the 1st to 4th centuries AD was also recovered from the course of the MoD pipeline between Netherhills and Perryway, *c*. 500 m north-west of Atkinson's site at Netherhills (O.S.

Nat. Grid SO 764 072) (Young 1993). The majority of the pottery recovered from Eastington was Romano-British, and Roman brooches and a knife were also amongst the material analysed. The presence of early Romano-British vessels along with handmade 'native' wares probably indicates continuities in occupation from the later Iron Age.

Large numbers of Roman burials (over 50 in total) were excavated at Eastington in advance of gravel extraction (Gardiner 1932), whilst at least 33 burials were recovered from Perryway. These two sites were located *c*. 2 km apart, and probably represent separate cemeteries. The site at Eastington was located alongside the Roman road now utilised as the A38, and that at Perryway alongside a minor Roman road that ran from this route to Arlingham. It is likely that the burials at Eastington and Perryway represent small rural cemeteries or small groups of dispersed burials scattered across (as yet undiscovered) settlement sites. The Eastington burials may have been associated with the Whitminster Roman 'villa' *c*. 3.5 km to the east of Frampton village and 1 km east of Netherhills (O.S. Nat. Grid SO 778 065). The nature of this settlement is unclear though and despite the presence of *tesserae*, other finds and building remains of 2nd and 3rd century AD date (Chouls 1993; Fowler and Walthew 1971, 57-60) it might not have represented an actual villa. Roman finds, features and/or building remains are recorded from Frampton village (GSMR 7006 and 7007) and north of Perryway (Garrod 1968).

Better evidence for Romano-British burials occurred at Gloucester Business Park Link Road (Thomas *et al.* 2003) where 12 inhumations of the 2nd to 4th centuries were recorded, probably associated with a contemporary settlement. It is likely that many individual Roman farmsteads had their own burial grounds (Phillpott 1991). The re-use or modification of older monuments during the Romano-British period, including for burial purposes, is also increasingly recognised by archaeologists (e.g. Thomas 2008; Williams 1998a).

Another example of a settlement and associated cemetery close to Frampton on Severn was at Frocester (Price 2000, 203-216), where 60 burials dating from the middle Iron Age to Romano-British periods were recorded. The burials may have been grouped into small family groups, and/or according to their relative dates to one another. Some were accompanied by animal remains and pottery vessels.

Cremation was the predominant Romano-British burial rite during the 1st and 2nd centuries AD (McWhirr 1981, 163; Phillpott 1991; Williams 2004), and examples are known from across Gloucestershire, though indigenous traditions of inhumation continued. Romano-British inhumation burials were found during the construction of Gloucester College of Art in 1966, and other cemeteries are known along the main routes into the town. At least 125 burials of 2nd to 4th century AD date were found at Gambier Parry Lodge Estate north of Gloucester; and a large cemetery of *c*. 450 burials was excavated at Bath Gate, Cirencester (McWhirr *et al.* 1982). Unfortunately, the poor contextual information for Perryway and Eastington and the low numbers and partial nature of the skeletons recovered does not allow comparisons with these larger, better recorded assemblages. A small number of individual burials from the Frampton on Severn area have been radiocarbon dated to the Romano-British period but this represents a fraction of the material originally recovered. The chronology of the burials is thus difficult to assess, but inhumations may have taken place over an extended period from the Iron Age through to the Anglo-Saxon period.

The Post-Roman/Anglo-Saxon Period

The only burials of known Anglo-Saxon date from Frampton on Severn came from Perryway (PA SK261 and SK262) and do not appear to have been associated with any grave goods and their context is unclear. *If* the smaller ring ditch seen by St Clair Baddeley did originally contain at least 30 inhumation burials, some associated with small 'decayed iron' objects (*ibid*., 125), then these could potentially have been of Roman or post-Roman/early medieval date. The larger ring ditch may also have contained an inhumation associated with an iron sword.

Prehistoric barrows were often foci for Anglo-Saxon inhumation cemeteries as at Abingdon Saxton Road (Leeds and Harden 1936), Marina Drive, Dunstable (Matthews 1962), Field Farm, Burghfield in Berkshire (Butterworth and Lobb 1992) and Barrow Clump in Wiltshire (Last 2005). This seems to have been part of a deliberate practice of the re-use of older monuments and features in the landscape (Semple 1998; Williams 1997, 1998b) and Bronze Age barrows were sometimes also used as execution sites or for 'deviant' burials (Buckberry and Hadley 1997; Reynolds 2009). The existence of a prehistoric barrow cemetery at Frampton on Severn may thus explain the presence of these later burials.

