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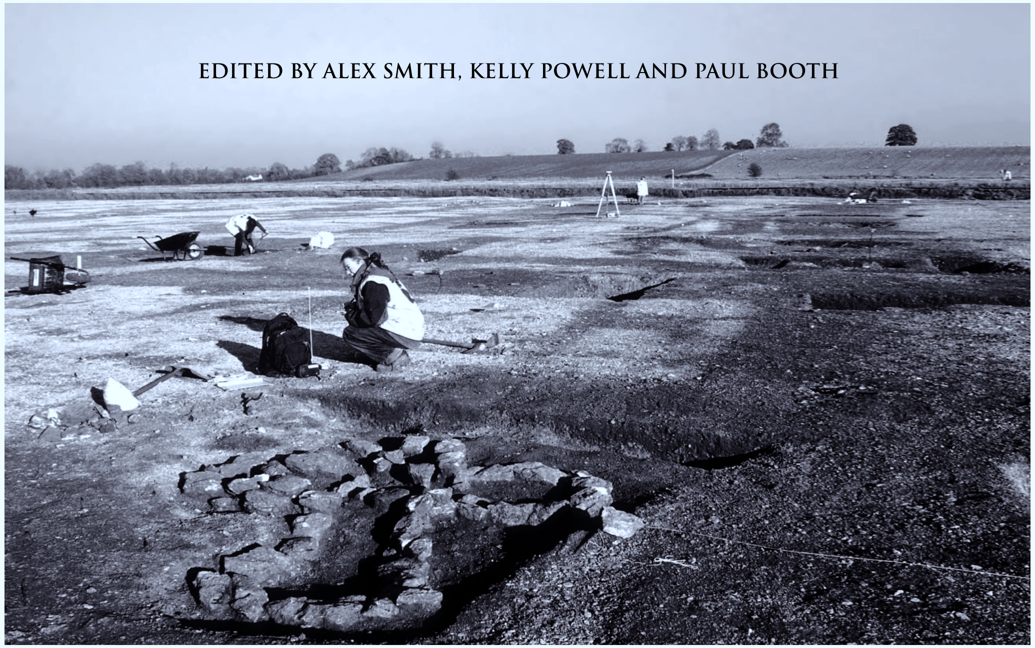
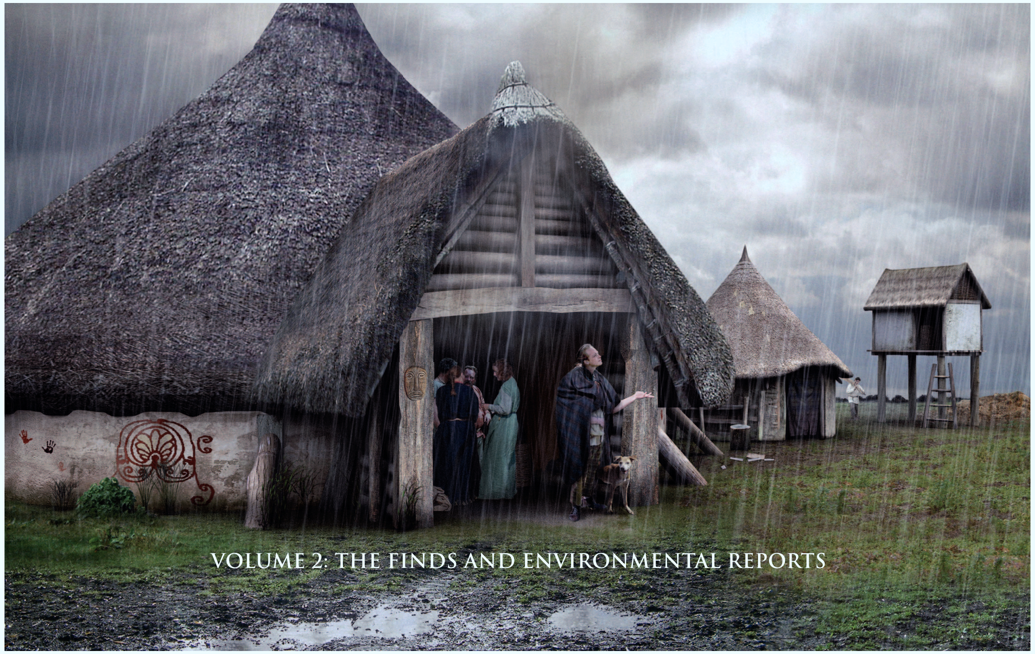


EVOLUTION OF A FARMING COMMUNITY IN THE UPPER THAMES VALLEY

EXCAVATION OF A PREHISTORIC, ROMAN AND POST-ROMAN LANDSCAPE AT COTSWOLD COMMUNITY, GLOUCESTERSHIRE AND WILTSHIRE



VOLUME 2: THE FINDS AND ENVIRONMENTAL REPORTS

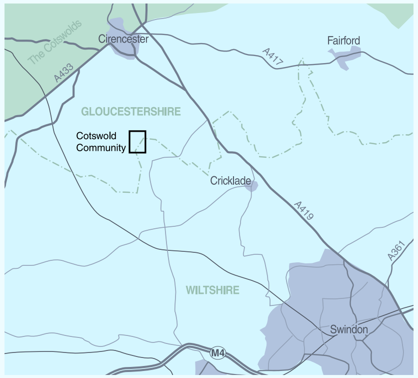
EVOLUTION OF A FARMING COMMUNITY
IN THE UPPER THAMES VALLEY

EDITED BY ALEX SMITH, KELLY POWELL & PAUL BOOTH

Oxford Archaeology
Thames Valley
Landscapes
Monograph No. 31

The site at Cotswold Community in the western reaches of the Upper Thames Valley has been a focus for human activity since Neolithic times. Successive Bronze Age, Iron Age and Roman settlements developed within an increasingly open grassland landscape, which was heavily exploited for the growing of crops and the grazing of animals. The spiritual lives of the inhabitants were glimpsed through a series of structured pit deposits and ritual monuments, including a potential Neolithic timber circle and Bronze Age round barrows.

One of the most striking landscape features was a late Bronze Age/early Iron Age pit alignment that extended over 500 m, possibly marking one of the earliest attempts at defining territory on a large scale. It was still a visible feature for some time as it partly dictated the position of the boundaries of a Roman farmstead, which occupied the site from the 1st to 4th centuries AD. The farm lay in the shadow of Roman Cirencester less than 5 km to the north and may even have been involved in the recycling of refuse from this important urban centre. Following abandonment of the Roman farmstead there was no further occupation on site, although a small number of Saxon agricultural structures indicate continuing use of the land, which may now have been part of a locally-centred Saxon estate.



This volume presents the results of finds and environmental analysis from a series of excavations undertaken at Cotswold Community from 1999 to 2008. The site narrative and overview can be found in Volume 1.

Janus House, Osney Mead, Oxford OX2 0ES

Evolution of a Farming Community in the Upper Thames Valley

Excavation of a Prehistoric, Roman and Post-Roman Landscape at Cotswold Community, Gloucestershire and Wiltshire

Volume 2: The Finds and Environmental Reports

Edited by Alex Smith, Kelly Powell and Paul Booth

Featuring reports by

Steven Allen, Paul Booth, Ceridwen Boston, Edward Biddulph, Paul Blinkhorn, Lisa Brown, Dana Challinor, Carl Champness, H E M Cool, Lucy Cramp, Philip de Jersey, Brian Dean, Ceri Falys, Rose Grant, Claire Ingrem, Lynne Keys, Hugo Lamdin-Whymark, David Mullin, Rebecca Nicholson, Cynthia Poole, Kelly Powell, Fiona Roe, Ruth Shaffrey, Wendy Smith, Elizabeth Stafford, Lena Strid and Jane Timby

Illustration and design by

Magdalena Wachnik, Rosalyn Lorimer and Sarah Lucas

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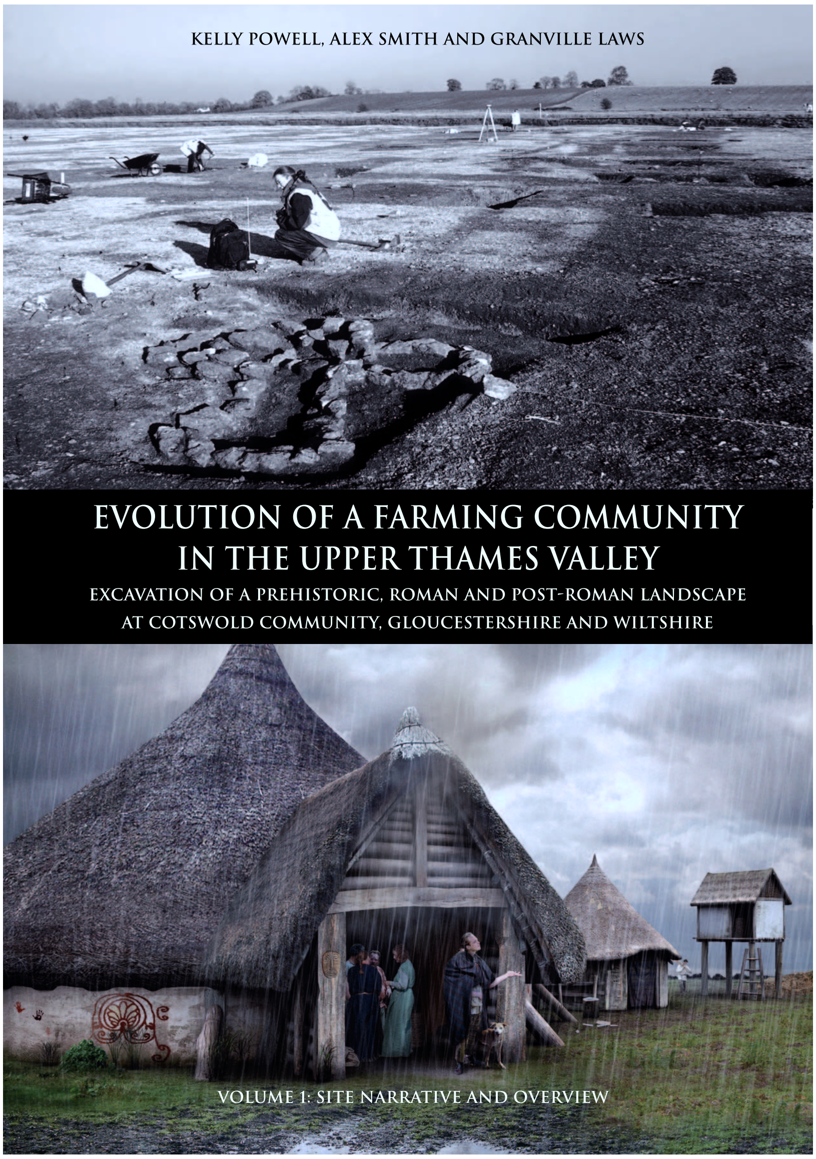

Volume 1: Site Narrative and Overview is available from
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Chapter 1: Prehistoric Pottery

By Lisa Brown and David Mullin

INTRODUCTION

A total of 3095 sherds of pottery (11,867 g) from the site were classified as earlier prehistoric (Middle Neolithic to Middle Bronze Age) and 1795 sherds (9885 g) as later prehistoric (Late Bronze Age to Middle Iron Age). Of these groups, 603 sherds (1557 g) were assigned to the earlier prehistoric period and 571 sherds (2646 g) to the later prehistoric period mainly on the basis of fabric (but with some consideration of provenance) due to small size and poor condition of sherds. An additional 267 tiny rolled fragments (888 g) were too small to classify even by fabric and have been excluded from quantification.

CONDITION

The high proportion of only broadly dateable prehistoric sherds (24% by sherd count and 19% by weight) gives an impression of the overall condition of the assemblage, which was generally fragmentary and poor. This was due in part to the fragility of shelly fabrics, which made up over 60% of the prehistoric wares. The average sherd weight was only 4.4 g, an extremely low figure for the Upper Thames Valley region, where conditions for ceramic preservation are generally good. On a sherd abrasion scale of 1-3, 68% of sherds were highly abraded (level 3), with surfaces worn or missing and fractured edges rounded. This indicates complex taphonomic histories for most periods of prehistoric occupation on the site, with high levels of movement and redeposition of secondary refuse.

Of a total of 342 contexts that produced prehistoric pottery, only 44 (13%) produced 20 sherds or more, the quantity generally accepted as sufficiently sizeable for statistical analysis. In some cases sherds were so small and rolled that fabric could not be identified and relatively few sherds could be attributed to vessel types on the basis of diagnostic features such as rim or base fragments, decoration or otherwise distinctive features. The exception to this was very small sherds of highly fragmented Beakers, which could be classified on the basis of decoration.

METHODOLOGY

The pottery was fully recorded on an Access Database. Fabrics were identified with the aid of a binocular microscope at x20 and x10 magnification and classified using an alpha-numeric dominant inclusion code, following the recommended guidelines of the Prehistoric Ceramics Research Group (PCRG 1997). Although earlier prehistoric fabrics are ideally defined by additional categories where possible, such as inclusion size, sorting and a consideration of evidence for clay preparation, these elements were not generally discernible in the case of small, abraded sherds, which formed a considerable proportion of this assemblage.

Sherds were recorded within context, counted and weighed and a record made of their fabric, form, surface treatment, decoration and degree of abrasion based on three broad categories: high (surface survival minimum, breaks heavily eroded); moderate (surface somewhat preserved but clearly worn; slight (little indication of wear apparent). The presence of residues was recorded but burnt organic residue was present on the inner surfaces of only three sherds dated broadly to the prehistoric period, and limescale on the inner surface of a single Middle Iron Age bead-rim jar from posthole 4620.

FABRICS

Seventy-six individual fabrics were identified within the prehistoric assemblage. These have been amalgamated on the basis of principal types of inclusion into 25 groups (Tables 1.1 and 1.2), but a small proportion of the assemblage (5.5%) was too fragmentary to assign with any degree of confidence to a fabric group.

The majority of fabrics for all prehistoric periods reflected the variation in the local geology, an alluvial-derived first river terrace gravel overlying Jurassic Oxford Clay, and were procured, and probably produced, locally. The prehistoric assemblage was dominated by clays with abundant fossiliferous limestone inclusions (75% by count/83% by weight). Several Jurassic clay varieties were identified including shelly Jurassic clays and oolitic clays. These were probably obtained from the local Oxford Clay or from the Cornbrash or Forest Marble outcrops a mere 1-2 km to the north-west of the site. The Forest Marble may have been the source of clays containing discrete oolitics (L2), and the oolitic limestone and shell fabrics (L1 and L3) may have originated from the Athelstan Oolite some 6-8 km distant or from the local gravels. Clean smooth Jurassic clays with added flint, grog, quartzite and quartz sand or with only lumps of unwedged argillaceous material or no added temper could have been collected from deposits on or adjacent to the site.

Quartz sand was noted in only a small proportion of sherds (1.8% by count, 2.6% by weight), and its presence scarcely increased through time. The Oxford Clay deposits may have provided the few examples

Table 1.1 Prehistoric pottery fabric group descriptions

Fabric group	*CODE*	*Summary description (principal inclusions)*
Fossil shell abundant	S1	Common (30%) to abundant (40%) fossiliferous detritus, mostly shell (including Bryzoan), some limestone
Fossil shell common	S2	Sparse (5%) to common (20-25%) fine fossil shell
Rare fine fossil shell	S3	Smooth fine clay and rare (2-4%) fine crushed fossil shell
Fossil shell and argillaceous lumps	S4	Sparse (5%) fossil shell and argillaceous lumps
Smooth clay and argillaceuos lumps	N1	Fine, closed clay, non sanded clay with sparse argillageous lumps
Common oolites and fossil shell	L1	Common (25-20%) oolitic limestone and subangular shelly limestone
Oolitic limestone and fossil platey shell	L2	Sparse (5%) oolitic limestone in smooth fine clay
Oolitic limestone	L3	Rare (1-2%) oolitic limestone and fossil shell
Smooth clay, no sand	N2	Fine closed clay, no visible inclusions
Sand and glauconite	A1	Fine quartz sand with sparse glauconite, no other visible inclusions
Sand and fossil shell	AS2	Fine quartz sand and sparse (5-10%) fine fossil shell
Sand and rare quartzite	AQ1	Fine quartz sand and rare (1-2%) coarse quartz/quartzite
Sand and argillaceous lumps	A2	Fine to medium quartz with sparse (2-5%) argillaceous lumps (unwedged clay)
Fossil shell and sand	SA1	Medium quartz with sparse (5%) to common (20%) fossil shell
Rare coarse flint	F1	Rare (1-2%) coarse calcined white/grey, sometimes red flint up to 3 mm
Coarse flint	F2	Common (20%) coarse white/grey calcined flint up to 3 mm
Fine flint	F3	Fine sparse (5%) white calcined flint up to < 2 mm in fine sandy clay
Flint and fossil shell	FS1	Soapy, non sandy clay with rare white/grey calcined flint and fossil shell
Grog	G1	Common to abundant (35-40%) grey/black, rarely reddish, grog in a soapy smooth clay
Grog and fossil shell	GS1	Sparse to common grey/black grog and sparse fossil shell
Grog and rare fossil shell	GS2	Sparse grey/black grog and rare fine fossil shell
Grog and sand	GA1	Grey/black grog and common fine or fine-medium quartz
Grog and rare limestone	GL1	Sparse grey/black grog and rare limestone
Grog and rare flint	GF1	Sparse grey/black grog and rare fine white/grey calcined flint
Grog and quartzite	GQ1	Common grey/black grog with rare rounded translucent white and pink quartzite

of non-ferruginous sandy fabrics, most common in the earlier prehistoric assemblage. Kellaways Clay, which can be iron-rich in places, outcrops only 2-3 km north of the site, and was a likely source for some of the sandy fabrics, including fine sandy wares with a silty texture (A1, A2), most common in the Early Iron Age. Sources of glauconitic clay, which lie as close as 4-5 km from the site, to the north of Cirencester, may have been exploited for fabric A1.

Flint was present in less that 1% of sherds. Most examples of coarse flint temper (F1 and F2) were middle Neolithic in date, but a few sherds containing fine flint inclusions were identified in the early and middle Iron Age assemblages. Although the terrace gravels could have provided flint for either group, it is more likely that the temper, the clays or the vessels themselves were imported from the downlands of northern Wiltshire no great distance to the south of the site.

EARLIER PREHISTORIC POTTERY

As seen in Table 1.3, the average sherd weight (ASW) for the earlier prehistoric assemblage was low and, although the material was mainly recovered from cut features such as pits, it was fairly abraded and fragmented.

Fabrics

The 40 earlier prehistoric fabrics were dominated by those which included grog, either as pure grog (a total of 4) or, more commonly, grog and other material such as sand or shell (a total of 12) (Table

Table 1.2 Prehistoric pottery fabric groups by period

Fabric	No. sherds	Wt (g)	% no. phase	% wt phase
Middle Neolithic				
S1	110	412	67	60
S4	13	60	8	8.7
N1	4	7	2.4	1
L3	1	3	0.6	0.4
A2	3	6	1.2	0.9
SA1	2	44	1.2	6.4
F1	3	11	1.8	1.6
F2	28	145	17	21
	164	*688*		
	ASW	*4*		
Late Neolithic				
A1	1	3	0.5	0.3
SA1	3	78	1.5	8.4
G1	97	534	52	57
GS1	67	156	36	16.6
GA1	15	69	8	7.4
GL1	2	97	1	10.3
	186	*937*		
	ASW	*5*		
Late Neolithic/Early Bronze Age				
G1	9	38	6	6
GS2	79	255	54.5	38
GA1	2	12	1	1
GL1	52	358	35.5	53
GF1	3	8	2	1
GQ1	2	7	1	1
	147	*678*		
	ASW	*5*		
Early Bronze Age				
G1	715	1679	94	83
GS2	2	10	0.3	0.5
GA1	4	46	0.5	2
GL1	29	272	3.8	13
GF1	6	9	0.8	0.5
	756	*2016*		
	ASW	*2.6*		
Middle Bronze Age				
S1	824	4156	85	83
S2	114	620	12	12
L1	25	220	2.6	4.4
G1	4	27	0.4	0.6
	967	*5023*		
	ASW	*5*		

Table 1.2 Prehistoric pottery fabric groups by period (continued)

Fabric	No. sherds	Wt (g)	% no. phase	% wt phase
Late Bronze Age/Early Iron Age				
S1	651	4520	56	66
S2	10	83	0.9	1
S3	226	1160	19	17
L1	47	142	4	2.2
L2	193	645	16.5	9.5
N2	4	19	0.4	0.3
A1	2	9	0.2	0.3
AS2	25	237	2	3
AQ1	2	6	0.3	0.3
F3	2	23	0.3	0.4
FS1	1	3	0.1	0.3
	1163	*6847*		
	ASW	*6*		
Middle Iron Age				
S2	54	324	82	81
L2	10	73	15	18
F3	2	5	3	1
	66	*402*		
	ASW	*5*		
Later Prehistoric				
S1	71	326	12	12
S2	334	1653	58	62
L1	139	588	25	22
N2	4	22	1	1
A1	18	36	3	2
AS2	5	21	1	1
	571	*2646*		
	ASW	*4.6*		
Prehistoric				
S1	424	1128	70	69
S2	95	349	15.7	21
A1	2	3	0.4	0.2
A2	1	3	0.2	0.2
G1	3	1	0.5	0.2
GS2	72	69	12	4.4
GA1	2	11	0.4	1
GL1	5	63	0.8	4
	604	*1627*		
	ASW	*2.7*		

1.4). Shelly fabrics were also common at the site, although there was a slightly higher proportion of pure shell fabrics (8) than those with shell and other inclusions (7). A significant, although small (a total of 6), number of the fabrics included flint. Flint fabrics were most widespread in the Middle Neolithic Peterborough Ware, although there was an equal number of shelly fabrics in this period. Grog fabrics become more common in the later Neolithic, when Grooved Ware forms are predominantly grog-

Table 1.3 Average sherd weight by phase (earlier prehistoric)

Date	Sherds	W (g)	ASW (g)
MNEO	232	596	3
LNEO	187	941	5
LNEO-EBA	365	1762	5
EBA	715	1679	2
MBA	437	3052	7
MBA-LBA	542	2218	4
Early prehistoric	23	62	3
Prehistoric	603	1558	3

tempered, as are the Beakers. Middle Bronze Age fabrics are predominantly shell-tempered and are much more uniform than for other periods.

Earlier prehistoric pottery from the Cotswolds region is dominated by shelly fabrics (Barclay 2002, 202-4), making the grog dominated material from Cotswold Community unusual. This is probably a result of the presence of high numbers of both Beaker and Durrington Walls sub-style Grooved Ware sherds, which are commonly grog-tempered. The occurrence of flint fabrics is also notable, as flint does not occur naturally within Gloucestershire. Flint fabrics occur only in the Peterborough Ware and Beaker assemblages and may represent imported vessels from flint-rich areas such as Wiltshire or Dorset.

Forms

A minimum of 97 vessels were identified, based on diagnostic sherds (Table 1.5). The most common form was Beaker; substantial amounts of Grooved Ware and Middle Bronze Age Deverel-Rimbury related pottery were also present.

Peterborough Ware

Middle Neolithic (3600-2300 BC) Peterborough Ware was recovered from a total of 14 contexts, all pits, although a small amount of residual material was recovered from two waterholes (855 and 10280) and postholes 8656 and 9822 (Table 1.6).

The largest assemblage of Peterborough Ware (51 sherds weighing 237 g) was recovered from pit 8799. This included rim sherds with complex whipped cord impressed decoration (Fig. 1.1, 4) and body sherds with decoration which included an incised concentric circles or spiral motif (Fig. 1.1, 7). A total of 94 sherds were recovered from the fill of pit 10206, including fragments of the upper part of a Mortlake style bowl in a fine shell fabric and with a complex, internally-decorated rim (Fig. 1.1, 1). Three large rim sherds from pit 9959 also carried whipped cord impressions both internally and externally (Fig. 1.1, 6). Significant amounts of Peterborough Ware were also recovered from pit 8700 (Fig. 1.1, 3) and pit 8864, whilst pit 9834 contained a rim decorated with bone impressions and scored lines (Fig. 1.1, 5).

In common with other earlier prehistoric material from the Cotswolds and Upper Thames Valley, the fabrics of the Peterborough Ware is predominantly fossil shell. At least one vessel had a coarse flint fabric, and may be an import from further south. Although many vessels were fragmentary and difficult to assign to a style, Mortlake and Fengate styles were identified with decoration including incised chevron, stab marks and bone impressions. The sherd with concentric circle or spiral decoration from pit 8799 is notable as, although spiral and circular motifs occur rarely on Grooved Ware, no parallels could be found for such decoration on Peterborough Ware.

In Gloucestershire, Peterborough Ware has been recovered from blocking deposits within long barrows such as Nympsfield (Saville 1974), Sales Lot (O'Neil 1966) and Burn Ground (Grimes 1960) and also from pits at Cam (Smith 1968), Tewkesbury (Hannan 1993)

Table 1.4 Earlier prehistoric pottery fabrics by phase

MNEO	LNEO	LNEO/EBA	MBA
S2 fossil shell	**G1** grog	**G1** grog	**S2** fossil shell
S4 fossil shell & argillaceous lumps	**GS1** grog & fossil shell	**GF1** grog & rare flint	**S1** frequent coarse fossil shell
AS2 fossil shell & sand	**GS2** grog & rare fossil shell	**GS2** grog & fine fossil shell	
	GL1 grog & limestone	**GL1** grog & limestone	**G1** grog
F1/F2 coarse flint		**GQ1** grog & rare quartzite	
FS1 flint & fossil shell	**A1** fine sand	**GA1** grog & sand	**L1** oolitic limestone
	GA1 fine sand & grog		
A2 fine sand & argillaceous lumps	**GA1** medium sand & grog		
	AS2 sand & fine fossil shell		
GL1 grog & limestone			

Table 1.5 Earlier prehistoric vessel forms and dates

Date	Tradition	Vessels
Middle Neolithic	Peterborough Ware	12
Late Neolithic	Grooved Ware	24
Late Neolithic-Early Bronze Age	Beaker	41
Middle Bronze Age	Bucket urn	7
	Barrel urn	3
	Cordoned urn	2
	Globular urn	2
	Cauldron urn	6

Table 1.6 Peterborough Ware from pits

Context	Feature	No sherds	Weight (g)	Comments
4239	pit4238	1	6	
8665	pit 8666	11	45	Fengate style
8698, 8699	pit 8700	17	77	3036-2914 cal BC (OxA-17612)
8797	pit 8799	51	237	circle/spiral decoration
8808	pit 8864	24	81	
9202	pit9157	1	1	tiny chip
9831	pit 9834	4	7	bone impression
9960	pit 9959	3	58	Whipped cord impressions
10149	pit 10206	9	94	Mortlake style

and Bourton on the Water (Dunning 1932). At Horcott Pit (Lamdin-Whymark *et al*. forthcoming) sherds of shell-tempered Ebbsfleet, Fengate and Mortlake style vessels were recovered from a series of pits, where large body sherds appear to have been deliberately placed face-down within the fills. Although this practice was not noted at Cotswold Community, the deposition of large sherds within pits is common to both sites. Un-tempered sherds, including a possible Fengate style bowl, were also recovered from pits Duntisbourne Grove (Mudd *et al*. 1999).

The radiocarbon date from pit 8700 of 3036 to 2914 cal BC (OxA-17612) is much later than that of 3650 to 3380 cal BC from Duntisbourne Grove (4761 + 57BP; NZA 8671, R24151/15). These are, however, the only two dates on Peterborough Ware from Gloucestershire and fall well within the range for Peterborough Ware within Britain (Gibson and Kinnes 1997), which overlaps to some extent with earlier Neolithic Bowl and late Neolithic Grooved Ware.

Grooved Ware

Late Neolithic (2900-2100 BC) Grooved Ware was recovered from a total of 16 contexts, all pit fills except tree-throw hole 9341 (Table 1.7). Whilst the majority of the material was fragmentary and occurred in small amounts, pit 5320 contained a total of 18 sherds weighing 130 g allowing a reconstruction of a Clacton sub-style vessel (Fig. 1.2, 9). Tree-throw hole 9341 contained a further 31 sherds weighing 72 g and significant amounts of Grooved Ware were also recovered from pits 5797, 6570 and 17011. Large fragments of a substantial vessel of probable Durrington Walls sub-style were recovered from pit 17667 (Fig. 1.2, 10).

The grog temper of the majority of the Grooved Ware is common to the Durrington Walls sub-style in the Upper Thames Valley (Barclay 1999, 12) and is distinct from the shelly fabrics of the Woodlands/Clacton sub-style. Decoration mainly consists of incised lines, although a small number of vessels have finger nail decoration and applied cordons are also present.

Grooved Ware occurs relatively rarely within Gloucestershire, with finds recorded from Roughground Farm (Allen *et al*. 1993, 9-10), the Loders, Lechlade (Darvill *et al*. 1993), Gassons Road, Lechlade (Boyle *et al*. 1998, 275-7) and Horcott Pit (Lamdin-Whymark *et al*. forthcoming). Recently, shell tempered Woodlands sub-style material has been recovered from excavations at Kings Hill North, Cirencester (Mullin *et al*. 2009). The material from Roughground Farm and the Loders was of the Woodlands sub-style, whereas Durrington Walls sub-style Grooved Ware was recovered from Horcott Pit, where it was recovered from a tree-throw hole. The Clacton sub-style material from Cotswold Community is the first to be recognised within Gloucestershire, although small amounts are known from the Upper Thames Valley (Barclay 1999).

At 24, the number of vessels from Cotswold Community is the largest assemblage of Grooved Ware from Gloucestershire and is comparable to some of the larger assemblages from sites such as the West Kennet long barrow, Wiltshire (Piggott 1962) and Fir Tree Field, Down Farm, Dorset (Green 2000). It is also the largest assemblage of Durrington Walls sub-style from Gloucestershire, a sub-style which is also uncommon throughout the Upper Thames region (Barclay 1995).

The radiocarbon date of 2575-2469 cal BC (OxA-17619) from pit 17024 is one of only two from Grooved Ware contexts within Gloucestershire. The other site is Roughground Farm, Lechlade (Allen *et al*. 1993) and the dates are broadly contemporary. The date from Cotswold Community falls within middle of chronology for Grooved Ware as currently understood and is contemporary with other Durrington Walls sub-style material from Mount Pleasant Site IV and Durrington Walls itself (Garwood 1999).

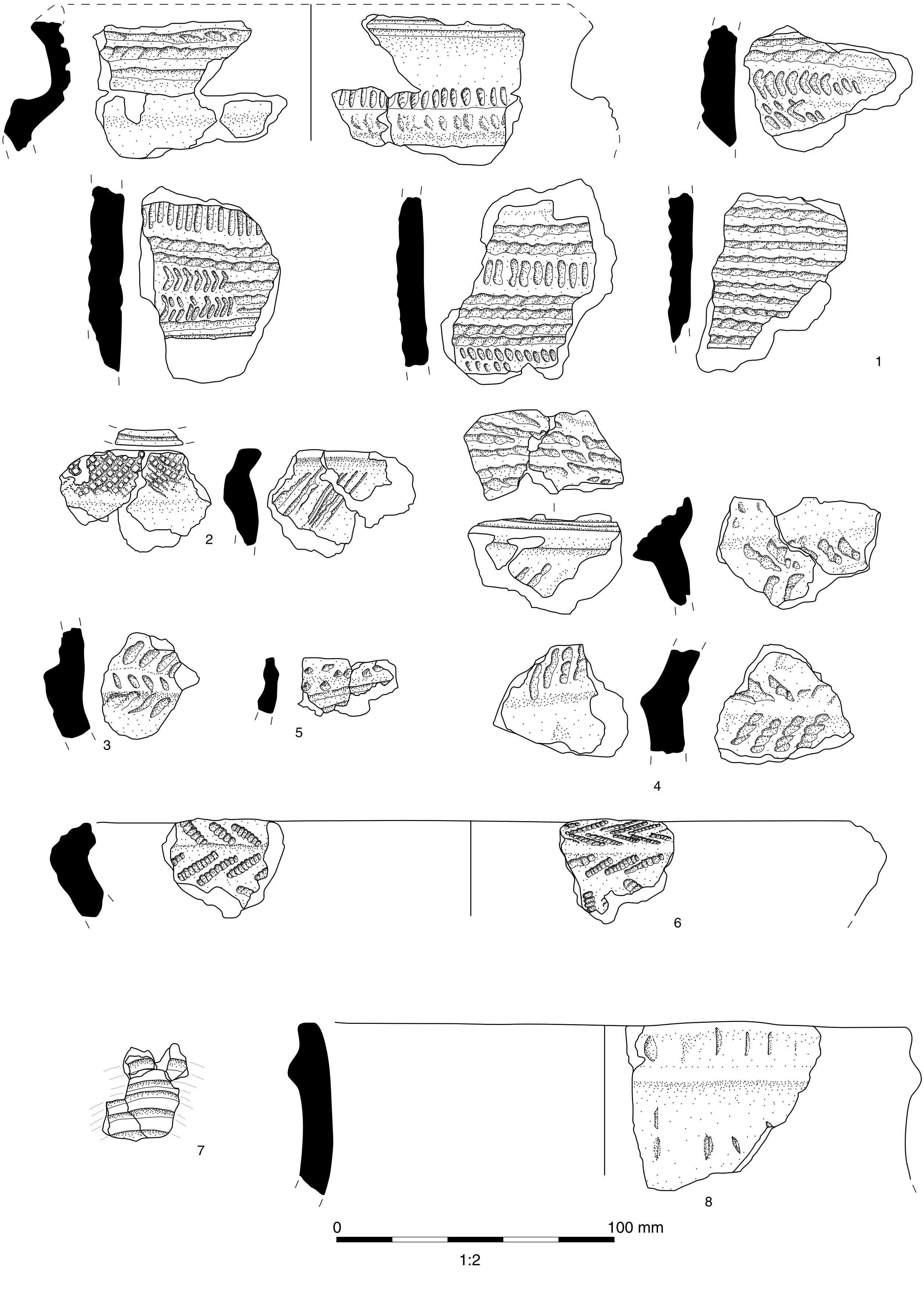

Figure 1.1 Prehistoric pottery 1-8

Table 1.7 Grooved Ware from pits and tree throw holes

Context	Feature	No sherds	Weight (g)	Comments
4570	pit 4565	1	10	
4574	pit 4575	1	9	
4600	pit 4602	4	37	
5318	pit 5320	18	130	Clacton sub-style
5795	pit 5797	18	45	
6569	pit 6570	17	13	
7203	pit 7205	6	7	
8897	pit 8899	1	4	
9338	tree throw 9341	31	72	
17013	pit 17011	11	69	
17024	pit 17022	2	10	2575-2469 cal BC (OxA-17619)
17666	pit 17665	6	89	
17668	pit 17667	3	20	?Durrington Walls
18902	pit 18901	7	17	

Beaker

Beaker pottery was recovered from 23 contexts including 12 pits and three graves (Table 1.8). A small amount of residual material was recovered from contexts 2005, 4747, 8774 and 18475. All of the Beaker pottery from the pits was fragmentary and abraded: no complete vessel profiles were present and individual pots were frequently represented by very few sherds.

Pits

The largest amount of Beaker was recovered from pit 7624 and included fragments of at least two vessels. One had limestone inclusions up to 3 mm in diameter and was decorated with comb impressions both in rows and in cross/diamond pattern. The second vessel was slightly finer walled but was decorated in a similar style, with a comb of similar size.

Pit 7972 contained the fragments of at least four Beakers, represented by two to seven sherds from each vessel. These include a rim from a cord-impressed vessel; wall sherds from a vessel decorated with narrow parallel incised lines, and a comb-impressed Beaker. The cord-impressed vessel has an outward flaring rim and is likely to be early in the Beaker sequence. A large inturned rim fragment with applied external cordons was also present in this pit and other sherds in a similar fabric carried fingernail impressions.

Table 1.8 Beaker from pits

Context	Feature	No sherds	Weight (g)	Comments
2820	pit 2819	29	132	at least 2 vessels
4393	pit 4401	7	158	
4411, 4413	pit 4416	6	6	
4762	pit 4764	4	21	
5061	pit 5076	66	284	at least 2 vessels
5657	pit 5659	359	298	single vessel
7623	pit 7622	15	57	at least 3 vessels
7625	pit 7624	56	486	
7971	pit 7972	17	73	at least 4 vessels: human bone
8064	pit 8066	7	102	
8132	pit 8134	4	74	
8715	pit 8717	1	4	
9123, 9155	pit 9120	50	168	stone axe
9125	pit 9122	11	6	

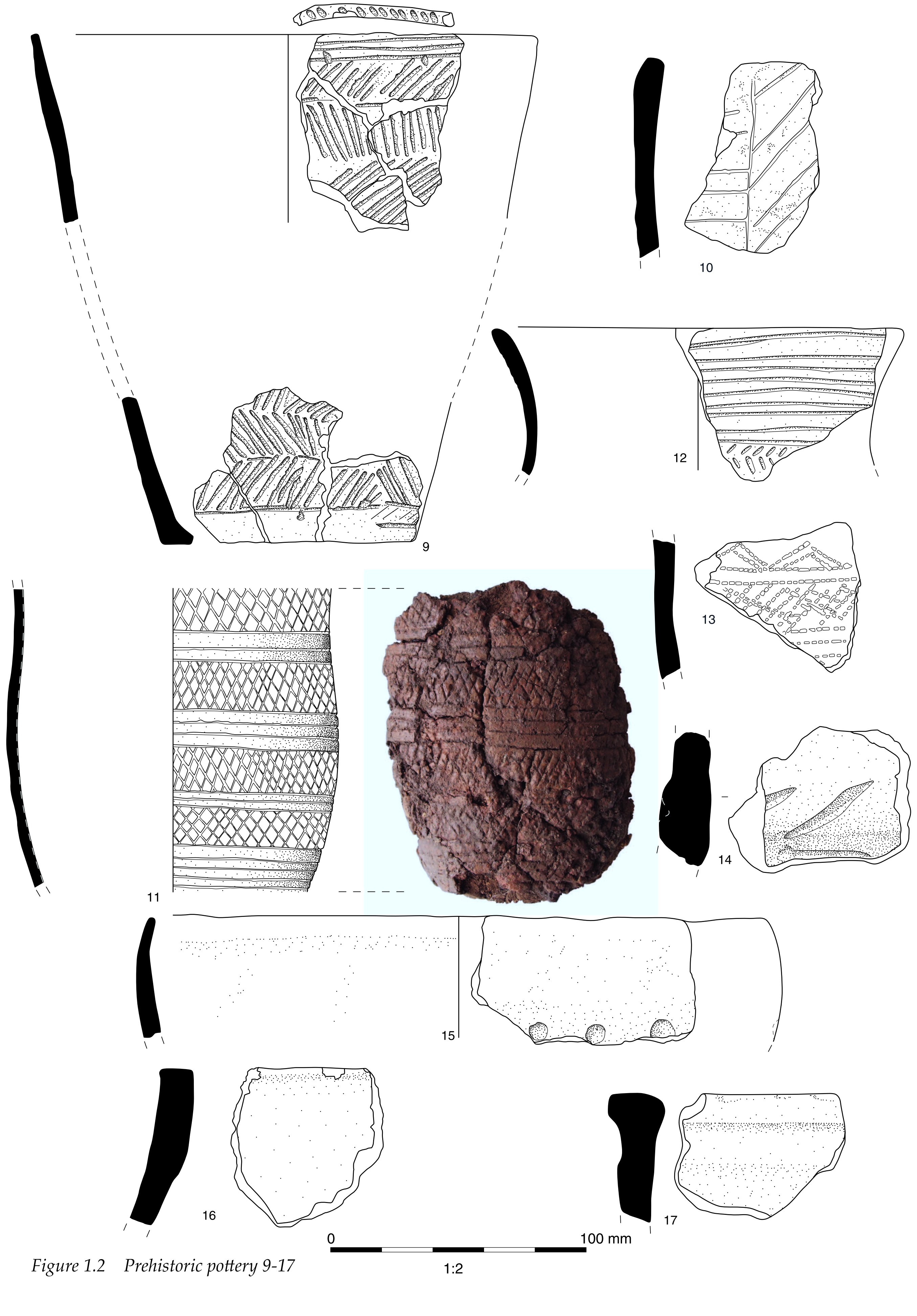

Figure 1.2 Prehistoric pottery 9-17

These appear to be from a Beaker of Wessex/Middle Rhine form and can be paralleled by a vessel from Fengate (Clarke 1970, figs 229 and 230). Human bone was also present in the fill of this feature, although it may not represent a formal burial.

Pit 4401 contained large sherds of a comb-impressed Beaker with an angle in the profile, (Fig. 1.2, 13) although it is uncertain if this fits within Needham's (2005) Carinated classification, due to the lack of a full vessel profile. A further vessel from pit 2819 carried a change in angle, possibly a carination, which was decorated with fingernail impressions. Fragments of a further, comb-impressed Beaker were also recovered from this pit (Fig. 1.2, 12). Sherds of a fingernail-impressed vessel were also recovered from pit 7622, where they occurred alongside fragments of a comb-impressed and an apparently undecorated, fairly coarse, Beaker.

Two pits were unusual in their contents: pit 9120 (Fig. 1.2, 11) contained fragments of two Beakers alongside a stone axe. One of the Beakers was a fine-walled vessel with comb impressed decoration, whilst too little survived of a coarser Beaker to be certain of the presence of decoration. Stone axes are not common in Beaker deposits and it is a possibility that this example was deliberately curated. Pit 5659 was unusual in that it contained sherds of a single vessel, in contrast to the majority of the pits, which contained fragments of two to four vessels. The vessel from pit 5659 was decorated with parallel lines of fingernail impressions and had an out-turned rim. Although base and rim sherds were present it was not, however, possible to reconstruct a complete vessel profile.

The forms of the Beakers from the pits vary from large, thick-walled fingernail-impressed vessels (8132, 5657) to fine, comb-impressed vessels (5061, 7625, 9123). Two vessels appear to have cord impressions (7971, 8132), possibly from All Over Cord (AOC) decorated Beakers, which are considered to be early within the Beaker sequence (Clarke 1970; Needham 2005). The lack of radiocarbon dates and complete profiles makes assemblage difficult to date, but the majority of the material is probably mid to late within the Beaker period.

Graves

A total of three graves contained Beaker pottery, the most complete (although still partial) vessel being recovered form Grave 9551 (Table 1.9).

Grave 9551 (Context 9575) (Fig. 1.2, 11)

Roughly one third of a Beaker was recovered from Grave 9551 where it had been placed at the feet of a probable crouched inhumation. The vessel was complete from base to rim and measured c 180 mm in height, with a diameter of approximately 120 mm. The wall of the vessel is relatively thin, with a typical thickness of c 5 mm. The Beaker was decorated with incised horizontal lines defining at least three zones of cross-hatched diamond decoration, the bands being wider across the belly and towards the base. The fabric includes fine grog temper and subrounded calcareous inclusions, which may have been deliberately added.

The vessel seems to share several characteristics with the Wessex/Middle Rhine type, including the decoration and slack sinuous profile, with possible parallels at Wilsford and Bulford, Wiltshire and Ham, Surrey (Clarke 1970). The vessel can also be classified as of Needham's (2005) S-profile class.

Grave 7611 (context 7612)

This vessel was highly fragmented, but site photographs show approximately the lower half of a Beaker, possibly with the rim missing or collapsed into the vessel. Only seven rim sherds were present in the material analysed, but roughly half of the base and overall less than half of the vessel was present. As a result it was not possible to reconstruct a profile. The decoration comprised zones defined by parallel lines of comb impressions close to the base, with comb-impressed diamonds above. Incised chevrons occurred higher on the vessel profile with more horizontal comb impressions at rim. The Beaker was grog-tempered and, whilst incomplete, weighed more than the vessel from Grave 9551.

Grave 8933 (context 8927)

Only 11 very small sherds with comb impressions weighing 9 g were recovered from this grave and it was not possible to reconstruct a vessel profile. The fabric contained grog and rare flint, suggesting that this might be a non-local fabric as flint does not occur naturally within Gloucestershire.

Beaker burials are uncommon in Gloucestershire: a burial was recovered from the mound of the long barow at Sales Lot, Withington (O'Neil 1966) and burials are also recorded from from Barnwood, Gloucester (Clifford 1930; Clarke 1970, 277) and Prestbury (Clifford 1938; Clarke 1970, 285). A Beaker from a possible flat grave is also known from Slaughter Bridge, Bourton on the Water, where it accompanied the body of an adult female (Dunning 1937; Clarke

Table 1.9 Beaker from graves

Context	Feature	No sherds	Weight (g)	Comments
7612	grave 7611	152	485	
8927	grave 8933	11	9	tiny decorated fragments
9575	grave 9551	26	100	S-profile

1970, 278-279). Closer to Cotswold Community, two Beaker burials were recovered from the Memorial Hall, Lechlade (Thomas and Holbrook 1998), where the Beakers appear to have been broken in antiquity. A Beaker ring ditch and a Beaker grave were uncovered during work at Shorncote Quarry (Barclay *et al*. 1995), the Beaker from the burial within the ring ditch being particularly crude and unevenly fired. Both of these pots were grog-tempered. Recent work at Kings Hill North, Cirencester also uncovered a burial within a ring ditch, accompanied by an S-profile Beaker, and a flat grave with a further Beaker (Mullin *et al.* 2009). Both of these vessels were grog-tempered, the vessel from the flat grave also containing limestone and possibly quartz inclusions.

The small number of Beaker burials from Gloucestershire makes any patterning difficult to discern, although most of the Beakers from graves appear to be mid to late in the Beaker sequence. The material is dominated by S-profile and Long Necked Beakers (Needham 2005), although the Beaker from Sale's Lot appears to have a carination and is potentially early. The material from the graves at Cotswold Community appears to fit with this general pattern, being mid to late in the Beaker chronological scheme devised by Needham (2005).

All of the Beakers from Cotswold Community were grog-tempered and, although over half of the pots contained pure grog fabrics, additional sand and quartzite, rare fossil shell, limestone and flint were present as additional inclusions, the most abundant addition being limestone. Very few Beaker fabrics have been recorded in detail within Gloucestershire, in contrast to those from northern Somerset (Russell and Williams 1998) and Wiltshire (Cleal 1995) and this makes meaningful comparison between sites difficult. At Roughground Farm, Lechlade (Allen *et al*. 1993) a total of three main fabric groups were identified with grog and shell the most common but grog, grog with shell and flint fabrics also present. Grog-tempered Beakers were also identified at the Memorial Hall, Lechlade (Thomas and Holbrook 1998), Gloucester Business Park Link Road, Hucclecote (Thomas *et al.* 2003) and at Shorncote Quarry (Barclay *et al.* 1995). Grog and limestone fabrics were identified at Memorial Hall, Lechlade and Trinity Farm, Bagendon (Mudd *et al*. 1999), whilst a calcite fabric was also identified at Trinity Farm. The Beaker fabrics from Cotswold Community are in keeping with the general grog-dominated fabrics found within Gloucestershire and contrast with those found in Wiltshire (Cleal 1995), which contain inclusions of flint. As such the Gloucestershire material has more in common with Beaker from northern Somerset, where grog fabrics, including pure grog, are more commonly exploited (Russell and Williams 1998).

It is noteworthy that depositional practice at Cotswold Community, as at other sites within Gloucestershire, involved the placement of incomplete vessels, or sherds of more than one vessel, within pits and with burials. This may be related to the use of grog as a tempering agent: the fragmentary pots which were not made into new Beakers being selected for deposition in pits. Alternatively the practise may relate to the fragmentation of significant Beakers, parts of which remained in circulation, whilst other parts were deposited either in pits or with bodies.

Table 1.10 Deverel-Rimbury ware

Context	Feature	No sherds	Weight (g)	Comments
455	454	7	55	
2005	2004	146	1166	Bucket urn; stone axe
2006	2004	37	115	
4478	4776	1	14	
4897	4898	6	49	
4899	5018	38	181	Barrel urn, ?globular urn
4900	5018	163	1039	Bucket urn, globular urn
8404	8400	15	107	Barrel urn
8466	8467	12	79	?Barrel urn

Deverel-Rimbury

A total of 325 sherds (2805 g) of Middle Bronze Age (1600-1100 BC) Deverel-Rimbury pottery were recovered from the site (Table 1.10). The largest amount (183 sherds weighing 1281 g) was recovered from pit 2004 and included fragments of Bucket Urn. Bucket Urn sherds were also recovered from waterhole 5018, which in addition contained parts of a possible Globular Urn and a Barrel Urn (Fig. 1.2, 14). Pits 8400 and 8467 also contained sherds of Barrel Urn (Fig. 1.2, 15). The Bucket Urn in pit 2004 was in the same context as a stone axe, which has parallels with a deposit in a middle Bronze Age waterhole at Perry Oaks, Heathrow (Roe 2006).

With the exception of the possible Globular Urn from pit 5018, which was grog-tempered, all of the Middle Bronze Age material contained fossil shell temper. Similar shell-tempered Middle Bronze Age pottery (including two Globular Urns) was recovered from Horcott Pit (Lamdin-Whymark *et al.* forthcoming), but the fabrics were more diverse and included sand and limestone. The Deverel-Rimbury pottery from Bevans Quarry on the Cotswolds also appears to have utilised locally occurring limestone (O'Neil 1967). Middle Bronze Age pottery was recovered from Roughground Farm (Allen *et al.* 1993), where bucket urns and biconical vessels were associated with a radiocarbon date of 1550 to 1000 cal BC (HAR 5504). Fabrics at the site included grog, flint and limestone, but were dominated by shell and shelly limestone, which made up over 80% of the vessel fabrics. At Shorncote Quarry Deverel-Rimbury ceramics were associated with the secondary re-use of a penannular ring ditch (Barclay and Glass 1995). Fabrics were again varied, but dominated by shell inclusions. The material from Cotswold Community fits within the general pattern of the use of shelly fabrics in this part of the Upper Thames Valley during the Middle Bronze Age.

LATER PREHISTORIC POTTERY

Late Bronze Age-Early Iron Age

Fabrics

The assemblage of 1163 sherds (6847 g) classified as Bronze Age-early Iron Age is dominated by a variety of calcareous fabrics of localised Jurassic origin. For the earlier part of the period the frequency and general composition was variable, suggesting that no particular recipe for potting clay was being adhered to. Coarsely crushed platey shell temper was possibly added to clays which had other shell inclusions, and weathered fossil shell, limestone and oolite occur in various combinations, probably reflecting localised differences in clay outcrops. The surface treatment of these wares was generally restricted to partial smoothing.

By the early Iron Age the range of inclusions, both natural and added, extended to include fine quartz sand and small, well-sorted white flint, albeit in small quantities, reflecting a wider procurement base that extended southwards to the chalk downlands and outwards towards deposits of glauconite-bearing Greensands. The greater attention paid to treatment of the clays and finish of vessels, particularly bowls, during this period could indicate either a growing adherence to clay recipes or intake from newly emerging centralised productions sites, or both.

Forms

The average sherd weight of 6 g testifies to the fragmentary nature of the later prehistoric pottery, which, lacking the distinctive fine-scale decoration found on Neolithic and early Bronze Age Impressed Wares and Beakers, precluded secure stylistic identification. Insecure provenance as a result of redeposition into later features and incidental movement of sherds through contemporary or later disturbance contributed to preventing precise stylistic classification of much of the group. Nonetheless, a minimum of 63 individual vessels was identified (Table 1.11). Early Iron Age fine bowl forms predominated by a large margin, and their proportions relative to associated jar forms was notable.

Late Bronze Age Decorated Wares (800-600 cal BC)

Despite these problems, it was reasonably clear that a small group of pottery pre-dating the early Iron Age can be placed in the Decorated Ware phase of the late Bronze Age/early Iron Age transition. Forms include bipartite jars with fingernail or fingertip decoration, cordoned urns and jars in the Plain Ware tradition. All examples of these forms are in calcareous fabrics, either shelly fabrics S1 or S2 or the highly oolitic fabric L1. No clear examples of vessels in the All Cannings Cross tradition were identified, although possible examples were recovered at nearby Butler's Field (Barclay 1998, 24) and Latton Lands (Edwards 2009, 61-2).

The Decorated ware assemblage did not correspond to a coherent focus of activity or settlement but, rather, was dispersed across the site and within features as secondary refuse or incidental occurrences. Four vessels from L-shaped ditch 14273, thought to have been dug in the Middle Bronze Age, indicate a probable late Bronze Age episode of filling. These are small fragments of bipartite or other urns, one with fingernail-impressed decoration just below the rim, and a Plain Ware jar.

The most clearly diagnostic sherds of this date were probably residual in later contexts. Pit 7605 contained two bipartite jars with fingernail decoration (Fig. 1.3, 18–19), but these were associated with more distinctively early Iron Age carinated bowls (see below). Associations of similar jar and bowl forms in closed pit groups were, however, seen at The Loders, Lechlade (Hingley 1986, 37-41, figs 7 and 8), so an overlap of these stylistic traditions at Cotswold Community cannot be ruled out. A cordoned urn with pinched decoration in fabric S2 was recovered from the fill of a ditch defining Roman trackway 17587. Another Plain Ware vessel came from pit 18598.

The late Bronze Age pottery from Cotswold Community broadly resembles in both form and fabric late Bronze Age pottery found in the course of several excavations at Lechlade (Barclay 1998, 22-3; Hingley 1986, 36-42; 1993, 28-31), some 20-25 km to the east of the site, except that the assemblages from the latter sites exhibited a somewhat wider range of fabrics, no doubt due to their greater size. At Butler's Field the Late Bronze Age/early Iron Age assemblage included 72% calcareous wares, but additionally over 22% sandy wares, some including flint or ironstone. At Roughground Farm, although over 90% of late Bronze Age fabrics contained calcareous components, sand and/or flint were also present in a small number of sherds. Closer to the site, a late Bronze Age/early Iron Age assemblage recovered during recent excavations at Horcott Pit included a similar range of finger-impressed jars in calcareous fabrics (Lamdin-Whymark *et al*. forthcoming; OA 2009). The late Bronze Age/early Iron Age assemblage from Hucclecote, Gloucestershire (Timby 2003, 34-5) also broadly corresponds to the Cotswold Community material, but the small size of the group does not allow for close comparison. Further to the east along the Upper Thames Valley, the pattern of pottery manufacture using calcareous clays and tempers is well recognised at Ashville near Abingdon (DeRoche 1978).

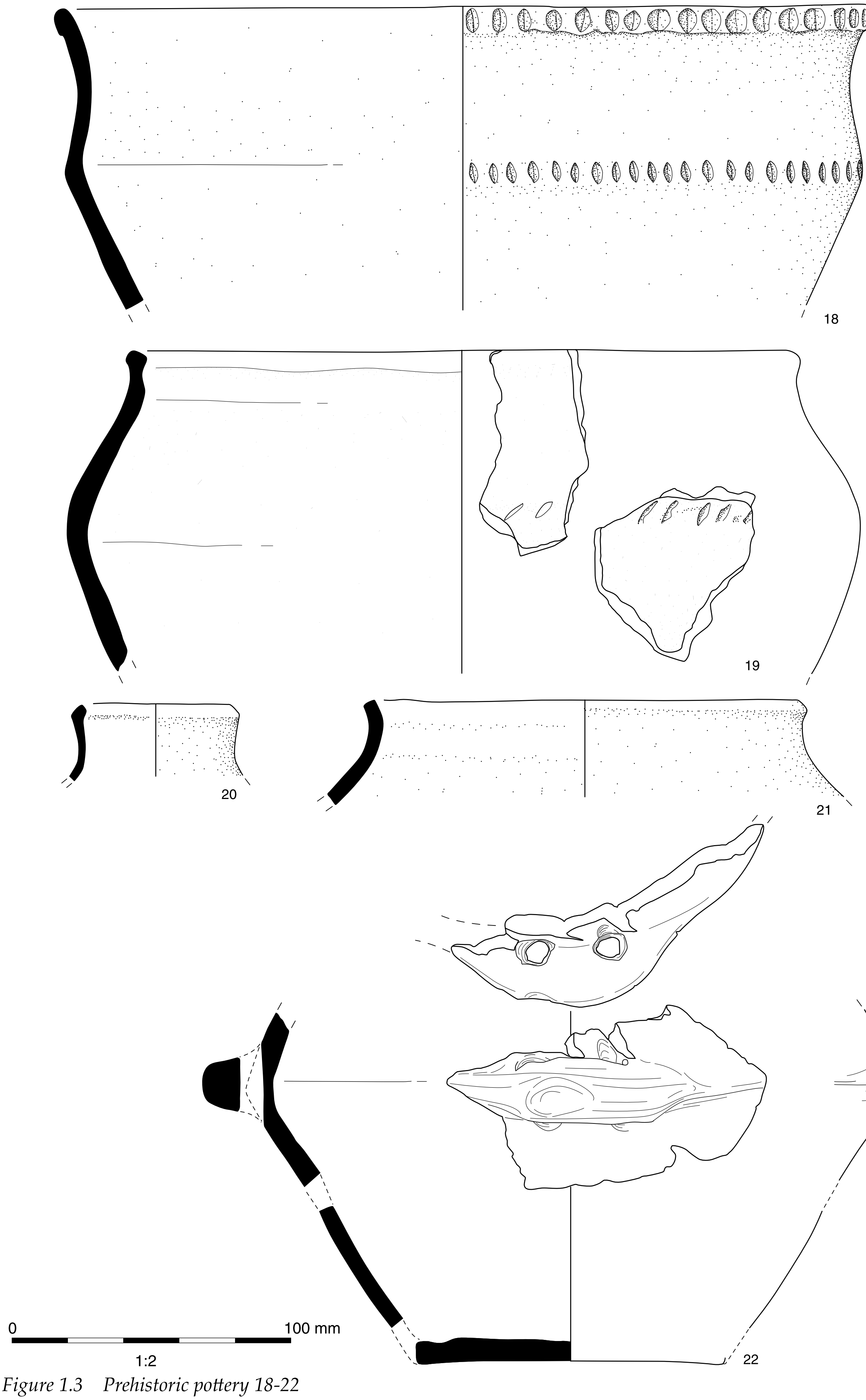

Figure 1.3 Prehistoric pottery 18-22

Table 1.11 Later prehistoric vessel forms and fabrics

Date	Vessel Type	Vessels	Fabric range
Late Bronze Age/early Iron Age transition	Plain ware jar	2	S2, S3
	Cordoned urn	1	S2
	Bipartite jar	4	S2
	Other urn	2	L1, S2
Early Iron Age	Upright rim jars	8	S1, S2, AS1
	Lugged jars	2	S3, AS1
	Bowl indeterminate	11	S3
	Carinated bowl	15	S3, AS1
	Flaring rim bowl	13	S3, L3, AQ1
Middle Iron Age	Ovoid jar, simple rim	6	S3, L2
	Ovoid jar, shaped rim	1	L2
	Straight-sided vessel	1	S3, L2

Early Iron Age (600-300 cal BC)

Pottery dated to the early Iron Age was recovered from 24 pits, 25 postholes, 10 ditches and three waterholes, most of them in settlement Areas 1 and 4 (Table 1.11). In most cases feature assemblages amounted to a very few sherds but seven pits contained groups of between 20-214 sherds and the fill of ditch 3860 in settlement Area 1 produced over 70 sherds, most of which belonged to the flat base of a large coarse shelly ware jar.

During the early Iron Age at Cotswold Community a very limited suite of vessel forms was utilised - a range of fine, thin-walled and sometimes decorated bowls; coarse jars with upright rims; and lugged jars, of which only two examples were found. The form of many of the bowls could be classified only by the surviving rim or body element - flaring rim, carinated body or indeterminate form (Table 1.11). Surface finish is largely restricted to smoothing rather than burnishing or red slip, but many of the bowls are decorated with incised linear devices, including multiple chevrons and filled triangles and squares.

This type of decoration is typical of the local region, and is closely matched within the early Iron Age assemblage at Horcott Pit (Lamdin-Whymark *et al.* forthcoming), at Roughground Farm (Hingley 1993, fig. 31) and at The Loders (Hingley 1986, figs 7 and 10), although at these sites the decorative range includes dot infill of a type not found at Cotswold Community. The fabrics used at all three sites is dominated by fossil shell varieties but also includes a small sandy ware component. The small late Bronze Age/early Iron Age assemblage from Latton Lands, conversely, produced only a single decorated bowl (Edwards 2009, fig. 26, no. 4).

A significant preponderance of bowls over jars (39 to 10) can be explained partly by the greater ease in identifying the former from very small sherds, and the proportions of coarse fabrics such as S1, S2, L1 and L2, used to manufacture larger vessels during this period (see Table 1.11 above), serves to adjust the apparent bias to some extent. Nonetheless, the disparity is striking, as is the considerably superior preservation of bowls over jars in general at the site. In the case of some bowl fragments the average sherd weight rose to 12 g from the overall average of 6 g for the period. This did not, however, represent acts of deliberate deposition of complete or substantially complete vessels in specific deposits. In fact, the most complete examples were represented by conjoining sherds dispersed through the fills of pit 7606 (Fig. 1.4, 28) and cross-feature joins between fill 9488 of pit 9491 and a medieval plough furrow, 9522 (Fig. 1.4, 31–32). The only possible example of a deliberate deposit was a collection of small abraded sherds in a feature interpreted as a posthole (see posthole 9422 below).

Pit groups

Pits 7605 and 7575

Intercutting pits 7605 and 7575 were located to the north of the main settlement in Area 4. Between them, they produced 366 sherds of early Iron Age pottery, over 50% of the total from pits on the site. The assemblage of 224 sherds (2302 g) from pit 7605 had an unusually high average sherd weight of over 10 g. The group included a minimum of 14 vessels: three upright rim jars in fabric S2, two with fingertipped decoration on the rim; three carinated bowls (Fig. 1.4, 23, 27 and 28), five indeterminate bowls, one with incised decoration (Fig. 1.4, 24), and two flaring rim bowls, all in fabric S3. An unusual miniature pinched-up bowl with fingernail and diagonal incised decoration (Fig. 1.4, 25), made from a fine closed clay (N2), probably picked up from the locally occurring alluvial deposits and made as an apprentice or experimental piece or by a child, came from fill 7568 of the pit. Pit 7575 contained 152 sherds (827 g) with an average sherd weight of 5 g, typical

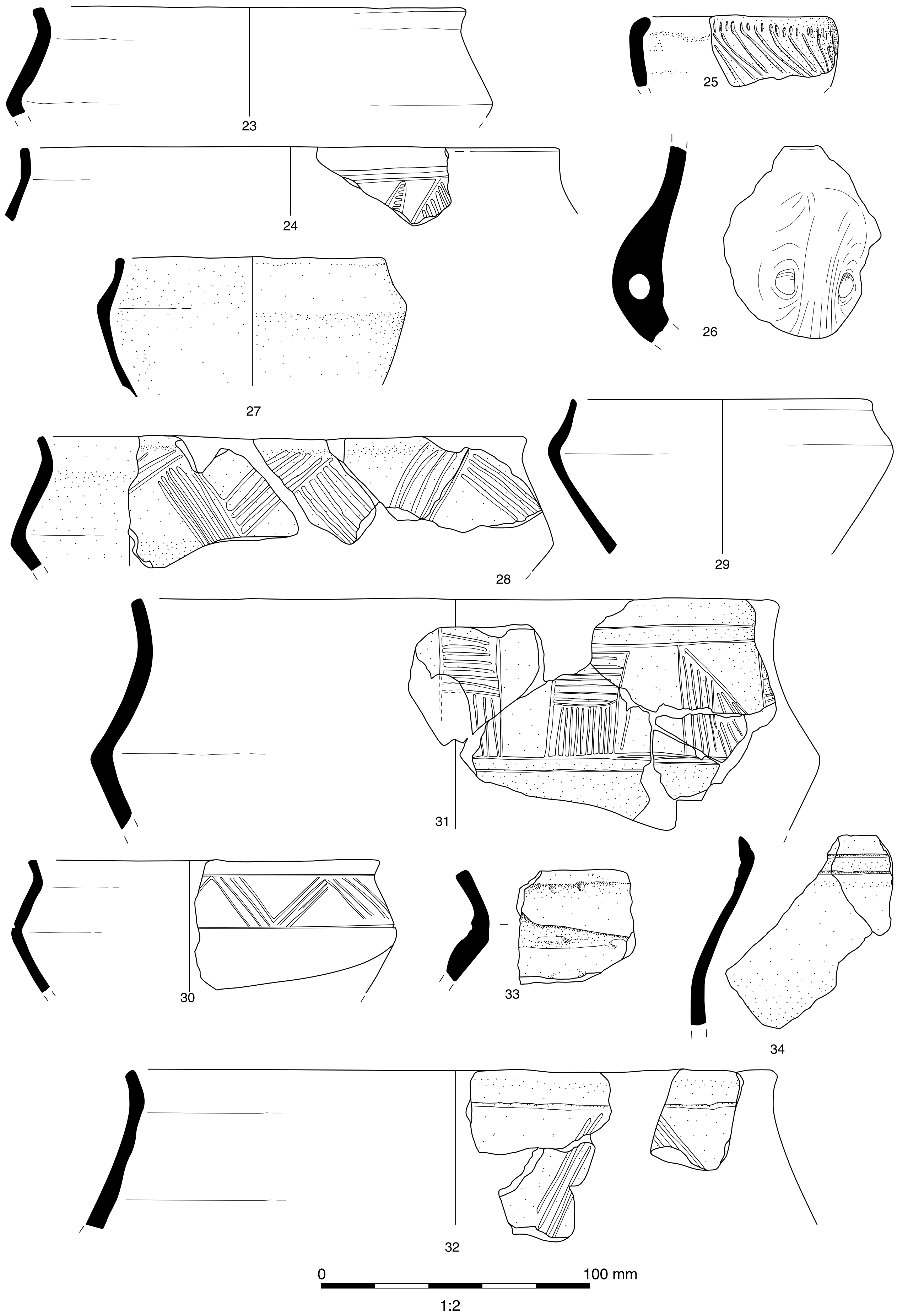

Figure 1.4 Prehistoric pottery 23-34

for the site. Two carinated bowls (Fig. 1.4, 29) and one indeterminate bowl fragment were identified, all in fabric S3, along with undiagnostic jar fragments in a variety of oolitic and coarse fossil shell fabrics.

Pit 9491

An assemblage of 117 sherds (315 g) was recovered from this small pit in settlement Area 4. Three decorated carinated bowls in fabric S3 (Fig. 1.4, 31 and 32) and an upright rim jar in S2 were the only identifiable forms in this highly fragmented collection of sherds, with an average sherd weight of under 3 g.

Pit 9931

The small collection of 71 sherds (399 g) from this pit was unusually diverse, which may have some chronological significance. Diagnostic sherds included an upright rim fingertipped jar in fabric S2, a flaring rim bowl in oolitic fabric L2, a decorated carinated bowl in fine flint-tempered ware F3 (Fig. 1.4 30), and one of only two lugged jars in sandy ware AS1 (Fig. 1.3, 22). The appearance of flint-tempered and sandy fabrics, along with the lugged vessel, suggests that a slightly later date in the early Iron Age is possible for this pit.

Other pit groups

Pit 4105 was one of a group of recut pits located to the north of the roundhouse complex in Area 3. A single fill (4110) of this feature produced fragments of a flat base, a shouldered jar and a flaring rim bowl, all in fine shell-tempered ware S3. Pit 9181, a sub-rectangular feature in the eastern zone of settlement 4 contained two flat basal sherds in the same ware. Small fragments of flaring rim bowls, all in the same fine crushed shell fabric, came from pit 4575, a recut of 4582 in settlement Area 4, pit 4565 within gully of MIA roundhouse 4180 and 10047, a pit to the south of roundhouse complex 9830/7209/8131.

Posthole groups

Posthole 9422

An internal posthole of post-built structure 9343 in settlement Area 4 contained an assemblage of 100 sherds of pottery (467 g), not a typical group for a posthole. Oolitic and fossil shelly fabrics were represented but the only recognisable form was an upright rim jar. The pottery appears to represent a deliberate secondary deposit and, as such, its inclusion in this feature must indicate either that it was a closing deposit after the post was removed or that the feature was actually a small pit.

Posthole 4189 in middle Iron Age roundhouse 4180 contained a bowl fragment in fabric S3 and a basal sherd in the same fabric, and posthole 5505, part of the porch of roundhouse 5648 in settlement Area 2, contained a rare example of a sandy ware bowl.

Middle Iron Age

Only 66 Middle Iron Age sherds (402 g) were identified from OA excavations (Table 1.11; though see Timby below). This small group is dominated by Jurassic fossiliferous shelly limestone fabrics, as was the case at Claydon Pike Warrens Field (Jones 2007, 43), Thornhill Farm (Timby 2004, 107) and Latton Lands (Edwards 2009, 62). The fact that no Malvernian Palaeozoic limestone-tempered fabrics were identified at Cotswold Community, in contrast to the (albeit small) quantities from the latter three sites, could be due to a hiatus in activity during the later part of the middle Iron Age when these wares began to appear in notable quantities within the region, or, more likely, to the restricted size of the assemblage.

Although it is commonly noted that sandy wares overtake calcareous wares in the Upper Thames Valley during the middle Iron Age (Duncan *et al.* 2004), this trend was not visible at Cotswold Community. Assemblages recovered from the other recently excavated sites in the surrounding area, including Latton Lands, Thornhill Farm and Claydon Pike Warrens Field, also appeared to deviate from this trend, indicating that factors such as local geology and site function and status had a greater influence.

Only eight individual vessels were identified. Ovoid jar fragments with simple undifferentiated rims in calcareous fabric S2 were recovered from pit 5340, close to roundhouse 4180, pit 4181, linear ditch 7096, and waterhole 9485 in the eastern zone of Settlement Area 4 (Fig. 1.5, 34, 35, 36, 38, 39, 40). Another ovoid jar with a slightly shaped rim in oolitic fabric L2 came from posthole 4620. The sole example of a straight-sided vessel (in fabric S3) was found in pit 4181 (Fig. 1.5, 37).

Middle Iron Age pottery from TVAS excavations

by Jane Timby

The archaeological work in 2005 (TVAS excavations Phase 3) resulted in the recovery of 661 sherds of pottery, weighing 2692 g, accompanied by 18 fragments of fired clay. The assemblage largely dates to the middle Iron Age, with a small number of Roman, late medieval and post-medieval pieces (not considered here).

The prehistoric assemblage was sorted into fabrics following the PCRG (1997) guidelines. The assemblage was quantified by sherd count and weight and the data entered onto an MS Excel spreadsheet, a copy of which is deposited with the site archive. The resulting information is summarised in Table 1.12. Very small crumbs were counted and weighed but not sorted into fabrics. Effectively these make up 22.5% by count, emphasising the fairly fragmented condition of much of the pottery. This is in part due

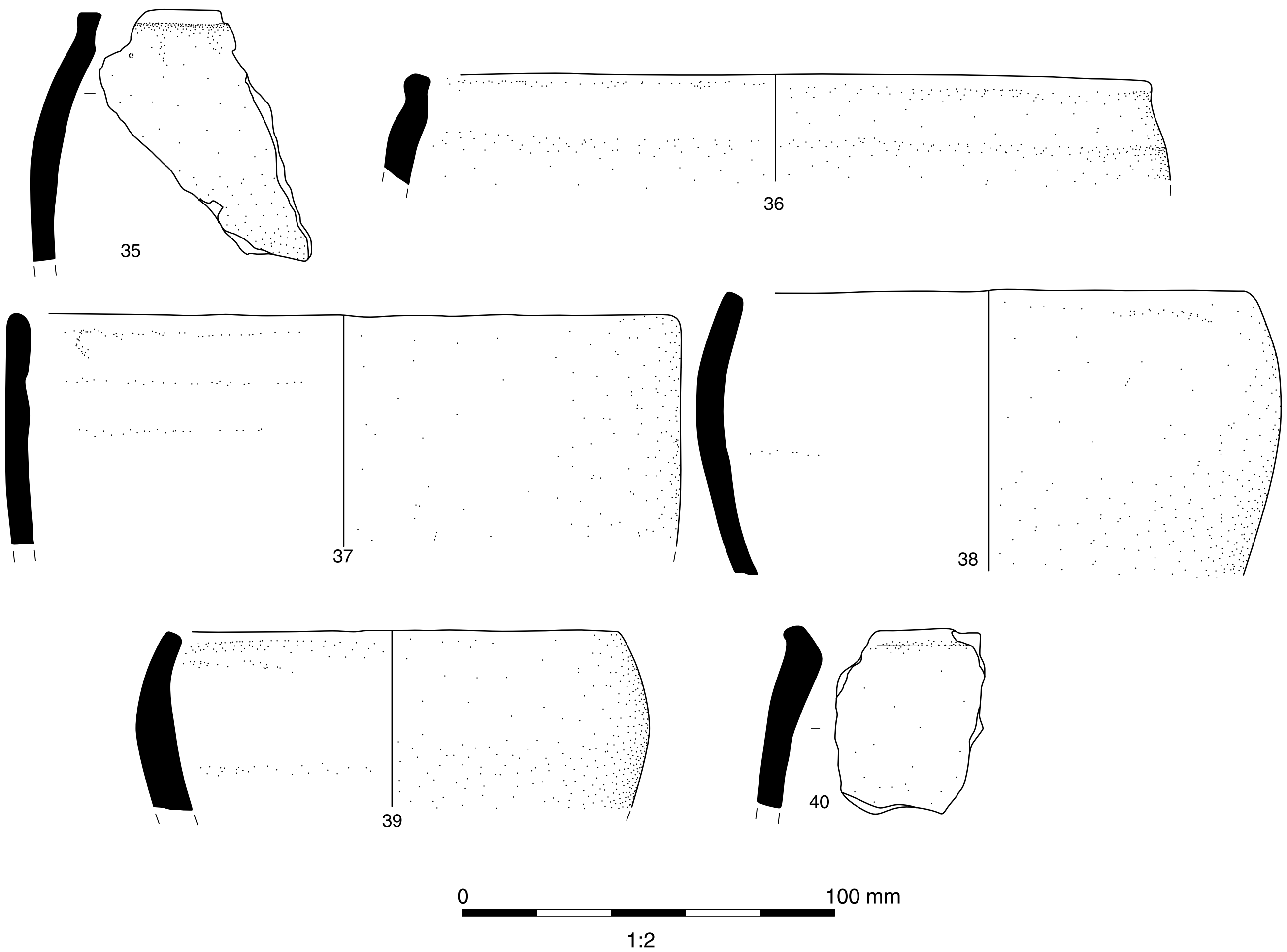

Figure 1.5 Prehistoric pottery 35-40

to the nature of the fabrics, most of which are heavily tempered and low fired, making sherds very friable. The overall average sherd weight is thus only 4 g and the number of diagnostic sherds is very limited. Pottery was recovered from 55 recorded contexts.

Fabrics and form

Later prehistoric sherds account for 97% of the assemblage. These can be divided into two basic groups: calcareous and sandy, which have been divided into seven fabrics on the basis of the frequency, size and type of inclusions.

Calcareous

L1 Coarse rounded fragments of limestone, some crystalline, and fragments of fossil shell and other debris. Represented by a single body sherd.

L2 Contains discrete limestone oolites with other calcareous debris. Three body sherds from gully T116.

SH1 Coarse fossil shell-tempered ware. Featured sherds suggest mainly simple rim slack-sided jars (Fig. 1.5, 41). Two vessels, both from ditch T101, have more shaped rims (Fig. 1.5, 42–43). In some cases the shell has leached out, leaving voids.

SH2 Sparser fragments of generally finer fossiliferous matter including shell, coral and bryozoa. Featured sherds include a necked globular bodied jar.

SH3 Mixed fossil shell and fragments of limestone. A single body sherd from gully T215.

Sandy

SA Coarser sandy ware with grain of glauconitic sand present.

SA2 Fine, slightly micaceous sandy fabric

Discussion

Most, if not all, of the prehistoric assemblage dates to the middle Iron Age period. The fabrics are dominated by the calcareous group of fabrics, in particular the coarse shelly fabric (SH1) that makes up 61% by count and 79.5% by weight of the Iron Age assemblage. Of

Table 1.12 Summary of TVAS pottery by fabric

	Fabric	Description	No sherds	Wt (g)
Iron Age	L1	coarse limestone and fossil	1	6
	L2	oolitic limestone-tempered	1	6
	SH1	coarse shell	386	1833
	SH2	finer sparser fossil shell	74	249
	SH3	mixed shell and limestone	1	12
	SA1	coarse quartz sandy	17	109
	SA2	fine sandy, micaceous	5	27
	OO	crumbs	145	65
Roman	DOR BB1	Dorset black burnished ware	4	22
	SOW WS	Southwest white-slipped	1	69
	SVW OX	Severn Valley ware	4	16
	WIL RE	Wiltshire grey ware	4	67
TOTAL			645	2481

Table 1.13 Summary of TVAS pottery fabrics for main Iron Age features

Gully	*Shell*	*Limestone*	*Sand*	*Crumbs*	*Fired clay*	*Total Number*	*Total Wt (g)*
1000	127	1	14	23	1	166	421
1001	65	0	3	2	0	70	236
1002	37	0	0	54	0	91	174.5
1003	15	0	1	12	0	28	66.5
1004	12	0	0	0	0	12	115
1005	35	0	0	1	1	37	305.5
1006	106	0	3	35	1	145	429
1007	12	0	0	0	0	12	21
1008	3	3	0	0	0	6	29
1009	47	0	1	0	0	48	576
TOTAL	**459**	**4**	**22**	**127**	**3**	**615**	**2373.5**

the sandy wares the glauconitic sandy variant is the most frequent, a ware also typical of the middle Iron Age. There are only seven rims present, no decorated wares and little evidence of surface treatment. In the Thames Valley the proportion of sandy wares tends to increase progressing from the early to middle Iron Age. The low incidence of sandy ware here might suggests that this assemblage dates to the earlier part of the middle Iron Age, possibly around the 3rd-4th century BC.

Table 1.13 summarises the wares from the groups relating to the roundhouses. The largest assemblage came from T1000 with some 166 sherds. The sherds are very fragmented reflected in the average sherd weight of just 2.5 g. This also had the highest percentage of sandy ware. Group T1001 produced 70 sherds with an average sherd weight of 3.4 g and Group T1002, 91 sherds with an average sherd weight of 1.9 g. The droveway, groups T1005 and T1006, produced 37 and 145 sherds respectively. The sherds from T1005 are noticeably larger at 8.2 g compared to 2.9 g from 1006. Groups T1004, T1007 and T1008 produced modest groups of 12, 12, and 6 sherds.

Iron Age pottery from 2006/7 excavations in area of eastern Roman field system (TVAS Phase 4)

Fabrics and forms

L1/2 Medium-coarse rounded fragments of limestone, some crystalline, discrete oolites and fragments of fossil shell and other debris.

SH1 Coarse fossil shell-tempered ware. Featured sherds suggest mainly simple rim slack-sided jars.

SAFL A sandy textured ware with a moderate frequency of ill-sorted, rounded quartz sand, mostly iron-stained and sparse angular flint.

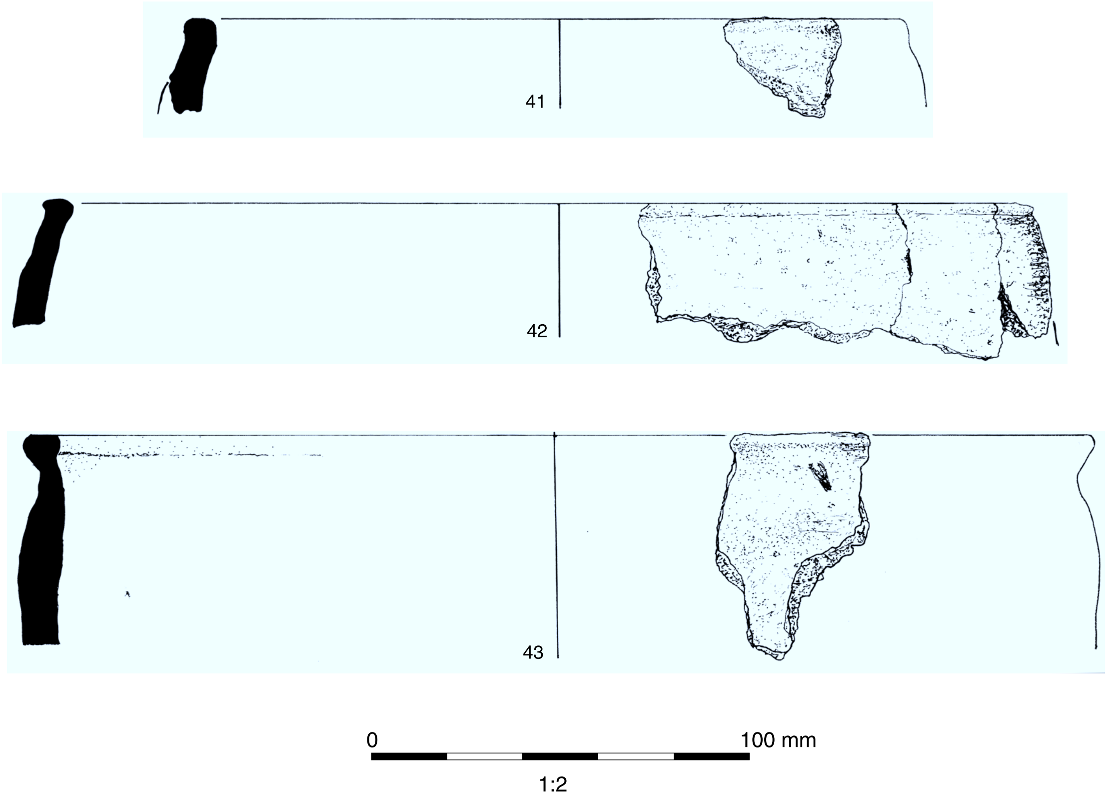

Figure 1.6 Prehistoric pottery 41-43

Later prehistoric sherds account for just 13% of the assemblage, some 60 sherds. Three fabrics are present; two as found in the previously reported Phase 3 assemblage (see above), a coarse shelly ware (SH1) and a limestone-tempered ware (L1/2). Most of the pottery comes from a single jar in fabric SH1 from pit T2003. The third fabric, represented by a single sherd, is a sandy ware with sparse flint (SAFL1) not recorded from earlier work.

In addition to pit 2003, Iron Age pottery was associated with ditches T6, T41, T43 and T2043. The later prehistoric assemblage from the Phase 4 work is very small but is probably broadly contemporary with the larger middle Iron Age group recovered to the south in Phase 3.

CATALOGUE OF ILLUSTRATED SHERDS
(FIGS 1.1–1.6)

1 Upper part of a Mortlake style bowl with complex internally decorated rim. Fabric S1. Pit 10206 (10149).
2 Fengate Ware rim. Fabric S1. Pit 8666 (8655).
3 Peterborough Ware sherd. Fabric S4. Pit 8700 (8698).
4 Peterborough Ware rim with complex whipped cord impressed decoration. Fabric SA1. Pit 8799 (8797).
5 Rim decorated with bone impressions and scored lines. Fabric N1. Pit 9834 (9831).
6 Rim of Impressed Ware vessel with internal and external whipped cord decoration. Fabric F2. SF957. Pit 9959 (9660).
7 Basal sherd with incised concentric circles or spiral motif. Fabric S1. Pit 8799 (8797).
8 Grooved Ware vessel with fingernail impressed decoration. Fabric GL1. Pit 7972 (7971).
9 Grooved Ware, Clacton sub-style vessel. Fabric G1. Pit 5320 (5318).
10 Grooved Ware, probably Durrington Walls sub-style. Fabric AS2. Pit 17667 (17666).
11 Large part of a beaker with zones of cross-hatched decoration. Fabric GL1. Grave 9551 (9575).
12 Comb-impressed Beaker. Fabric GQ1. Pit 2819 (2820).
13 Comb-impressed Beaker with angle profile. Fabric G1. Pit 4401 (4393).
14 Cordoned Bucket Urn, slashed decoration on cordon. Fabric S1. Waterhole 5018 (4900).
15 Barrel Urn. Fabric L1. Fingertip impressed decoration below rim. Pit 8400 (8404).
16 Urn with simple flat-topped rim. Fabric L1. Late Bronze Age. Waterhole 5764 (5480).
17 Large jar with expanded, flattened rim. Fabric S1. Ditch 4253 (4254).
18 Bipartite jar with fingernail impressed rim and shoulder. Fabric S2. Pit 7605 (7566).
19 Bipartite jar with fingernail impressed shoulder. Fabric S2. Pit 7605 (7568).
20 Small, narrow mouth jar with in-turned rim. Unusual form. Fabric S3. Pit 460 (461).

21 Flaring rim bowl. Fabric S3. Pit 460 (461).
22 Carinated jar with horizontal lug handle with dual perforation. Fabric AS1. Pit 9931 (8167).
23 Small carinated bowl. Smoothed outer surface. Fabric S3. Pit 7605 (7568).
24 Bowl with slightly out-flaring rim. Smoothed exterior decorated with incised triangles filled with diagonal lines. Fabric S3. Pit 7605 (7568).
25 Miniature bowl with fingernail impressions below rim and incised diagonal lines on body. Fabric N1. Vessel formed by pulling up sides from knob of clay. Partly smoothed. May be apprentice piece or work of a child. Pit 7605 (7568).
26 Vertical lug handle. Smoothed external surface. Fabric S3. Pit 7605 (7568).
27 Small undecorated carinated bowl with slightly enlarged rim. Fabric S3, reduced. Pit 7605 (7570).
28 Carinated bowl with short flaring rim. Decorated with multiple diagonal lines. Fabric S3, fired to light orange. Pit 7605 (conjoining sherds from 7570, 7573, 7575.
29 Small undecorated carinated bowl. Fabric S3. Fired to light orange. Pit 7575 (7573).
30 Bowl with sharp carination and short flaring rim. Decorated with multiple diagonal incised lines. Smoothed surface. Fabric S3. Pit 9931 (8167).
31 Large, sharply carinated bowl with complex incised decoration of triangles and squares infilled with lines. Smoothed surface. Fabric AS1. Conjoining sherds from medieval furrow 9522 (9491) and pit 9488 (9489).
32 Large bowl with flaring rim, decorated with multiple incised diagonal lines. Fabric S3. Conjoining sherds from medieval furrow 9522 (9491) and Pit 9488 (9489).
33 Jar with upright rim and crude groove below rim. Fabric S2. Pit 10047 (9973).
34 Ovoid jar. Burnished and decorated with double shallow incised horizontal lines below rim. Fabric S3. Waterhole 9485 (9506).
35 Ovoid jar with simple, flattened rim. Fabric S3. 4047 (finds reference).
36 Ovoid jar with shaped rim. Fabric S3. Ditch 4109 (4107).
37 Straight-sided pot. Fabric S3. Pit 4181 (4182).
38 Ovoid jar with plain rim. Fabric L3. Pit 4181 (4184).
39 Small ovoid jar. Fabric S3. Ditch 4363 (4366).
40 Ovoid jar with proto bead rim. Burnished external surfaces. Fabric S2. Pit 5340 (5362).
41 Ovoid jar. TVAS excavations.
42 Ovoid jar with shaped rim. Ditch T101. TVAS excavations.
43 Ovoid jar with shaped rim. Ditch T101. TVAS excavations.

Chapter 2: Late Iron Age and Roman Pottery

By Edward Biddulph

INTRODUCTION

Over 21,500 sherds, weighing 203 kg, were recovered from the excavations. The vast majority came from the 2003 season of fieldwork, with smaller amounts collected in 1999, 2000 and 2002 (Table 2.1). Use of pottery at the site spanned the entire late Iron Age and Roman period. A few context groups were dated to the late Iron Age, but the volume of pottery increased during the mid 1st century AD, with the use of the material remaining at a similarly high level from then on until the end of the Roman period. The condition of the assemblage was mixed; the average sherd weight of 9 g rather suggests a well-fragmented assemblage, and on the whole context groups were small, containing an average of 14 sherds.

In terms of methodology, the assemblage was sorted, within context groups, first into fabrics and then into 'sherd-families' – collections of sherds sharing certain characteristics, such as rims belonging to the same vessel or pieces with particular decoration, or simply a mass of undiagnostic body sherds. Each sherd-family was quantified by sherd count, weight (in grammes) and estimated vessel equivalence (eve), which records the surviving percentage of a complete rim. Vessel types were identified only from rims and given vessel codes from Oxford Archaeology's recording guidelines for late Iron Age and Roman pottery (Booth nd). Where possible, the forms were matched with regional typologies, primarily Gillam's series of black-burnished ware types (1976), Webster's Severn Valley ware typology (1976), and Young's corpus of Oxford region forms (1977), with *Camulodunum* series (Hawkes and Hull 1947; Bidwell and Croom 1999) and standard samian ware typologies (cf. Webster 1996) also proving useful. The assemblage was given fabric codes from the OA guidelines, cross-referenced to the National Roman Fabric Reference Collection (Tomber and Dore 1998) where possible.