An Anglo-Saxon spearhead in Stroud District Museum was recovered from Eastington Gravel Pit, along with a small amount of material previously published by Ireland (1984). The spearhead may have accompanied a burial, but only a single skeleton from the site could be located and no contextual information is available. This spearhead is the westernmost find of its kind in Gloucestershire, although an Anglo-Saxon spearhead (Swanton Type L) was recently discovered by a metal detectorist at Quedgeley, *c*. 9 km north-east of Frampton on Severn (Reynolds 2006, 141) and a spearhead of slightly later (probably 7th century) form (Swanton E3) is reported from St Briavel's in the Forest of Dean (Webb 1997). Eleven sherds of 5th to 6th century AD 'grass-tempered' pottery were found in 1969 during investigations along the line of the M5 motorway, 500 m south-east of Eastington gravel pit (Fowler and Walthew 1971, 61; Eastington Site 1 O.S. Nat. Grid SO 770 065). This material was located close to a scatter of Romano-British pottery and is held by Stroud District Museum, though none of it could be located for this study. A single sherd of possible late Saxon/early medieval date was found along the course of the MoD pipeline between Netherhills and Perryway (Young 1993). Anglo-Saxon material was recovered from several sites in Bishop's Cleeve (Holbrook 2000), grass-tempered' pottery from King's Stanley (Glos SMR 9394) and from a structure at Frocester (Glos SMR 14064). Along with other finds of spearheads from Leckhampton and Cheltenham (Glos SMR 5423, 5469) and from the M5 near Boddington (Glos SMR 5604, 6478), the Eastington spearhead adds to the growing number of earlier Anglo-Saxon sites outside the Thames Valley in Gloucestershire.

The Medieval and Post-medieval Periods

The small amounts of medieval and post-medieval pottery recorded in the Frampton on Severn area (see Timby above) reflect generalised, low-intensity rural occupation. Much of the local area would have consisted of fields with ridge and furrow, as identified by the NMP report. Five possible new medieval settlements were identified during the aerial photographic analysis, including a hamlet at Putloe (Dickson 2006, 20-21). Medieval or post-medieval water meadows were recorded on the valley bottom on either side of the River Frome, with evidence close to the River Severn at

Saul Warth for flood defence banks and 'grips' associated with later medieval and post-medieval land reclamation and drainage along the inner Severn Estuary (Allen 1986a, 1986b; Rippon 1997). Many earthworks of medieval and post-medieval agricultural and settlement features have been ploughed and destroyed since the Second World War, or have been built over by housing developments at Whitminster and Eastington and industrial estates east of Stonehouse.

CONCLUSIONS

Analysis of the site archive and finds from Richard Atkinson's excavations at Netherhills, Frampton on Severn, together with the evidence from additional excavation by the Gloucestershire County Council Archaeology Service in 2006-2007, has contributed towards a better understanding of the prehistoric, Roman and post-Roman archaeology of the area. The detailed analysis and dating of plant and animal remains and lithics from a later Neolithic pit has provided evidence for complex and structured depositional practices that seems to have included the deliberate re-use of much earlier material. The first recorded instance of a Late Neolithic/Early Bronze Age beaver in Gloucestershire was from this feature. Evidence for activity during the Beaker period was also uncovered, shedding further light on the nature of the finds recovered by Atkinson, which probably represents a series of Neolithic to Early Bronze Age pits and cremation burials in this area.

These features became the focus for the construction of a group of round barrows, at least one of which might have been constructed over an earlier pit. Examination of the Atkinson archive, together with aerial photographic analyses, has helped confirm these features as the first Bronze Age round barrow cemetery known from the Severn Vale in Gloucestershire. Further Bronze Age activity at this locale probably included the construction of a small hengiform monument, and further possible examples of these were also identified by the aerial survey. Little evidence was recovered for Iron Age occupation but at Netherhills Site 1 a round barrow was re-used as a burial place. Romano-British activity included the digging of ditches and pits, some of the latter probably deliberately focused on prehistoric monuments as at Netherhills Site 3. The Roman-period burials recovered from the Frampton on Severn area may have been from rural cemeteries associated with particular settlement sites, the locations of which are as yet largely unknown.

Evidence for post-Roman/early medieval inhabitation was poor but the presence of two radiocarbon dated inhumation burials of this period indicates some activity in the area, as do the Anglo-Saxon finds held by Stroud Museum. There is also possible evidence for Anglo-Saxon re-use of an earlier prehistoric round barrow at Perryway. Again, any associated contemporary settlement remains to be identified. Analysis of aerial photographs of the Frampton area also revealed extensive evidence for medieval ridge and furrow cultivation.

Although the Atkinson archive appeared rather unpromising on initial inspection, the analysis of the material that it contained along with finds and records from the wider area held by local museums, illustrates the importance of modern re-analysis of such material. The application of radiocarbon dating techniques to such collections can answer long-standing questions over local chronologies, as well as adding important data to national debates such as the nature of cultural influences during the Anglo-Saxon period.

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Location of the archive

Frampton on Severn falls within the collection area of The Museum in the Park, Stroud. The material from the GCCAS excavations at Netherhills will therefore be deposited there, under accession number STGCM 2010.13. Some material from Atkinson's excavation is already held by Gloucester City Museum and Art Gallery, therefore the remainder will be deposited there under accession number GLRCM 2007.6, in order that as much as possible of the Atkinson archive is held in one place.

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