Table 2.1 Quantification of late Iron Age and Roman pottery by fieldwork event

Event	Sherds	Weight (g)
SKCC 99	742	7779
SKCC 00	30	176
SKCC 02	14	84
SKCC 03	20826	194626
Total	21612	202665

FABRICS

Amphora fabrics

A10 Miscellaneous buff fabrics
A11 **(BAT AM 1 and BAT AM 2)** South Spanish
A13 **(GAL AM 1)** South Gaulish
A35 (**CAM AM 1)** Campanian 'black sand' fabric

Black-burnished wares

B10 Handmade black-burnished ware, category 1. Includes **DOR BB 1** Dorset fabric
B30 Imitation black-burnished-type fabrics, usually wheelmade

Shelly/calcareous-tempered wares

C10 Miscellaneous shell-tempered fabrics
C11 Late shell-tempered fabrics. Includes **HAR SH** Harrold fabric
C20 Miscellaneous limestone-tempered fabrics

Late Iron Age/early Roman wares

E20 Fine sand-tempered fabric
E40 Shell-tempered fabrics
E50 Limestone-tempered fabrics
E60 Flint-tempered fabrics
E80 **(SOB GT)** Grog-tempered fabrics

Fine wares

F31 Fine oxidised mica-dusted ware, local (cf. Green and Booth 2007, CD-Rom section 3.2.3)
F43 **(CNG BS)** Central Gaulish 'Rhenish' ware
F44 **(MOS BA)** East Gaulish 'Rhenish' ware/ Moselkeramik
F45 **(KOL CC)** Lower Rhineland/Cologne colour-coated ware
F51 **(OXF RS)** Oxfordshire red colour-coated ware
F52 **(LNV CC)** Nene Valley colour-coated ware
F53 New Forest colour-coated ware, white or grey fabric, cf. **NFO RS 2**
F54 **(NFO CC)** New Forest colour-coated ware ('stoneware')
F55 **(COL CC 2)** Colchester colour-coated ware
F60 Miscellaneous red/brown colour-coated fabrics
F61 South-western brown-slipped ware, ?Cirencester

F62 Sandy oxidised red/brown colour-coated ware, grey core (cf. Green and Booth 2007, CD-Rom section 3.2.3)
F63 Fine sandy oxidised red/brown colour-coated, grey core (cf. Green and Booth 2007, CD-Rom section 3.2.3)
F67 North Wiltshire colour-coated ware (Anderson 1979)

Coarse-gritted wares

G21 **(MAL REA)** Malvern igneous rock-tempered fabric

Mortarium fabrics

M20 Miscellaneous white fabrics
M22 **(OXF WH)** Oxfordshire white ware
M23 **(MAH WH)** Mancetter/Hartshill white ware
M24 **(LNV WH)** Nene Valley white ware
M29 **(COL WH)** Colchester buff ware
M31 **(OXF WS)** Oxfordshire white-slipped oxidised ware
M32 **(SOW WS)** Cirencester/South-west white-slipped oxidised ware
M41 **(OXF RS)** Oxfordshire white-slipped oxidised ware

Oxidised wares

O Unidentified oxidised fabrics
O10 Miscellaneous fine oxidised fabrics
O11 Oxfordshire fine oxidised ware
O20 Miscellaneous sandy oxidised fabrics
O24 **(OVW WH)** Portchester D type/Overwey white ware
O30 North Wiltshire oxidised wares
O34 Sandy oxidised ware (cf. Green and Booth 2007, CD-Rom section 3.2.3)
O40 **(SVW OX 2)** Severn Valley oxidised ware
O46 Very fine fabric with sparse white calcareous specks; dark grey core and pink-orange surfaces
O50 Miscellaneous oxidised fabrics
O60 Miscellaneous calcareous-tempered oxidised fabrics
O80 Coarse-tempered oxidised fabrics. Usually grog-tempered fabrics used for storage jars
O81 **(PNK GT)** Pink grogged ware

White-slipped wares

Q20 Miscellaneous white-slipped oxidised fabrics
Q22 **(SOW WS)** Cirencester/South-west white-slipped oxidised ware
Q30 Miscellaneous white-slipped reduced fabrics
Q50 Miscellaneous fine oxidised fabrics

Reduced wares

R10 Miscellaneous fine grey wares
R11 **(OXF FR)** Oxfordshire fine grey ware
R16 **(UPC FR)** North Kent/Upchurch fine grey ware
R101 Very fine fabric with sparse white calcareous specks, as O46. Dark grey core, thin, light-grey margins, grey surface
R29 Grey ware with moderate-common large rounded glassy quartz grains (cf. Green and Booth 2007, CD-Rom section 3.2.3)
R30 Miscellaneous sandy grey wares
R35 North Wiltshire sandy grey ware
R37 West Oxfordshire fine sandy grey ware, with occasional black iron, grog and organic inclusions
R38 West Oxfordshire sandy grey ware. As R37, but coarser with distinct grog inclusions
R39 **(ALH RE)** Alice Holt sandy grey ware
R48 New Forest grey ware (Fulford 1975, 85)
R49 Severn Valley grey ware
R50 Miscellaneous black-surfaced wares
R70 Miscellaneous calcareous fabrics
R85 South-western micaceous grey wares (cf. Timby 1999, fabric TF5)
R90 Coarse-tempered 'storage jar' fabrics
R95 **(SAV GT)** Savernake grog-tempered ware

Samian wares

S Unidentified samian wares
S20 **(LGF SA)** South Gaulish, La Graufesenque
S30 **(LEZ SA 2)** Central Gaulish, Lezoux
S32 **(LMV SA)** Central Gaulish, Les Martres de Veyre
S40 East Gaulish, including **RHZ SA** Rheinzabern and **TRI SA** Trier

White wares

W10 Miscellaneous fine white wares
W11 **(OXF PA)** Oxfordshire parchment ware
W12 **(OXF WH)** Oxfordshire fine white ware
W20 Miscellaneous sandy white wares
W23 Oxfordshire burnt white ware
W30 Imported fine white fabrics

Unidentified

Z Unidentified

COMPOSITION OF THE ASSEMBLAGE (TABLE 2.2)

Amphorae

Amphora fabrics represented less than 1% of the assemblage by sherd count. South Spanish fabrics (A11), typically dating from the mid 1st to mid 3rd centuries, were commonest; most sherds were

Table 2.2 Quantification of late Iron Age and Roman pottery fabrics

Fabric	Sherds	Weight (g)	Minimum no. vessels (MV)	EVE
A Amphora fabrics				
A10	3	67		
A11	70	5396	4	0.89
A13	9	900		
A35	5	763	1	0.3
B Black-burnished wares				
B10	4039	30471	449	36.71
B30	1468	12010	181	17.00
S Shelly/calcareous-tempered wares				
C10	150	433	3	0.12
C11	58	541	13	1.08
C20	35	356	7	0.67
E Late Iron Age/early Roman wares				
E20	40	228	3	0.37
E40	609	4113	31	2.35
E50	937	5734	41	4.53
E60	163	2476	14	1.11
E80	1991	19302	172	18.58
F Fine wares				
F31	9	20	1	0.11
F43	4	30		
F44	7	20		
F45	3	3		
F51	239	2631	34	4.58
F52	36	795	4	0.57
F53	7	53		
F54	5	241		
F55	6	5	1	0.08
F60	22	149	2	1.08
F61	3	10		
F62	7	105	1	0.03
F63	43	460	2	0.31
F67	89	1819	9	1.17
G Coarse-gritted ware				
G21	756	3869	40	3.21
M Mortarium fabrics				
M20	1	5	1	0.04
M22	25	1147	8	1.02
M23	9	424	2	0.44
M24	6	593	2	0.58
M29	1	53	1	0.07
M31	17	478	3	0.25
M32	4	263	4	0.32
M41	19	233	4	0.28
O Oxidised wares				
O	16	31		
O10	144	445	9	0.68
O11	2	14	1	0.1
O20	208	995	13	1.08
O24	1	12	1	0.05
O30	787	6324	40	5.02
O34	9	43		
O40	832	6367	79	9.39
O46	40	415	1	0.33
O50	2	31		
O60	6	23	1	0.1
O80	117	2559	4	0.5
O81	37	1249	3	0.22
Q White-slipped wares				
Q20	5	145	1	0.13
Q22	72	546	4	3.03
Q30	2	11		
Q50	1	2	1	0.1
R Reduced wares				
R10	87	692	11	0.76
R11	15	79	1	0.4
R16	10	54	1	0.17
R101	21	158	4	0.44
R29	12	284		
R30	677	4709	87	7.72
R35	5438	47226	540	60.33
R37	11	190	1	0.18
R38	3	15	1	0.07
R39	2	13		
R48	17	186	1	0.3
R49	8	96	2	0.22
R50	809	4147	80	5.78
R70	14	306	5	0.44
R85	157	2022	18	2.11
R90	176	5369	7	0.92
R95	687	18896	63	6.89
S Samian wares				
S	1	1		
S20	74	482	18	1.31
S30	116	1096	24	1.57
S32	4	137	2	0.16
S40	34	414	11	0.94

Table 2.2 Quantification of late Iron Age and Roman pottery fabrics (continued)

Fabric	Sherds	Weight (g)	Minimum no. vessels (MV)	EVE
W White wares				
W10	1	1		
W11	10	305	4	0.44
W12	3	43		
W20	11	197		
W23	10	88	2	0.23
W30	2	30		
Z Unidentified				
Z	27	22		
TOTALS	21612	202665	2079	209.96

attributable to Dressel 20 olive oil containers, though a Haltern 70 olive oil or *defrutum* amphora was represented by a base sherd. South Gaulish amphora fragments (A13) were recorded to a lesser extent. No forms were recognised, but the pieces correspond most closely to Gauloise wine amphorae and Haltern 70 and carry a date range similar to that of South Spanish vessels. Arriving earlier than these was at least one Campanian Dressel 1 wine amphora (A35), as indicated by a rim, which reached the site during the 1st century BC The distinctive black sand-tempered fabric was also recorded as body sherds, which may form part of other Dressel 1 vessels or, alternatively, Dressel 2-4 wine amphorae, which would have arrived during the 1st century AD. The occurrence of Dressel 1 here is not isolated in the region; the amphora was also recorded at Ashton Keynes (cf Coe *et al.* 1991, 46), Watchfield (Laidlaw 2002, 255), and Latton Lands (Stansbie 2009).

Black-burnished wares

Handmade black-burnished wares (B10) took an important share of the entire assemblage, totalling 19% by sherd count. Much of this is likely to have originated in Dorset. Oval-bodied, everted-rim cooking jars were seen most frequently, accounting for 67% of the vessels recorded in the fabric category by EVE. These were available at the site from *c* AD 125 to the end of the fabric's exporting period in the second half of the 4th century. The remaining vessels were dishes, predominantly plain-rimmed curving-sided dishes (eg Gillam (1976) type 77) straight-sided bead-and-flanged dishes (eg Gillam types 45-49). These were found largely in late Roman deposits, though typically earlier forms, such as bead-rimmed (or more properly flanged) dishes were available from the mid 2nd century. Wheel-made black-burnished wares (B30) never seriously competed with the Dorset-manufactured pottery, contributing just 8% to the assemblage. This is despite the fact that this group of wares was available from the mid 2nd century onwards and its source was probably local; it appears, for example, at Claydon Pike and Cirencester (Green and Booth 2007, CD-Rom section 3.2.3; Cooper 1998). Unsurprisingly, given the nature of wheel-made black-burnished wares, a similar range of forms to that of B10 was recorded. However, jars and dishes were, in contrast, equally represented.

Shelly/calcareous-tempered wares

This group of wares contributed 1% to the assemblage by sherd count. Late shell-tempered ware (C11) was the best represented within the group in terms of vessels. These were identified exclusively as oval-bodied necked jars (cf Going 1987, type G27) of the sort characteristic of East Midlands pottery industries, most notably at Harrold, Bedfordshire, where the vessels were likely to have originated (Brown 1994). It is unlikely that late shell-tempered ware arrived before the 4th century. Shelly wares were available in earlier periods, but in small amounts. The source of these is uncertain, but the material could be regarded as representing a reintroduction of local Iron Age traditions, or perhaps a local competitor for East Midlands products. Three vessels were recognised: two jars – one being a simple necked medium-mouthed jar – and a curving-sided bowl with a flat-topped, internally beaded rim dating to the 4th century, a type usually seen in late Roman fabrics, such as Overwey ware. Limestone-tempered ware (C20), too, re-emerged in the later Roman period. The few limestone-tempered products present were unlike the range of fabrics and forms seen in the Iron Age and early Roman period, and their manufacture appears to have been in response to the dominance of Dorset black-burnished ware. Most occurrences were in mid Roman or later deposits, and two bead-and-flanged bowls or dishes and an everted-rim cooking-pot type jar were among the seven vessels represented. The fabric possibly originated in the Malvern area, like G21 (see below).

Late Iron Age/early Roman wares

A little over 17% of the assemblage by sherd count was identified as late Iron Age or early Roman. The largest proportion of this group with 10% was grog-tempered wares (E80). This represented something of a catch-all category and included fabrics that also contained limestone, shell, or sand. In all cases, however, grog was the principal component, the mixed nature of the fabrics on the whole pointing to local manufacture. Most of the 172 vessels (some 90% by vessel count) were jars, of which 70 were high-shouldered, necked jars (including *Cam* 218 and 220). The form was a typical element of 'Belgic' assemblages of south and south-eastern Britain (cf. Hawkes and Hull 1947; Thompson 1982), and was introduced to the region in grog-tempered wares during the early 1st century AD, as witnessed at Thornhill Farm (Timby 2004, 107), continuing for a time beyond the conquest. About as many vessels had broken just below the rim and so could not be assigned to type, but in any case were more likely to be this form than the bead-rimmed, barrel-shaped, or globular jars (cf. *Cam* 252) that were also present. More late Iron Age forms of 'Belgic' tradition were present in the form of a relatively fine carinated bowl (*Cam* 211) and two platters. But overall, the functional range is very limited, and in that respect the grog-tempered assemblage retained its links with jar-orientated local early and middle Iron Age ceramic traditions.

This much is evident when limestone-tempered wares (E50) and shell-tempered wares (E40) are considered. Evidence from Thornhill Farm and other sites in the region suggests that both wares were replaced by grog-tempered pottery in the early 1st century AD (Timby 2004, 107). This is borne out by their occurrence at Cotswold Community. Of the 29 context-groups that contained identifiable shell-tempered vessels, only nine also contained grog-tempered vessels. Similarly, limestone-tempered vessels were found alongside grog-tempered vessels in just seven out of 39 context-groups. Put simply, limestone and shell-tempered wares were not generally associated with grog-tempered pottery, and this points strongly to their use ending as grog-tempered ware was introduced. As a result the range of forms is different from that seen in grog-tempered ware and reflects earlier traditions. Limestone-tempered ware contributed a minimum of 41 vessels to the assemblage as a whole. All but three were jars, and among these barrel-shaped jars, globular jars and bead-rimmed jars dominated; high-shouldered necked jars were less frequent. But while jars of a 'Belgic' tradition were relatively scarce, the fabric was used occasionally for finer vessels, including two *Cam* 211 carinated bowls. The range of vessels available in shell-tempered ware (E40) was similar to that of fabric E50, though in this case no classes other than jars were represented. Bead-rimmed and barrel-shaped jars were most common.

Flint-tempered ware (E60), relatively uncommon at the site, the use of flint having largely disappeared by the middle Iron Age, was again available mainly as jars – high-shouldered necked jars, barrel-shaped jars, bead-rimmed jars, and narrow-necked jars are all represented – although a curving-sided bowl was also recorded. Sand-tempered 'Belgic type' fabrics (E20) were rarer still, and three vessels, a curving-sided bowl, a barrel-shaped jar, and a high-shouldered necked jar, were recognised.

Fine wares

This category took a 2% share of the assemblage by sherd count and was predictably dominated by extra-regional industries, that of the Oxford region being the most important. Oxford red colour-coated ware (F51) accounted for almost half of the finewares. The ware does not appear to have arrived in quantity until after AD 270. Apart from a mortarium (Young (1977) type C97), which reached the site before this date, dish forms Young C45 and C48 (copies of samian forms Drag. 31 and 36 respectively) and jar C18 represented the vanguard of arrivals in the late 3rd century. These were supplemented in 4th century contexts by flanged bowl C51 (copying Drag. 38), deep bead-rimmed bowl C68, carinated bowl C81, and flagon C8, which were joined by bowl C82 after 350.

The market for fine wares was also served by North Wiltshire potters. Their colour-coated ware (F67) could not compete with the Oxford fine ware – it amounted to a third of the total sherd count for F51 – but in any case the range of products suggests that the potters preferred to fill a gap in the market, rather than challenge the Oxford industry directly. Six of the nine vessels identified were beakers, almost exclusively funnel-necked globular forms (cf Young type C27); in contrast, beakers as a class were scarcely represented in Oxford colour-coated ware. As the forms find parallels in the Oxford repertoire (a flanged bowl resembling Young C51 was also collected), a relationship between the two industries is suggested, possibly involving the movement west of potters from Oxford. This would also help to explain the care that the Wiltshire potters took to avoid competition. A further indication is provided by a large beaker or, rather, a beaker-shaped jar, from context 17339 (Fig. 2.7, 95). The very fine sandy fabric and grey core is almost identical to Oxfordshire wares, the vessel being distinguished mainly by surface appearance, hinting at a common method for clay preparation and firing.

Other fairly local fine wares were represented by fabrics F62 and F63. Along with F61, these seem likely to belong to the family of south-western brown slip wares produced in the North Wiltshire and south-east Gloucestershire region centred at Cirencester, and to be related to the group of south-west white-slipped oxidised wares (see M32 and Q22). That said, the Oxford-region industry appears to have provided the inspiration for forms, with a Young C8-type flagon and C81-type carinated bowl found in fabrics F63 and F62 respectively. Overall, this group of fine wares was scarce at Cotswold Community, a situation that was mirrored at nearby Claydon Pike (Green and Booth 2007, CD-Rom section 3.2.3).

Other extra-regional industries responsible for fine wares, in order of importance, were the Nene Valley, the New Forest, and Colchester. These were not seen in high numbers, being somewhat at the edge of their distribution. The four vessels recorded in Nene Valley colour-coated ware comprise two bead-and-flanged dishes, these being the mainstay of the 4th-century industry (Perrin 1999, 104), a bead-rimmed bowl, and a 'castor box'. New Forest colour-coated ware, arriving after AD 250, was represented by body sherds only. A Colchester colour-coated bag-shaped beaker (*Cam* 361) reached the site earlier in the mid 2nd century. Local potters producing fine mica-dusted ware (F31), a fabric also present at Claydon Pike, may have based some of its repertoire on the Colchester output, as a bag-shaped beaker of *Cam* 361 type was recovered.

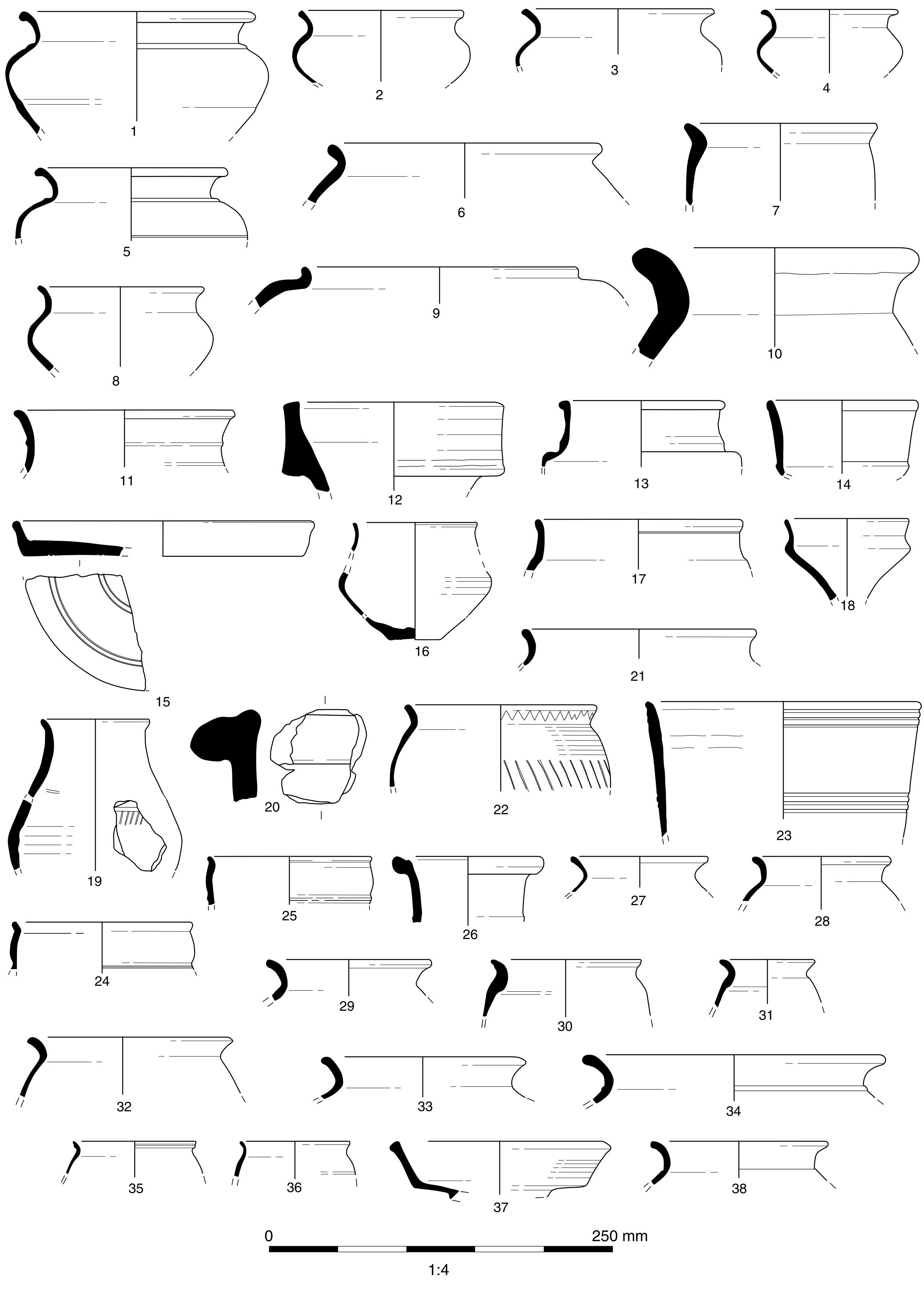

Figure 2.5 Roman pottery 1-38

Continental imports apart from samian ware were occasional arrivals. Central and East Gaulish 'Rhenish' wares (F43 and F44) reached the site during the late 2nd or first half of the 3rd century; no forms were identified by rims, though all fragments no doubt belong to beakers. Lower Rhineland colour-coated ware (F45) arrived a little earlier in the mid 2nd century. Again, no rims were recovered, but roughcast body sherds represent bag-shaped beakers.

Coarse-gritted wares

This ware category is restricted to Malvernian rock (limestone)-tempered ware (G21), which takes a 3% share of the assemblage by sherd count. The ware emerged in the middle Iron Age and continued in use in the region into the 2nd century AD (Timby 1999, 322). A limited range of forms was recorded, and this matches the ware's standard types. Handmade cooking jars with barrel or globular shaped bodies and thickened everted rims dominated. A large bowl with a hammer or flanged rim (Fig. 2.5, 20) was more unusual, though the type is recorded at Thornhill Farm in another Malvernian fabric (C21; Timby 2004, 93). Occurrences there date to the 1st century BC to the mid 1st century AD; the example from Cotswold Community was recovered from context 14279 that dated to the second half of the 1st century AD.

Mortaria

This ware group took a share of less than 1% by sherd count. The majority of vessels – 14 out of 24 – were Oxford-region products that reached the site after the mid 3rd century. Mortaria in the white ware fabric (M22) appeared most frequently, and almost exclusively as Young type M22, distinguished by its tall upright bead and stubby flange. One example of an earlier type, M2, was also recorded, but in late Roman deposit 13190, and it is possible that the vessel arrived as an 'antique', albeit one that had been well-used, judging by the burning on its rim (see below). Oxford red colour-coated mortaria (M41) arrived after 270, first in the form of the wall-sided C97, then in the 4th century as C100, a vessel with tall upright bead and angular flange. White-slipped oxidised mortaria (M31) were represented by Young types WC5 and WC7, both identifiable by their tall upright beads and drooping flanges. These appear to have been present from the second half of the 3rd century, but one vessel was recovered from a deposit (11732) dating after 350, suggesting that the fabric was among the latest arrivals at the site.

This is not to say that the settlement's inhabitants did not acquire mortaria before the late Roman period, and up till then the admittedly limited demand was satisfied by other extra-regional manufacturers. A hammerhead *Cam* 499 mortarium (cf. Going 1987, type D11) in Colchester buff ware (M29) is a particularly rare find in the region, being outside its normal distribution (although trading links had already been established for Colchester colour-coated ware); the single vessel arrived in the late 2nd or early 3rd century. More usual were white-ware mortaria from the Mancetter-Hartshill industry, which supplied at least two bead-and-flanged vessels to the site in the mid 2nd century. As frequent, though arriving later in the second half of the 2nd century or first half of the 3rd, were south-west white-slipped oxidised ware mortaria (M32). Forms were mainly bead-and-flanged types – one featured a stamped roundel (Fig. 2.6, 57) – and a wall-sided mortarium was also present. Given its probable source between Cirencester and Wanborough (Hartley and Tomber 2006, 109), the ware seem rather under-represented, although the general paucity of mortaria at the site suggests that site status is a factor here (see below). Two Nene Valley white ware mortaria (M24) were recovered (Hartley and Perrin 1999, types M22 and M31), both arriving in the late Roman period.

Oxidised wares

Ten per cent of the assemblage by sherd count comprised oxidised wares. Two fabrics dominated the group: Severn Valley oxidised ware (O40) and North Wiltshire oxidised ware (O30). Both in reality encompassed a range of fabric variants. Sherds belonging to the former varied in fineness and could include grog and charcoal, as well as fine sand (cf Timby 2004, 181). Over half of Severn Valley ware vessels by EVE were jars; these were mainly wide-mouthed jars (Webster 1976, types C19-21), though storage and bead-rimmed jars (Webster 1976, classes A and B) were also collected. Tankards (Webster 1976, class E) and flagons (mainly ring-necked), both among the principal products of the industry, were well-represented; each accounted for some 20% of Severn Valley ware vessels by EVE. Flanged bowls (Webster 1976, class F) were present to a lesser extent. Platters, carinated bowls, and copies of samian ware forms were present in small numbers. Severn Valley ware was available throughout the Roman period, though supply was strongest in the 1st and 2nd centuries. North Wiltshire oxidised ware comprises a range of generally medium-sandy fabrics, often with a grey core and streaky orange surfaces. Sources are likely to include Whitehill Farm, near Swindon, but relatively high volumes of the ware at Gloucester and Cirencester (cf. Timby 1999, 343) hint at other production sites in the region. As at those sites and others, for example at Birdlip Quarry (ibid.), the ware was best represented in 2nd- and 3rd-century deposits at Cotswold Community. Jars accounted for over half of the vessels by EVE. Oval-bodied necked jars were the most frequently recorded of these, but wide-mouthed jars also recovered suggest that potters imitated Severn Valley ware forms, a suspicion heightened by the presence of tankards and flanged bowls or dishes. Fabric O34, recognised at Claydon Pike, may be regarded as fitting the tradition of North Wiltshire oxidised ware, perhaps with production centred reasonably close to Claydon Pike or generally in south Gloucestershire.

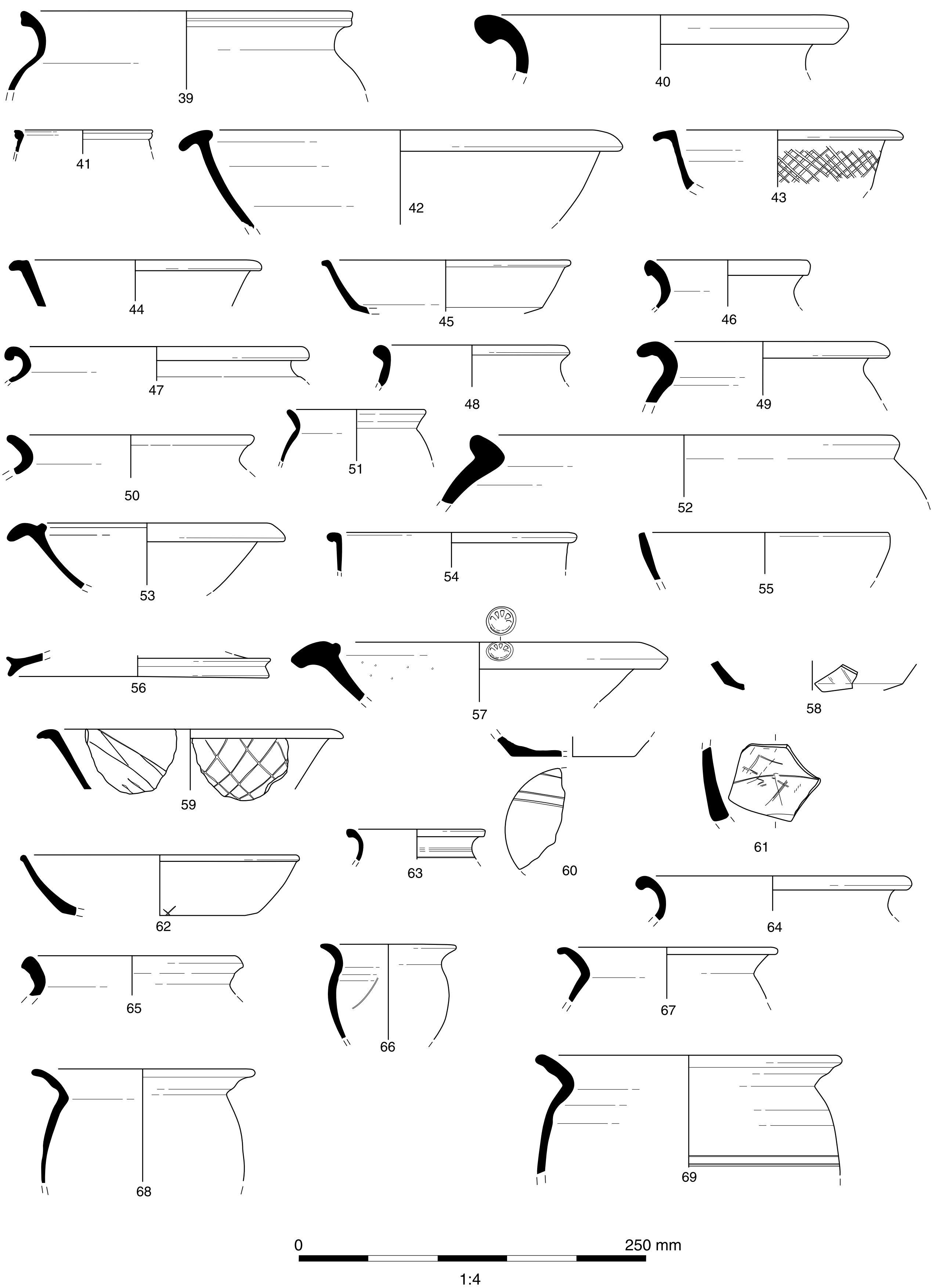

Figure 2.6 Roman pottery 39-69

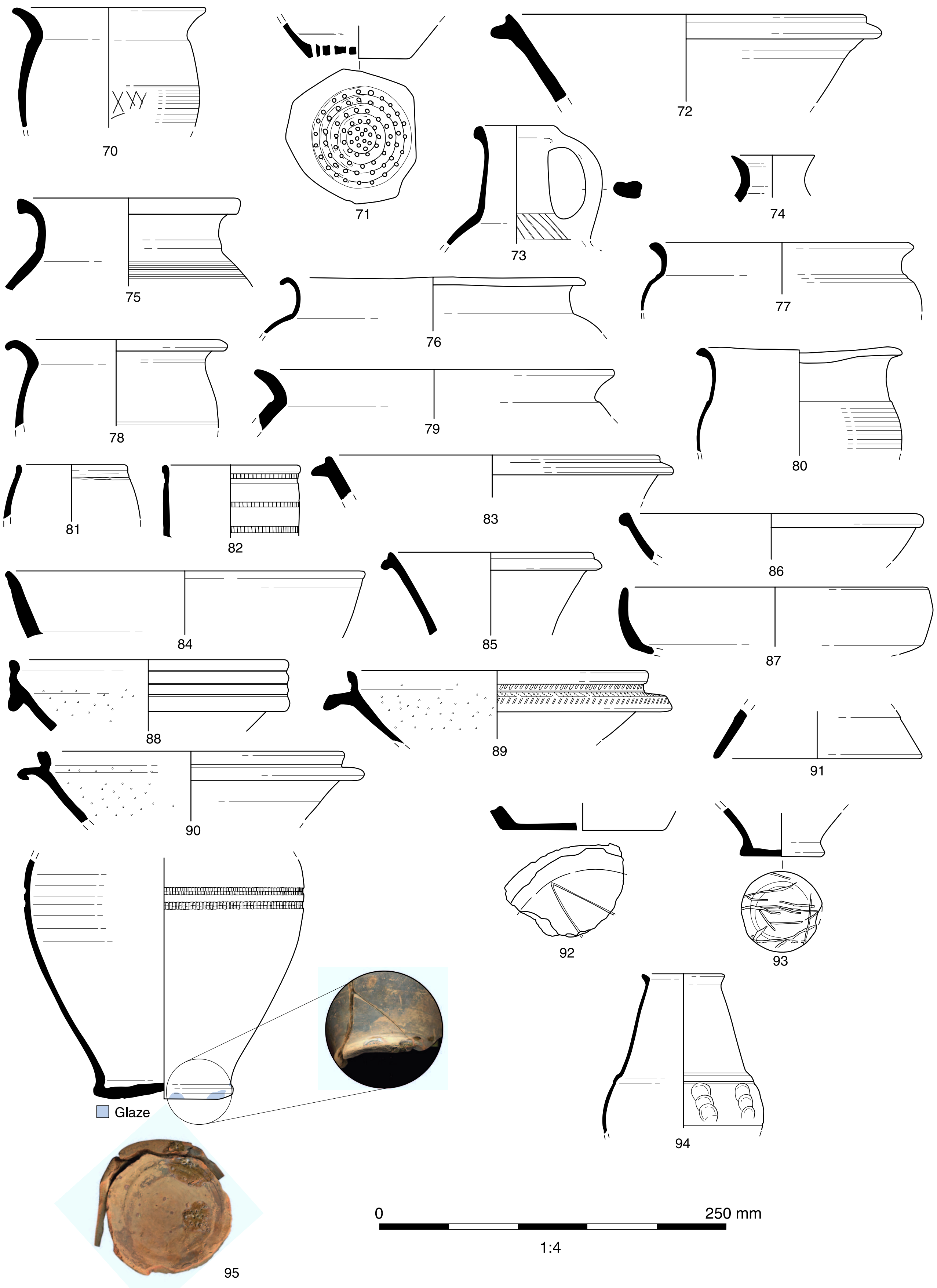

Figure 2.7 Roman pottery 70-95

Pink-grogged ware (O81), characterised by pink/orange surfaces and dark grey core, was manufactured in the Stowe and Towcester area from the second half of the 2nd century to the first half of the 4th (Taylor 2004, 60). Its occurrence at Cotswold Community was exclusively as storage jars. Little of the ware was found; it accounted for less than 1% by sherd count, and more fragments may be hidden within fabric O80, the general oxidised coarse-tempered ware category. However, the proportion present more-or-less matches that attained at Claydon Pike, and so seems to be within expected regional levels.

Much of the fine oxidised ware (O10) was presumably of local origin, though occurrences may include Oxfordshire fabric O11, which is otherwise poorly represented. Fabric O10 was reserved mainly for beakers; a flagon and a flanged bowl (cf. Young O32) were also recorded. Fabric O46 was a very fine micaceous oxidised ware with a dark core (Timby 2004, 182). Superficially it resembled North Kent/'Upchurch' oxidised ware (Monaghan 1987), but was set apart by the provision of sparse calcareous – probably limestone – fragments. The ware was recovered in small quantities from Thornhill Farm, Roughground Farm, and Claydon Pike, suggesting that production was local. Just one form was identified, a butt-beaker that pointed to early Roman manufacture. The remaining oxidised ware of note was Tilford/Overwey ware or Portchester 'D' ware (O24) that arrived during the 4th century. An oval-bodied necked jar, a standard type in the fabric, was recorded. The ware remains a rarity in the region, and only a few sites, including Watchfield (Biddulph 2004, 308) and Cirencester (Cooper 1998) are known to have received it.

White-slipped wares

This category accounted for less than 1% of the assemblage by sherd count, but as might be expected, most if not all was of local origin. South-west white-slipped oxidised ware (Q22) was chief among the fabrics. Ring-necked flagons arrived with the mortaria during the later 2nd century, and were joined by a wide-mouthed jar, a form attested at Cirencester (Cooper 1998, fig. 203.71).

Reduced wares

Coarse reduced wares took a 38% share of the assemblage by sherd count. Local wares dominated. North Wiltshire sandy grey ware (R35) was the largest single fabric group in the category. Like O30, its oxidised ware equivalent, R35 encompassed a range of fabric descriptions, though generally could be defined as medium sandy fabrics with pimply or streaky blue-grey surfaces. Jars were by far the commonest vessel class, taking a share of 90% by EVE. Some 40% of vessels were the standard medium-mouthed, oval-bodied, necked jars, which were produced throughout the Roman period, although they were used mainly from the 2nd century onwards. Wide-mouthed jars were also well-represented, amounting to 10% of vessels in the fabric These had a more restricted date range compared with medium-mouthed jars, emerging essentially after AD 125 and having a strong late Roman emphasis, with over 50% of occurrences being recovered from late Roman deposits. Usually, wide-mouthed jars were versions of Young R38 type, though a number of examples more closely resembled a range of so-called 'bowl-jars' recorded at Chelmsford (Going 1987, 22), in particular E5 and E6 types, which carry late Roman dates. Narrow-necked jars or flasks were almost as popular as wide-mouthed jars, and like wide-mouthed jars were recovered exclusively from mid and late Roman deposits. Other jars played only a minor role in the R35 assemblage; the four high-shouldered necked jars and one bead-rimmed jar present – standard early Roman forms – help to confirm that the pottery in the fabric was manufactured in quantity only after AD 125. Just 3% of vessels in R35 by EVE were beakers. Bag-shaped, globular, poppyhead, and 'jar'-beaker types were recorded, but in small numbers. Bowls were also few in number; some of those identified appear to have been based on Oxfordshire prototypes, including Young types R48, R57 and R58. Dishes were marginally better represented at 4%; plain-rimmed (with and without grooves), bead-rimmed, and bead-and-flanged rimmed dishes were recorded, with the last of these being most frequently identified, again giving the fabric a late Roman emphasis.

The forms seen in R35 were largely repeated in fabric R30, a general grey ware category that accounted for 3% of the entire assemblage by sherd count. However, the proportions of forms varied; medium-mouthed necked jars, for example, took a 17% share of vessels in R30, while black-burnished ware type cooking pots, barely represented in R35, took a 15% share in R30. Dishes, too, were more frequent, contributing 25% of R30's forms. This has implications for sourcing both R35 and R30. The latter is likely to have been produced locally and seems to have satisfied a market for vessels copying black-burnished ware prototypes that producers of R35 did not supply in any number. Given its sheer volume, R35 cannot have travelled far, but was essentially a specialist ware, used largely in the production of medium-mouthed jars.

Since R35 was mainly a mid and late Roman ware, the gap in the early Roman period was filled by black-surfaced wares (R50), which were used largely in the 1st and 2nd centuries and may be seen as a continuation of 'Belgic' ware traditions well into the Roman period. Black-surfaced ware is something of a catch-all category, encompassing a range of essentially local fabrics that do not differ substantially from R30 or R35, except for their black, rather than grey, surfaces. The validity of separating them, however, is borne out by the forms that were available. The ubiquitous medium-mouthed necked jar was well-represented – contributing 17% of the vessels in R50 by EVE – but this was joined by the early Roman high-shouldered necked jar, which accounted for 11%. Tellingly, wide-mouthed jars were absent. Beakers were scarce, as they were in R35 and R30, but the only type recognised was a butt-beaker, another 1st-century form. Similarly, early Roman platters, which accounted for less than 1% of R35 vessels by EVE, contributed 6% of black-surfaced ware vessels; the vessels generally conformed to *Cam* 32 type. Conversely, just one late Roman bead-and-flanged dish was recorded in R50 (although some caution is necessary here; later Roman black-surfaced ware dishes may have been recorded as imitation black-burnished ware (B30), and so the later Roman component of R50 may be under-represented).

Savernake ware (R95) was another important category, taking a 3% of the entire assemblage by sherd count. Storage jars accounted for most of the vessels, though globular jars were also well-represented. Fabric R90 in which storage jars were available was probably a local version of Savernake ware. South-western micaceous grey ware (R85) made a small, but expected, contribution. The fabric was recorded at, for example, Claydon Pike (cf. Green and Booth 2007, CD-Rom section 3.2.3) and at Birdlip Quarry, north of Cirencester, as well as Cirencester itself (Timby 1999, 343, 357). The proportion at Cotswold Community, 1% by sherd count was smaller than the 2% recovered from these sites, but the generally low amounts recorded in the region suggests that its source lay elsewhere; Timby (1999, 357) notes that considerably larger amounts were recovered from Uley and Kingscote, and so its source may be in that area, some 30 km west of Cirencester. The fabric was recovered from deposits dated to the second half of the 2nd century, but was commonest after 250. Forms were based on black-burnished ware prototypes, with cooking pots and bead-and-flanged dishes dominating.

Other grey wares made much smaller contributions to the assemblage. Fine grey ware (R10) was mainly restricted to fine bowls (Young R64 or R68 type) copying samian ware forms Drag 30 and 37, while a neckless globular beaker with everted rim (Young R31) was available in Oxfordshire fine grey ware (R11). A grey ware equivalent to oxidised fabric O46 was recorded; fabric R101, similarly distinguished by a dark core and micaceous fabric with occasional calcareous fragments, also shared with O46 its generally early Roman date. A poppyhead beaker and a cup copying Gallo-Belgic form *Cam* 56 (Fig. 2.5, 18) were among its forms. Coincidentally, given that this fabric and O46 resembled North Kent wares, a vessel in North Kent fine grey ware (R16) was recovered from deposits 11491 and 11494. Its identification was reasonably certain; the fabric lacked calcareous fragments and was consistent with a range of North Kent fabric samples. The vessel, too, matched North Kent types (Monaghan 1987), being closest to late 1st or early 2nd-century bowl types 4A0.1 or 4B (Fig. 2.5, 16). The vessel is far outside the fabric's usual distribution of south-eastern Britain, and may have travelled as a personal possession, rather than arrived as a conventionally traded item. However, the marketing of pottery is poorly-understood, and the trade routes of some long-distance goods reaching the site (for example samian ware) may have been sufficiently convoluted to have allowed occasionally a trader to collect oddities, like the North Kent bowl, en route. It is worth noting that a grave in the Pepper Hill cemetery, which was associated with the roadside settlement of Springhead (*Vagniacis*) in north Kent, contained a Severn Valley ware tankard that dated to the later 1st century AD (Biddulph 2009). This not only reveals that pots could go beyond their principal areas of use and travel long distances from time to time, but, with the bowl in mind, it also hints at connections, personal or trade, between north Kent and the north Wiltshire or Gloucestershire area.

More grey wares reached the site from the Severn Valley (R49) – a tankard and a flanged dish (Webster 1976, class G and J) were recovered – in the 1st or 2nd centuries, and Alice Holt, Surrey (R39) in the late 3rd or 4th century. A flagon with burnished surfaces (Fig. 2.7, 73) in New Forest grey ware (R48) presumably arrived with the industry's colour-coated vessels. A little pottery reached the site from west Oxfordshire; fabric R37, supplemented by its coarser version, R38, was predominant at sites along Akeman Street, for example Yarnton, Asthall, and Ducklington (Gill Mill), and production taking place probably in the Asthall/Wilcote area (Booth 2007, 323). Just two forms were identified at Cotswold Community: a narrow-necked jar and medium-mouthed jar. Fabrics R29 and R70, both recorded at Claydon Pike, are of local, but minor, significance.

Samian wares

Samian wares took a 1% share of the assemblage by sherd count. Overall, the samian assemblage was unexceptional (Table 2.3). South Gaulish samian ware (S20), which reached the site between AD 43 and 110, was available mainly as Dragendorff 27 cups and Drag 18 plates, though a Curle 11 bowl and Drag 18/31 dish were also identified by rims. In addition, body sherds indicate that a Drag 15/17 plate, decorated bowls Drag 29 and 37, and a Drag 67-type beaker were present. Three vessels were stamped: a Drag 27g cup (stamp illegible), a Drag 15/17 or 18R plate ( ]C – possibly the end of an abbreviation of FEC, for fecit), and a Drag 18/31 dish (OFDONI, probably Dontio, AD 65-85).

The early decades of the 2nd century saw the arrival of samian ware from Les Martres de Veyre (S32), all vessels being identified as Drag 18/31. Lezoux (S30) became the main source of samian ware after c AD 120. Dishes, principally Drag 18/31 and 31, arrived in some numbers, and cups – Drag 27 and 33 – were also available. One Drag 37 decorated bowl was recognised on the basis of a rim, though body sherds suggest that up to another ten vessels were present in the assemblage. No Drag 38 were identified from rims, but other diagnostic pieces pointed to three vessels. Mortaria had relatively minor significance. Two name stamps were recorded; one was illegible

Table 2.3 Summary of samian ware forms (quantified by vessel count based on rims)

Class	Type	Ware				Total
		S20	S30	S32	S40	
Bowl	Curle 11	1				1
	Drag. 37		1		1	2
Cup	Drag. 27	7	2			9
	Drag. 33		3			3
Dish	Drag. 18/31	1	4	2		7
	Drag. 18/31 or 31		3			3
	Drag. 18/31R or 31R		1			1
	Drag. 18 or 18/31	1				1
	Drag. 31		5		7	12
	Drag. 31 or 31R				1	1
	Drag. 31R		1		2	3
	Drag. 36		1			1
Mortarium	?Drag. 45		1			1
	Curle 21		1			1
Plate	Drag. 18	6				6
	Total	16	23	2	11	52

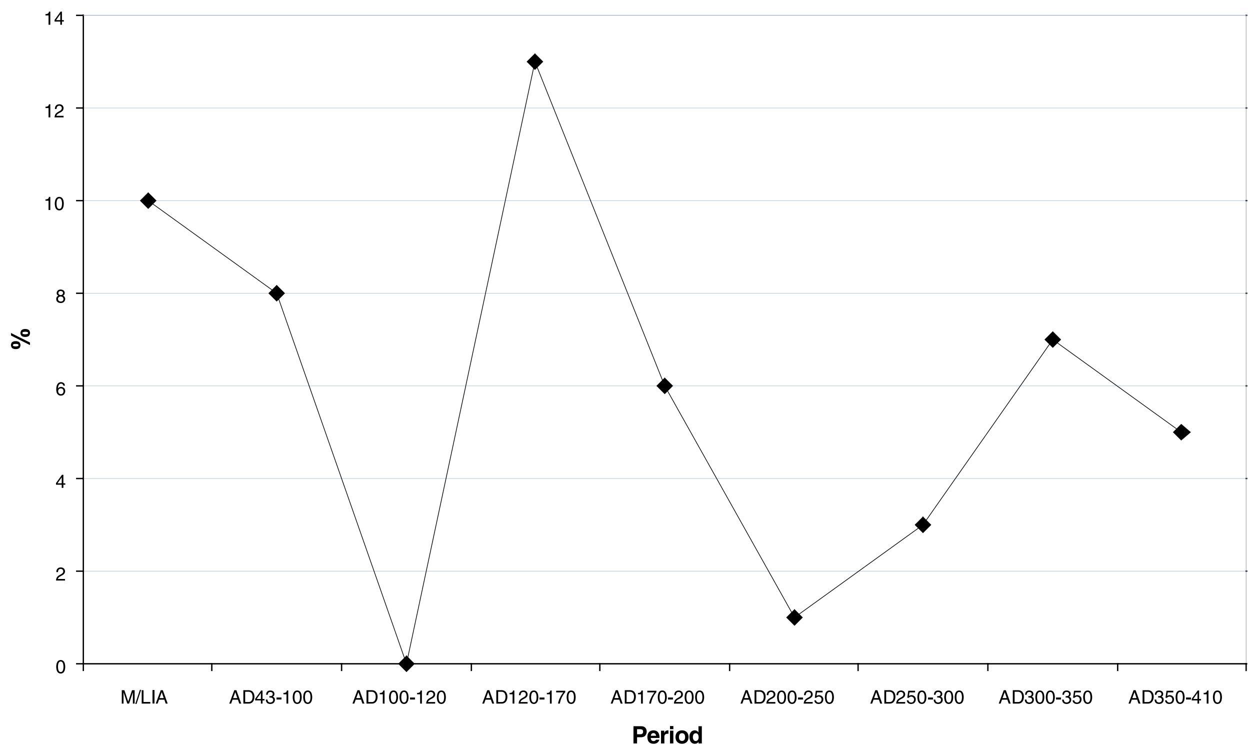

Figure 2.1 Chronology of phased ceramic groups, based on the amounts of pottery from closely-dated context groups - percentages are of the total assemblage, including more broadly-dated groups.

Table 2.4 Key ceramic groups Phase 6 – middle-late Iron Age
(amphora = A; jars: CB = barrel-shaped, CE = squat, high-shouldered, CG = globular, CH = bead-rimmed, CN = storage, CS = slack-profiled; bowls: HA = carinated). Quantification by EVE (0 = recorded in phase, but not represented by rims).

	Vessel Type										
Fabric	**A**	**C**	**CB**	**CE**	**CG**	**CH**	**CN**	**CS**	**HA**	**Total EVE**	**% total**
A35	0.3									0.3	4%
E20										0	-
E40		0.1				0.67		0.04		0.81	10%
E50		0.06	0.26	0.07					0.6	0.99	13%
E60			0.06							0.06	8%
E80		0.78		3.47	0.21	0.1	0.15		0.11	4.82	61%
G21			0.76		0.03					0.79	10%
R50										0	-
R90							0.12			0.12	2%
R95										0	-
Total EVE	0.3	0.94	1.08	3.54	0.24	0.77	0.27	0.04	0.71	7.89	-
% total	4%	12%	14%	45%	3%	10%	3%	1%	10%	-	-

and on an unidentified vessel, the other belonged to a Drag 18/31 and read]NI M.
East Gaulish samian ware (S40) reached the site during the second half of the 2nd century and early in the 3rd. Examination of the fabrics suggests that La Madeleine and Rheinzabern were among the sources represented. Vessels were almost exclusively Drag 31 or Drag 31R dishes; a Drag 37 decorated bowl was also present.

White wares

Less than 1% of the entire assemblage was white ware, and most of that identified to source was from Oxfordshire kilns. Parchment ware (W11) arrived during the late Roman period and continued to be deposited well into the 4th century. All identified forms were of Young type P24, a standard wall-sided carinated bowl. Just a few sherds of Oxfordshire fine white ware (W12) were recovered, but the coarser burnt white ware (W23) was relatively popular. Two jars (Young BW2) were recorded in 4th-century deposits. One of the two sherds of imported white wares (W30) belonged to a butt-beaker probably in North Gaulish fine white ware.

CHRONOLOGY AND POTTERY SUPPLY (KEY GROUPS)

In order to gain a better sense of the changing pattern of pottery supply, groups that had both ceramic and stratigraphic integrity were examined. In practice, this meant selecting context-groups that belonged to phased stratigraphic units and whose ceramic date fell within the periods defined by the stratigraphic phases. The data, quantified by EVE, are presented in Tables 2.4-7. The key groups provide snap-shots of ceramic use in each phase and highlight the chronological trends of forms and fabrics (Fig. 2.1). Some typical pottery groups are presented in the catalogue of illustrated pottery.

Phase 6 (middle-late Iron Age – c 300 BC-AD 43)

A total of 7.89 EVES was available from 21 phased deposits (Table 2.4). The phase is characterised overwhelmingly by grog-tempered ware (E80), supplemented by limestone-tempered pottery (E50), including Malvernian rock-tempered pottery (G21). Shelly and flint-tempered wares are also reasonably well-represented. The dominance of grog-tempered pottery, a tradition that had been introduced to the region by the early 1st century AD (see above), suggests that the majority of Phase 6 pottery groups date from this period, although the appearance of a Campanian Dressel 1 amphora (A35) points to 1st century BC pottery use. The small amount of Savernake (R95) and sand-tempered black-surfaced ware (R50) brings the date of deposition of some pottery groups very close to AD 43, but nevertheless hints at a pre-conquest inception for these fabrics (cf Timby 2001).
Jars took an 88% share of the assemblage; most vessels were high-shouldered types (CE) characteristic of southern and south-eastern Britain during the late Iron Age. However, barrel-shaped jars (CB) of more middle Iron Age tradition were relatively common and, like the amphora, take the beginning of the phase back into the 1st century BC. Bead-rimmed (CH) jars appeared with some frequency during the phase, and the range of jars available was completed in the main by globular (CG), storage (CN), and slack-profiled types. Other vessel types were poorly represented, with bowls, seemingly exclusively carinated types, enjoying the most use after jars. Beakers and platters were entirely absent.

Table 2.5 Key ceramic groups Phase 7 – late Iron Age-early Roman

*(**jars**: CB = barrel-shaped, CC = narrow-necked, CD = medium-mouthed necked, CE = squat, high-shouldered, CG = globular, CH = bead-rimmed, CM = wide-mouthed, CN = storage; **beaker**: EA = butt-beaker; **cup**: FB = campanulate; **tankard** = GA; **bowls**: HA = carinated, HC = curving-sided, HG = globular; **platter** = JC). Quantification by EVE (0 = recorded in phase, but not represented by rims).*

	Vessel Type																			
Fabric	**C**	**CB**	**CC**	**CD**	**CE**	**CG**	**CH**	**CM**	**CN**	**E**	**EA**	**FB**	**GA**	**H**	**HA**	**HC**	**HG**	**JC**	**Total EVE**	**%**
A10																			0	-
E20																			0	-
E40	0.13	0.2				0.1	0.05												0.48	4%
E50	0.08	0.31			0.13	0.1	0.32												0.94	8%
E60							0.11												0.11	1%
E80	1.17	0.12			2.42	0.08	0.82			0.08				0.1	0.05	0.08			4.92	42%
G21	0.13	0.25																	0.38	3%
O10																			0	-
O20	0.08										0.15								0.23	2%
O40	0.08							0.24					0.05						0.37	3%
O46																			0	-
O80																			0	-
Q22																			0	-
R10																			0	-
R101					0.08					0.06									0.14	1%
R16																	0.17		0.17	1%
R30																		0.13	0.13	1%
R35	0.36			0.33	0.39			0.08											1.16	10%
R50	0.56				0.37									0.08					1.01	9%
R90																			0	-
R95	0.08		0.58			0.65			0.07										1.38	12%
S20												0.13						0.28	0.41	3%
Total EVE	2.67	0.88	0.58	0.33	3.39	0.93	1.3	0.32	0.07	0.14	0.15	0.13	0.05	0.18	0.05	0.08	0.17	0.41	11.83	-
%	23%	7%	5%	3%	29%	8%	11%	3%	1%	1%	1%	1%	<1%	2%	<1%	1%	1%	3%	-	-

Phase 7 (late Iron Age-early Roman – 50 BC-AD 120/30)

This phase saw a pronounced increase in the quantity and range of pottery available, suggesting a burgeoning settlement and supply network. Pottery totalling 11.83 EVES from 74 deposits was assigned to Phase 7 (Table 2.5). The majority of the assemblage (70% by EVE) was assigned to context groups dated to AD 43-100. A further 19%, characterised by late Iron Age-type wares not associated with Roman-period pottery, is likely to date before the conquest. (The addition of Phase 6 pottery (Fig. 2.1) would show a decrease in the amount of pottery deposition after AD 43, suggesting that the late Iron Age was a high point in settlement activity.) No contexts groups belong certainly to the early 2nd century, which may point to a reduction in the level of deposition during that time, although a widespread stagnation of ceramic development (cf Going 1987, 99) means that groups cannot be isolated easily.

Grog-tempered ware (E80) remained dominant, but its proportion was reduced as it competed with wheel-made sandy wares. Black-surfaced ware (R50) took a more noticeable share of the assemblage than in Phase 6, while Wiltshire grey wares (R35), new to the phase, were quickly established as the main alternative to E80. On the other hand, the grog-tempering tradition held on as vessels in fabric E80 were supplemented by those in Savernake ware (R95). Other wares of Iron Age tradition (E20, E40, E50, E60, and G21) also had reduced shares. Finely-made kitchen and tablewares emerged soon after the conquest as specialist manufactories, both local and regional, were established, and continental trade expanded. Fine oxidised wares, some white-slipped, arrived from the Severn Valley and Wiltshire (eg O40, O46 and Q22), and were joined by fine reduced equivalents. The appearance of a north Kentish product (R16) is unusual and apparently a one-off, though is by no means out of place within the assemblage. Continental pottery was represented by South Gaulish samian ware (S20) and amphorae (A10).

Six new vessel types were introduced in this phase. However, despite the availability of new forms, jars continued to overwhelm the assemblage, in fact more so, since they now took a slightly larger share of 90% by EVE. Seemingly new ways of cooking or dining did not necessarily accompany the new forms – the continentally-inspired beakers, cups, platters, and flagons (represented by Q22 and O40) – which were taken up only to a limited extent. The jars that were ubiquitous in the previous phase, barrel-shaped and high-shouldered forms (CB and CE, respectively), were still important, but lost ground to medium-mouthed necked jars (CD) and narrow-necked jars (CC), among others. Bead-rimmed jars (CH) were unaffected and remained a popular form. Bowls became more diverse, but the proportion of the class reduced from the previous phase.

Phase 8 (middle Roman – AD 120/30-250/60)

More pottery was deposited in this phase than any other. Some 42.5 EVES was recovered from 134 phased deposits (Table 2.6). But, as with the previous phases, most pottery was restricted to just a few fabrics, although the range of new pottery available was wider overall. The mid 2nd century (AD 120-170) saw a substantial increase in the level of deposition and, therefore, pottery use (Fig. 2.1). Some 33% of the Phase 8 pottery by EVE belonged to context groups of this date. Eleven per cent was found in late 2nd century groups (AD 170-200), suggesting that deposition levels fell at this time, though almost 40% of context groups were more broadly dated to AD 120-200 and could have been deposited after 170. However, this change seems to reflect a genuine decline in activity, since regional industries were generally flourishing (Going 1992, 99). Like the early 2nd century, the first half of the 3rd century is recognised as a period of recession, which appears to be reflected in the small number of context groups – barely 2% – dated between AD 200 and 250 (Fig. 2.1).

The dominant fabric was Wiltshire grey ware (R35), which saw a threefold-increase in its proportion compared to the early Roman period. Grog-tempered wares were largely confined to Savernake ware (R95) – still current up to c AD 200 – and residual occurrences of late Iron Age-style fabrics (E80). Black-surfaced ware (R50) saw a drop in its proportion, pointing to an early Roman floruit, although to some extent the role of R50 must have been assumed by black-burnished wares (B10 and B30), which together accounted for 31% of the middle Roman assemblage. Oxidised and white wares remained poorly represented; Severn Valley ware (O40) and Wiltshire oxidised ware (O30) took the largest shares of this category, though these amounted to 10% of the assemblage by EVE, mainly in the form of specialised flagons, tankards and bowls. All other fabrics recorded in this phase made minor contributions to the assemblage, each accounting for 1%-2% or less. However, there was a much wider range of fabrics available, even if the take-up for individual fabrics – and, therefore, new functions – was minimal. Among the British wares to be introduced were: North Wiltshire colour-coated fine ware (F67); mortarium fabrics from Oxfordshire (M22), Mancetter-Hartshill (M23), and, more locally, Cirencester (M32); pink-grogged ware from Buckinghamshire (O81); and calcareous fabrics (C10/20, R70). Continental imports were few. Samian ware from central and eastern Gaul (S30 and S40) replaced that from south Gaul (now residual), and amphorae (A11) were reaching the site from southern Spain. Lower Rhineland colour-coated ware (F45) was also present in this phase.

Some 36 new vessel types were recorded. This apparent diversity meant that jars, though still predominant, became less important, accounting for 66% of the assemblage by EVE. Medium-mouthed necked jars (CD) and everted-rim 'cooking-pot' type

Table 2.6 Key ceramic groups Phase 8 – middle Roman

*(**flagons**: BA = small, BB = large; **jars**: CB = barrel-shaped, CC = narrow-necked, CD = medium-mouthed necked, CE = squat, high-shouldered, CG = globular, CI = everted-rim, CK = 'cooking-pot' type, CM = wide-mouthed, CN = storage; **beakers**: EC = bag-shaped, ED = globular, EF = poppyheaded, EH = 'jar' beaker; **cups**: FB = campanulate, FC = conical; **tankard** = GA; **bowls**: HA = carinated, HC = curving-sided; **dishes**: JA = straight-sided, JB = curving-sided; **platter** = JC; **mortaria** = KA = bead-and-flanged, KD = wall-sided, KE = stubby-flanged, **miscellaneous/ unidentified** = Z). Quantification by EVE (0 = recorded in phase, but not represented by rims).*

Fabric	BA	BB	C	CB	CC	CD	CE	CG	CI	CK	CM	CN	E	EC	ED	EF	EH	FB	FC	GA	H	HA	HC	J	JA	JB	JC	K	KA	KD	KE	Z	Total EVE	%
A10																																	0	
A11																																	0	
B10										4.83							0.15							0.11	0.94	1.45							7.48	18%
B30			0.06			0.03				2.61							0.45						0.03	0.15	0.85	1.26						0.03	5.47	13%
C10			0.03			0.05																											0.08	<1%
C20			0.06							0.03																							0.09	<1%
E40			0.03																														0.03	<1%
E50			0.06	0.08																		0.16	0.03										0.33	1%
E60							0.03																										0.03	<1%
E80			0.34																		0.12						0.03						0.49	1%
F45																																	0	
F60																																	0	
F67														0.07																			0.07	<1%
G21			0.11	0.62																													0.73	2%
M20																												0.04					0.04	<1%
M22																																	0	
M23																													0.2				0.2	<1%
M32																													0.24	0.08			0.32	1%
O																																	0	
O10														0.1																			0.1	<1%
O11			0.1																														0.1	<1%
O20																																	0	
O30			0.05			0.62					0.23			0.7						0.1	0.05		0.17			0.04							1.96	5%
O40	0.21	0.2	0.28		0.06						0.32	0.12								0.81		0.1	0.1										2.2	5%
O46																																	0	
O80																																	0	
O81												0.04																					0.04	<1%
Q20																							0.13										0.13	<1%
Q22																																	0	
R10			0.03													0.07						0.23											0.33	1%
R101																																	0	
R30	0.05		0.19			0.09		0.06		0.18							0.1						0.07		0.24								0.98	2%
R35		0.15	2.89		1.51	5.61	0.15		0.11	1.37	1.14	0.1	0.16	0.26	0.18	0.1	0.42						0.03		0.28	0.19							14.65	35%

Table 2.6 Key ceramic groups Phase 8 – middle Roman (continued)

Fabric	BA	BB	C	CB	CC	CD	CE	CG	CI	CK	CM	CN	E	EC	ED	EF
R37					0.18											
R38						0.07										
R49																
R50			0.59		0.35	0.52										
R70																
R85																
R90																
R95			0.01		0.15	0.51						1.01				
S20																
S30																
S40																
W20																
Total EVE	0.26	0.35	4.83	0.7	2.25	7.5	0.18	0.06	0.11	9.02	1.69	1.27	0.16	1.13	0.18	0.17
%	1%	1%	12%	2%	5%	18%	<1%	<1%	<1%	22%	4%	3%	<1%	3%	<1%	<1%

Fabric	EH	FB	FC	GA	H	HA	HC	J	JA	JB	JC	K	KA	KD	KE	Z	Total EVE	%
R37																	0.18	<1%
R38																	0.07	<1%
R49				0.18													0.18	<1%
R50										0.1	0.14					0.04	1.74	4%
R70																	0	
R85							0.04		0.09	0.12							0.25	1%
R90																	0	
R95																	1.68	4%
S20		0.05									0.05						0.1	<1%
S30		0.09	0.1						0.28	0.43				0.03	0.04		0.97	2%
S40							0.1			0.44							0.54	1%
W20																	0	
Total EVE	1.12	0.14	0.1	1.09	0.17	0.49	0.7	0.26	2.68	4.03	0.22	0.04	0.44	0.11	0.04	0.07	41.56	-
%	3%	<1%	<1%	3%	<1%	1%	2%	1%	6%	10%	1%	<1%	1%	<1%	<1%	<1%	-	-

jars (CK) were the standard types for the period, together contributing 40% of jars by EVE. Both were available in a number of fabrics, though these were largely complementary, with the necked jars recorded mainly in Wiltshire grey wares and the 'cooking-pot' type being a black-burnished ware product. Narrow-necked jars (CC) held ground, but production of forms common in Phases 6 and 7 – for example high-shouldered necked jars (CE) and globular jars (CG) – had all but ceased by Phase 8. The exception is barrel-shaped jars (CB), which continued to be deposited at a reduced, though reasonably significant level, thanks to Malvernian rock-tempered ware (G21), which arrived through the 2nd century AD. Much of the overall decline of jars is explained by introduction of dishes, which took a 17% share of the assemblage. The two types recorded here – straight-sided (JA) and curving-sided (JB) – largely corresponded with bead- or flanged-rim dishes and plain-rimmed dishes respectively, and were seen in black-burnished wares and, to a lesser extent, grey wares and samian wares. Their relatively large proportion suggests that dishes fulfilled rather rapidly certain functions previously enjoyed by jars, for example in the kitchen (see below). The sense that the 2nd and early 3rd centuries saw changing food preparation and dining habits is further suggested by the arrival of mortaria, and better representation of beakers – bag-shaped (EC) and jar-shaped forms (EH) among them – cups, and flagons. However, as noted above, overall quantities were small and so the influence of the new forms must have been fairly limited.

Phase 9 (late Roman – AD 250/60-410)

A total of 38.12 EVES was recovered from 54 phased deposits (Table 2.7). After the late 2nd-early 3rd century decline, the level of pottery use and deposition increased during the second half of the 3rd century, and continued to rise well into the first half of the 4th century. However, overall quantities of late Roman pottery could not match those seen in the middle Roman period, suggesting that the settlement saw its most intensive occupation in the middle Roman period (Fig. 2.1). Of the Phase 9 assemblage, 9% by EVE was recovered from context groups dated between AD 250 and 300. The proportion rose to 19% after 300, but fell to 14% after 350.

Accounting for 26% of the assemblage by EVE, Wiltshire grey ware (R35) remained the single largest group, but was only marginally better represented than black-burnished ware (B10), which contributed 23%. Clearly Wiltshire potters lost market share to the increasingly dominant Dorset manufacturers, but the effects were somewhat mitigated by the local production of imitation black-burnished ware (B30). In addition, the two traditions did not overlap greatly on forms – 62% of 'cooking-pot' jars were in B10, compared with 12% in R35, while 25% of bead-and-flanged straight-sided dishes were available in B10, compared with 8% in R35 – and so did not compete directly. There were other fabrics, however, that squeezed the supply of the grey ware. Like the middle Roman assemblage, groups belonging to Phase 9 contained a diverse range of fabrics. Oxford red colour-coated ware (F51) represented the best of these relatively minor fabrics. The proportion of Wiltshire colour-coated ware (F67) increased in this phase – accompanied by an expanded repertoire of forms – perhaps in response to the arrival of F51.

Table 2.7 Key ceramic groups Phase 9 – late Roman

(***amphora*** *= A;* ***flagons****: BA = small;* ***jars****: CB = barrel-shaped, CC = narrow-necked, CD = medium-mouthed necked, CH = bead-rimmed, CK = 'cooking-pot' type, CM = wide-mouthed, CN = storage;* ***beakers****: EC = bag-shaped, ED = globular, EG = carinated, EH = 'jar' beaker;* ***cups****: FB = campanulate, FC = conical;* ***tankard*** *= GA;* ***bowls****: HA = carinated, HC = curving-sided, HD = necked;* ***dishes****: JA = straight-sided, JB = curving-sided, JD = fish dish;* ***platter*** *= JC;* ***mortaria*** *= KA = bead-and-flanged, KD = wall-sided, KE = stubby-flanged). Quantification by EVE (0 = recorded in phase, but not represented by rims).*

	Vessel Type																														
Fabric	**A**	**B**	**BA**	**C**	**CB**	**CC**	**CD**	**CH**	**CK**	**CM**	**CN**	**E**	**EC**	**ED**	**EG**	**EH**	**FB**	**GA**	**H**	**HA**	**HC**	**HD**	**JA**	**JB**	**JC**	**JD**	**KA**	**KD**	**KE**	**Total EVE**	**%**
A11	0.3																													0.3	1%
B10									6.93							0.3							1.32	0.19		0.1				8.84	23%
B30									2.27														2.14	1.31						5.72	15%
C11							0.41																							0.41	1%
C20																							0.05							0.05	<1%
E50				0.06																										0.06	<1%
E60				0.03																										0.03	<1%
E80				0.38			0.18																							0.56	1%
F31													0.11																	0.11	<1%
F51		0.2	1							0.04									0.23	0.14	0.25			0.61						2.47	6%
F52																					0.09									0.09	<1%
F55													0.08																	0.08	<1%
F60																								0.08						0.08	<1%
F62																					0.03									0.03	<1%
F67						0.19						0.09		0.46	0.2						0.06									1	3%
G21					0.05																									0.05	<1%
M22																											0.5		0.34	0.84	2%
M24																											0.5	0.08		0.58	2%
M31																													0.2	0.2	1%
M41																												0.03	0.15	0.18	<1%
O10												0.19							0.06											0.25	1%
O20				0.05																	0.05		0.12							0.22	1%
O24							0.05																							0.05	<1%
O30				0.05								0.45							0.04		0.05									0.59	2%
O40			0.1	0.11						0.09								0.22												0.52	1%
O80										0.07	0.15																			0.22	1%
R10																						0.03		0.07						0.1	<1%
R30				0.16			0.44		0.07							0.05							0.21	0.55						1.48	4%
R35				2.29		0.5	3.29		1.3	1.12	0.04	0.11							0.04	0.23	0.31		0.4	0.26						9.89	26%
R48			0.3																											0.3	1%

Table 2.7 Key ceramic groups Phase 9 – late Roman (continued)

Fabric	Vessel Type																													Total EVE	%
	A	B	BA	C	CB	CC	CD	CH	CK	CM	CN	E	EC	ED	EG	EH	FB	GA	H	HA	HC	HD	JA	JB	JC	JD	KA	KD	KE		
R50				0.09																										0.09	<1%
R70									0.08														0.14							0.22	1%
R85			0.08	0.07					0.4														0.74	0.11						1.4	4%
R90								0.06																						0.06	<1%
R95				0.1							0.46																			0.56	1%
S20																	0.05								0.05					0.1	<1%
S40																								0.04						0.04	<1%
W11																				0.22										0.22	1%
W23							0.13																							0.13	<1%
Total EVE	0.3	0.2	1.48	3.39	0.05	0.69	4.5	0.06	11.05	1.32	0.65	0.84	0.19	0.46	0.2	0.35	0.05	0.22	0.37	0.59	0.84	0.03	5.12	3.22	0.05	0.1	1	0.11	0.69	38.12	-
%	1%	1%	4%	9%	<1%	2%	12%	<1%	29%	3%	2%	2%	<1%	1%	1%	1%	<1%	1%	1%	2%	2%	<1%	13%	8%	<1%	<1%	3%	<1%	2%	-	-

Mortaria also saw greater use, with vessels arriving from Oxfordshire and the Nene Valley. Overall levels of oxidised ware declined further, while white-slipped wares were not represented. Notable among the reduced wares was the increased share in south-west micaceous ware (R85), which, given that the fabric's repertoire was largely restricted to cooking-pot types and dishes, seemed to be linked with the rise of black-burnished ware. New Forest grey ware (R48) also appeared in this phase. White wares, exclusively from Oxford, were marginally better represented from the later 3rd century; samian wares were residual in terms of supply (but not necessarily use) by this time.

The slight reduction in the range of fabrics represented is mirrored in the forms; 30 vessel types were new to this phase, compared with 36 in the previous phase. The proportion of jars continued to fall, accounting for less than 60% of the assemblage in this phase by EVE. Again, dishes, whose share increased to 21%, were mainly responsible, though mortaria were also more numerous. Medium-mouthed necked jars (CD), saw a drop in popularity, which was met by a rise in the proportion of 'cooking-pot' type jars (CK); there was now two of the latter to every one necked jar, compared with a near 1:1 ratio recorded in Phase 8. Apart from a fall in the proportion of narrow-necked jars (CC), the range and numbers of the other jar types was largely unchanged. Just as jars were dominated by two types, dishes were continued to be represented by straight-sided (JA) and curving-sided (JB) types, though the bead-rimmed dishes seen in the mid Roman period had fully developed into bead-and-flanged types. These were joined by oval-shaped handled dishes (JD), or so-called fish dishes. The late Roman period saw peak use of mortaria – up to a little over 5% by EVE, compared with below 2% in Phase 8 – thanks to the Oxford and Nene Valley industries. Oxford potters also reinvigorated demand for bowls by copying samian forms that were no longer available; the vessel class rose to over 5% by EVE from 3% in Phase 8. Flagons, too, benefited from expanded late Roman repertoires, with new types arriving from the Oxford, New Forest, and south-western sources. Beakers were stuck at *c* 6% of the late Roman assemblage.

The pottery is unable to give a precise terminal date for settlement activity, but clearly the levels of pottery trade and use fell after AD 350. The presence of key indicators, such as shelly ware, Portchester D-type ware, and Oxford-region products give a good account of a settlement functioning well in the middle part of the 4th century, but there is little that dates specifically beyond 350. The latest Oxford colour-coated forms, bowl forms C68, C81 and C82, date broadly to the 4th century, and pottery arriving after 350 is confined to a cooking pot and think-walled bead-and-flanged dish from Dorset and an oval-bodied shelly jar from Bedfordshire. Given these factors, ceramic deposition occurring during the second half of the 4th century is likely to have involved a significant quantity of pottery that reached the site before 350. This is not so say that settlement activity did not continue for some decades afterwards, as undoubtedly it did, but that ceramic supply of new pottery had all but ceased.

PATTERN OF POTTERY DEPOSITION

Pottery groups became larger over time. In the middle/late Iron Age (Phase 6), the mean size of context-group assemblage was 172 g. After a drop to 84 g in

Table 2.8 Pattern of pottery deposition by phase and deposit type. MSW = mean sherd weight (weight (g)/count)

Phase	Ditch	Grave	Gully	Layer	Pit	Structural	Waterhole	Average MSW
Phase 6	10.58		14.21		18.19	3.67	14.5	15.17
Phase 7	8.23		8.85	5.43	8.31	5.83	9.41	8.34
Phase 8	10.27		7	6	9.95	6.44	21.75	10.43
Phase 9	10.91	4.3	9.6	8.43	16.02	6.9	13.23	11.7
Average MSW	10	4.3	9.91	6.62	13.12	5.71	14.72	11.41

Table 2.9 Distribution of vessel forms by deposit type, based on all phased ceramic groups. Quantification by EVE

Vessel class	Ditch	Grave	Gully	Layer	Pit	Structural	Waterhole
Amphora	1%				1%		
Flagon	3%				2%		1%
Jar	63%	1%	94%	61%	71%	67%	69%
Beaker	6%			7%	4%		7%
Cup	<1%				1%		<1%
Tankard	1%				2%		<1%
Bowl	4%		1%	2%	7%	33%	4%
Dish/platter	19%		5%	3%	12%		12%
Mortarium	3%				1%		6%
Other					<1%		<1%
Total EVE	47.47	0.05	3.32	7.1	28.93	0.7	12.14

Table 2.10 Percentage of residual pottery within phased ceramic groups, quantified by weight (g)

Phase	Ditch	Gully	Layer	Pit	Structural	Waterhole
Phase 6	-	-	-	-	-	-
Phase 7	6%	-	-	5%	-	<1%
Phase 8	4%	5%	-	6%	-	-
Phase 9	6%	-	7%	4%	26%	18%

Phase 7, the average rose to 207 g in Phase 8, and by the late Roman period (Phase 9), the average size had increased to 598 g. The bulk of pottery deposition in Phase 6 was in the mass of pits on the southern end of enclosure 17600. The few linear features that received pottery were in this area too. Growth of the settlement in the late Iron Age/early Roman (Phase 7) period saw a corresponding increase in pottery use. Pottery deposition was focussed in areas where features – and occupation – were densest, especially in the south-east corner of enclosure 19999. Few context-groups were particularly large; deposition seems to have been reasonably uniform across the site. The pattern continued to a certain extent into the middle Roman period (Phase 8), though a few deposits in ditches, pits, and waterholes contained much larger groups, over 1 kg. This appears to have heralded a change in the way that pottery was deposited, since in the late Roman period, large groups over 1 kg were commoner. Rather than distributed uniformly across open features, pottery tended to be concentrated in a few large features.

With this in mind, it is worth looking at the mean sherd weight statistic. A context group that has a low mean sherd weight should be fragmentary and have had a different depositional history than a group with more complete vessels characterised by a relatively high mean sherd weight. Overall, context groups from layers and structural features (mainly postholes) had lower mean sherd weights – 6.6 and 5.7 g respectively – than those from pits (13.1 g) and waterholes (14.7 g). Ditches and gullies lay in between the two with mean sherd weights of 10 and 9.1 g respectively (Table 2.8). There was variation, however, within this broad pattern. In Phase 6, pits received pottery in better condition than other feature types, though pottery from gullies and waterholes was only marginally more fragmented. Differences between feature types became flatter in Phase 7 as the condition of pottery was similar across feature types. Phase 8 saw little change, except that pottery from waterholes tended to be more complete than pottery in the other features. In Phase 9, pit and waterhole assemblages were deposited in relatively good condition, which stood in contrast to the pottery from linear and structural features.

The pattern derived from mean sherd weights supports that of the mean context group size. Both measures point to the importance of pits as locations for disposal in Phase 6, and a uniform pattern of deposition regardless of feature type in Phase 7. Data for Phases 8 and 9 suggest that selected features, particularly pits and waterholes, provided an increasingly important focus for pottery deposition. More generally, that pottery incorporated within layers and structural groups is generally more fragmented is no doubt due to the open nature of the surface deposits and the fact that structural features did not typically admit finds as waste, being rapidly backfilled after their cutting. The relationship between pits/waterholes and ditches/gullies, however, is more interesting, as the sherd weights suggest that pottery deposited into the former feature groups was more complete. A reasonable explanation is that pottery deposited into pits and waterholes, compared with that from linear features, had undergone fewer episodes of disturbance and relocation after initial breakage. Put crudely, the pottery included a higher proportion of freshly-broken vessels, compared with ditch groups that represented the redeposited remains of long-lived middens.

But even if more and better-preserved pottery was entering pits and waterholes compared with linear and structural features, there is little indication that the pottery was deliberately selected or in some way represented special deposits. Proportions of individual ware groups recovered from the features were in line with the overall distribution of the pottery and numbers of deposits. An exception is in Phase 7, in which 82% of the samian ware assemblage was found in waterhole fills; this compares to 12% each for Phases 8 and 9. Similarly, the amount of white ware collected from Phase 8 waterhole deposits was, at 97%, considerably more than the 10% average for that phase. However, as both fabrics were represented by relatively small quantities of material, it seems likely that the observation is due to little more than the chance presence of a few extra sherds. Initially, there is some suggestion of an association between feature type and pottery forms. In Phase 6, the small amount of pottery available other than jars – bowls and an amphora – was retrieved from pits. The assemblages from pit and waterhole deposits also appeared to be more diverse than those from ditches, containing between them beakers, cups, tankards and dishes. However, any association evaporates by Phase 8, as ditch, pit and waterholes assemblages take on near-identical profiles and contain the same range of forms. This continues into Phase 9 (Table 2.9).

Differences between phases notwithstanding, the amount of older, residual, pottery recovered from phased groups suggests that all feature assemblages were mixed to lesser or greater extents (Table 2.10). Few if any assemblages were deposited directly after household breakage into the features from which they were retrieved. While the proportions of residual pottery are broadly consistent with the trends identified by mean sherd weights, differences between feature types do not appear to be significant. The exception is the pottery from waterholes, where levels of residuality, in Phases 7 and 8 especially, are relatively low. Since waterhole assemblages contained relatively little older material, which would have been incorporated with more recent groups through episodes of middening and feature-intercutting, it can be suggested that the pottery was deposited there more directly after initial breakage.

SITE TYPE

The pottery suggests that, on the whole, the settlement was a low order rural site (or put crudely, of low status). A number of measures can be employed to show this. Paul Booth's survey of pottery assemblages from Upper Thames Valley sites (Booth 2004) revealed the usefulness of assigning pottery to one of two categories: fine and specialist wares (comprising samian, amphorae, mortaria, white wares, fine wares, and white-slipped wares), which were usually traded and acquired more out of choice than necessity and other, typically coarse, wares (black-burnished, reduced, calcareous, and oxidised). The work pointed to a threshold of 5% fine and specialist wares that separated low- and high-status assemblages in the earlier Roman period, and, less clearly, a threshold of around 20% in the later Roman period (Booth 2004, 49-50); assemblages reaching or exceeding these proportions generally belonged to relatively high-status sites.

Booth's more recent examination of sites in an area relevant to Cotswold Community is comprehensive and requires no duplication here (Booth 2007, 327-333); instead the following discussion provides something of an addendum to that study in light of the new data becoming available. So, the proportion of 2.9% fine and specialist wares at Cotswold Community in 1st, 2nd and early 3rd century phased groups points to low status (Fig. 2.2). Compared with settlements in the region, the site sits level with the rural sites of Duntisbourne Grove, Kempsford Stubbs Farm, Somerfield Keynes, and Yarnton. It is placed, however, higher than Gravelly Guy and Thornhill Farm. While Timby (2004, 108) raises the possibility that inhabitants at Thornhill Farm chose to exclude products pertaining to Roman food preparation and dining habits, Cotswold Community is close to the major urban centre of Cirencester, and this factor may have given the settlement a marginal advantage, allowing better access to relatively prestigious goods. This seems to be an advantage that Duntisbourne Grove and Somerfield Keynes, which lie close to the town, also enjoyed.

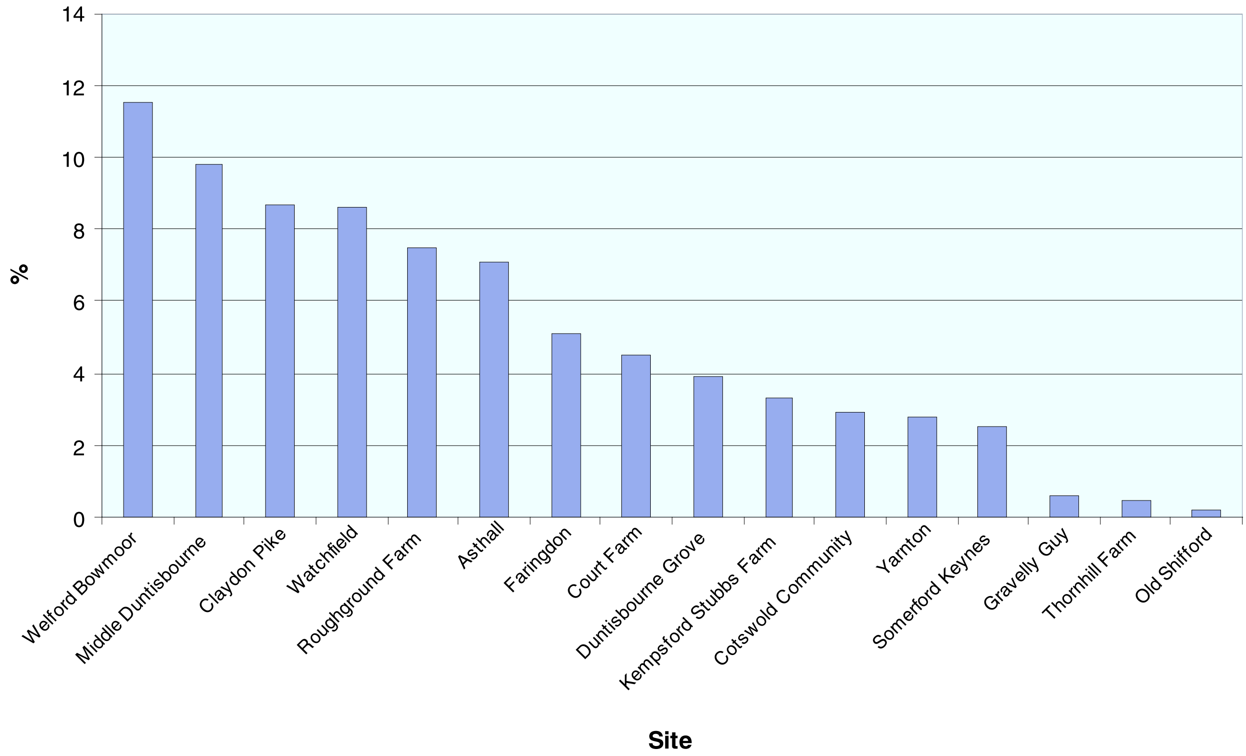

Figure 2.2 Comparative proportions of early/middle Roman fine and specialist wares from settlements in the region

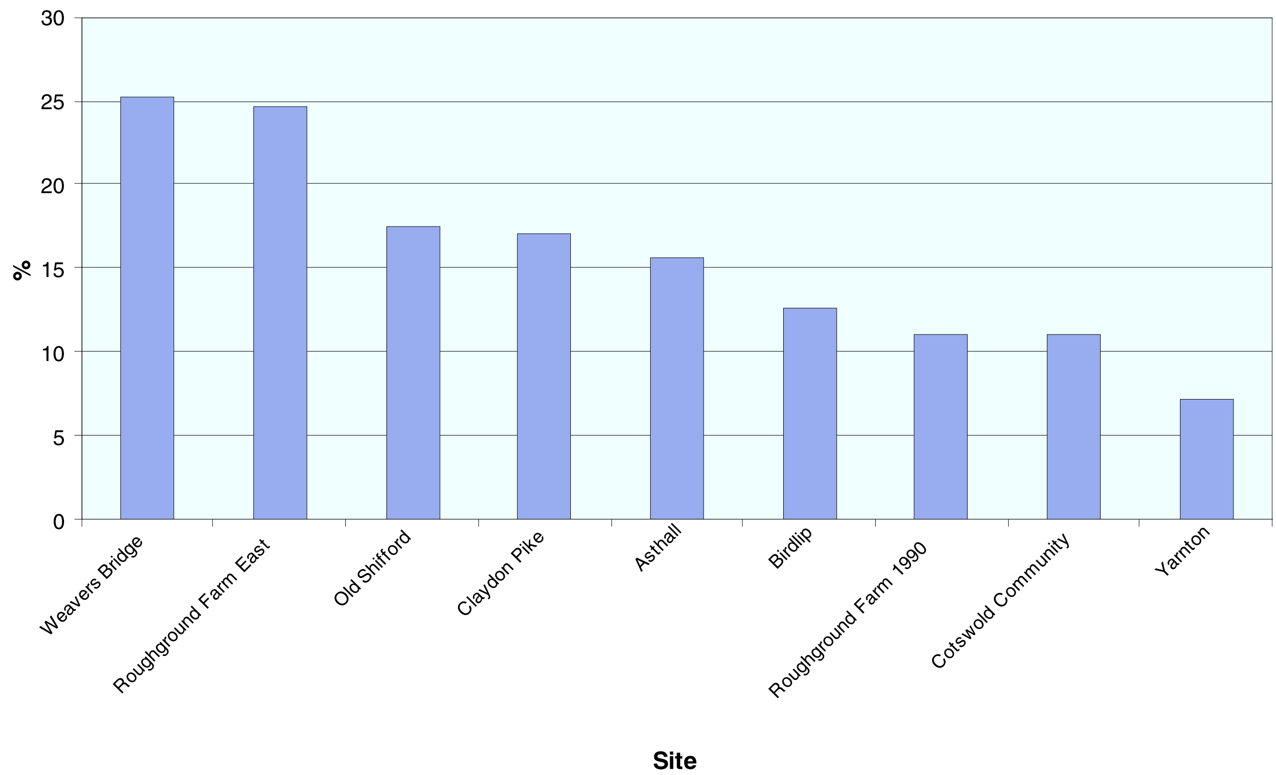

Figure 2.3 Comparative proportions of late Roman fine and specialist wares from settlements in the region

The emergence in the late Roman period of extra-regional industries that exported widely beyond their areas of manufacture – chiefly in our area that of the Oxford region, but supplemented by the New Forest and Nene Valley industries – obviously affected the levels of fine and specialist wares, substantially increasing the proportions seen at most sites. While this seems to have introduced a degree of similarity between sites in terms of the range of pottery, and therefore functions, represented, differences in the level of pottery use between sites remain apparent; the gap separating the top and bottom sites in the 3rd and 4th centuries seems as wide in relative terms as it had been in the 1st and 2nd centuries. Consequently, the proportion of fine and specialist wares remains a valid measure of status. At Cotswold Community, then, a proportion among phased ceramic groups of 11% by sherd count kept the site well within the category of low-order rural settlement (Fig. 2.3). The site retained its position against Yarnton (Booth 2004, table 3), and sat below less distant sites, like Claydon Pike and Birdlip Quarry.

Imported products, particularly samian and amphorae, are obvious means by which site type can be assessed. Dealing first with samian, the amount of decorated pottery compared with plain forms provides a useful index. Steve Willis (2005, section 7.3.2; 1998, 105-111) records higher than average proportions of decorated samian at military and urban sites, and lower than average proportions at basic rural sites: on average, 27.5% of samian groups at military sites are decorated, compared with just under 20% at rural sites (Willis 2005, table 34). The figure for rural sites, not so different from that for military sites, might be considered to be a little inflated given the restricted number and range of sites in Willis' datatset (most of his rural sites are in eastern Britain, while villas and lower-status settlements are not separated). However, the basic principle holds true when tested against subsequent data. At Cotswold Community, surprisingly 8% of all samian by EVE was decorated. In comparison, 5.7% of the phased samian by EVE at Claydon Pike was decorated (Webster 2007, table 7), and decorated samian took an even smaller share at Yarnton. As expected, decorated samian was much commoner at larger centres. One samian group at Cirencester contained 25.3% decorated vessels by vessel count (Willis 1998, table 3). Decorated samian accounted for 9.6% at Asthall, a small town (Mills 1997, tables 5.9 and 5.14). Birdlip Quarry, interpreted as a roadside settlement that served as a relay-station for officials and travellers (Mudd 1999, 528) saw a smaller amount of decorated samian compared with Cotswold Community, though this is no doubt due to chronology, the settlement not developing into its role until after the later 2nd century when imports of decorated samian were declining (Willis 2005, section 7.3.4). Cotswold Community, then, was basic, but was by no means at the bottom of the scale, and, with the exception of Claydon Pike's lower than expected proportion, this is consistent with the picture painted by the proportion of fine and specialist wares.

Like samian, the greater frequency of amphorae present, the higher was the site status. Jeremy Evans (2001, 33) showed that basic rural sites saw minimal quantities of amphorae, usually less than 0.5% of all pottery by sherd count. Small towns and villas had higher proportions, around 1%, while the proportions found in military site assemblages could be up to 11%. On this basis, Cotswold Community predictably falls into the basic rural site category with a proportion of 0.4%. This is lower than the 1.3% recorded at Birdlip Quarry (Timby 1999, table 7.14), a difference probably explained by Birdlip Quarry's roadside settlement function and its proximity to both Gloucester and Cirencester.

With perhaps his most important observation, Evans (2001, 26-31) explored the relationship between open tablewares (dishes and bowls) and jars, and the use of the resulting ratio as an index to site type. He found that basic rural sites have relatively high proportions of jars and low proportions of dishes/bowls. Urban sites tended to have higher proportions of dishes/bowls and fewer jars, while villas lay in between the two site types. These proportions have been considered in a regional context by Booth (2007, fig. 13.1). Figure 2.4 shows the proportions of jars against dishes/bowls from a selection of sites in the region. Cotswold Community in the late Iron Age and early Roman period is the most basic settlement of the sites shown, its pottery characterised by the highest proportions of jars and fewest dishes/bowls. Contemporaneous groups from Yarnton, Claydon Pike, Horcott and Asthall are placed slightly higher than Cotswold Community; these form a reasonably tight group and comprise both rural settlements and a small town.

The position of Yarnton and Claydon Pike is interesting, given that the paucity of decorated samian from those sites took them below Cotswold Community. Evidently care should be taken with how the presence or absence of samian is interpreted; a settlement may have admitted traded wares infrequently, but its inhabitants remained conversant with continental-style dining with the use of locally-produced alternatives, allowing the settlement to be placed alongside conventionally higher-status sites more comfortably. Middle Roman pottery groups at Cotswold Community, reflecting the introduction of new dish forms in black-burnished ware, samian, and local fabrics, point to the settlement moving up the scale and level with Yarnton and Claydon Pike. The trend continued into the late Roman period, as the site took advantage of the dish and bowl-dominated Oxford repertoire that arrived after AD 250.

As was suggested by the levels of fine and specialist wares in the late Roman period, the pattern of pottery supply appears to have led to a degree of homogeneity among site assemblages. However, assemblages from the urban sites of Cirencester and Alcester have the highest proportions of dishes/bowls and lowest proportions of jars, suggesting that pottery groups remain a valid means of separating site types into the late Roman period (Fig. 2.4).

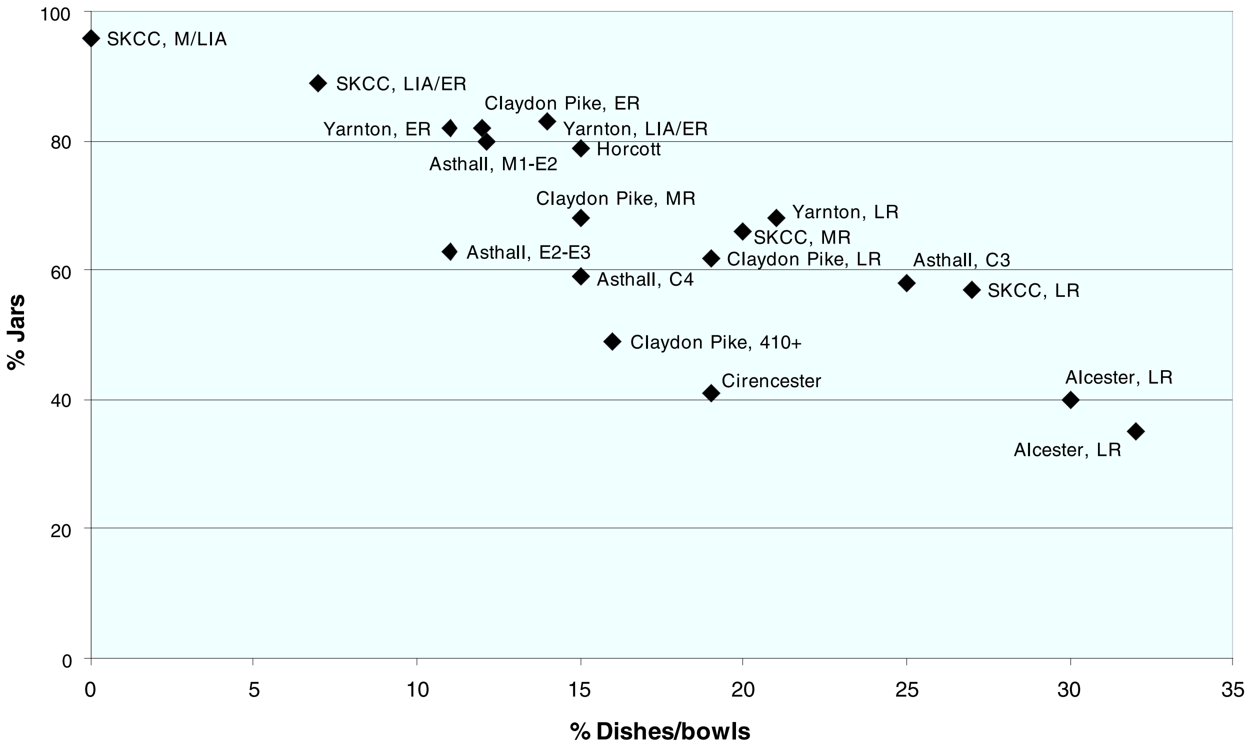

Figure 2.4 Proportions of dishes and bowls against jars for selected comparative assemblages

In summary, analysis of the ratio of jars to dishes/bowls places Cotswold Community into the category of basic rural site and low in the hierarchy of settlements. Over time, the settlement enjoyed better access to pottery more usually associated with higher-status sites, though this was to an extent commensurate with regional changes to pottery supply.

POTTERY USE AND MANUFACTURE

Locally-made pottery?

Seven vessels exhibited evidence that suggests that they were wasters or 'seconds' from a nearby kiln. All were jars in reduced, medium-sandy fabrics, which were consistent with the range of North Wiltshire grey wares (R35). A wide-mouthed necked jar (cf Young (1977) type R38) had a distorted rim that presumably sank in the kiln (Fig. 2.7, 80). The rim of another vessel (Fig. 2.7, 76), an oval-bodied necked jar (cf Young type R24 or Going 1987, type G24), was similarly uneven. Both vessels were of identical fabric and from ditch fill 11732, hinting that they were acquired together or were otherwise from the same source. Recovered from the same feature, the vessels may well have experienced an identical pattern of disposal, too. The remaining five vessels, which had distorted rims or body-dents or other manufacturing imperfections, were all oval-bodied necked jars. All seven vessels, with the exception of one from a mid Roman deposit, belonged to late Roman deposits, the range of dates pointing to manufacture during the first half of the 4th century. Given the uniformity of date, form, and fabric, the pottery is likely to have derived from one source; if not a single kiln, then a group of kilns belonging to the same workshop. Beyond the imperfections, the vessels seem perfectly functional, and may still have travelled a reasonably long distance. However, that they derived from a more local kiln-site within the territory of the settlement and functioning in the late Roman period is equally plausible.

Use-wear

Two vessels – both in samian ware – appeared to have became worn through use. An East Gaulish Drag 45 mortarium from ditch fill 18973 was worn across its base; a neat border between the worn surface and pristine slip was seen a little way up the side of the collar internally. This pattern is typical of the form, and confirms that the vessel was used as standard for the mixing and pounding of kitchen ingredients. Another vessel, a South Gaulish Drag 18 platter, had an internal ring of wear halfway between the centre and outside edge of the base. This may have resulted from some repeated activity, although it seems more likely that the slip wore off where it was already relatively flaky, this being the area on platters and dishes that typically shows the traces of the sand used to separate one vessel from another when stacked in the kiln. Experimental use of Drag

27 and 33 cups based on use-wear, kiln-load records from La Graufesenque, and the recipes in Apicius suggests that the vessels were conventionally used, respectively, for food preparation and wine-drinking or table condiments (Biddulph 2008, 98). The absence of visible wear on such cups at Cotswold Community hints that the provision of Continental ceramics at the site did not necessarily lead to Continental-style cooking and dining.

Burning

A number of forms showed a consistent range of burnt and scorched marks that formed through use on the hearth or oven. Of the seventeen burnt vessels identified to type, five were black-burnished ware everted-rim cooking-pot type jars (type CK, eg Gillam 1976 types 10-12). The pots were burnt especially on the rim, both on the underside and upper surface, or, in one case, encrusted with soot and charcoal around the entire body. This vessel had almost certainly been used for cooking and had been on top of a hearth. The others with lesser burning around the rim may have had indirect contact with fire, although any burnt body and base sherds that belonged to them were not examined to identify joins. A further seven burnt vessels were black-burnished ware dishes. A flange-rimmed dish in an imitation black-burnished ware (type JA, cf Gillam type 38-39) from context 13832 was burnt externally on the base, wall and rim. Bead-and-flange-rimmed dishes (types JA and JB) tended to be burnt externally under the flange, while another dish, from context 14393, was burnt on the wall, rather than base or rim. Four burnt vessels were mortaria, three in Oxford white ware (Young type M2 and M22), the fourth (type KA) in Oxford white-slipped oxidised ware. All were burnt externally on the upper surface of the flange. A white-slipped mortarium-like vessel (Fig. 2.6, 53) – smaller than the Oxford types and lacking trituation grits – was similarly burnt externally on the top of the flange, indicating that the presumed prototype vessel was copied in function, as well as form.

There can be little doubt that black-burnished ware jars and dishes, and Oxford ware mortaria, were used for cooking food on the hearth. Burnt mortaria are being recognised and reported with increasing frequency. The use of the vessel for cooking appears to have been a widespread practice; examples are known, naturally enough, at a settlement in Oxford (Biddulph 2006, 163), but also further afield at, for example, Northfleet villa in Kent (Biddulph forthcoming), and Piddington villa, Northamptonshire (R Friendship-Taylor, pers. comm.). The position of the burning recorded at Cotswold Community suggests that the vessels were inverted over cooking pots set on the hearth. In contrast, the burning recorded on the dishes – typically under the rim and on the sides and base – suggests that the vessels were pushed upright into a pile of burning embers, leaving only the mouth of the vessel exposed. The burning also recalls instructions to recipes in Apicius that call for hot embers to be heaped on top of the vessel, now inverted, and held by the underside of the flange to create an oven in the form of a *testum* (Grocock and Grainger 2006, 77-82). It is worth remembering John Gillam's suggestion, too, that the plain-rimmed and bead-and-flanged black-burnished ware dishes were used together, one being inverted over the other to create a *testum*-like casserole (Gillam 1976). A comparison of diameters of both types from Cotswold Community offers support for this suggestion. The mean diameter of 54 bead-and-flanged dishes was 205.93 mm, while that of 33 plain-rimmed dishes was 188.18. Although these statistics do not match, the range of values – from 90 to 300 mm in the case of bead-rimmed dishes, and 120 to 280 mm for plain-rimmed dishes – indicates that there was considerable overlap, and that generally both types had matching diameters. This can be tested statistically using the ttest (Shennan 1997, 89). In addition to the means and sample counts, the variance for bead-rimmed dishes was 2171.77; bead-rimmed dishes had a variance of 1721.59. To run the t-test, it was necessary to calculate, based on these statistics, the standard error of the difference between means, which was 9.84. Thus, $t = (205.93 - 188.18)/9.84$. The result, 1.8, was not significant at the 0.05 level (with 85 degrees of freedom), and therefore the null hypothesis was accepted; there was no evidence that the two types of dishes were different in terms of diameter.

Further evidence of burning was seen in a Nene Valley white ware mortarium (context 14413), which was scorched internally across the base, extending in places up the sides and on to the flange. In this case, something was burnt inside the vessel, perhaps a cooking ingredient, or possibly an incense-like substance to achieve a specific effect.

Repair

The range of pottery on which repair was recorded was mixed. A handmade black-burnished ware cooking jar from ditch deposit 13870 used a lead rivet for repair, and a body sherd from another vessel (ditch fill 12473) also required a lead repair. Rivet holes were seen on sherds – seven in total – of grog-tempered ware, sandy oxidised ware, North Wiltshire grey ware, black-surfaced ware, and Savernake ware; no forms could be identified. Two samian ware vessels had been repaired. Collected from ditch fill 14281, the wall of a decorated bowl, probably Drag 29, in South Gaulish samian ware had been perforated, and a Central Gaulish Drag 18/31 or 31 dish from pit fill 13256 had been repaired with a lead rivet.

Graffiti

Six sherds showing graffiti or possible graffiti were recovered. Two of the clearest graffiti were on samian ware vessels. An East Gaulish Drag 31 dish from context 11281 had a simple X inscribed externally on the carination (Fig. 2.6, 62), and from context 15940 the wall of an open form, probably a dish, in Central

Gaulish samian ware was similarly inscribed (Fig. 2.6, 61). One point of the X was deeply scored, possibly accidentally, or perhaps even to give the graffito extra character. Two graffiti on black-burnished ware vessels were less clear. That consisting of three parallel lines scored externally on the base of a jar (context 16107; Fig. 2.6, 60) seems to have been deliberate, but the incisions made internally on the wall of a dish (context 14467) may amount to no more than random scratches (Fig. 2.6, 59). However, being an open form, the inside of the vessel would have been visible when empty, so we cannot dismiss the graffito entirely. The final two graffiti (contexts 11837 and 15068) were made before firing and therefore scratched by the potter and unrelated to the vessels' owners (Fig. 2.7, 92-3). No obvious pattern emerges, but the marks are unlikely to have been made accidentally during manufacture.

CATALOGUE OF ILLUSTRATED POTTERY
(FIGS 2.5-2.7)

Phase 6 (Fig. 2.5)

Pit 10420, fill 10411:
1 Fabric E80, jar CE.
2 Fabric E80, jar CE.
3 Fabric E80, jar CE.
4 Fabric E80, jar CE.
5 Fabric E80, jar CE.
6 Fabric E40, jar CH.
Ceramic group date: late Iron Age

Pit 19814, fill 19812:
7 Fabric G21, jar CB.
8 Fabric E80, jar CE.
9 Fabric E80, jar CG.
10 Fabric E80, jar CN.
11 Fabric E80, bowl HA (*Cam* 211).
Ceramic group date: late Iron Age (residual in Phase 8 feature)
12 Fabric A35, amphora (Dressel 1). Late Iron Age. Pit 12326, fill 12325.

Phase 7 (Fig. 2.5)

Pit 12451, fill 12453:
13 Fabric E80, jar CE.
14 Fabric O40, bowl HA.
15 Fabric R30, platter JC, copying *Cam* 2.
Ceramic group date: AD 43-70 (residual in Phase 8 feature)
16 Fabric R16, bowl HG (Monaghan 1987, type 4B). Rare occurrence of North Kent (Upchurch) reduced ware. AD 43-100. Ditch 11492 (group 20129), fill 11494.
17 Fabric R101, jar or large beaker. AD 43-100. Waterhole 15257, fill 15274.
18 Fabric R101, cup FD, copying Cam 56. AD 43-70, residual in Phase 8 feature. Pit 15794, fill 19855.
19 Fabric O46, beaker EA. AD 43-70, residual in Phase 8 feature. Pit 19794, fill 19854.

Phase 7/8 (Fig. 2.5)

20 Fabric G21, bowl HC AD 43-100. Pit 14274, fill 14279.

Phase 8 (Figs 2.5-6)

Pit 16153, fills 16151 and 16152:
21 Fabric O40, jar *C*
22 Fabric B10, jar CK.
23 Fabric O40, tankard GA (Webster 1976, type E38 or 41).
24 Fabric R10, bowl HA, copying Drag 30 or 37.
25 Fabric R10, bowl HA, copying Drag 30 or 37.
Ceramic group date: AD 125-130

Ditch 13829 (group 20022), fill 13827:
26 Fabric R37, jar CC
27 Fabric R35, jar CD.
28 Fabric R35, jar CD.
29 Fabric B10, jar CK.
30 Fabric B10, jar CK.
31 Fabric B10, jar CK.
32 Fabric B10, jar CK.
33 Fabric B10, jar CK,
34 Fabric R35, jar CM.
35 Fabric O30, beaker EC
36 Fabric R35, beaker EH.
37 Fabric B30, dish JA, copying Drag 18/31.
Ceramic group date: AD 140-160

Ditch 13839 (group 20022), fill 13837:
38 Fabric R35, jar CD.
39 Fabric O30, jar CD.
40 Fabric R95, jar CN.
41 Fabric F67, beaker EC
42 Fabric O40, bowl HC (Webster 1976, type F50).
43 Fabric B30, dish JA.
44 Fabric B30, dish JA.
45 Fabric S40, dish JB (Drag. 31).
Ceramic group date: AD 170

Waterhole 16074, fill 16116:
46 Fabric R35, jar CC
47 Fabric R50, jar CD.
48 Fabric R38, jar CD.
49 Fabric B10, jar CK.
50 Fabric B10, jar CK.
51 Fabric, R35, jar CK.
52 Fabric R95, jar CN.
53 Fabric Q20, bowl HC; small gritless mortarium-like bowl, burnt on upper surface of flange.
54 Fabric R35, dish JA.
55 Fabric B10, dish JB.

56 Fabric R50, lid.
Ceramic group date: AD 170-200
57 Fabric M32, mortarium KA, with roundel stamp. AD 150-200. Pit 12134, fill 12137.
58 Fabric S30, dish sherd with ?diagonal ridges across exterior lower wall. AD 150-200. Gully 14144 (group 20128), fill 14145.
59 Fabric B10, dish JA. Incisions made after firing on wall internally. AD 150-200. Pit 14461, fill 14467.
60 Fabric B10, base with three parallel incisions made after firing. AD 150-170. Waterhole 16074, fill 16107.
61 Fabric S30, body sherd possibly from bowl with graffito made after firing. AD 120-200. Ditch 16252, fill 15940.

Phase 8/9 (Fig. 2.6)

62 Fabric S40, dish JB (Drag. 31); X graffito made after firing. AD 160-240. Ditch 11279 (group 20163), fill 11281.

Phase 9 (Figs 2.6-7)

Ditch 13245 (group 20007), fill 13244:
63 Fabric F67, jar/flask CC
64 Fabric R35, jar CD.
65 Fabric O24, jar CD.
66 Fabric R35, jar CK.
67 Fabric B10, jar CK.
68 Fabric B10, jar CK; encrusted with soot on external surface.
69 Fabric B10, jar CK.
70 Fabric B10, jar CK.
71 Fabric O40, strainer; multiple perforations made in base before firing.
72 Fabric B30, dish JA.
Ceramic group date: AD 300-330

Ditch 11728 (group 20350), fill 11732:
73 Fabric R48, flagon B.
74 Fabric F51, flagon B.
75 Fabric C11, jar CD.
76 Fabric R35, jar CD; distorted rim from waster or second.
77 Fabric R35, jar CD.
78 Fabric B10, jar CK.
79 Fabric B30, jar CK.
80 Fabric R35, jar CM; distorted rim from waster or second.
81 Fabric B10, beaker EH.
82 Fabric F51, bowl HA (Young 1977, type C82).
83 Fabric B10, dish JA.
84 Fabric B30, dish JA.
85 Fabric R30, dish JA.
86 Fabric F51, dish JB (Young 1977, type C45).
87 Fabric B30, dish JB.
88 Fabric M24, mortarium KD (cf Hartley and Perrin 1999, type M22).
89 Fabric M41, mortarium KE (Young 1977, type C100).
90 Fabric M31, mortarium KE (Young 1977, type WC5).
91 Fabric B30, lid.

Ceramic group date: AD 350-410
92 Fabric B30, jar base; graffito incised on internal surface before firing. AD 250-410. Pit 11843, fill 11837.
93 Fabric R35, jar base; graffito scored before firing. AD 250-410. Waterhole 15068.
94 Fabric F67, beaker ED. AD 270-410. Well 15942 (group 17264), fill 15944.
95 Fabric F67. Lower part of jar-sized rouletted beaker with splashes of green glaze on base and junction of wall and base externally. The glaze on the base was mixed with gritty or organic fragments. Glazed decoration was occasionally employed by North Wiltshire potters; the rim and shoulder of an oxidised jar from Roughground Farm, for example, was patchily lead-glazed (Green and Booth 1993, 122). However, given the marginal position of the glaze on the beaker, it is more likely to be accidental ash glaze, rather than deliberately applied. The glaze was formed by hot wood and ash - present in the kiln chamber or drawn through the flue - settling on the vessel; the ash melts and becomes glassy. AD 240-410. Well 15942 (group 17264), fill 17339.

ROMAN POTTERY FROM TVAS EXCAVATIONS IN 2005 AND 2006/7

by Jane Timby

A total of 13 sherds of Roman date were recovered from the 2005 excavations (Phase 3) in the vicinity of the Iron Age settlement to the south-east. They are all from cuts of ditch T1011, the main southern boundary of the Roman settlement (equivalent to ditch 2750 on the OA excavations further to the west). Fabrics include four sherds of North Wiltshire greyware, one sherd of South-west white-slipped mortaria, four sherds of Dorset black-burnished ware and four sherds of Severn Valley ware. Collectively these suggest a date in the later 2nd-3rd century.

A larger quantity of Roman pottery was recovered from Phase 4 excavations further north in 2006/7, comprising 368 sherds weighing 2.39 kg (Table 2.11). The pottery came from ditches of the Roman field system to the east of the main settlement and was very fragmented, with poorly preserved surfaces; many pieces are quite friable with multiple fresh breaks. The overall mean sherd weight is only 6.6g and the number of diagnostic sherds very limited.

The incidence of sherds per feature across the site is extremely low making it difficult to date individual contexts very closely. The assemblage is dominated by local wares from the North Wiltshire industries which effectively account for 66.6% by count of the total assemblage. Continental imports are limited to

Table 2.11 Summary of pottery fabrics from TVAS Phase 4 excavations

	Fabric	Description	No	% No	Wt	% Wt
Imports	CGSAM	Central Gaulish samian	19	5.2	67	2.8
	BAT AM	Baetican amphorae	2	0.5	67	2.8
Regional	DOR BB1	Dorset black burnished ware	64	17.4	345	14.4
	OXF RS	Oxon colour-coated ware	16	4.3	64	2.7
	OXF WH	Oxon whiteware mortaria	4	1.1	285	11.9
	SAV GT	Savernake ware	3	0.8	50	2.1
	SOW BB1	SW black burnished ware	1	0.3	7	0.3
Local	WIL RE	Wilts grey ware	157	42.7	1163.5	48.7
	WIL OX	Wilts oxidised ware	82	22.3	226	9.5
	WIL GR	Wilts grog-tempered	6	1.6	84	3.5
	GREY	misc grey/ black sandy ware	6	1.6	22	0.9
	OXID	misc oxidised ware	5	1.4	9	0.4
	misc	small crumbs	3	0.8	1	0.0
TOTAL			368		2390.5	

samian ware and Dressel 20 Baetican amphorae. By sherd count the samian ware accounts for 5.2% of the Roman assemblage which is quite high for a rural site. Most of the pieces are burnt or much abraded with no surviving surfaces.

Regional imports are dominated by Dorset black-burnished ware which makes up 17.4% of the Roman assemblage (by sherd count). Although the surfaces have been lost so that the burnished decoration cannot be observed for dating purposes, the typology of the forms suggests a mixture of later 2nd to late 3rd-4th century types. Other regional imports are limited to a sherd of South-west black-burnished ware jar, two Oxfordshire white ware mortaria (Young 1977, forms M17 and M18), a single Oxfordshire colour-coated bowl (Young 1977, form C51) and some Savernake ware.

Most of the ditches appear to contain sherds that could either date to the 2nd or 3rd centuries. Ditches 7 (T1803), 2034 and 2035 (both T1802) all contain 3rd-century material, whilst ditch 2049 (T1828) with a Dorset black-burnished ware conical flanged bowl could be later 3rd or 4th-century.

Chapter 3: Saxon and Medieval Pottery

By Paul Blinkhorn

INTRODUCTION

The post-Roman pottery assemblage from the Oxford Archaeology excavations at Cotswold Community comprised 219 sherds with a total weight of 2837 g (Table 3.1). It comprised a mixture of early/middle Anglo-Saxon, medieval and post-medieval wares, with the bulk of the assemblage consisting of the last-named. Most of the assemblage was fragmented and scattered, but the Anglo-Saxon material included a partially complete hand-built vessel, along with other sherds of the same type, which are the most westerly finds of Anglo-Saxon pottery of the period in the Upper Thames Valley.

FABRICS

The following fabrics were noted:
Early/Middle Saxon organic-tempered ware, *c* AD 450-850. Hand-built, with moderate to dense voids up to 10 mm, resulting from organic material burning out during the firing process. 72 sherds, 874 g, EVE = 0.15.
Early-middle Saxon oolitic limestone-tempered ware, AD 450-850. Hand-built, with moderate to dense circular voids up to 2 mm, resulting from oolitic limestone leaching out during deposition. 1 sherd, 3 g, EVE = 0.03.
Cotswolds-type ware, c late 9th–early 13th century (Mellor 1994). Slow-wheel made. Fairly hard, dark blue-grey fabric with moderate sub-rounded white pink and grey quartzite up to 1 mm. Sparse to moderate calcareous material, including ooliths, up to 2 mm. Rare haematite up to 1 mm. Mainly 'barrel' jars with triangular rims or more shouldered examples with high everted rims, bases usually sagging. Probably manufactured at a number of sources in the Cotswolds region. 3 sherds, 40 g.
Newbury 'A/B' ware, late 12th–late 14th century (Mepham 1997, 51-2). A range of sand-, flint- and limestone-tempered wares. Sparse to moderate limestone up to 2 mm, rounded white or clear quartz up to 0.5 mm, angular fragments of white, grey or black flint. Jars, bowls and pitchers. 1 sherd, 7 g.
Minety-type ware, mid-12th–16th century. Moderate subrounded quartz up to 1 mm, sparse to moderate red and black iron ore up to 0.5 mm, sparse to moderate oolitic limestone up to 2 mm. Poor quality green glaze, jugs, jars (Mellor 1994, 100). 13 sherds, 237 g, EVE = 0.03.
Red Earthenwares. Fine sandy earthenware, usually with a brown or green glaze, occurring in a range of utilitarian forms. Such 'country pottery' was first made in the 16th century, and in some areas continued in use until the 19th century. 128 sherds, 1666 g.
LES: Late English Stoneware. White/grey stoneware with a white salt glaze. Made at numerous centres, such as Staffordshire, London and Nottingham, from the later 17th century onwards, in a wide range of utilitarian forms (Crossley 1990). 1 sherd, 10 g.
The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 3.1. Each date should be regarded as a *terminus post quem*.

DISCUSSION

Early/middle Saxon

The early/middle Anglo-Saxon assemblage is mainly made up of large sherds from the base and body of a single, incomplete vessel recovered from the lower fill of waterhole 2507, which had a 7th century inhumation burial cut into the top (Fig. 3.1) (see vol. 1, Chapter 4). The rest of the assemblage comprises mainly single sherds from different vessels. Unfortunately, such pottery is very difficult to date accurately, unless decorated or accompanied by datable imports such as Ipswich ware or Continental wares. The Anglo-Saxons largely ceased decorating pottery in the early part of the 7th century (Myres 1977), but such wares were rare even when they were used. Usually, decorated wares only comprise around 3% of the pottery from settlement sites of the 5th and 6th century, such as Mucking in Essex (Hamerow 1994), and rarely occur in small assemblages. Thus, a small assemblage lacking decorated pottery, such as this one, cannot be given a date other than to within the broad early–middle Anglo-Saxon period, that is to say *c* AD 450–850.
The assemblage is of some importance, however, as it appears to be the most westerly find of hand-built Anglo-Saxon pottery from the Thames Valley, and one of very few from Gloucestershire. It is certainly amongst the largest assemblage from the county, with most of the sites listed by Vince (unpub.) consisting of only a few sherds. The material is typical of the organic-tempered pottery tradition known from sites of both early and middle Saxon date along virtually the whole length of the Thames Valley, including London (Blackmore 1988; 1989), Maidenhead (Blinkhorn 2002), Oxford (Mellor 1989, 198), Reading (Blinkhorn 2007; Slade 1975; Underwood 1997) and Lechlade (Timby 2003, 58-63; Blinkhorn in archive). Further findspots in the region are discussed by Timby (2003, 60). Lechlade represented the previously-known most westerly find of the material

Table 3.1 Post-Roman pottery occurrence by number and weight (g) of sherds per context by fabric type

	Fabric														
	F1		F2		F200		F202		F355		F425		LES		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
190											1	20			17thC
198									1	55					M12thC
497	20	33													E/MS
943									1	3	3	74	1	10	18thC
1746											3	41			17thC
1757											2	45			17thC
2002	1	3			1	8					5	43			17thC
2045											1	6			17thC
2392	6	19													E/MS
2393	11	29													E/MS
2395	1	3													E/MS
2401											4	40			17thC??
2475	1	4									5	41			17thC
2524	25	654							1	28	12	165			E/MS
2525									3	28	4	86			17thC
2526									1	11	3	65			17thC
2563							1	7	1	7	7	89			17thC
2566											2	30			17thC
2733									2	41	8	106			17thC
2734									1	8	7	41			17thC
2736	1	2													E/MS
2745											3	21			17thC
2869	2	9													E/MS
3023											2	17			17thC
3162											4	18			17thC
3576									1	31	4	24			17thC
4051											4	96			17thC
4052					1	28					13	176			17thC
4209											2	9			17thC
4223											2	4			17thC
4226									1	25					M12thC
4339											1	7			17thC
4906											1	2			17thC
5503	2	115													E/MS
6948											1	17			17thC
8139			1	3											E/MS
8313	1	1													E/MS
10340	1	2													17thC
10565											4	55			17thC
10948											1	17			17thC
11653											1	21			17thC
12143											1	7			17thC
12775											1	5			17thC
12975											1	9			17thC
12976											1	10			17thC
13050											1	5			17thC
13244											1	12			17thC
13389											1	5			17thC
13965											7	179			17thC

Table 3.1 *Post-Roman pottery occurrence by number and weight (g) of sherds per context by fabric type (continued)*

	Fabric														
	F1		F2		F200		F202		F355		F425		LES		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
14929											1	32			17thC
15728					1	4					1	8			17thC
15763											1	6			17thC
15765											1	12			17thC
Total	72	874	1	3	3	40	1	7	13	237	128	1666	1	10	

in the Thames Valley, and the Little London site there also produced dateable middle Saxon wares. There were only 42 sherds of chaff-tempered pottery from that site.

Illustration (Fig. 3.1)

Context 2524 (waterhole 2507): Early/middle Saxon organic-tempered vessel. Two large, non-joining sherds from the base and body. Black fabric with patchy light brown and grey outer surface.

Medieval and later

The medieval assemblage is typical of sites in the region. It is dominated by products of the Cotswolds industries, particularly Minety-type wares, although most of the pottery of this type and date was redeposited in later features. Only a single rim was noted, from a jar, and all the body sherds were plain apart from a single sherd with splashes of green glaze and fragments of incised decoration. This appears to be from a jug, and is a decorative scheme typical of such vessels. A single sherd of Newbury A/B ware was also noted, along with three sherds of Saxo-Norman or early medieval Cotswolds-type ware.

The post-medieval assemblage consisted almost entirely of Red Earthenwares, along with a single sherd of later English Stoneware. Very few rim sherds of the former were present, with those that were suggesting that most of the assemblage comprised large bowls (pancheons), which is typical of the tradition.

POST-ROMAN POTTERY FROM TVAS EXCAVATIONS IN 2005 AND 2006/7

by Jane Timby

Sixteen sherds of late medieval/post-medieval pottery and one fragment of glazed post-medieval tile were recovered from excavations in 2005 in the south-eastern part of the site. These included one sherd of slip-decorated white ware and eight glazed red earthenware sherds of 18th-century date from medieval ditch 1010 (cut 236); the tile came from the same ditch (cut 237). Seven sherds from a green glazed earthenware vessel possibly of 16th-17th century date came from Roman ditch 1011, which may have remained an open feature within the landscape (see Vol. 1, Chapter 4).

In the 2006/7 excavation area to the north, two sherds from Roman ditch 1817 may be from a Saxon vessel. The larger sherd has a burnished finish and is fluted. The sherds have a distinctive sandy fabric with sparse inclusions of quartzite and sandstone and shiny, facetted quartz grains. Two post-medieval sherds were recovered from a furrow and from ditch 1826.

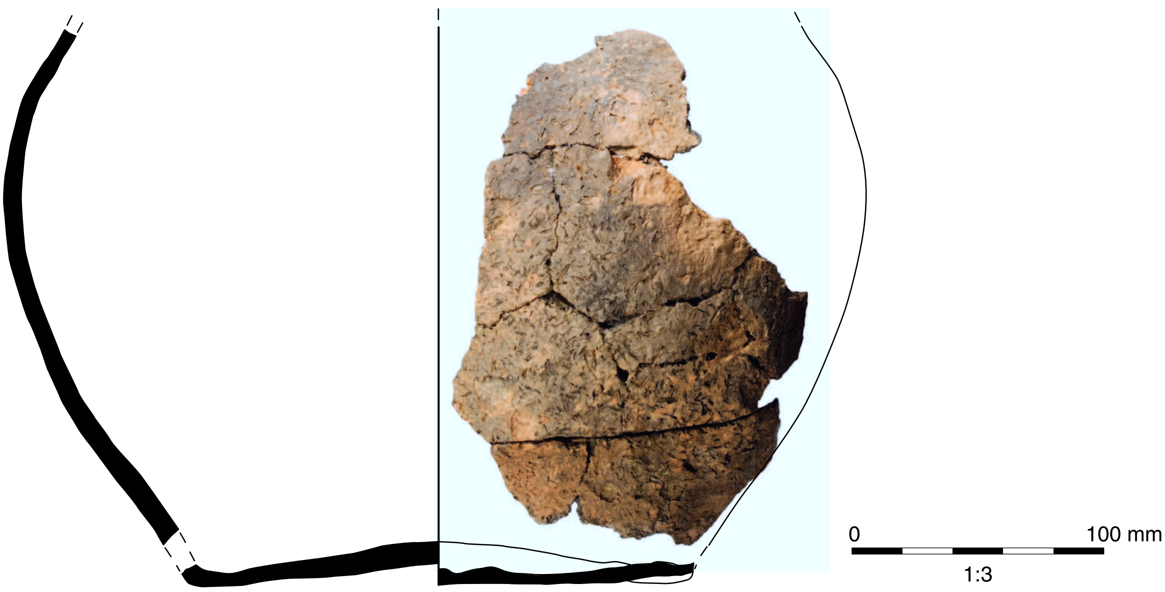

Figure 3.1 *Early/middle Saxon organic-tempered vessel*

Chapter 4: Worked Flint

By Hugo Lamdin-Whymark

INTRODUCTION

A total of 1194 flints and 59 pieces (145 g) of burnt unworked flint were recovered from the excavations (Table 4.1). The flint assemblage was retrieved from a large number of discrete archaeological features, including many of early prehistoric date (Table 4.2). The assemblage includes flint dated to the Mesolithic and middle Neolithic to early Bronze Age on the basis of technological attributes and ceramic associations. The Mesolithic flintwork was recovered as residual finds, with the exception of a small assemblage from a tree-throw hole. The middle Neolithic to early Bronze Age assemblage was predominately retrieved from pits, with a small number of additional flints recovered from tree-throw holes, two Beaker burials, a ring ditch and a pit circle (Table 4.3). There was no evidence for Bronze Age flintworking, but a small number of earlier flints were reworked and deposited in Bronze Age features. Bronze Age and Iron Age waterholes also produced reasonable assemblages of earlier flintwork, suggesting artefact curation and deposition.

The collection is fairly substantial for the region and allows the detailed analysis of technological attributes from secure middle Neolithic, late Neolithic and early Bronze Age features. The excavations also produced a substantial assemblage of scrapers allowing detailed consideration of form and edge morphology (details in site archive). The analysis also aims to characterise flint assemblages recovered from Neolithic and early Bronze Age pits. This will allow consideration of wider patterns of movement in the landscape and provide evidence for the temporal patterns of pit deposition. Moreover, the early prehistoric assemblage is comparable in size to other significant assemblages from the limestone gravels terraces of the Upper Thames Valley, such as Yarnton (Cramp and Bradley forthcoming) and Horcott Pit (Lamdin-Whymark *et al.* forthcoming).

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 (eg Bamford 1985, 72-7; Healy 1988, 48-9; Bradley 1999, 211-227). Additional information was recorded on the condition of the artefacts, including burning, breakage, the degree of edge-damage and the degree of cortication. Unworked burnt flint was quantified by weight and number. The assemblage was catalogued directly onto a Microsoft Access database and data manipulated in Microsoft Excel. Technological attribute analysis was undertaken on 435 complete and broken flakes and retouched artefacts from all phased earlier prehistoric features. Technological attributes recorded include; butt type (Inizan *et al.* 1992), 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 297 complete flakes and retouched tools were measured using standard methods for recording length, breadth and thickness (Saville 1980).

CONDITION

The flintwork is generally in fresh condition, although a small number of flints exhibit slight edge-damage. This damage may have occurred during the life of the artefacts, as many of the flints are well used, or it may indicate that the flints were exposed on the surface for some time prior to burial. A small number of flints are more heavily rolled, indicating prolonged exposure or redeposition; these flints are residual and were mainly recovered from features phased to Bronze Age, Iron Age and Roman periods.

The vast majority of the flintwork displays a heavy white surface cortication, which is typical of the region; only very few flints are uncorticated or exhibit a light white surface coloration. In some cases, the cortication has become iron-stained, while spots of iron-staining are present on a few other examples. These differences in surface cortication provide evidence for the reworking and reuse of flint tools in prehistory. Several examples are present that show different degrees of cortication associated with different episodes of reworking. These include a number of flakes that, at a considerably later date, have been retouched as scrapers and deposited in Bronze Age waterholes.

The assemblage has relatively high proportions of burning and breakage at 17.8% and 43.5% of the total assemblage, excluding chips, respectively (Table 4.1). These levels vary significantly between individual features and phases. The levels of burning and breakage are particularly high in the post-early Bronze Age assemblage and reflect damage resulting from redeposition. Middle Neolithic and early Bronze Age pits contain relatively high proportions of burning at 14.7% and 13.2% respectively, whilst late Neolithic and late Neolithic/early Bronze Age features have relatively low proportions at 4.3% and 4.4%, respectively. The low proportion of burnt artefacts in the late Neolithic is particularly notable

Table 4.1 Flint assemblage by excavation area

	Area				
CATEGORY TYPE	**SKCC99**	**SKCC00**	**SKCC02**	**SKCC03**	**Grand Total**
Flake	38	170	184	133	525
Blade	2	4	22	19	47
Bladelet		1	6	2	9
Blade-like	3	6	15	25	49
Irregular waste	2	10	10	10	32
Chip		14	20	2	36
Sieved chips 10-4 mm	1	206		9	216
Micro burin			1		1
Rejuvenation flake core face/edge			2	1	3
Rejuvenation flake tablet		1	2		3
Rejuvenation flake other		3			3
Thinning flake	1	1			2
Flake from ground implement			2		2
Core single platform blade core		1	1		2
Other blade core			2	1	3
Tested nodule/bashed lump	1		1		2
Single platform flake core		3	1	2	6
Multiplatform flake core	2	3	2	9	16
Core on a flake		2	3		5
Keeled non-discoidal flake core	1				1
Levallois/ other discoidal flake core	1			2	3
Unclassifiable/fragmentary core			2		2
Unworked flint nodule				1	1
Microlith		2	1	1	4
Chisel arrowhead			1		1
Oblique arrowhead		1	1		2
Barbed and tanged arrowhead			1		1
Unfinished arrowhead/blank		1			1
Fragmentary/unclass/other arrowhead			1		1
End scraper	1	9	20	5	35
Side scraper		3	5	1	9
End and side scraper	3	4	9	9	25
Disc scraper		3	3	4	10
Thumbnail scraper	1				1
Other scraper	1	2	6	1	10
Awl		1			1
Piercer			3	4	7
Spurred piece		1	1		2
Serrated flake		2	5	2	9
Denticulate			1		1
Notch			4	5	9
Backed knife	1	2	6	1	10
Edge ground knife	1				1
Plano-convex knife			1		1
Other knife		3	4	1	8

Table 4.1 Flint assemblage by excavation area (continued)

	Area				
CATEGORY TYPE	**SKCC99**	**SKCC00**	**SKCC02**	**SKCC03**	**Grand Total**
Retouched flake	2	12	24	17	55
Fabricator			1		1
Misc. retouch	2	3	4	2	11
Other		3	1		4
Hammerstone		3	2		5
Grand Total	64	480	381	269	1194
Burnt unworked flint No./Wt. (g)	8/18	39/59	6/48	6/20	59/145
No. burnt worked flints (%)*	15 (23.8)	51 (19.6)	70 (19.4)	50 (19.5)	186 (19.7)
No. broken flints (%)*	17 (27)	112 (43.1)	158 (43.8)	134 (51.9)	421 (44.7)
No. retouched flints (%)*	12 (19)	52 (20)	103 (28.5)	53 (20.5)	220 (23.4)

*Percentage excludes chips

as in the Middle Thames Valley it is not uncommon for up to 50% of flints in Grooved Ware-associated pits to be burnt (Lamdin-Whymark 2007). Levels of breakage in Neolithic to early Bronze Age pits vary between 30.8% and 39.2%. Of these 145 broken flints, 40 (27.6%) were relatively thick flakes broken by flexion. These flakes may result from intentional breakage, but only two scrapers and two edge-retouched flakes exhibit contact features definitively demonstrating intentional breakage (Bergman *et al*. 1987; Lamdin-Whymark forthcoming). It is notable that 23 (57.5%) of possible intentional breaks were on retouched artefacts. This total includes thirteen scrapers, seven edge-retouched flakes, a notch, a serrated flake and a piece of miscellaneous retouch. A refit between a scraper and a flake on an intentional break demonstrates that intentional breakage was part of the manufacturing processes. This assertion is supported by the presence of retouch on intentional breaks on a further scraper and an edge-retouched flake. Moreover, the proximal ends of eleven scrapers were broken; these breaks may represent part of the artefact's manufacture, but equally the breaks may have occurred during or after the artefacts use. Two scrapers had been broken into quarters, with the damage clearly occurring on the finished artefact. It is notable that intentional breakage was more common in certain features; Pit 4048 yielded 7 possible examples of intentional breakage, whilst pits 4512, 8697, 9120, 9122 and 17011 each produced three examples.

RAW MATERIAL

Flint is not a locally available resource and would have been imported to the site from a distance of several kilometres. The cortical surface, where present, exhibited considerable variability, indicating that raw materials were collected from at least three sources, and possibly many more. The most common flint is characterised by a thick cortex, between 5 mm and 10 mm deep, with a relatively unabraded surface. This material was probably collected from a chalk region to the south, but is unlikely to represent mined flints as the cortex was frequently stained brown. A single flint had a thick, abraded, bright white cortex, indicating that the nodule may have derived directly from the chalk. A second common raw material has a very thin cortical surface, often as little as 1-2 mm thick, that shows some weathering and abrasion to the surface. This raw material may also come from a chalk region, but it clearly derives from a more exposed source and may have been collected from a secondary derived source, such as river gravels. The third raw material is represented by only a few flints. The white chalky cortex of these nodules has been completely abraded away, leaving an often slightly pitted surface that is usually creamy or bluish-white in colour. A derived source, such as river gravels, is probably responsible for this flint although no potential sources have yet been identified. Chert from the local gravels was burnt, but these pieces were rare and it is possible that the burning occurred accidentally.

Individual pits, and groups of pits, frequently contained raw materials from more than one of the sources considered above. This pattern may indicate either that knapping occurred elsewhere in the local landscape or that flakes and tools were brought to this location as part of a toolkit accumulated from various places in the landscape, either through movement or exchange. The comparatively small size of individual pt assemblages and of the overall assemblage indicate that flint was used more sparingly than in regions

Table 4.2 Flint assemblage by phase

	Phase										
CATEGORY TYPE	**MN**	**LN**	**LN/ EBA**	**LN/ EBA?**	**EBA**	**EBA?**	**Neo/ EBA?**	**Prehist?**	**Earlier Prehist?**	**Post EBA phases**	**Grand Total**
Flake	38	47	31	1	98	8	20	4	42	236	525
Blade	3	2	1		4	1	2		3	31	47
Bladelet					4		1	1		3	9
Blade-like	3	7	2		2		6	1	1	27	49
Irregular waste		2	2		7		2		2	17	32
Chip	3	1	1		8	2	2		2	17	36
Sieved chips 10-4 mm		8	64		136					8	216
Micro burin							1				1
Rejuvenation flake core face/edge	1				1					1	3
Rejuvenation flake tablet					1				1	1	3
Rejuvenation flake other						1	1			1	3
Thinning flake			1							1	2
Flake from ground implement					2						2
Core single platform blade core						1				1	2
Other blade core										3	3
Tested nodule/bashed lump										2	2
Single platform flake core					1				1	4	6
Multiplatform flake core					2				1	13	16
Core on a flake		1						1		3	5
Keeled non-discoidal flake core										1	1
Levallois/ other discoidal flake core										3	3
Unclassifiable/ fragmentary core										2	2
Unworked nodule										1	1
Microlith									2	2	4
Chisel arrowhead	1										1
Oblique arrowhead					2						2
Barbed and tanged arrowhead					1						1
Unfinished arrowhead/blank					1						1
Fragmentary/other arrowhead					1						1
End scraper	2	2	4		15		1	1		10	35
Side scraper	1		1		4					3	9
End and side scraper	2		2		5				1	15	25
Disc scraper	1	1			2	1				5	10
Thumbnail scraper										1	1

Table 4.2 Flint assemblage by phase (continued)

	Phase										
CATEGORY TYPE	**MN**	**LN**	**LN/ EBA**	**LN/ EBA?**	**EBA**	**EBA?**	**Neo/ EBA?**	**Prehist?**	**Earlier Prehist?**	**Post EBA phases**	**Grand Total**
Other scraper	3				3					4	10
Awl										1	1
Piercer		2			1		1			3	7
Spurred piece										2	2
Serrated flake	3				3				1	2	9
Denticulate										1	1
Notch	1				2		1			5	9
Backed knife	2				3				1	4	10
Edge ground knife										1	1
Plano-convex knife					1						1
Other knife	1				5		1			1	8
Retouched flake	4	5	1	1	9	1			4	30	55
Fabricator	1										1
Misc retouch					4					7	11
Other					2					2	4
Hammerstone	1				3					1	5
Grand Total	71	78	110	2	333	15	39	8	62	476	1194
Burnt unworked flint No./Wt. (g)	2/43		9/7		8/5					40/90	59/145
No. burnt worked flints (%)*	10 (14.7)	3 (4.3)	2 (4.4)	1	25 (13.2)	4 (30.8)	7 (18.9)	1 (12.5)	11 (18.3)	104 (23.1)	168 (17.8)
No. broken flints (%)*	23 (33.8)	26 (37.7)	16 (35.6)	2	74 (39.2)	4 (30.8)	18 (48.6)	4 (50)	30 (50)	213 (47.2)	410 (43.5)
No. retouched flints (%)*	22 (32.4)	10 (14.5)	8 (17.8)	1	64 (33.9)	2 (15.4)	4 (10.8)	1 (12.5)	9 (15)	99 (22)	220 (23.4)
No. of flakes/blades/ bladelets/ blade-like flakes per core	44+	56	34+	1+	36	9	29+	6	23	9	16
No. of features represented	10	10	6	2	20	7	8	6	40	209	322

*Percentage excludes chips

with ready access to raw materials, but there is little evidence to suggest that flint was a scarce resource. At Cotswold Community only a single flake tool was reworked for small flakes, whilst in contemporary pit assemblages at Yarnton the reworking of flake tools was a common occurrence (Cramp and Bradley forthcoming). The Neolithic and early Bronze Age population occupying the landscape at Cotswold Community, therefore, perhaps had ready access to raw materials in cycles of movement and/or exchange.

THE ASSEMBLAGE

Struck flint was recovered from 270 archaeological features, 4 finds references and 6 layers. Of these features, 109 are phased or tentatively phased to the early prehistoric period. These features comprise: 76 pits, 25 tree-throw holes, 2 postholes, a ring-ditch, a pit circle, 2 Beaker burials and a finds reference (Table 4.3). In total, these features contained 716 flints, representing 60% of the total flint assemblage from the site. The vast majority of this total, 641 flints, was recovered from pit deposits. The remaining 40% of the assemblage (478 flints) was recovered from features phased to the Bronze Age and later periods. The great majority of these flints are residual finds in later archaeological contexts, but there is some evidence for the reworking of Mesolithic/Neolithic flints in the Bronze Age and the deposition of these tools in waterholes (see below). This report will consider the flint assemblage chronologically.

Table 4.3 Early prehistoric features containing struck flint

	Feature type											
	Pit		**Tree-throw hole/'natural feature'**		**Posthole**		**Ring-ditch/ Pit circle**		**Burial**		**Finds reference**	
Phase	*No. of features*	*No. of flints*	*No. of features*	*No. of flints*	*No. of features*	*No. of flints*	*No. of features*	*No. of flints*	*No. of features*	*No. of flints*	*No. of features*	*No. of flints*
MN	10	*71*										
LN	10	*72*	1	*6*								
LN/EBA	5	*109*			1	*1*						
LN/EBA?							1	*2*				
EBA	17	*317*					1	*10*	2	*6*		
EBA?	7	*15*										
Neolithic/EBA?	5	*20*	3	*17*								
EP?	16	*29*	21	*30*	1	*1*					1	*2*
Prehistoric?	6	*8*										
Grand Total	76	641	25	53	2	2	2	12	2	6	1	2

Mesolithic

A light scatter of Mesolithic flintwork was distributed across the excavation areas, with the exception of 1999 area. Diagnostic artefacts include two late Mesolithic scalene micro-triangles (pit 5517 and ditch 14273), a broken obliquely blunted point (tree-throw hole 5382), a tanged point (ditch 4944; Fig. 4.2, 1) and a proximal micro-burin (pit 10092). In addition, twelve flakes and blades, a unifacial-crested blade, a single platform flake core and a single-platform bladelet core have been tentatively assigned to the Mesolithic/early Neolithic as they represent products of a blade-orientated industry. Tree-throw hole 7505 produced 17 flints, including a burnt and broken microlith, a spurred piece and a single platform blade core. The assemblage forms a coherent group and the reduction strategies noted are consistent with a Mesolithic industry. The fresh condition of the flintwork suggests that the assemblage is probably contemporary with the feature from which it was recovered, although an Iron Age pottery sherd was also retrieved from the fill.

Earlier Neolithic

No groups of early Neolithic flintwork or diagnostic

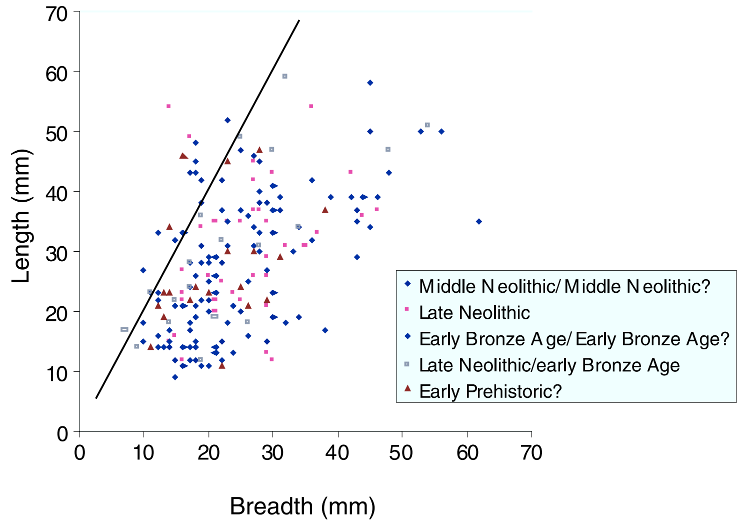

Figure 4.1 Length:breadth plot of complete flakes from middle Neolithic to early Bronze Age phased features

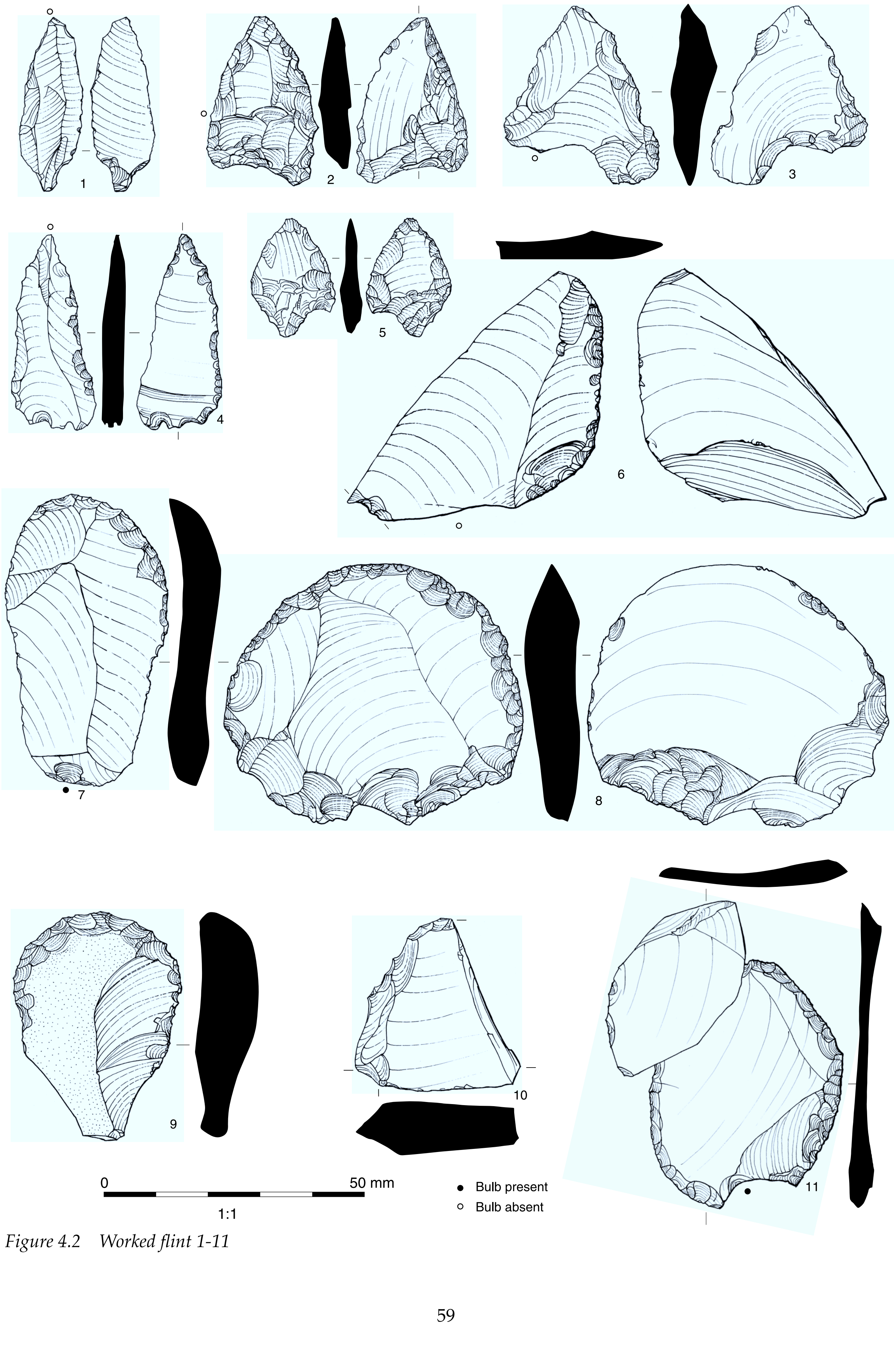

Figure 4.2 Worked flint 1-11

Table 4.4 Proportion of flints per pit in relation to feature grouping

Features	**No. MN features**	**No. LN features**	**No. LN/EBA features**	**No. EBA features**	***Total No. features all phases***	**No of groups/ pairs**	**Total no. of flints***	**Average no. flints per feature**
Isolated pits	7		2	4	*13*	-	79	6.1
Paired pits		8	4	3	*15*	9	101	6.7
Groups of three pits	3	2		13	*18*	7	191	10.6
Group of four pits (two pairs)				3	*3*	1	9	3

*excluding chips and burnt unworked flint

Table 4.5 Flint assemblage from features phased to the middle Neolithic

	Group of three pits			**Isolated features**							
CATEGORY TYPE	**8697**	**8700**	**8701**	**8033**	**8467**	**8799**	**8864**	**8899**	**9834**	**10206**	**Grand Total**
Flake	2	7		16	6	1	1	3	1	1	38
Blade	1				1	1					3
Blade-like		1		1	1						3
Chip		2		1							3
Rejuvenation flake core face/ edge	1										1
Chisel arrowhead				1							1
End scraper				1					1		2
Side scraper					1						1
End and side scraper	1	1									2
Disc scraper	1										1
Other scraper	2					1					3
Serrated flake		1		2							3
Notch									1		1
Backed knife			1						1		2
Other knife	1										1
Retouched flake	1				2				1		4
Fabricator				1							1
Hammerstone	1										1
Grand Total	11	12	1	23	11	3	1	3	5	1	71
Burnt unworked flint No./Wt. (g)	1/42										1/42
No. burnt worked flints (%)*	2 (18.2)	5			3 (27.3)	1	1				12 (17.6)
No. broken flints (%)*	5 (45.5)	5		3 (13.6)	5 (45.5)	2	1		3	1	25 (36.8)
No. retouched flints (%)*	6 (54.5)	2	1	5 (22.7)	3 (27.3)	1			4		22 (32.4)

Table 4.6 Flint assemblage from features phased to the late Neolithic

	Paired pit	**Paired pits**		**Paired pits**		**Paired pit**	**Paired pits**		**Group of three**		**Isolated feature**	**Grand Total**
CATEGORY TYPE	**7205**	**5320**	**5797**	**17665**	**17667**	**18901**	**17011**	**17022**	**6570**	**6572**	**9341**	
Flake	1	4	5	18	1	2	6	3	3	1	3	47
Blade						1		1				2
Blade-like				4		2	1					7
Irregular waste						1		1				2
Chip	1											1
Sieved chips 10-4 mm			8									8
Core on a flake											1	1
End scraper							1				1	2
Disc scraper								1				1
Piercer							1				1	2
Retouched flake		1			1		1	2				5
Grand Total	2	5	13	22	2	6	10	8	3	1	6	78
Burnt unworked flint No./Wt. (g)												
No. burnt worked flints (%)*				1 (4.5)				2				3 (4.3)
No. broken flints (%)*	1	2	1	10 (45.5)	1	3	4 (40)	2		1	1	26 (37.7)
No. retouched flints (%)*		1			1		3 (30)	3			2	10 (14.5)

artefacts were identified. It is possible that isolated flints of this date are present, but these are not readily distinguishable from the Mesolithic/early Neolithic pieces noted above.

Middle Neolithic to early Bronze Age features

A total of 55 features containing flint have been phased to the middle Neolithic, late Neolithic, late Neolithic/early Bronze Age or early Bronze Age. This total includes 49 pits (584 flints), 1 posthole (1 flint), 1 tree-throw hole (6 flints), 1 ring-ditch (10 flints), 2 Beaker burials (6 flints) and a pit-circle (2 flints) (Table 4.3). The pits were found as isolated features, paired features, groups of three features and, in one instance, two paired pits formed a group of four features. The middle Neolithic pits are most frequently isolated occurrences, whilst the late Neolithic pits are most commonly found in pairs and early Bronze Age pits mostly occur in groups of three pits (Table 4.4). These pits contained between 1 and 46 flints and the pits in each phase contained on average 6 or 7 flints; averaging 6.7 flints per pit across all phases. It is notable that pits in pairs or groups of three generally contain a similar number of flints per feature. For example, the group of three pits 9120, 9121 and 9122 contains 46, 18 and 15 flints respectively, whilst grouped pits 4599, 4602 and 4605 contain 4, 5 and 7 flints respectively. The assemblages contained within related pits are also broadly comparable, with no evidence for the separation of retouched tools, debitage and burnt artefacts etc. This may indicate that each pit in a pair or group reflects a common range of activities or period of time, but that either the temporal rhythm of these deposition events or the rate of deposit accumulation differs between pairs/ and groups with accumulation of larger deposits, in certain cases, before a deposition event occurs. The pairs/groups with the largest flint assemblages notably also contained the finest artefacts, indicating

Table 4.7 Flint assemblage from features phased, or tentatively phased, to the late Neolithic/early Bronze Age

			LNEBA				LNEBA?	Grand Total
	Paired pits		Paired pits		Isolated features		Pit circle	
CATEGORY TYPE	**8369**	**8371**	**4238**	**4860**	**5550**	**10228**	**9100†**	
Flake	1	5	4	8	13		1	32
Blade						1		1
Blade-like					1	1		2
Irregular waste		1	1					2
Chip				1				1
Sieved chips 10-4 mm			24	9	27	4		64
Thinning flake					1			1
End scraper		1	1		2			4
Side scraper		1						1
End and side scraper		2						2
Retouched flake						1	1	2
Grand Total	1	10	30	18	44	7	2	112
Burnt unworked flint No./Wt. (g)			3/2	2/2	2/2	2/1		9/7
No. burnt worked flints (%)*			1		1 (5.9)		1	3 (6.4)
No. broken flints (%)*		1 (10)	2	4	8 (47.1)	1	2	18 (38.3)
No. retouched flints (%)*		4 (40)	1		2 (11.8)	1	1	9 (19.1)

† Pit circle 9100: Pit 9108, retouched flake; Pit 9113, flake.

that the larger deposits result from more formal acts of deposition.

The earlier prehistoric pits contained either a single fill or the majority of artefacts were within one fill. The flint assemblages have, therefore, been presented by feature in Tables 4.5-4.9, with pairs and groups shown where present. The metrical and technological attributes of the middle Neolithic to early Bronze Age features are presented in Tables 4.12-4.18 and are discussed below in relation flake debitage, cores and retouched artefacts.

Flakes

The debitage from the middle Neolithic to early Bronze Age features represents the product of a flake-orientated industry, and is comparable to contemporary assemblages across southern England (Pitts and Jacobi 1979; Ford 1987). The average flake measures 32 mm long, by 27 mm wide and 7 mm thick, providing an average length:breadth value of 1.3. These dimensions do not change significantly over the phases considered, although on average flakes become slightly shorter and broader (Table 4.19). In total, only four unretouched flakes and blades are longer than 50 mm, but it is notable that 17 retouched tools exceed 50 mm in length, with a maximum length of 73 mm. The proportion of blades (flakes with a length:breadth ratio of 2:1 or higher) varies between 17.2% in the middle Neolithic and 5.4% in the late Neolithic; the early Bronze Age assemblages contain 8.9% blades. These proportions are broadly comparable with those from other later Neolithic assemblages (Ford 1987). Blade scars are present on the dorsal surface of 3.1% of flakes in the middle Neolithic and 1.5% in the late Neolithic but are absent in the early Bronze Age (Table 4.17). This indicates that the blades present are accidental bi-products of a flake-based industry. Flakes were, however, removed with some degree of care, as indicated by presence of platform-edge abrasion on up to 27.1% of flakes in the middle Neolithic, 12.5% in the late Neolithic and 25.2% of flakes in the early Bronze Age (Table 4.17). The flakes were mainly struck using hard hammer percussors, such as flint or quartzite pebbles, but up to 25% of flakes may have been struck using a soft hammer percussor, such as antler (Table 4.18). The majority of flakes were struck from plain platforms and occasionally dihedral platforms. Faceting was noted on the butt of one flint in the late Neolithic and four flints in the early Bronze Age; these butts result from the working of discoidal cores. The majority of flakes were successful removals with a feathered termination (47.3%), but a high proportion of plunging flakes was recorded (29.4%) and hinged terminations were also relatively frequent (18.8%, Table 4.16).

In total, 56.2% of flakes were non-cortical and only 8.3% of flakes bore over 50% cortex, with only five 100% flakes (1.2%) in the entire assemblage (Table 4.13). This indicates either that the raw material was arriving at this site as partly prepared nodules, or that the deposited flakes were selected from a knapping event elsewhere.

Table 4.8 Flint assemblage from features phased to the early Bronze Age

	Paired pit	Paired pits		Group of three pits			Group of three pits			Group of three pits			Group of three pits		Isolated features						Grand Total
CATEGORY TYPE	**4764**	**7622**	**7624**	**7972**	**8066**	**8134**	**9120**	**9121**	**9122**	**4599**	**4602**	**4605**	**4048**	**4512**	**2579**	**4674**	**4944†**	**5076**	**Grave 7611**	**Grave 8933**	
Flake	3	1		1	1		19	5	5	2	4	3	27	16	1		5	2		3	98
Blade							2	2													4
Bladelet							1		1				1						1		4
Blade-like									1					1							2
Irregular waste				1			2		1			1		1			1				7
Chip	1									1			4			1	1				8
Sieved chips 10-4 mm								1					107					28			136
Rejuvenation flake core face/edge								1													1
Rejuvenation flake tablet										1											1
Flake from ground implement							2														2
Single platform flake core							1														1
Multiplatform flake core												2									2
Oblique arrowhead							1						1								2
Barbed and tanged arrowhead								1													1
Unfinished arrowhead/ blank	1																				1
Fragmentary/other arrowhead							1														1
End scraper			1				5	3	2				3	1							15
Side scraper				1				1	1				1								4
End and side scraper				1			1		1					1			1				5
Disc scraper							1					1									2
Other scraper		1					1						1								3
Piercer							1														1
Serrated flake									1				1	1							3
Notch							1												1		2

Table 4.8 Flint assemblage from features phased to the early Bronze Age (continued)

	Paired pit	Paired pits		Group of three pits			Group of three pits			Group of three pits			Group of three pits		Isolated features						Grand Total
CATEGORY TYPE	**4764**	**7622**	**7624**	**7972**	**8066**	**8134**	**9120**	**9121**	**9122**	**4599**	**4602**	**4605**	**4048**	**4512**	**2579**	**4674**	**4944†**	**5076**	**Grave 7611**	**Grave 8933**	
Backed knife							1	1											1		3
Plano-convex knife							1														1
Other knife							2		1				2								5
Retouched flake				2		1	2	2	1				1								9
Misc retouch			1					1			1		1								4
Other													1				1				2
Hammerstone							1							1			1				3
Grand Total	5	2	2	6	1	1	46	18	15	4	5	7	151	22	1	1	10	30	3	3	333
Burnt unworked flint No./Wt. (g)																				1/1	1/1
No. burnt worked flints (%)*	2			2	1		3 (6.5)	2 (11.8)	2 (13.3)			2	6 (15)	4 (18.2)			1				25 (13.2)
No. broken flints (%)*	3		2	4	1	1	15 (32.6)	5 (29.4)	7 (46.7)	1	2	2	16 (40)	9 (40.9)			4	1	1		74 (39.2)
No. retouched flints (%)*	1	1	2	4		1	19 (41.3)	9 (52.9)	7 (46.7)		1	1	12 (30)	4 (18.2)			2		2		64 (33.9)

† Ring ditch 4944 contains flint in interventions 4946, 4997, 5250, 5618

Table 4.9 Flint assemblage from features tentatively phased to the early Bronze Age

	GP 10393, Pair of pits	**GP 10393, Pair of pits**		**Group of three pits**	**Group of three pits**	**Isolated features**		**Grand Total**
CATEGORY TYPE	**8675**	**8683**	**8687**	**4658**	**2833**	**4668**	**4671**	
Flake	1	1	4	1	1			8
Blade		1						1
Chip		2						2
Rejuvenation flake other							1	1
Core single platform blade core						1		1
Disc scraper			1					1
Retouched flake			1					1
Grand total	1	4	6	1	1	1	1	15
No. burnt worked flints (%)*		1	3					4 (28.6)
No. broken flints (%)*		1	2				1	4 (28.6)
No. retouched flints (%)*			2					2 (14.3)

Table 4.10 Flint assemblage from features tentatively phased to the Neolithic/early Bronze Age

CATEGORY TYPE	**4390**	**4722**	**7581**	**7585**	**8300**	**9361**	**10089**	**10092**	**Grand Total**
Flake		1	6	3	4	5		1	20
Blade						1	1		2
Bladelet				1					1
Blade-like		3					1	2	6
Irregular waste			1	1					2
Chip					1			1	2
Micro burin								1	1
Rejuvenation flake other		1							1
End scraper						1			1
Piercer								1	1
Notch								1	1
Other knife	1								1
Grand Total	1	5	7	5	5	7	2	7	39
No. burnt worked flints (%)*	1	1	2	2		1			7 (18.9)
No. broken flints (%)*	1	2	2	3	1	5	1	3	18 (48.6)
No. retouched flints (%)*	1							2	3 (8.1)

The refitting exercise identified one knapping sequence in late Neolithic pit 17765 and a con-join between a scraper and piece of the flake broken during manufacture in pit 4048. The knapping sequence in 17765 comprises five side trimming flakes struck from a plain platform and partly cortical platform, probably made using a hard hammer. In addition to the refitted flints, a further 14 flints from the pit appeared to be of the same raw material, representing the complete pit assemblage except for three flints. The refitting and related flints are in exceptionally fresh condition and appear unused. The double-side scraper from early Bronze Age pit 4048 was manufactured by the intentional removal of the proximal and distal ends and the application of regular semi-abrupt retouch to the left and right hand sides (Fig. 4.2, 11). The distal break was not entirely removed by retouch and the distal fragment was refitted. Moreover, the pit produced 111 chips, including several scraper retouch chips that appear

Table 4.11 Flint assemblage from selected features phased to the Bronze Age or Bronze Age/Iron Age

CATEGORY TYPE	Pit 2146 BA/IA	Waterhole 5018 BA	Waterhole 9157 BA/IA	Waterhole 10280 BA/IA	Ditch 14273 BA	Pit 3237 BA?	Other BA and BA/IA features	Grand Total
Flake	6	12	4	15	42	4	49	132
Blade		1		2	7		3	13
Blade-like		1	1	1	9	2	3	17
Chip				8	1		3	12
Sieved chips 10-4 mm		2					5	7
Irregular waste					4		7	11
Rejuvenation flake tablet			1					1
Thinning flake	1							1
Other blade core							1	1
Tested nodule/bashed lump						1	1	2
Single platform flake core					2		1	3
Multiplatform flake core	1			1	1		2	5
Keeled non-discoidal flake core						1		1
Levallois/ other discoidal flake core					1			1
Core on a flake							2	2
Unclassifiable/fragmentary core			1				1	2
Microlith					1			1
End scraper	1		1		1		3	6
Side scraper		1			1			2
End and side scraper	1			2	4		2	9
Disc scraper					1		1	2
Thumbnail scraper	1							1
Other scraper							2	2
Awl		1						1
Piercer					2			2
Serrated flake					1			1
Denticulate			1					1
Backed knife	1						2	3
Edge ground knife							1	1
Other knife					1			1
Retouched flake	2	4	1	3	2		5	17
Misc retouch	1	1		1	2		2	7
Other		1					1	2
Hammerstone		1						1
Unworked flint nodule					1			1
Grand Total	15	23	10	25	83	8	89	272
Burnt unworked flint No./Wt. (g)		1/1		1/1			3/17	5/19
No. burnt worked flints (%)*	4 (26.7)	5 (21.7)	3 (30)	2 (8)	21 (25.3)		23 (25.8)	58 (22.9)
No. broken flints (%)*	3 (20)	10 (43.5)	5 (50)	10 (40)	48 (57.8)	1	42 (47.2)	119 (47)
No. retouched flints (%)*	1 (6.7)	3 (13)	1 (10)	4 (16)	7 (8.4)		6 (6.7)	22 (8.7)

Table 4.12 Length/breadth index values for unretouched flakes 10 mm or more in length from phased features

	MN		LN		EBA/EBA?		LNEBA		Neolithic/ EBA?		EP?	
Length to breadth value	**No.**	**%**	**No**	**%**	**No**	**%**	**No.**	**%**	**No**	**%**	**No**	**%**
<0.6	1	*3.5*	2	*5.4*	3	*3.8*					1	*4.8*
0.6-1.0	15	*51.7*	17	*46*	25	*31.7*	6	*33.3*	5	*29.4*	6	*28.6*
1.1-1.5	7	*24.1*	13	*35.1*	40	*50.6*	5	*27.8*	9	*52.9*	7	*33.3*
1.6-2.0	6	*20.7*	5	*13.5*	4	*5.1*	6	*33.3*	1	*5.9*	6	*28.6*
2.1-2.5	4	*13.8*			5	*6.3*	2	*11.1*	1	*5.9*	1	*4.8*
2.6-3.0			1	*2.7*	2	*2.5*			1	*5.9*	1	*4.8*
3.1-3.5												
3.6-4.0			1	*2.7*								

Table 4.13 Technological attributes of flint by phase: dorsal extent of cortex

	Dorsal extent					
Context	**0**	**1-25%**	**26-50%**	**51-75%**	**76-99%**	**100%**
MN/MN?	34 (53.1)	18 (28.1)	6 (9.4)	2 (3.1)	3 (4.7)	1 (1.6)
LN	29 (43.9)	25 (37.9)	6 (9.1)	2 (3)	2 (3)	2 (3)
EBA/EBA?	106 (60.2)	46 (26.1)	13 (7.4)	5 (2.8)	4 (2.3)	2 (1.1)
LNEBA/LNEBA?	23 (51.1)	10 (22.2)	5 (11.1)	5 (11,1)	2 (4.4)	
Neolithic/EBA?	19 (59.4)	9 (28.1)	1 (3.1)	2 (6.3)	1 (3.1)	
Earlier Prehistoric?	29 (65.9)	11 (25)	2 (4.5)	1 (2.3)	1 (2.3)	
Combined total	240 (56.2)	119 (27.9)	33 (7.7)	17 (4)	13 (3)	5 (1.2)

Table 4.14 Technological attributes of flint by phase: flake type

	Flake type					
Context	**Preparation**	**Side trim.**	**Distal trim.**	**Misc. trim.**	**Non-cortical**	**Rejuvenation**
MN/MN?	3 (4.8)	11 (17.5)	8 (12.7)	6 (9.5)	34 (54)	1 (1.6)
LN	4 (6.1)	14 (21.2)	7 (10.6)	12 (18.2)	29 (43.9)	
EBA/EBA?	6 (3.4)	23 (13)	13 (7.3)	21 (11.9)	111 (62.7)	3 (1.7)
LNEBA/LNEBA?	1 (2.2)	8 (17.8)	7 (15.6)	5 (11.1)	24 (53.3)	
Neolithic/EBA?	1 (3.1)	2 (6.3)	4 (12.5)	6 (18.8)	18 (56.3)	1 (3.1)
Earlier Prehistoric?	1 (2.3)	3 (6.8)	5 (11.4)	5 (11.4)	29 (65.9)	1 (2.3)
Combined Total	16 (3.7)	61 (14.3)	44 (10.3)	55 (12.9)	245 (57.4)	6 (1.4)

Table 4.15 Technological attributes of flint by phase: butt type

	Butt type						
Context	**Cortical**	**Plain**	**>1 Removal**	**Facetted**	**Linear**	**Punctiform**	**Other**
MN/MN?	5 (10.4)	30 (62.5)	5 (10.4)		3 (6.3)	3 (6.3)	2 (4.2)
LN	11 (22.9)	23 (47.9)	3 (6.3)	1 (2.1)	2 (4.2)	4 (8.3)	4 (8.3)
EBA/EBA?	3 (2.7)	70 (63.1)	9 (8.1)	4 (3.6)	4 (3.6)	12 (10.8)	9 (8.1)
LNEBA/LNEBA?		16 (51.6)	4 (12.9)	4 (12.9)	1 (3.2)	5 (16.1)	1 (3.2)
Neolithic/EBA?	1 (4.5)	15 (68.2)	4 (18.2)	1 (4.5)		1 (4.5)	
Earlier Prehistoric?		16 (53.2)	5 (16.7)	1 (3.3)	4 (13.3)		4 (13.3)
Combined Total	20 (6.9)	170 (58.6)	30 (10.3)	11 (3.8)	14 (4.8)	25 (8.6)	20 (6.9)

Table 4.16 Technological attributes of flint by phase: termination type

	Termination type				
Context	**Hinge**	**Step**	**Plunging**	**Feather**	**Other**
MN/MN?	10 (20)	1 (2)	16 (32)	21 (42)	2 (4)
LN	11 (18.6)	1 (1.7)	13 (22)	33 (55.9)	1 (1.7)
EBA/EBA?	22 (17.6)	4 (3.2)	44 (35.2)	54 (43.2)	1 (0.8)
LNEBA/LNEBA?	7 (18.9)	2 (5.4)	8 (21.6)	20 (54.1)	
Neolithic/EBA?	4 (15.4)	1 (3.8)	5 (19.2)	14 (53.8)	2 (7.7)
Earlier Prehistoric?	8 (24.2)		11 (33.3)	14 (42.4)	
Combined Total	62 (18.8)	9 (2.7)	97 (29.4)	156 (47.3)	6 (1.8)

Table 4.17 Technological attributes of flint by phase: proportion of blades, presence of platform-edge abrasion and dorsal blade scars

Context	**% flakes >2:1 L:B ratio**	**% flakes with platform edge abrasion**	**% flakes with dorsal blade scars**
MN/MN?	17.2	27.1	3.1
LN	5.4	12.5	1.5
EBA/EBA?	8.9	25.2	0.0
LNEBA/LNEBA?	11.1	12.9	2.7
Neolithic/EBA?	11.8	27.3	12.1
Earlier Prehistoric?	9.5	36.7	11.4
Combined Total	10	23.4	3.1

Table 4.18 Technological attributes of flint assemblages by phase: hammer mode

	Hammer mode		
Context	**Soft**	**Hard**	**Indeterminate**
MN/MN?	6 (12.5)	19 (39.6)	21 (43.8)
LN	4 (8.3)	14 (29.2)	30 (62.5)
EBA/EBA?	10 (9)	40 (36)	58 (52.3)
LNEBA/LNEBA?	4 (12.9)	11 (35.5)	16 (51.6)
Neolithic/EBA?	4 (18.2)	7 (31.8)	11 (50)
Earlier Prehistoric?	6 (20)	6 (20)	17 (56.7)
Combined Total	34 (11.7)	97 (33.4)	153 (52.8)

Table 4.19 The average dimensions of flakes from phased earlier prehistoric features

Phase	***Average length (mm)***	***Average breadth (mm)***	***Average thickness (mm)***	***Average length: breadth value***	***Sample size***
MN	33	27	8	1.3	50
LN	32	28	7	1.2	46
LNEBA	37	29	8	1.4	27
EBA	31	26	7	1.3	127
Neolithic/EBA?	31	28	7	1.3	20
Earlier Prehistoric?	30	26	8	1.3	27

to be of the same raw material as the scraper. The scraper edge exhibits some edge-damage, indicating a period of use, but the tool was deposited along with the manufacturing debris. Pits 5076 and 5550 also contained scraper retouch chips, indicating that the deposits also include debitage from the manufacture of scrapers, although refits could not be made.

Cores

Only five cores were recorded in the early prehistoric assemblage, representing one core per 50 flakes or one core per 75 flints, if retouched tools are also considered. The cores comprise a single platform blade core, a single platform flake core, a core on a flake and two multi-platform flake cores. The single platform blade core weighs 44 g and exhibits fine narrow blade scars up to 65 mm in length; this core is probably Mesolithic and is not contemporary with the pit in which it was found, 4668, which is tentatively dated to the early Bronze Age. Pit 4605 contained two multi-platform flake cores, weighting 15 g and 30 g respectively. These cores had been regularly worked until exhausted, with one having removals from opposed platforms. The single platform flake core from pit 9120 weighs 20 g and has a series of small flake removals from a thermal platform; it is possible that this artefact is a crude scraper rather than a core. Late Neolithic tree-throw hole 9341 yielded a core on a flake that weighs 30 g and has two small flake removals. The under-representation of cores in early prehistoric features is notable; common debitage, such as irregular waste, is also underrepresented and many of the chips appear to result from scraper manufacture rather than general knapping. This may reflect a bias arising from deposition practices or, alternatively, the pattern may indicate that flakes and tools were imported to the site rather than cores and pieces of raw material. By contrast, the re-deposited assemblage in post-early Bronze Age phases included 35 cores, representing a core:flake ratio of 1:9 (Table 4.2). Moreover, these cores are dominated by flake-based forms, including three discoidal cores and a keeled core, typical of the later Neolithic/early Bronze Age. It is, therefore, most plausible that knapping was occurring elsewhere in the excavation area, but the debitage from these events was normally excluded from deposition in pits.

Hammerstones

Four flint 'hammerstones' were recovered from the early prehistoric features, with one middle Neolithic and three early Bronze Age examples. A 'hammerstone' from middle Neolithic pit 8697 weighs 253 g and exhibits a distinct worn and bevelled surface on the distal end of nodule (Fig. 4.3, 19). This wear pattern indicates that the tool was probably used as a processor rather than a knapping tool. Two small flake cores from ring ditch 4944 and pit 9120 exhibit brief episodes of reuse as hammerstones and weigh 37 g and 42 g respectively. A burnt and broken fragment, weighing 93 g, of a well-used, rounded hammerstone was retrieved from pit 4512.

Retouched artefacts

Retouched tools are exceptionally numerous in early prehistoric features and are represented by 107 artefacts or 27.7% of the total assemblage (excluding chips). The tool inventory is dominated by scrapers (49 examples) followed by edge-retouched flake (21 examples), knives (12 examples), arrowheads (6 examples), serrated flakes (6 examples), notches (3 examples) and piercers (3 examples). In addition, two flakes from a polished flint axe-head were recovered from pit 9120.

The scrapers include a wide variety of forms, but end scrapers represent the most common form. A detailed analysis of scraper morphology was undertaken, including consideration of form, metrical attributes and the morphology of the scraper edge; the results of this analysis are in the site archive (Fig. 4.2, 7–11; Fig. 4.3, 12–14). In summary, the average complete early prehistoric scraper measures 41.7 mm in length, by 34.1 mm wide and 11 mm thick. This average is, however, distorted by the presence of four exceptionally large scrapers in late Neolithic/ early Bronze Age pit 8371 and two large scrapers in the late Neolithic paired pits 17011 and 17022. The average early Bronze Age scraper is typically smaller measuring 37.1 mm in length, by 31.8 mm wide and 9.6 mm thick. The scraper forms present showed considerable variability and no chronological distinctive patterns were observed, but it is notable that long end scrapers that are generally considered to date from the earlier Neolithic were absent (Riley 1990). The retouched edges of scrapers exhibited a more consistent pattern than the overall scraper form, with 24 of 26 early Bronze Age scraping edges having curved retouch between 20 mm and 40 mm in diameter. The length of retouch on these edges varied between 9 mm and 91 mm, with the average retouched edge measuring 39 mm long.

The twelve knives include five backed forms manufactured on blades and blade-like flakes by the application of retouch along one or both sides (for example Fig. 4.3, 17). A typical example of the form from Beaker burial 7611 probably represents a grave good (Fig. 4.3, 16). Six flints have been classed as 'other knives' due to the presence of low angle retouch, including some invasive retouch, along the edges of various flakes. The finest flint artefact from the excavation is the plano-convex knife from pit 9120. The knife is sub-rectangular in form with slightly convex scale-flaked pressure flaked edges varying between *c* 10° and *c* 40° (Fig. 4.3, 18). The tool measures 57 mm long, by 34 mm wide and 7 mm thick. The bulb has been removed and the proximal edge has been left unretouched; a small area of thick cortex is present at the distal end. A small notch in the right-hand side results from modern damage.

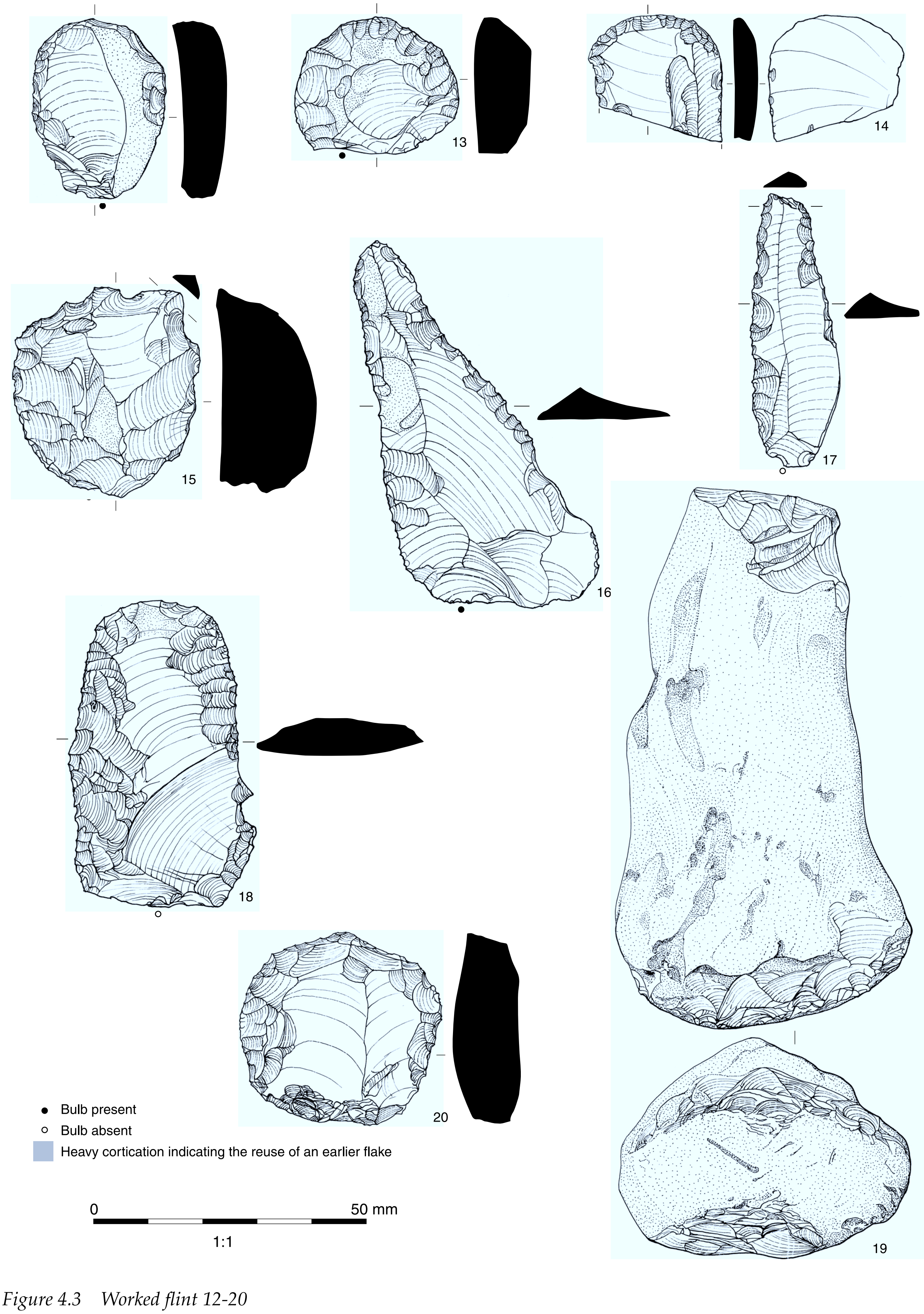

Figure 4.3   Worked flint 12-20

Six arrowheads were recovered from the excavation. All were from early Bronze Age features with the exception of a chisel arrowhead from middle Neolithic pit 8033. The chisel arrowhead represents a relatively small and crude form manufactured on the distal end of a hinged flake; this artefact was used as the basis for phasing the feature to the middle Neolithic. An oblique arrowhead, from pit 4048, exhibits the relatively crude retouch typical form, whilst achieving a good shape (Fig. 4.2, 2). Oblique arrowheads are typically associated with Grooved Ware, for example at Durrington Walls (Wainwright and Longworth 1971), and it is notable that whilst a small sherd of early Bronze Age pottery was recovered from the pit, Grooved Ware was also recovered. It is therefore plausible that pit 4048 was originally a Grooved Ware feature, but disturbed at a later date. Pit 4764 contained an unfinished arrowhead in rolled condition with a broken tip. The arrowhead is closest to a leaf-shaped form, but the blank is relatively irregular. Pits 9120 and 9121, forming part of a group of three pits, produced three arrowheads. Pit 9120 yielded a flake with crude predominately unifacial retouch that is tentatively considered as an oblique arrowhead (Fig. 4.2, 3), and a minimally worked barbed and tanged form (Fig. 4.2, 4). The oblique form may, however, be entirely coincidental and the artefact could be interpreted as an end scraper with a notch on the proximal right-hand side. The barbed and tanged form has minimal bifacial retouch forming a point at the proximal end of the flake, whilst two sight notches at the distal end provide the appearance of a tang and barbs; it is unclear if the notches could have served any purpose as they are so minimal. These arrowheads may be considered as symbolic forms, perhaps specially manufactured for deposition (Brown 1991). Pit 9121 contained a small tanged arrowhead with one slight barb (Fig. 4.2, 5).

The six serrated flakes provide some evidence for plant working in the middle Neolithic and early Bronze Age, but it is notable that these tools account for a comparatively small proportion of the total. Notched flakes and piercers are similarly represented by only a few occurrences; three scrapers also exhibited spurred edges (for example Fig. 4.3, 15). A fabricator was recovered from pit 8697. The tool has crude unifacial retouch creating a rod-shaped piece of flint measuring 61 mm long, by 20 mm wide and 22 mm thick. Heavy abrasion from use, presumably against iron-pyrites, is present on the sides of the artefact towards the proximal and distal ends. The 21 edge-retouch flakes all exhibited limited areas of slight abrupt to abrupt retouch along the edges of flakes. An edge-retouched flake from pit circle 9100, pit 9107, had slight-abrupt edge retouch and evidence of heavy use, including silica gloss extending 10 mm into the surface of the flake. The four pieces of miscellaneous retouch comprise two flakes with irregular areas of abrupt retouch following removal of the bulb, one flake with a couple of small removals and a semi-abruptly retouched edge with a some retouch on the ventral surface; the latter artefact, from pit 9121, may be a scraper. The 'other' category includes a Mesolithic tanged point from ring-ditch 4944 and a flake with a burin style removal and distinct serrated teeth-type notches from pit 4048.

Neolithic/early Bronze Age?, prehistoric? and early prehistoric? features

In total, these features produced 109 flints that are broadly comparable to the material recovered from the middle Neolithic-early Bronze Age assemblage features considered above (Tables 4.9 and 4.10). The technological analysis, however, revealed that these contexts contained a higher proportion of flakes with platform-edge abrasion and dorsal blade scars (see Tables 4.12-4.19). These represent attributes of Mesolithic to early Neolithic blade-based industries and indicate the presence of some earlier, and possibly residual, artefacts. The assertion is supported by the presence of two microliths in the earlier prehistoric assemblage (see Mesolithic above).

Bronze Age and Bronze Age/Iron Age features

No Bronze Age flintwork was identified, but several features assigned a Bronze Age date contained sizable assemblages of flintwork (Table 4.11). Many of these features may contain redeposited Neolithic/early Bronze Age flint artefacts; these include a thumbnail scraper and an edge-ground knife. In certain cases these flint assemblages result from the truncation of earlier features; for example ditch 14273 cuts two Neolithic pits and contains 83 flints. It is notable that certain pits, and particularly waterholes, contain reasonably sized assemblages of flint (up to 25 pieces) that are larger than can be accounted for by natural re-deposition. This suggests that these flints have been deliberately brought to waterholes and deposited at some point in the Bronze Age. Moreover, four flints from Bronze Age contexts show secondary working that can be distinguished by differential cortication between the flake and retouch (for example Fig. 4.3, 20). This suggests that flints were adapted, and presumably reused, in the Bronze Age, and it is entirely possible that many of the other flints in Bronze Age features were reused without further adaptation.

Other residual flintwork

Excluding the Bronze Age and Bronze Age/Iron Age flintwork considered above, this total amounts to 204 pieces spread across numerous Iron Age, Roman and post-Roman contexts. The assemblage includes Mesolithic pieces, considered above, but is dominated by Neolithic to early Bronze Age flint. The assemblage contains a large number of cores in comparison to the material from the phased earlier prehistoric contexts. This may reflect a genuine pattern resulting from Neolithic and Bronze Age deposition practices, but the total may be distorted by excavation strategies employed for ditches that favour the recovery of larger flint artefacts. The range of retouched tools is comparable to that recovered from phased features and these do not warrant further discussion.

DISCUSSION

The flint assemblage from Cotswold Community provides a valuable insight into early prehistoric activity on the gravel terraces away from flint sources. The light scatter of late Mesolithic flintwork reflects activity across much of the excavation area and is particularly significant as Mesolithic flint is relatively uncommon in the Cotswold Water Park. Substantial excavated areas of the local landscape have provided no evidence for Mesolithic activity and only a small number of flints were recovered from Thornhill Farm (Lamdin-Whymark 2004) and a single diagnostic flint from Horcott Pit (Lamdin-Whymark *et al*. forthcoming). Therefore, whilst this small assemblage may only represent sporadic activity by a transient population, it provides some evidence for early human activity in the landscape.

Early Neolithic flintwork is notably absent and in contrast to the Mesolithic the landscape does not appear to have been occupied, even on an occasional basis. The middle Neolithic witnesses a considerable increase in activity with the deposition of flint, amongst other artefacts, in pits. This establishes a pattern of activity in the landscape that continues until the early Bronze Age. Neolithic to early Bronze Age pits in the Upper Thames Valley frequently contain small flint assemblages, with often no more than a few flints, and so offer no potential for undertaking metrical and technological analysis. The Neolithic to early Bronze Age pits at Cotswold Community show a similar trend with an average of only 6.7 flints per pit, excluding chips. The presence of 49 pits containing flints, with a combined assemblage of 584 pieces, allowed characterisation of both metrical and technological attributes of the assemblage (see above).

The Neolithic population obtained their lithic raw materials from a variety of sources. Some of the flint originates from the chalk region to the south, whilst other pieces have been gathered from secondary sources, perhaps in a similar region. The absence of Bullhead Bed flint is notable, as this frequently occurs in later Neolithic flint assemblages further to the east, for example at Yarnton (Cramp and Bradley forthcoming). This may suggest that the Bullhead Bed sources lie beyond the physical or social contacts of the community. The different raw materials also occur together in many of the Neolithic pit deposits, and evidence of knapping was confined to one pit, with the exception of evidence for the conversion of flakes into scrapers. This indicates that the deposits in pits are not drawn from single events following collection of raw material from one source, but reflect more complex patterns of accumulation. The bringing together of different raw materials may result from the accumulation of tools and flakes as part of one or more personal toolkits, through patterns of movement or exchange. This may have occurred in disparate parts of the landscape or within the site, as the high proportion of cores recovered from as residual finds perhaps indicates that knapping was spatially and/or temporally separated from activities resulting in pit deposits.

Negative refitting evidence suggests that the majority of the flints arrived as unretouched flakes or tools, but it is significant to the activities occurring around pit deposits that scraper manufacture debris was present in three pits and that in one of these cases the manufactured scraper was deposited in the same pit following use. Scrapers are the most common tool and scraping clearly represents an important activity frequently culminating in the creation of a pit deposit. The flake assemblage is also frequently well used and other tools include knifes, arrowheads, piercers and notches. Plant working is also indicated by the presence of few serrated flakes. The range of tools indicates that whilst scraping hides and/or woodworking with scrapers represent an important activity, a broad range of tasks are represented including hunting, plant-working and various cutting actions. This may reflect a range of activities that are associated with habitation. Flint bearing deposits were, however, clearly constructed with some degree of formality and artefacts were both intentionally incorporated and excluded from deposition. The fine plano-convex knife in pit 9120 (Fig. 4.3, 18) appears to have been deliberately selected as there is no functional reason for disposal. The same argument may be applied to many of the complete scrapers, other retouched tools and polished stone axes (see Roe this volume).

It is unclear if the Neolithic to early Bronze Age flint at Cotswold Community was exposed in surface deposits for a period before deposition, as has been identified on other Neolithic sites, for example at Kilverstone (Garrow *et al*. 2006). The flints were frequently well used and any edge-damage may have occurred in use rather than in a surface deposit. Moreover, as knapping was not associated with the pits, it was not possible to identify refitting sequences within or between pits. Pits that are paired or within groups have similar sized assemblages for each related pit in that group. This may reflect the sequential formation of pits following a similar temporal rhythm, provided that lithics are accumulating at a consistent rate. The variation in the size of assemblages between pit groups may represent either differing temporal patterns in deposition or differences in the rate of lithic accumulation. It is plausible that isolated pits, pairs of pits and groups of three, or more, pits may reflect differing durations of activity at the site. As such, pits may provide significant evidence for differing patterns of activity in the Neolithic and early Bronze Age, with isolated pits most frequently encountered in the middle Neolithic, paired pits in the late Neolithic and groups of three pits in the early Bronze Age.

ILLUSTRATION CATALOGUE
(FIGS 4.2-4.3)

1 Ring ditch 4944. Intervention 4946, fill 5007. SF 361. Tanged point with oblique proximal truncation. Mesolithic, residual in early Bronze Age feature.
2 Pit 4048, fill 4050. SF 100. British oblique arrowhead. Late Neolithic.
3 Pit 9120, fill 9123. SF 627. Oblique arrowhead? Possible scraper with proximal notch. Early Bronze Age.
4 Pit 9120, fill 9123. SF 606. Barbed and tanged arrowhead? Crudely worked flake with a proximal point and two slight distal notches. Early Bronze Age.
5 Pit 9121, fill 9124. SF 658. Barbed and tanged arrowhead? Manufactured on a small flake with a well formed central tang and one slight barb. Early Bronze Age.
6 Pit 17011, fill 17013. SF 2139. Edge retouched flake manufactured on a flake intentionally broken at the proximal and distal ends. Middle Neolithic.
7 Pit 17011, fill 17013. SF 2152. Medium end and side scraper, horseshoe form with retouch around less than 180° of the perimeter. Middle Neolithic.
8 Pit 17022, fill 17024. SF 2414. End and side scraper, D-shaped with crude proximal retouch removing the bulb. Middle Neolithic.
9 Pit 8033, fill 8035. SF 727. Medium end scraper, kite-shaped. Middle Neolithic.
10 Pit 8697, fill 8695. SF 551. Unclassifiable scraper, intentionally broken into a quarter. Middle Neolithic.
11 Pit 4048, fill 4050. SF 145 and 147. Double-end scraper with intentional breakage of the proximal and distal ends as part of the manufacturing process. The distal end has been con-joined. Late Neolithic.
12 Pit 9121, fill 9124. SF 674. End and side scraper, horseshoe form. Early Bronze Age.
13 Pit 9120, fill 9123. SF 645. End and side scraper, D-shaped with retouch around >180° of perimeter. Early Bronze Age.
14 Pit 9122, fill 9125. SF 681. End scraper, parallel sided with intentional proximal break. Early Bronze Age.
15 Pit 8687, fill 8685. SF 542. Disc scraper with spur on left distal and denticulated distal edge. Early Bronze Age?
16 Beaker grave pit 7611, fill 7612. SF 431. Backed knife. Early Bronze Age.
17 Pit 9121, fill 9124. SF 584. Backed knife. Early Bronze Age.
18 Pit 9120, fill 9155. SF 594. Plano-convex knife. Early Bronze Age.
19 Pit 8697, fill 8695. SF 550. Flint hammerstone/ processor with two distinct facets. Middle Neolithic.
20 Pit 4582, fill 4578. SF 197. Disc scraper with slight nose on the left distal edge. The flake and retouch have differing levels of cortication, indicating that the flake was of considerable antiquity when it was modified into a scraper. Mesolithic/ Neolithic flake modified and deposited in the later Bronze Age.

Chapter 5: Worked Stone

By Ruth Shaffrey and Fiona Roe

INTRODUCTION

The assemblage of stone comprises 58 worked pieces or items of interest including four stone axes and a wrist guard or bracer (see Roe below) whetstones, fragments from six rotary querns and two saddle querns, general processors, two bracelet fragments, one spindle whorl and several fossil fragments. The worked stone is summarised by general site phase in Table 5.1. In addition, structural stone used for roofing and flooring was also recovered. This is quantified separately in Table 5.2.

PREHISTORIC

Aside from the axes and bracer described below, the prehistoric stone assemblage comprises mostly processors. Four pebbles of quartzite and one of flint were recovered from late Neolithic/early Bronze Age and middle Bronze Age contexts. These all have percussion wear around at least one end suggesting use as hammerstones or pounders. A sixth processor has wear more consistent with use as a rubber and was recovered from the fill of middle Iron Age house gully 4180 (4794). Fragments from two saddle querns were recovered but both were found in residual Roman (18333) or Saxon (2464) contexts. A single pebble whetstone was deposited in a probable MBA-EIA pit fill 5180 (5176) and another natural or secondary whetstone was found in the probable LBA/EIA fill of large deep pit 1363 (1361); this is well used on both faces and edges with a pronounced groove on one side. A chalk spindle whorl was found in the primary fill of a probable MBA-EIA pit 5369 (5370). It is difficult to determine much about the shape of the whorl because it is damaged, but the perforation is waisted and measures 11 mm at its narrowest point. It seems to be roughly in keeping with other known spindle whorls (eg Danebury: Brown 1984, 422-425).

Stone axes and bracer

by Fiona Roe

There are four stone axes from the Cotswold Community excavations, together with part of a bracer or wristguard and two utilised pebbles. These came from a Beaker burial and pits ranging in date from the middle Neolithic to the middle Bronze Age. Three of the axes are from pits that were lacking in pottery but additional indications of possible dating have been provided by the flint assemblages (Lamdin-Whymark, this volume). One of these axes was associated with a pebble used as a multipurpose tool. The bracer came from a Beaker burial and another axe is linked with middle Bronze Age pottery, in a pit fill which also included a hammerstone.

Materials

The non local materials used for three of the axes and the bracer have been identified by Rob Ixer, (detailed report in archive) who has shown that they were brought to Gloucestershire from various sources. Two of the axes came from Cornwall, one ((9124) SF 672, Fig. 5.1, 1) being made from a uralitised gabbro known as Group I, while the other ((2006) SF 33, Fig. 5.1, 2), a complete example which was not thin sectioned, also appears to be made from a Cornish greenstone. North Wales was the source for a third axe ((8696) SF 526, Fig. 5.2, 3), which thin sectioning has proved to be made from the Group VII augite granophyre quarried at Graig Lwyd, Penmaenmawr.

Table 5.1 Quantification of worked stone by phase

Category	*Prehistoric*	*LIA-Roman*	*Saxon or medieval*	*Unphased*	*Total*
Axe	4				4
Bracer	1				1
Quern		5	1	2	8
Whetstone	3	5	1	1	10
Processor	6	2		1	9
Structural	1	10	1		13
Industrial	1				1
Jewellery		2			2
Other	1	1	1	1	11
Total	17	32	4	5	58

Table 5.2 Quantification of roof stones by weight (g)

Phase	*FLOOR*	*RAW*	*ROOF*	*Total*
LIA/ER	246	1987		2233
MR and M/LR	153	4290		4453
LR		1303	12453	13756
Saxon			966	966
Total	399	7590	13419	21408

However the fourth axe ((10229) SF 790, Fig. 5.2, 4), which appears on macroscopic examination to be of chert, may have been made from a pebble acquired from the local gravels. Neither of the pebble tools was thin sectioned. The multipurpose tool ((9124) SF 661; Fig. 5.3, 5) is made from fine-grained stone thought to be rhyolite, while the hammerstone ((2006) SF 37; Fig. 5.3, 6) was made from a pebble of quartzitic sandstone. Both these pebbles may also have been collected from the local gravels.

Identification of the fine-grained rock used to make the bracer ((9550) SF 721, Fig. 5.4, 7) has proved more problematic. Bracers (or wristguards) are usually very carefully made artefacts, often found complete, and they are not as a rule thin sectioned.

Figure 5.1 Worked stone axes 1-2

However the Cotswold Community one is damaged and incomplete, providing a useful opportunity for the removal of a slice; microscopic examination has shown that the rock resembles a nephrite, consisting of a densely felted mass of amphibole fibres. It does not, however, compare with the continental variety of nephrite known to have been used to make axes (Pierre Petrequin, pers. comm.) and a source for the stone in the UK seems probable. At the time of writing a specific source has not been found and research continues. There are no known British sources of nephrite.

Chronology and discussion

The axes are all made from materials known to have been in use for long periods of time, running into thousands rather than hundreds of years. However, axes dating to the earlier part of the Neolithic sequence were not found at Cotswold Community, where the record begins with the middle Neolithic. The Graig Lwyd (Group VII) axe ((8696) SF 526) is from one of a group of three pits with Peterborough Ware associations, which fits with other known finds of this axe material. These include a fragment from an axe found with Peterborough ware in a hearth at Yarnton, Oxfordshire (Roe in prep a) and Peterborough Ware associations in pits at Parc Bryn Cegin, Gwynedd (Kenney in prep a and b; Williams in prep). In fact the finds from Parc Bryn Cegin cover the whole period of known use for the Graig Lwyd stone, from the early through to the late Neolithic (op cit*)*, and this stone axe material was to be extensively utilised by the makers of Grooved Ware (Roe 1999; in prep b).

There are no late Neolithic associations for axes at Cotswold Community, but an axe of chert (not thin sectioned, (10229) SF 790) came from a pit of general late Neolithic/early Bronze Age date. Chert was little used for making axes (Pitts 1996, 313), though one other artefact from Gloucestershire has been recorded, from Cherington (Clough and Cummins 1988, 153).

Unusually, the other two axes found at Cotswold Community are from post-Neolithic contexts. The Group I greenstone axe ((9124) SF 672) came from one of a group of Beaker pits. This axe is incomplete and the broken ends have been reworked into flat facets. A multi-purpose tool ((9124) SF 661) came from the same pit fill and consists of a pebble, possibly rhyolite, which has a worn facet and has been further used as a hammerstone and a polisher. Group I greenstone, like Group VII, was utilised for a considerable length of time, with axes occurring particularly in Grooved Ware contexts (Roe 1999; in prep b), while there are also some mace-heads and even a few battle-axes made from the same material (Roe 1979). Nevertheless the stone artefacts from this pit fill seem to represent a tool kit and the axe appears to have been re-used, so that it may not be representative of the later use of the Group I greenstone.

3

4

0 100 mm

1:2

Figure 5.2 Worked stone axes 3-4

Figure 5.3 Worked stone tool and hammerstone 5-6

This is not the case with the final axe to be considered ((2006) SF 33), a complete one of greenstone, not thin sectioned as it was in particularly good condition. It was associated in pit 2004 with sherds of middle Bronze Age bucket urn, and a quartzite hammerstone ((2006) SF 37) came from the same fill. While stone axes found in Bronze Age contexts are uncommon, there are a few other examples and there is a good parallel with the complete axe, probably of Group I greenstone, which formed part of a seemingly 'placed' deposit in a middle Bronze Age waterhole at Perry Oaks, Heathrow Airport (Roe 2006). It would seem that stone axes were still being valued during the Bronze Age, either as artefacts currently in use or as heirlooms.

Figure 5.4 Worked stone wristguard 7

These axes fit well into the picture of what is known about the usage of stone axe materials locally. Nominally the most frequently used grouped axe material in Gloucestershire was the Group VI Langdale stone from the Lake District, with 29% recorded examples. This is followed in popularity by the Graig Lwyd stone (16.4%) and the Group I greenstone (13.7%). Looking at it another way, if the other Cornish greenstones are added to the total for Group I, the far south-west comes out as a significant source, with 39.7% of all grouped axes from this destination. On this reckoning, the two axes of Cornish materials and the Graig Lwyd axe from Cotswold Community are altogether what might be expected for this area, as would a further axe (chert) for which a specific source cannot be given.

The bracer ((9550) SF 721 is from a burial, an inhumation with a fragmentary Beaker that has characteristics of the Wessex/Middle Rhine variety (Brown and Mullin, this volume) an association that is entirely typical of its kind. Stuart Needham has commented (pers. comm.) that the part profile suggests that this is most likely an S-Profile pot, although it may just possibly have a subtle carination. The bracer was originally analysed as part of a Leverhulme funded pilot project, when it was possible to show that it belonged in a group of flat bracers all made from a similar material, thought originally to be a spotted slate or hornfels of possible south-western provenance (Woodward *et al.* 2006). The spots are particularly well-developed on the Cotswold Community example. Further work has shown that the rock is an amphibole-rich one best described as resembling nephrite. Nearly two dozen bracers made from this particular variety of stone have been recorded to date (Woodward *et al.* in prep) and these include an incomplete bracer from Wellington Quarry, Herefordshire (Harrison *et al.* 1999) that was also thin sectioned and shown to be made from a similar rock of nephrite type (Rob Ixer pers. comm.). This bracer was found with a Low Carinated Beaker (Needham 2005, 183). There are no further finds from Gloucestershire, but flat bracers of comparable stone are known from only 40 km (25 miles) away in Oxfordshire, as for instance at Stanton Harcourt (Case 1963). Here the impression gained of the Beaker from the drawing is of a Tall Mid-Carinated form (Stuart Needham, pers. comm.). Further comparable bracers are known from elsewhere, including in Wiltshire where, for example at Roundway, near Devizes, a Low Carinated Beaker was found with a four-holed bracer (Needham 2005, 185, Fig 5, 5; Woodward *et al*. in prep). It is thus possible to demonstrate a consistent story in the area generally, mainly with Beakers that should be early in the sequence. The Cotswold Community Beaker grave-group can be seen as belonging within the original Low Carinated Beaker/ copper dagger/wristguard complex, as envisaged by Stuart Needham (2005, 204 and fig. 12).

ROMAN

The majority of the recovered stonework is from late Iron Age and Roman contexts. This includes querns, whetstones, roof-stones, shale bracelets and fossils. At least 14 definite roof-stones were recovered, all identified by sufficient completeness or survival of perforation, and more than one lithology appears to have been used. At least another 21 kg of the same fissile slabs (although without perforations or surviving worked edges) were also recovered (see Table 5.2). The number of roof-stones found testify to the fact that stone was used for roofing at Somerford Keynes in place of ceramic tiles for which there is no evidence of use (Poole this volume).

The majority of the fragments, along with twelve of the definite roof-stones, are made from types of shell-fragmental limestone, variable in their shell content but all fine-grained, well-cemented and, unlike many of the limestone varieties used for roofing in the region, not oolitic. Despite this, they are similar in nature to some of the stone exploited at nearby Claydon Pike, for example SF 5842 which is also hexagonal in shape and thus also similar in design (Roe 2007, 198). They are almost certainly types of Jurassic limestone of local provenance but the lack of a geological memoir for this area and the huge variability means it has not been possible to pinpoint a precise source.

Two roof stones and a number of smaller fragments are made of Old Red Sandstone but many of the items classified as raw material seem likely also to represent roof stones. Other stones also appear to be worn on one surface and may have been used in flooring. Old Red Sandstone was commonly used for roofing in the area although its main focus of use was north of Somerford Keynes (Saunders 1998, fig. 5.1), in the major towns and at villa sites such as Frocester and Hucclecote (Saunders 1998, 96; Clifford 1933, 328). It is likely to have been available in Gloucester and Cirencester, both of which have produced evidence of its use for roofing (Heighway 1983; Clifford 1948, 388). Given that ORS was mainly used at villas and urban sites, however, its recovery from what otherwise seems to be a lower status rural sites seems anomalous and it is more likely that the fragments represent the movement of waste pieces from nearby localities for whetting or similar purposes. Some fragments were certainly used in this way, while others appear to be worn on one side and may have been used in flooring.

There are no patterns to the spatial distribution of roof stones and raw material on site. The definite roof-stones were recovered from the enclosure ditch fill (1596), ditch 20015 (12023) and pit 2507 (2464). A few fragments with evidence for wear on one face that might be better interpreted as having been used in floor surfaces/as paving stones? were found in late Iron Age and mid Roman contexts. The stone that has been classified as raw material for probable roof-stones was recovered from late Iron Age through to late Roman contexts. However, all the definite roof-stones are late Roman or Saxon in date and although not associated with specific buildings, it seems reasonably likely that these and the associated probable raw material were connected to the construction of the main buildings on site, 14291 and 12569.

Fragments from five querns were recovered from late Iron Age or Roman contexts. One of these is a quartzitic sandstone saddle quern broken almost exactly in half widthways (SF 2264 Fig. 5.5, 8). It was found in the late Roman fill (18333) of a robber cut from building 14291. The neat breaking of this stone appears deliberate and it is not isolated; examples of saddle querns broken in this way have been found on other Roman sites including at Junction 8 of the M1 (Shaffrey 2007) and a nearby find at Thornhill Farm, Coln Gravels (Shaffrey 2008).

The other four fragments are from rotary querns, including one sarsen fragment from a late Iron Age to early Roman fill of L-shaped enclosure ditch 19998 (15038, SF 2015). Two fragments of Old Red Sandstone querns were found in mid-late Roman fill of trackway ditch recut 17615 (820) and late Roman ditch fill 19739. Two very small and weathered fragments of lava were redeposited in the late Roman fill of probable trackway recut 941 (942). None of the rotary querns survives sufficiently for anything to be determined about size or typology.

Five whetstones were recovered from late Iron Age-Roman contexts; nothing unusual is represented. The whetstones include examples of primary whetstones of Kentish Rag (SF 1502, Fig. 5.5, 9), secondary reuse of slabs of Old Red Sandstone and use of naturally occurring quartzite pebbles.

Fragments of two shale bracelets were recovered from fills 11812 and 11732 of the late Roman enclosure ditch 1758. Both are of simple undecorated form, made on a lathe and thus not dateable more closely than Iron Age or Roman. The smallest of these measures only 48 mm in internal diameter, but although at the lower end of the scale is nevertheless a common size (Lawson 1976, 250; Calkin 1953, 61). It is possible that the small size indicates it belonged to a child; examples of 56 mm and 55 mm diameter were found

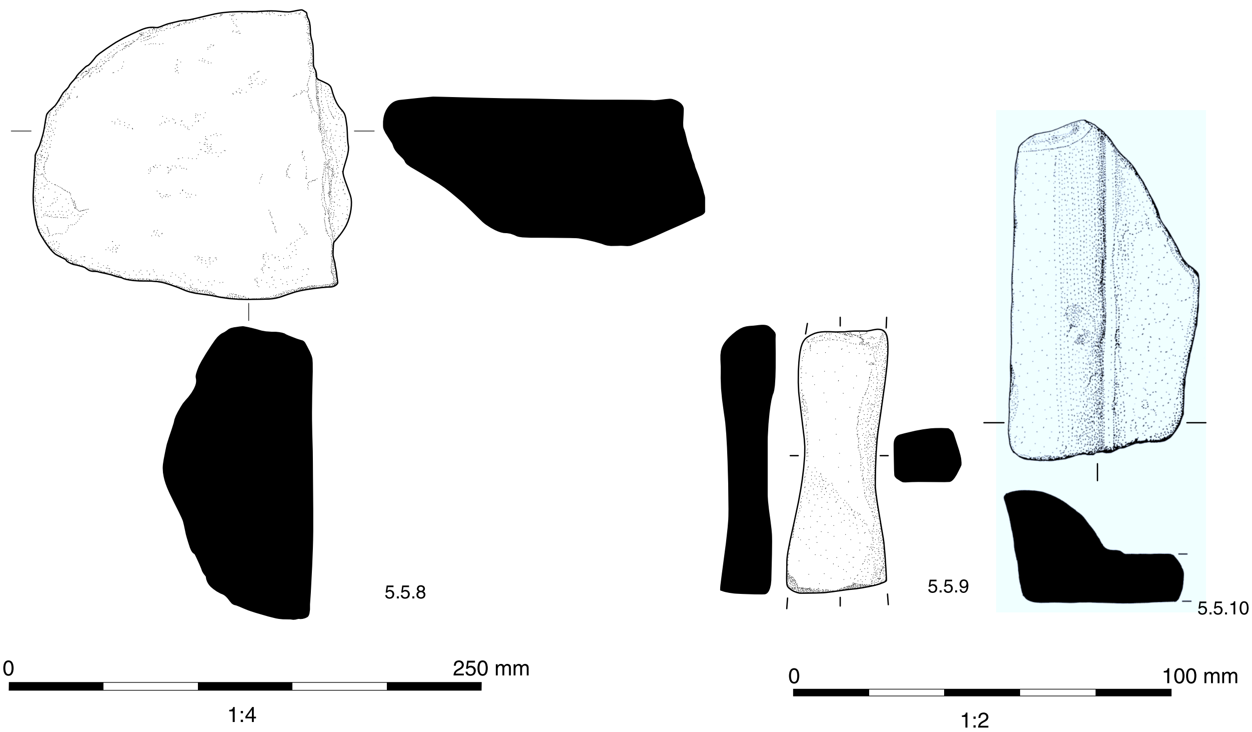

Figure 5.5 Roman worked stone objects 8-10

on young adult male skeletons at Tollard Royal and Winnall Down (Fasham 1985, 84; Woodward 1987, 166) and assumed to have been 'grown into'.

Seven fragments of bullet shaped belemnite fossils were also found. Belemnoida are commonly found in Cretaceous and Jurassic rocks, including the Kellaways Beds and may thus have been exposed very near to the site. In some cultures, certain stone items including fossils like belemnites were believed to have magical powers (Simpson 1979, 97). Although there was no spatial pattern to their deposition on site they were deposited only in mid and late Roman contexts, suggesting that they may have been identified as items of special interest at that time.

Other items of interest include a crude probable pivot stone. This was recovered from the fill of Romano-British rubbish pit 17393 (17946) and has a socket measuring 36 mm diameter, worn smooth internally. Little in the way of architectural adornments such as the columns found at the villa at Claydon Pike, Fairford, were found here. Only a single moulded architectural fragment was recovered from the fill of ditch 2001 (12023) and a fragment of a possible trough or similar came from unphased context 943 (Fig. 5.5, 10). The former is made from a pale reddish-grey quartzitic sandstone which seems most likely to be from a sandstone dogger from the Kellaways Beds, possibly at South Cerney (Torrens 1982, 77). The trough fragment resembles the edge of a tegula but seems unlikely to have been used in this way as no other evidence for stone roofing of the imbrex and tegula system is known.

SAXON AND MEDIEVAL

Very little worked stone was recovered from Saxon or medieval contexts. A single projectile, typical of Roman ballista balls, was found in a medieval posthole (8447). Saxon contexts produced three stone items including a probable saddle quern fragment, a probable roof stone fragment and small fragment of a natural slab shaped whetstone, all from the upper fill of waterhole/pit 2507 (2464). None of these is remarkable.

CONCLUSIONS

The assemblage of worked items seems small given the large quantity of stone retained and the finds reported on from other excavations in the Cotswold Water Park (eg Roe 2007). The artefacts recovered, including the shale bracelets and the chalk spindle whorl, reflect general domestic activity. With the exception of the axes and the wrist guard, the materials are those we would expect for the region. Few items are made of imported stone types, but those that are (for example Old Red Sandstone) are as expected for the area (Shaffrey 2006).

ILLUSTRATION CATALOGUE

(FIGS 5.1-5.5)

1 SF 672, context 9124. Stone **axe**, truncated, blade and butt both now missing and ends re-worked, with flat facets; polished surface, partly weathered; 72 x 53 x 30 mm, 211 g. The

stone has the typical appearance of Group I greenstone, with mafic minerals intermixed with altered feldspar. Identification confirmed by thin sectioning: Group I, a uralitised gabbro from West Penwith, Cornwall. From main fill of two within pit 9121. No pottery from this context, but within a group of definite Beaker pits

2 SF 33, context 2006. Complete **axe** in good condition, pointed butt, smooth surface though with rougher area towards butt end, slight damage only at blade and butt ends, blade not sharp, a burnt patch on one side; 135 x 53 x 32 mm, 305 g. Igneous rock, speckled appearance, distinct laths of plagioclase set in dark ferromagnesian mineral; an altered dolerite or gabbro? Not thin sectioned but could be a Cornish greenstone. Found upright in pit 2004, third fill, above a clay lining (2007) and primary fill (2008), with middle Bronze Age pottery bucket urn and a hammerstone.

3 SF 526, context 8696. Part of **axe**, butt end, now reworked at either end**.** Both blade and butt end are missing, and instead there are facetted surfaces at either end from re-use as a possible flint knapper; smooth surface with some pock marks; 77 x 65 x 38 mm, 285 g. Fine-grained green-grey stone, igneous, with lighter coloured phenocrysts and some small, darker inclusions: thin section indicates Group VII augite granophyre from Graig Lwyd, North Wales. Primary fill (of three) in pit 8697, with flint, burnt stone and one (undiagnostic) sherd of pottery. Pit in a group with two other pits both containing Peterborough Ware.

4 SF 790, context 10229. Stone **axe**, fairly complete, though with chips missing from the blade end and some battering at the butt end. Some scratch marks on the polished surface; 102 x 70 x 32.5 mm, 334 g. Light coloured, fine-grained stone, not thin sectioned but has the appearance of chert. Single fill of small, isolated pit 10228, with LN/EBA flints and bone but no pottery.

5 SF 661, context 9124. Pebble used as a **multi-purpose tool**; one end has a worn facet, the other is battered from use as a hammerstone while one main flat surface is polished from use as a probable burnisher; original intention may have been to make this pebble into an axe; 97 x 70 x 29 mm, 328 g. Fine-grained green-grey stone, igneous, slightly banded, consisting of a greenish matrix with evenly scattered, numerous pale coloured grains of feldspar. Macroscopic examination suggests a possible rhyolite. From main fill of two within pit 9121. No pottery from this context but within a group of definite Beaker pits.

6 SF 37, context 2006. Burnt pebble with two small pecked facets at one end, suggesting use as **hammerstone**; 101 x 76 x 51.5 mm, 440 g. Quartzitic sandstone, likely to have come from local gravels. Found in pit 2004, third fill, above a clay lining (2007) and primary fill (2008), with middle Bronze Age bucket urn and a stone axe.

7 SF 721, context 9550. Part of **wristguard** (or archer's bracer), probably of the two holed variety, now very thin, as the stone from which it is made has split; 45 x 26 x 3 mm, 5 g. A spotted metamorphic rock, very fine-grained, pale coloured blue-green-grey stone with darker inclusions. Thin sectioning has shown that the rock resembles nephrite but the source area is currently uncertain. Fill of Beaker grave 9551, an oval pit with a crouched inhumation and a fragmentary Beaker sharing characteristics with the Wessex/Middle Rhine type.

8 SF 2264, context 18333. **Saddle quern**, type 1 formed, half. Broken almost exactly in half in a very straight line. The saddle quern seems to be barely used as it is only slightly concave along its length and flat across the width. There are some very smooth areas towards the edges, however, so it is not completely unused. It has been pecked all over although it is slightly damaged. Measures >190 x 160 mm max width x 74 mm thick. Quartzitic sandstone. Late Roman. Fill of robber trench overlaying building 14291.

9 SF 1502, context 12128. Complete primary **whetstone**. Classic cigar or hourglass shaped, although apparently broken at both ends. Has been used along the narrow edges so it is the plan view which is hourglass shaped. The long section is only very slightly hourglass shaped. Two of these edges are slightly bevelled as well. Heavily encrusted. Measures >69 x 18-26 mm wide x 12-16 mm thick. Probably Kentish Rag. Late Roman pit.

10 1SF - , context 943. Fragment of possible **trough**. Edge fragment of possible trough with flat base and slightly everted but flat sides. Internal base is flat and sides are sloping and curved (convex). Measures 31 mm high. Base is 13 mm thick. Fragment measures >84 mm long x >50 mm wide. Coarse grained moderately sorted quartz sandstone with white cement, possibly calcareous. Unphased.

BURNT STONE

by Kelly Powell

Introduction

Overall *c* 1704 kg of burnt stone were recovered from 284 features at Cotswold Community. This was weighed and mainly discarded on site, and the data entered into an Access database. A small sample was retained for the archive.

The data were analysed in relation to quantities and distribution of the material by phase and the results of this are outlined below. Table 5.3 shows the amount of burnt stone per phase and the average weight of stone per feature. The table presents the data relating to firmly phased features in order to show general

Table 5.3 Quantification of burnt stone by phase

Phase	*Total weight of burnt stone (kg)*	*No of features containing burnt stone*	*Average weight per feature (kg)*
1	0.2	1	0.2
2a	0.5	1	0.5
2b	19.2	10	1.92
3	238	9	26.4
4	137.4	21	6.54
5	110.26	12	9.18
6	29.5	3	9.83
7	96	22	4.36
8	367.35	53	6.93
7/8	40.8	9	4.53
9	183.1	10	18.31
8/9	184.5	17	10.85
10	1.5	1	1.5
11	0.3	2	0.15

trends. The evidence from features of uncertain or unknown phase is discussed below alongside the information in Table 5.3.

Results

Burnt stone is characteristic of occupation debris and on gravel terraces such as the current site the raw material is often brought some distance, indicating its significance for everyday life (Lambrick 2009, 159). Its use in the preparation of food through a variety of methods is well documented (ibid.), and its presence on archaeological sites is therefore often indicative of domestic activity. In addition, burnt stone is often found in association with industrial activity such as metal working. Stone could be used for example to provide a stable surface for placing crucibles during casting (Hearne and Heaton 1994, 51).

In general, deposition of burnt stone was minimal in the early prehistoric period (Phases 1 and 2) but rose dramatically by the middle Bronze Age (Phase 3). Deposition fell again in the later Bronze Age and Iron Age. Overall, deposition rose with the vast intensification of activity in the Roman period, but the amount of burnt stone deposition in individual features remained small until the late Roman period. The small amounts of burnt stone found in Phase 10 and 11 features are thought to be residual.

Phases 1 and 2

As outlined above, burnt stone was deposited in very small amounts and in few features in the very first phases of human activity, although a general increase in deposits can be seen between Phase 1 and sub-Phases 2a and 2b. This is unsurprising considering the ephemeral and presumably transient nature of the Neolithic and early Bronze Age activity and reflects the increasing intensification of activity by the early Bronze Age. Burnt stone from these phases is likely to represent small-scale domestic activity (ie cooking). It is notable that Phase 2b deposits had increased in size to a maximum of 7 kg (pit 4048) suggesting relatively intensive activity in any single occupation event. Distribution of burnt stone deposits in these phases tended to cluster around the south central area of the site, a phenomenon which continued in the middle Bronze Age phase, although it is unclear if this is coincidental.

Phase 3- Middle Bronze Age

Phase 3 produced by far the largest average deposits of burnt stone by feature. This is because very large amounts of burnt stone were recovered from middle Bronze Age waterholes (5018 = 103.6 kg, 2146 = 76 kg, 5763/4 = 50.1 kg). In addition the L-shaped ditch 14273 produced 6 kg and a number of pits produced small amounts of burnt stone; these features include some assigned to Phased ?3. It is apparent that waterholes were focal points for the more intensive and sedentary way of life in this period, represented by small settlement groups; clearly this focus extended to refuse dumping. It is impossible to tell what type of activity produced these large deposits, but given the absence of evidence for large-scale industrial activity in this phase it is probable that these dumps represent predominantly domestic refuse accumulated over long periods of time. The role of industrial activity in the production of such large deposits cannot be ruled out, however, particularly given the presence of an axe mould from pit 18304. It is notable that the pits in Area 3 also produced burnt stone deposits, showing continuity in distribution from that of the preceding phases and possibly bearing relevance to the purpose of this area.

Phase 4 - Late Bronze Age/early Iron Age

Both the overall amount of deposited burnt stone and the average deposition per feature fell in this phase. However, continuity is seen in the presence of large dumps of burnt stone within Phase 4 waterholes (9485/9519 = 94.05 kg, 7737 = 15.1 kg, 9245 = 9 kg, 4757 = 2.3 kg) in addition to those assigned to Phase ?4 (10280 = 6.4 kg, 10294 = 3 kg). The remaining features which produced burnt stone generally produced less than 0.5 kg. The reason for this fall in deposition is unknown but may be indicative of shorter periods of occupation in shifting settlement. What is notable is the huge deposit from waterhole 9485/9519, which was somewhat removed from the main area of the Phase 4 activity. This may indicate the presence of some form of industrial activity such as metal working, but if so the relative paucity of burnt stone from adjacent waterhole 9245 is a mystery. Small deposits of burnt stone, presumably domestic in origin, were found in all areas of settlement dating to this phase, most intensively in Area 2. This may be related to the posited presence of a stream course at this time and some form of activity related to this.

Phase 5 - Middle Iron Age

Discussion of burnt stone from this phase is limited by the small number of excavated features which belong to the phase. It should be noted that any burnt stone found in the TVAS excavation is not included here. However a general increase in deposition can be inferred. The majority of the burnt stone from this phase came from the drip gully of roundhouse 4180 (51.9 kg) and one of the identified hearths within it (4554 = 39.81 kg). These quantities may suggest that there was intensive habitation of the building over a long period of time. The other hearths produced much less burnt stone (4181 = 1.98 kg, 4186 = 0.11 kg) and may have gone out of use first. In addition, all three of the linear slots from this phase produced burnt stone (7095 = 8.2 kg, 7096 = 0.3 kg, 7097 = 1 kg), but their purpose remains unknown.

Phase 6 - Middle-late Iron Age

Only three Phase 6 features produced burnt stone, the majority (29.5 kg) from waterhole 15383 indicating continuity in the earlier trend of deposition in this feature type. The remainder came from pit 11108 (4 kg) and gully (20044). Waterhole 15383 was removed from the settlement activity in this phase, although pit 11108 was central to the area. It is possible that the deposits in these features represent differing activities, the former industrial, the latter domestic.

Phase 7 - Late Iron Age/early Roman

From Phase 7 onwards burnt stone once again became widely distributed as settlement expanded in the Roman period, the distribution probably relating to every day activities across the site. Few features in Phase 7 produced large assemblages, the exceptions being pit 15494 (20 kg), waterhole 10495 (11 kg) and pit 11992 (9 kg). Features phased ?7 and 7/8 were similar in overall trends, producing mainly small assemblages of burnt stone. Of note were pits 14274 and 15985 which produced 18 kg and 8.8 kg of burnt stone respectively. The distribution of deposits in this period indicates two areas of intense activity involving burnt stone. The first was located in the vicinity of the later corn dryer 14400, suggesting that this was already an industrial area at this time -it incorporated features 15494, 14274 and 15985 mentioned above. The second area was in the north-east of the settlement area, focussing on a group of pits including 15630. Again this concentration may indicate an area of industrial activity.

Phase 8 - Middle Roman

The average amount of burnt stone deposited by feature increased slightly in Phase 8, although the overall assemblage was the largest by phase from the whole multi-period landscape. This is likely to simply reflect the intensity of activity on the site at this time. A number of relatively large deposits were found in this phase, most notably in corn dryer 14400 (35.2 kg) and pits 15042 (27 kg) and 18053 (24.5 kg). Ditches which produced large deposits of burnt stone included boundary ditches 20316 (20 kg), 20163 (15 kg) and 20161 (14 kg) and smaller ditch 20068. Deposits from 14400 and 20068 presumably represent industrial activity associated with agricultural processing although the exact nature of this is unknown. As in Phase 7, distribution continued to be focussed around corn dryer 14400 and in the area to the north-east. A further concentration of burnt stone is noticeable in the area of the north-eastern corner of Phase 7 enclosure 14280, possibly related to the recuts of the enclosure made at this time. Smaller deposits were also common around the posited area of domestic activity in the south-eastern corner of the settlement area.

Phase 9 - Late Roman

Phase 9 is characterised by a small number of very large deposits of burnt stone, some of which came from recognised dumps of varying material, possibly relating to abandonment (ditch 20350 = 30.5, ditch 20151 = 29 kg, pit 13439 = 30 kg). A similar trend was seen in features assigned to Phase ?9 and Phase 8/9, including pit 13707 which produced 42 kg of burnt stone. Distribution information was limited in this phase as these deposits relate to recognised midden material, but these accumulations do illustrate the long term use of burnt stone within the settlement.

Phase 10 - Saxon

A single firmly dated Saxon feature (posthole 2279 in structure 3895) produced burnt stone (1.5 kg). This may be residual, as the lack of deposits from other

Saxon features appears to indicate a completely different way of life which did not result in the creation of dumps of burnt stone. Only one other possible Saxon feature (waterhole 2715) produced burnt stone (4 kg), but it is possible that this feature was of Phase 4.

Phase 11 - Medieval/post-medieval

Some 0.3 kg of burnt stone came from a furrow and ditch 7100, these finds are considered to be residual.

Unphased

Quantities of burnt stone from unphased features were generally quite small. The exceptions to this were two pits (2567 and 5071), layer 12810 and tree-throw hole 9341 which produced between 13 kg and 15 kg of burnt stone each. These mostly lay in the vicinity of other features with large assemblages of burnt stone. Most were related to Phase 4 features, possibly suggesting that the unphased features were of comparable date.

Discussion

Burnt stone appears to be an essential part of everyday life in both the prehistoric and Roman periods at Cotswold Community, as seen elsewhere. For the most part this appears to reflect the use of stone in preparation of food as 'pot-boilers', with many deposits coming from domestic areas. However, there are occurrences of up to 103 kg of burnt stone in a single feature which may be indicative of a more specialist and intensive use of heated stone. In some cases, potentially including middle Bronze Age waterholes associated with settlements, this may be a result of long periods of occupation. In other cases, most notably Phase 4 waterholes 9485/9519, features were removed from settlement and the reason for these deposits is unknown.

Burnt stone deposition is a recognised phenomenon in the later Bronze Age, sometimes in the form of 'burnt mounds' but also commonly found in the upper fills of waterholes and pits, although this is often under-reported (Lambrick 2009, 179). Similar deposits were found, for example, at Yarnton, within waterholes dating to the middle and late Bronze Age located some distance from the main settlement (Hey *et al.* forthcoming). There are a number of interpretations of the origin of these deposits including the use of burnt stone in cooking places (O'Kelly 1954; Hedges 1975), baths and saunas (Hodder and Barfield 1987) and areas for washing fleeces and dyeing (Jeffrey 1991). It is unclear which, if any, of these are correct but it seems apparent that such deposits result from activities involving indirect application of heat through water or air in a confined space (Lambrick 2009, 179).

The continued use of burnt stone into the Roman period is notable and here the distributions show that domestic use of burnt stone continued. In addition a number of specific areas are likely to have been used for some form of industrial activity. The association of burnt stone with corn dryer 14400 is notable as it is unclear how stone would have been used within this process. However the number and size of deposits in surrounding pits suggests that this was the case.

Chapter 6: Coins

By Paul Booth

INTRODUCTION

Two Iron Age silver units and 360 copper alloy Roman coins (and an extremely worn farthing of William III (1694-1702) from context 943, not mentioned further) were recovered, comprising coins found in hand excavation and others (mostly unstratified and from topsoil contexts) found with the aid of a metal-detector. The latter formed the majority of the assemblage and only *c* 10% of the coins could be assigned to phased contexts. After a rapid assessment, followed by cleaning of selected pieces, the coins were recorded in some detail, including notes of die axis and wear following the guidelines set out by Brickstock (2004), although these data have not been used systematically in the analysis. The condition of the coins is variable and this is reflected in the differing degrees of precision to which they can be identified.

The assemblage is dominated by coins certainly or probably of 4th century date. In addition to the two Iron Age coins, there was a scatter of early Imperial pieces (including 4 certain or probable Claudian copies) and a modest group of late 3rd century coins. The bulk of the assemblage is of the period AD 330-378.

THE ASSEMBLAGE

The assemblage is summarised below in two tables (Table 6.1 and 6.2), first in terms of numbers of coins assigned to specific date ranges and second in terms of the issue periods (as eg Reece 1991, 1) and broader issue phase groupings defined by Reece (1973, 230) which allow wider comparison with other assemblages. Detailed individual identifications are contained in the site archive.

Iron Age coins

(*incorporating comments by Philip de Jersey***)**

SF1567, context 12306, fill of ditch 17935, Group 20348, Phase 9 (late Roman).

Dobunnic silver plated unit with surface corrosion and edge damage, probably Allen class D, Van Arsdell VA 1049, BMC 2968. Perhaps *c* 40-10 BC CCI 07.0803.

SF2162, context 17339, fill of well 15942, Group 17264, Phase 9 (late Roman).

Silver plated unit, fragment, uncertain.

Chronological summary

The earliest Roman coins were copies of Claudian *asses* with reverses of Minerva, of which two certain and two probable examples were present. Unfortunately none of these was stratified and all were either very worn or corroded. An *as* and a *dupondius* of Vespasian, however, were both probably only quite slightly worn when lost, although the former piece was corroded and the latter came from a Phase 8 (middle Roman) context (16144). A *dupondius* of Hadrian (of 118) was only moderately worn and may have been lost relatively close to its date of minting. Other 2nd century pieces were *asses* of Faustina II and perhaps of Antoninus Pius and a *sestertius* of Commodus. Two other very worn 1st-2nd century coins were not closely identifiable.

The early-mid 3rd century is represented by a single *antoninianus* of Valerian. The later 3rd century coins include issues of Gallienus, Claudius II (3), Victorinus, Tetricus I, Aurelian, Carus and Carausius (2). The condition of some of the coins makes assessment of their character uncertain, but at least 13 of the 28 coins assigned to the period AD 260-296 were irregular issues, and this is probably a minimum figure.

Only three 4th century coins predate AD 330, two of these being from the mint of London. Some 155 coins (42.9% of the total) were of the single period from 330-348, and a number of the uncertain 4th century coins are also likely to have been of this period. The commonest single type (on present evidence) is the Gloria Exercitus (one standard) issue of 335-341. As with the later 3rd century, identification of irregular issues is hampered by the variable condition of the coins. The figure of *c* 29 irregular coins in this period is again likely to be a minimum and may significantly underestimate the reality. Notable amongst this material was SF1849 from context 14407, a mule combining the Victory on prow type of Constantinopolis issues with a typical right-facing imperial bust (unfortunately the legend cannot be read).

Coins of the mid 4th century were quite well-represented. These included a Gloria Romanorum, six Victoriae DD NN Aug et Cae(s), three Felicitas Reipublice and one Fel Temp Reparatio (galley) type of Magnentius and Decentius, most of which were probably regular, and two regular Fel Temp Reparatio issues of Constantius II of AD 353-4. None of these are particularly common as site finds, although comparable quantities of Magnentian coins were noted at Claydon Pike (King 2007c). Some 41 coins are assigned to the period 350-364. Twenty-five of these are clearly or probably Fel Temp Reparatio (fallen horseman type) imitations, but others, also irregular, are assigned more tentatively to this period

Table 6.1 Quantification of coins by identified date range

Date assigned	Reece Period	No. certain	No. probable/possible	Total
Iron Age	1	2		**2**
41-65	2/3	2	2	**4**
69-79	4	2		**2**
41-96	2/4		1	**1**
97	5	1		**1**
118	6	1		**1**
145-146	7	1		**1**
138-161	7	1		**1**
183-184	9	1		**1**
1-2C			1	**1**
257-259	12	1		**1**
259-268	13	1	1	**2**
268-270	13	3		**3**
270-273	13	1		**1**
270-275	13	1		**1**
282-285	14	1		**1**
286-293	14	2		**2**
270-296	14?	2	1	**3**
260-296	14?	14	1	**15**
319-320	16	1		**1**
323-324	16	1		**1**
328	16	1		**1**
330-335	17	60	5	**65**
335-337	17	5		**5**
335-341	17	41	5	**46**
337-341	17	7	1	**8**
330-341	17	3	4	**7**
341-348	17	24	1	**25**
348-350	18	9		**9**
330-350	18	2	1	**3**
350-351	18	5		**5**
351-353	18	6		**6**
353-355	18	2		**2**
361-363	18	1		**1**
350-365	18	20	21	**41**
330-365	18		1	**1**
364-367	19	2		**2**
364-375	19	1		**1**
367-375	19	3		**3**
364-378	19	35	15	**50**
367-383	19?	1		**1**
383-387	20		1	**1**
388-402	21		1	**1**
4C		21	6	**27**
3-4C		5		**5**
TOTAL				**362**

Table 6.2 Quantification of coins by issue period and phase

Date	Reece Period	Total	Phase total	% of coins assigned to phase
-41	1	2		
41-68	2/3	4		
69-96	4	2		
41-96	2-4	1		
96-117	5	1		
117-138	6	1		
138-161	7	2		
180-192	9	1		
253-259	12	1		
Other Phase A		1	**16**	4.5
260-275	13	7		
275-296	14	21		
Phase B			**28**	7.8
317-330	16	3		
Phase C			**3**	0.8
330-348	17	156		
348-364	18	68		
364-378	19	57		
378-388	20	1		
388-402	21	1		
4C	17-19?	27		
Phase D			**310**	86.8
3-4C		5		
TOTAL		362	**357**	

largely on the grounds of size (ie they are AE4 pieces typically less than *c* 12 mm in diameter). A further 57 coins are of the period 364-378, but later coins are almost completely absent, with only single examples assigned to periods 20 and 21. It is possible that some of the otherwise unidentified AE4 pieces are of period 21, but in the absence of securely identified coins of this period the earlier date (*c* 350-364) seems more likely.

The identifiable mints of the 4th century coins are typical of the period and can be compared with data for the Cotswold Water Park (CWP) sites (King 2007c). Coinage from 330-348 is dominated by issues of Trier (50 coins, including possible as well as certain examples), while there were 9 coins each from Lyons and Arles and 3 from Rome. Issues of Arles (13) were most common after 348, followed by 6 from Aquileia, 5 from Lyons, 4 from Trier, 3 from Amiens (issues of Magnentius and Decentius) and one each from Rome and Siscia.

Phasing

A disappointingly small proportion of the assemblage derived from phased contexts. Contexts assigned to Phase 8 (middle Roman) produced three coins, two of 1st century AD date (from groups 14400 and 16122) and one dated AD 364-378 from group 20050, which must have been intrusive if the group is correctly phased. A further 4th century coin (from group 16073) was less certainly attributed to this phase. Five more coins came from contexts of Phase 8 or 9 (groups 11760, 12118, 20151 and 20331 - 2 coins), of which all but one (of late 3rd century date) were 4th century pieces, supporting the later (Phase 9) rather than the earlier dating for these features. Twenty-five coins came from contexts/groups assigned certainly or probably to Phase 9 (late Roman). These included both of the Iron Age pieces and 4 coins of the late 3rd century, including 2 of Carausius. The remaining coins in this phase dated after AD 330, the latest possibly being a coin of Gratian of 367-383. The majority (15) of the Phase 9 coins came from two contexts, 17339 and 12306, components of well group 17264 and a spread/shallow fill beneath a cobbled surface 20348 respectively. It is notable that the coins from context 17339 included three groups of coins corroded together (two pairs of two and a group of four - SFs 2156, 2158 and 2159 respectively). Not all of these could be securely identified but all those that could were of the period AD 364-378 and it seems likely that this would have been the case for all of them. In the case of all three groups, deposition closely wrapped, whether in cloth or in a container, seems likely. Whether they originally formed part of a single deposit is unclear but seems unlikely. They may therefore represent repeated episodes of small-scale votive deposition in the upper part of the well while it was still a water-bearing feature.

DISCUSSION

Despite the fact that a very high proportion of it was unstratified, the assemblage is important in providing an overall picture of coin loss on the site which can inform general discussions of its character and aspects of the chronology of its development, and also allows comparison with other assemblages from the region. In this last respect the size of the assemblage is important, because although parts of the Upper Thames Valley have been subject to intensive examination over the last 30 years this is the third largest coin assemblage from a site in the area, exceeded only by a huge group (1338 Iron Age and Roman coins, of which 1142 were assigned to period) from Ashton Keynes (Wells 2005; a figure of 1037 is given by Moorhead (2001, 88, table 1)) and the finds from Claydon Pike, Fairford. In reporting on the latter and on other coins from CWP sites Cathy King provided a very useful comparative summary of the material from those sites set within a wider regional context (King 2007a), while a convenient summary of Roman coins from Wiltshire has been produced by Moorhead (2001). In terms of numbers only three CWP sites, Neigh Bridge (Somerford Keynes), Claydon Pike and Leaze Farm (Lechlade) produced more than 50 coins, the totals being 278, 732 and 247 coins respectively. In all these cases coin recovery was aided by the use of metal detectors (and the Leaze Farm collection was recovered entirely through fieldwalking and metal-detector survey), so these groups are comparable to that from Cotswold Community in this respect. The size of the remaining CWP groups (see King 2007, 336, table 13.8) is such that analysis based on the percentages of coins of particular issue periods must be of uncertain value. The smaller groups (which include 48 coins from the villa site at Roughground Farm, Lechlade, albeit a collection with no metal-detected component; King 1993) are not necessarily anomalous, however. Rural sites with a late-Roman settlement element excavated elsewhere in the Thames Valley may also produce only small assemblages, as for example at Yarnton, with 43 coins (Booth forthcoming), and only 58 coins came from the villa at Barton Court Farm if the probable dispersed hoard from Building 2 there is discounted (King 1986). Even modest villas on the Cotswold dip slope north of the Thames Valley could produce substantial assemblages, however, and Barnsley Park is included here as an example of this pattern (Reece 1991, site 93).

It is arguable, therefore, that the number of coins from Cotswold Community is significant in its own right: comparable with collections from some villas or from sites which display a degree of agglomeration or nucleation (for example the larger groups mentioned above, as well as settlements associated with the major roads of the region), it supports the view that the site represented more than a single, simple farmstead, despite the fact that discrete units are not readily discernible in the site plan. This conclusion is supported by Moorhead's data for Wiltshire (Moorhead 2001, 88, table 1), which show that of 13 assemblages with more than 200 coins all but one derive from nucleated settlements (including small towns) or villas with potential temple components.

While this interpretation is based essentially upon 4th century coins there is one particularly notable characteristic of the early coins from the site, which is the presence of 'Claudian copies'. These are typically associated with military activity and are correspondingly uncommon on rural settlement sites. They are absent at CWP sites except at nearby Neigh Bridge, where five were recorded (King 2007d). Neigh Bridge certainly has an unusually high proportion of early coins in comparison with the other CWP sites, although this is not sufficient in itself to suggest a substantial military presence there (King 2007a, 341). The significance of these coins at Cotswold Community is even less clear, but the

Table 6.3 Comparison of key later Roman periods of coin loss, main Cotswold Water Park and other selected sites

	AD 260-296		AD 330-348		AD 348-364		AD 364-378		AD 388-402		Total coins
Site	No.	%	No.	%	No.	%	No.	%	No.	%	
Cotswold Community	**28**	***7.7***	**156**	***43.1***	**68**	***18.8***	**57**	***15.7***	**1**	***0.3***	**362**
Neigh Bridge	54	*19.4*	36	*12.9*	45	*16.2*	10	*3.6*	1	*0.3*	278
Claydon Pike (all)	142	*19.4*	171	*23.3*	71	*9.7*	157	*21.4*	21	*2.9*	732
Leaze Farm	24	*9.6*	56	*22.5*	38	*15.2*	64	*25.7*	17	*6.8*	247
Wycomb 1	11	*4.5*	115	*47.7*	55	*22.8*	41	*17.0*	6	*2.5*	241
Ashton Keynes	352	*30.8*	230	*20.1*	107	*9.4*	319	*27.9*	10	*0.8*	1142
Barnsley Park	67	*10.6*	288	*45.4*	94	*14.8*	124	*19.5*	1	*0.2*	635
Cirencester excavations	732	*19.3*	797	*21.1*	536	*14.2*	412	*10.9*	777	*20.5*	3785

fact that four were found might suggest a short term military association with the site, without necessarily implying a permanent presence.

The marked differences in the size of the CWP assemblages may have been linked to functional and other variations within the broad category of rural settlements. Beyond this, however, there are other notable differences in their breakdown and the principal impression presented by these assemblages is their heterogeneity (King 2007a, 342). A simple comparison of the representation of coinage of periods of peak loss within the three largest CWP assemblages (ibid., 336) shows no close overall similarity, although the loss patterns at Claydon Pike and Leaze Farm appear broadly comparable, with Neigh Bridge less close. It is therefore unsurprising that when Cotswold Community is compared in the same way (Table 6.3) further differences are revealed. Figures for Barnsley Park (based on Reece 1991) and for Cirencester (based on the excavated totals in Reece 1998a, 270-281) have also been included in this table for comparative purposes

The heavy emphasis of coin loss in the middle third of the 4th century is the most marked characteristic of the Cotswold Community assemblage, with issues of 330-348 particularly prominent in comparison with most other major assemblages from the region. Low representations of 1st-2nd century material (not featured in Table 6.3) are characteristic of many rural settlements, although the condition of occasional pieces suggests that a few coins did circulate at Cotswold Community even at this time (see above). Later 3rd century coins were also scarce; they are fewer than at Leaze Farm, where King (2007b) observed that the representation of these issues was unusually low. Their relative absence at Cotswold Community does not seem to relate to diminution in the level of occupation, however. Relatively intensive activity, of whatever kind, was clearly maintained through the middle of the 4th century and beyond. Representation of issues of the House of Valentinian seems to be reasonably characteristic for the area, though it is less pronounced than at Claydon Pike and Leaze Farm, while Moorhead has noted an unusually high preponderance of this coinage across Wiltshire sites as a whole when compared with the British average (Moorhead 2001, 90-95). This pattern is seen also at Ashton Keynes. It is not followed precisely at Cotswold Community, but these coins are nevertheless sufficiently common to make the effective absence of late 4th century coins striking and presumably significant in terms of the chronology of the settlement.

The absence of coinage of the House of Theodosius is a feature of the coin loss profiles of Barnsley Park and Ashton Keynes as well as Cotswold Community. It is also matched at Neigh Bridge, but that site had little clear evidence of structural activity after the 3rd century and its apparent decline from the mid 4th century is evident in the scarcity of coins from AD 364 onwards. At Cotswold Community, Ashton Keynes and Barnsley Park this trend starts later. The absence of coins of Reece's period 20 is not necessarily meaningful, since such coins are always uncommon, but the lack of issues of the House of Theodosius is probably more significant as they are relatively well-represented at some other rural sites in the area, such as Claydon Pike and Leaze Farm. At Cotswold Community the absence of the latest coinage appears to correlate with a relative scarcity of pottery assemblages that can be assigned to the second half of the 4th century, let alone to the last quarter of the century specifically. Together these absences might suggest a genuine diminution in the level of activity at the site, rather than just changes in the use (or lack of it) of coin in the last decades of the 4th century. The complete contrast offered by the coin loss profile from Cirencester in this last period is particularly striking and indicates a very different pattern of coin use and loss from those seen at most sites in the region, even those where activity continued right through this period.

Of all the sites listed by King in her comparative study of the CWP assemblages the group defined as Wycomb 1 (see Table 6.3) stands out as being quite strikingly similar to Cotswold Community in terms of the representation of the periods of peak coin loss. While this group is slightly problematical (Reece 1998b, 400) it is interesting that it should come from a nucleated settlement. Its similarity with the Cotswold Community assemblage does not of course prove that the two sites were of closely similar type, but it supports the suggestion (above) that the Cotswold Community material is potentially consistent with sites of this general character. One further group which shows a closely similar pattern of later Roman coin loss to both Cotswold Community and Wycomb, however, is that from Barnsley Park, a similar distance from Cirencester as Cotswold Community, but to the north-east. It is unclear of this similarity is anything more than coincidental, but comparable functions of supply of agricultural resources to the nearby town may have contributed to the close comparability of their patterns of coin loss and in terms of the perceived character of all the sites under discussion Barnsley Park may offer a closer parallel to Cotswold Community than does Wycomb.

Chapter 7: Small Finds

By Kelly Powell

INTRODUCTION AND METHODOLOGY

The metalwork assemblage recovered from the OA excavations at Cotswold Community totalled a minimum of 2152 objects. By metal type this comprised 1667 iron objects, 286 lead objects, 171 copper alloy objects and 28 objects of mixed or unclear metal type (Table 7.1).

The assemblage is considered as a minimum number mainly owing to the fragmentary nature of the ironwork assemblage. In particular, it was not always possible to ascertain exact numbers within the nail and hobnail assemblage. In these cases the minimum number was deduced on the basis of identified head and shank fragments.

The assemblage was examined to assess conservation requirements and an appropriate selection of objects was expertly conserved. The entire assemblage (except lead) was x-rayed and all x-radiographs were inspected to ensure accurate identification and recording where possible.

Table 7.1 Numbers of metal finds by metal type

Metal type	Fe	Ca	Pb	Fe?	Ca?	Pb?	Ca/Fe	Ca/Pb	Pb ore	Total
No objects	1667	171	286	17	5	1	2	2	1	2152

Table 7.2 Numbers of metal objects by metal type and functional category

	Metal type					
Functional category	*Iron*	*Copper alloy*	*Lead*	*Uncertain/ other*	*Total*	*Total from stratified contexts*
Buildings and services	444	1			445	409
Post-Roman coins, token and jettons		3			3	2
Dress accessories	1083	73			1156	1104
Equine equipment	3	2			5	5
Household objects	3	2			5	3
Industrial waste	1	2	163	16	182	30
Literacy		1			1	
Miscellaneous fittings	45	74	78	4	201	61
Miscellaneous tools	29				29	22
Military and weaponry	2		1		3	1
Toilet/medical implements		3			3	2
Weights and measures			22		22	
Unidentified	57	10	22	8	97	62
TOTAL	1667	171	286	28	2152	

During analysis the metalwork assemblage was quantified and allocated a functional category type based on the classifications of Crummy (1983) and subsequent applications. The functional categories present within the current assemblage are illustrated in Table 7.2 (all tables within the report include queried items, for example anything classified as ?dress accessory has been added to the dress accessory category). Each object was assigned an object type and classified according to standard classifications where possible (for example Romano-British brooches were classified using the typology developed by Bayley and Butcher (2004) using the Richborough collection). Detailed measurements and description, weight where relevant, state of corrosion, completeness and proposed date were recorded in a database along with x-ray and box number for the purposes of the digital archive.

Once recorded the quantified assemblage was analysed in terms of its overall significance, by metal type and category type and in relation to context and phase. The assemblage was considered in terms of three intrinsic subdivisions based on context type. These include finds recovered from burials, finds from stratified and phased features and unstratified finds.

SUMMARY OF THE ASSEMBLAGE

In general, the condition and preservation of the metalwork assemblage varied according to metal type. The ironwork was heavily encrusted with corrosion in most cases, with a few objects showing marked deterioration since initial assessment. The copper alloy was generally in much better condition, although some objects were eroded and had powdery surfaces. The lead had oxidised surfaces, but was otherwise well preserved.

The majority of the metalwork recovered from excavations was Roman in date; exceptions to this are specifically detailed where appropriate within this report.

Typically the assemblage was dominated by iron objects and in particular by structural nails and hobnails (up to 90% of the ironwork and 70% of the total assemblage including possible nails). The nails were ubiquitous across the site whilst the hobnails originated predominantly from Roman burials. The ironwork assemblage also comprised a large number of unidentifiable objects (minimum 48 or approximately 3%) or objects identifiable only to the level of miscellaneous fittings (45 or 2.5% of the total). The remainder of the ironwork comprised a typical combination of tools such as knives, dress accessories including cleats and brooches, domestic objects and equine equipment (Table 7.3).

The copper alloy assemblage mainly consisted of dress accessories (74 objects or 44%), dominated by brooches, and miscellaneous fittings (also 44%) including rings and binding. The remaining assemblage comprised 10 unidentified objects (6% of the total), in addition to toilet implements including tweezers, household objects, post Roman coins or paraphernalia, a copper alloy nail and a medieval book clasp (Table 7.4).

The lead assemblage was mainly unstratified and of limited potential. A total of 163 of the 286 objects (57%) were probably industrial waste in a variety of forms, 78 (27%) objects were classed as miscellaneous fittings and 22 (8%) were unidentified. Twenty (7%) objects were probably weights, the remainder were seals and shot (Table 7.5). Those objects considered to be of mixed or unidentified metal type were mainly unidentifiable.

When considered as a total assemblage by functional category, over half of the metal finds were classed as dress accessories. This is somewhat biased by the hobnail assemblage, predominantly from Roman burials, but excluding those objects considered to be grave goods (891 finds or 41% of the total assemblage) this category still comprised 265 objects (12% of the assemblage). In total 21% of the overall assemblage (445 objects) was classified as building and structural artefacts, consisting mostly of the large collection of nails, 201 objects (9%) were considered to be miscellaneous fittings, and 278 (13%) were industrial waste or unidentified. The remainder of the assemblage comprised those finds assigned to other functional categories. The assemblage is discussed in detail below in relation to context and phase information.

FINDS FROM BURIALS

A minimum number of 1018 metal finds (47% of the total) were recovered from 21 Roman inhumation burials and one cremation deposit as well as a single Saxon grave. This was therefore the largest of the three groups by context type. All but four of the objects were complete or fragmentary iron nails and hobnails or probable examples of these, the distribution of which is outlined in Table 7.6. A further 10 nails and hobnails came from void (unclassified) contexts likely to be the result of double numbering and are considered here as being funerary in origin.

Coffins

Structural nails were present within 12 of the Roman graves including both earlier graves (2217 and 3221). Where complete or near complete these measured between 40 and 109 mm with an average length of 73.5 mm. Nearly all of the nails were classified as of Manning (1985) type 1b, generally the most common type of nail, measuring less than 150 mm with a flat circular head and a square shank. Head diameters ranged from 11 to 25 mm, with an average of 18 mm. As such the assemblage is unremarkable.

The number and layout of nails from most of the graves clearly suggest the presence of coffins. In most cases the nails are consistent in length within each grave, most over 70 mm long, therefore fastening relatively substantial coffins, and many have traces of mineralised wood. However, graves 10441, 10449

Table 7.3 Grave goods by burial

Phase	Grave No.	Nails	?Nails	Hobnails	?Hobnails	Other
8	2217	5		4		
	3221	11				
9	10438	6				
	10441	1				
	10444	10		135		
	10449	1		22		1 fe sheet/nail
	10450	1		50	1	1 fe unid
	10463	3		44		1 ca bracelet
	10466	1		39	11	
	10469			155		
	10505	7		2		
	10509			200		
	10512			12	1	
	10517			17		
	10521			17		
	10621			79		
	10624			15		
	10634/5			1		
	10724					1 ca finger ring
	10813	4				
	10921	17	1	79		
	11700 (cremation)			49		
10	10764			1		1 fe knife

Table 7.4 Quantification of nails by type

Nail type	Type 1b	Type 1	Type 5?	Type 3?	Type 2?	Type 1/3	Type 1/4	Type 3/5
No nails	160	23	5	3	1	3	2	1

and 10450 had very small numbers of nails. In grave 10441 these were fragments located close to the feet and may have belonged to a different type of object; they are possibly oversized hobnails. The nail from grave 10449 may have come from grave 10438 below it. These graves and those totally lacking nails may indicate burial without a coffin, but the absence of such finds may simply be a result of post-depositional processes or indicate that nails were not necessarily used as the main form of coffin fastening. Alternatives could include wooden pegs or joints or other organic fastenings.

Hobnails

A total of 16 of the Roman graves and one cremation deposit yielded hobnails (Manning Type 10) originally integral to the soles of shoes, ranging in quantity from 1 to a minimum of 200. These varied significantly in length from 10 to 25 mm, with an average of 16 mm; head diameters ranged from 5 to 18 mm with an average of 9 mm. The hobnails were generally better preserved than many other iron objects, possibly as a result of their association with significant organic matter. As a whole the assemblage was unremarkable, but a selection of contexts warrant further discussion.

Hobnails from graves 10450, 10463 and 10517 were particularly small in dimensions (11-15 mm). In the cases of 10450 and 10463 this is notable as the interred individuals were identified as a child and a young female, possibly indicating that the shoes and consequently hobnails were manufactured to fit the individual. It has been observed in other Roman cemeteries that children were provided with adult shoes and Philpott (1991, 169) has argued that children were not supplied with shoes at all, therefore this observation is significant. In contrast, the hobnails from grave 10621 were abnormally long on average (up to 24 mm).

Table 7.5 Quantification of metal objects by functional category in Iron Age and Roman phases

	Phase						
Functional category	***6***	***7***	***8***	***8/9***	***9***	***IA/RB uncertain***	***Total***
Buildings and services	2	10	101	18	266	11	408
Coins, token and jettons					1		1
Dress accessories	1	3	44	57	966	2	1073
Equine equipment			3	1	1		5
Household objects			1		1	1	3
Industrial waste		1			27	2	30
Literacy							-
Miscellaneous fittings	1	3	13	5	35	1	58
Miscellaneous tools		3	6	1	11	1	22
Military and weaponry			1				1
Toilet/medical implements			1	1			2
Weights and measures							-
Unidentified	1	3	12	5	36	1	58
TOTAL	5	23	182	88	1344	19	1661

The presence of hobnails in Roman graves is normally viewed as evidence of interment of the individual either wearing shoes and/or with an accompanying pair of shoes placed in the grave. These are thought to have been included for use on the journey to the afterlife and appear commonly as grave goods from the 2nd century AD. The number of hobnails present within an individual shoe varied depending on pattern. However it is obvious that in some cases at Cotswold Community there are too few hobnails to constitute a pair of shoes (eg graves 2217, 10505, 10635). It is possible to suggest that this may be the result of post-depositional factors of preservation or in some cases truncation by another grave resulting in mixing of finds. Additionally, it has been suggested that a handful of hobnails was thrown into graves as a symbolic gesture (Salway 1981, 706), but direct evidence for this is lacking.

Table 7.6 Comparison of size of small finds assemblages on neighbouring sites

Site	***No. of finds in assemblage***
Latton Lands	80
Whelford Bowmore	149
Thornhill Farm	159
Roughground Farm	239
Neigh Bridge, Somerford Keynes	*c* 1000
Horcott Quarry	*c* 2060
Cotswold Community	2152
Claydon Pike	2652
Cleveland Farm	3623

The larger assemblages of hobnails (eg grave 10509) could indicate the Roman practise of burial with more than one pair of shoes (Philpott 1991, 168). However excavations at Billingsgate Buildings in London found that well preserved shoes occasionally contained 100 nails each (Rhodes 1980), so large numbers of nails could still indicate the presence of no more than a single pair of shoes. No obvious arrangements of hobnails suggested multiple pairs of shoes at Cotswold Community.

Various different arrangements or positions of hobnails were found at Cotswold Community. The majority of individuals (from graves 10449, 10450, 10466, 10509, 10517,10521 and 10921) appear to have been wearing shoes at the time of burial. The hobnails in graves 10444 and10469 were found next to the feet and in graves 10463 and 10505 they were from the foot area, the shoes being possibly worn. Variations exist within graves 10624 and 10634 where shoes were placed next to the knees and in grave

10512 where hobnails were recovered from the foot and head regions. Although Philpott suggests there are chronological variations in the position of shoes within the grave (Philpott 1991, 168) this is unattested at Cotswold Community. However it is notable that in the cemetery located immediately above ring ditch 16072, graves 10444 and 10469, in which hobnails were placed next to the feet, both cut graves in which the shoes were worn.

Hobnails were also recovered from cremation deposit 11700 indicating that the inclusion of shoes was also part of the cremation rite. Many of the hobnails from this group were corroded together and some were very well preserved. The latter trait has been noted elsewhere in cremation deposits (eg Powell 2008a; 2008b; forthcoming) and is likely to be a result of the burning process, indicating that shoes were burnt with the deceased rather than placed in the grave following cremation.

Other grave goods

Only two other grave goods were recovered from the Roman graves; a finger ring from burial 10724 (SF 1196) and a bracelet or armlet set from juvenile burial 10463 (SF 906). Ring SF 1196 is penannular and oval sectioned with an external diameter of 21 mm, an internal diameter of 19 mm and a gap of 1.5 mm. The ring is delicate and plain except at the terminals which are parallel and unflared, slightly flattened with incised transverse grooves. A similar example from Gadebridge Park (Neal and Butcher 1974, 136, fig. 60 no. 141) has lizard or snake heads on each terminal and the current example may have originally had similar features, since lost.

The pair of interlinked expanding bracelets from grave 10463 were suitable for a child, consistent with the skeletal analysis. The bracelets were of D shaped section, measuring 35 mm and 27 mm in external diameter. Any existing decoration is obscured by corrosion, though one bracelet clearly has transverse grooves near the terminal and the other is slightly larger and thicker. In design the bracelets are similar to the finger ring discussed above and also fit into the same Crummy type (cf Crummy 1983, 42, fig. 44 no. 1683). Similar bracelets (though not interlinked) were found at Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.2a nos 60 and 62) and a similar design can be seen on Gadebridge Park no. 172 (Neal and Butcher 1974, 140, fig. 61). Neither ring nor bracelet is closely datable, but they undoubtedly belong to the later Roman period.

The remaining objects from burials include a fragment of thick iron sheet (SF 886) which may have been a coffin fitting or nail fragment (grave 10449) and some unidentified iron fragments from samples from grave 10450.

Saxon grave

A near complete iron whittle tang knife (SF 2459) and a possible hobnail came from Saxon grave10764. The knife was 128 mm long and 18 mm wide with a short, tapering rectangular sectioned tang, the back slopes up from the tang and is relatively straight, dipping gently to the tip, the edge is straight with a right angled shoulder from the tang. The knife is of a typical Saxon shape (probably Böhner (**) type C; Straight edge, back curving down to the point).

Burial with knives was common in the Saxon period, both for males and females. In the nearby cemetery of Lechlade females were predominantly buried with Böhner type A knives while at Berinsfield they were associated with knives of type B, although gender-specific preferences for knives may be unusual (Härke 1995, 74). Type C knives are chiefly 7th or 8th century in date and would fall into the later range of the radiocarbon date for this grave (AD 580-665; SUERC-18830 95.4% prob). The knife falls into size group 1 (blade up to 99 mm long) usual in female graves. The knife was found beneath the left femur, possibly indicating it was worn at the waist.

The presence of a single hobnail in this grave some two centuries after the end of the Roman period in Britain is notable. At the cemetery at Wasperton (Warwicks) the presence of hobnails was used to assign graves to the Roman rather than the Saxon period (Carver *et al.* 2009, 50). Hobnails, along with many other Roman artefact types, have been found in Saxon graves (White 1988). However it is debatable whether the single hobnail in grave 10764 can be viewed as being associated with the body. The proximity of the grave to Roman features and the isolated nature of the hobnail may indicate that it was a residual object.

NON-FUNERARY STRATIFIED FINDS

In total 694 metal finds came from stratified contexts across the site (32% of the overall assemblage). As many as 607 of the finds (87% of the total) were iron, with 19 further possible iron objects. Copper alloy objects numbered 55 (8%), the remainder of the assemblage was lead, including one piece of unworked lead ore. The assemblage is considered by functional category (Table 7.7), phase and context below.

Some 312 of the 694 iron finds were nails (45%) and a further 36 objects were possible nails. Nails were used for a multitude of functions throughout the entirety of the Romano-British period. Their use is likely to have been far less labour intensive than previous methods of structural fastening and they are therefore ubiquitous on most Romano-British sites. In total 198 of the recorded nails could be subdivided into type based on Manning (1985) (Table 7.8). Typically, 160 of these were certainly or probably of type 1b, with a further 23 of type 1 (length unclear). Where complete or near complete, the nails ranged in length from 19 mm to 103 mm, with an average of 59 mm. Head diameters, often indicative of length, varied from 11-29 mm with an average of 16 mm. As a whole this is typical of nail assemblages from Roman sites, where type 1 and particularly type 1b (less than 150 mm) nails tend to dominate.

Table 7.7 Worked bone assemblage by phase and context

Phase	*Feature*	*SF no*	*Object type*
IA/Rom	Pit 17733		Gouge
7	Ditch 20031 Waterhole 10495 Ditch 20142 (19999)	1198	Toggle/fastener Worked cattle phalanx Worked cattle tibia
8	Ditch 20016 Pit 12451 Corn dryer 14400 Pit 13301	1248	Pin Gouge Worked cattle phalanx Worked sheep metatarsal
9	Waterhole 12003 Ditch 20050 Ditch 20050 Ditch 20006	1629	Pin Pin Handle Worked sheep metatarsal
8/9	Pit 13707		Worked sheep metatarsal

Phase 4? (late Bronze Age/early Iron Age)

A total of five metal finds came from features assigned to Phase 4 or possibly Phase 4. A solid, irregular shaped lump of iron with a ridge (SF 1523) came from four post structure 18156 and a miscellaneous fitting (SF 589) from pit 9181, both of which were phased late Bronze Age/early Iron Age. The latter object appeared to be complete and was lightly corroded, comprising a copper alloy strip with a small rivet hole and possible incised lines at either end. It is clear that neither item belonged to Phase 4 and the latter may have been modern in date. In addition, three iron nails were recovered from slot 20203 and pit 5862, tentatively dated ?Phase 4. These items may have been intrusive.

Phase 6 (middle-late Iron Age)

Only five metal finds could be associated with Phase 6 or possible Phase 6 activity (Table 7.9), all but one of which came from the main pit complex located within the settlement area. Although the assemblage from this phase was small it contained one of the most interesting objects from the entire assemblage in the form of brooch SF 854 (Fig. 7.1, 1), found within waterhole recut 10420 alongside a more mundane unidentified lead object and fragments of probable mineralised nail. This was a rare La Tène III Gaulish Unguiforme brooch (Feugère 1985, type 11a), formed of very thin copper alloy which makes its survival all the more unusual. The object consists of domed shallow shell-shaped head integral to a gently tapering rectangular sectioned shank. The head is decorated with an incised pattern and a peripheral groove. The design comprises a longitudinal central line with curving lines connecting it to the outer groove, making a sub-lozenge shape. Originally the brooch was attached to a spring of four coils, by a chord wrapped around the top of the head, but it had snapped where the two joined.

Such brooches are thought to have been manufactured in the Languedoc region of southern France (Feugère 1985, 251), although they have been found as far removed as Romania and the Ukraine. This specific type was probably manufactured in the second half of the 1st century BC; where it has been found in later contexts these are far removed from Languedoc (ibid.). The brooch was presumably contemporary with the waterhole here. Such finds are rare in Britain, but have been found as near as Filkins in Oxfordshire (Hull and Hawkes 1987, Pl. 73, 3687), and there is a small distribution around the south-west of England. There was clearly some trade in such items in the region, but the presence of an immaculate example in a waterhole on a low status settlement is peculiar. It is possible that the brooch had a ritual status and was deposited following the abandonment of the waterhole.

The earliest feature in the complex, pit 10434 also produced a fragmentary length of copper alloy binding curved widthways, the exact function of which is unknown. In addition, a complete Manning type 1b nail measuring 95 mm in came from posthole 11005.The phasing of this feature is not certain and the nail may be an intrusive find.

Phase 7 (late Iron Age-early Roman)

The Phase 7 assemblage was also small (Table 7.10), containing 23 items, 10 of which were nails or possible nails (discussed above).

Dress accessories

The dress accessories category was represented by a heavily corroded copper alloy Colchester (Bayley and Butcher 2004, type a) type brooch (SF 1287, Fig. 7.1, 3). The bow tapered gently and was oval sectioned, the brooch was too corroded for it to be possible to tell if it was decorated. An eight coil spring and part of the pin and catchplate survived. This type of brooch dated to the early 1st century AD and had probably ceased to be made by the time of the conquest, its distribution spread across south and east England. The brooch was recovered from pit 11614 and was probably contemporary with the feature.

Two fragments of copper alloy pin were found together in ditch 20131, within complex 19999. The pieces appear to be different pins and are likely to be from brooches or buckles, possibly discarded as broken.

Miscellaneous tools

Iron tools from this phase include a knife or cleaver from waterhole 15257, a knife or reaping hook (Fig. 7.5, 6) from waterhole 12211 and a possible joiners dog or similar object from pit 17640. The object found within waterhole 15257 (SF 1955, Fig. 7.5, 5) could either have been a large knife, *c* 249 mm long

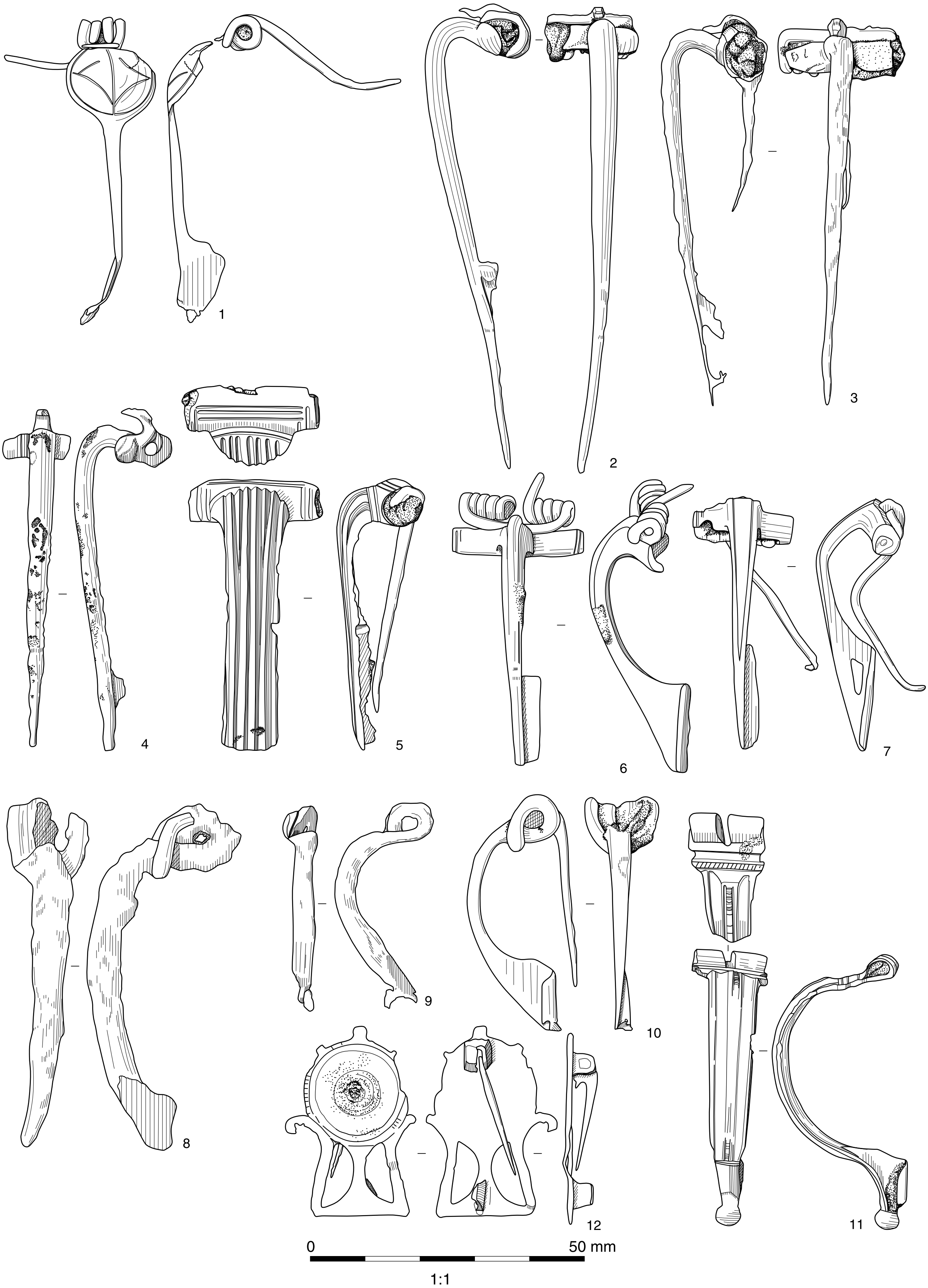

Figure 7.1 Copper alloy objects 1-12

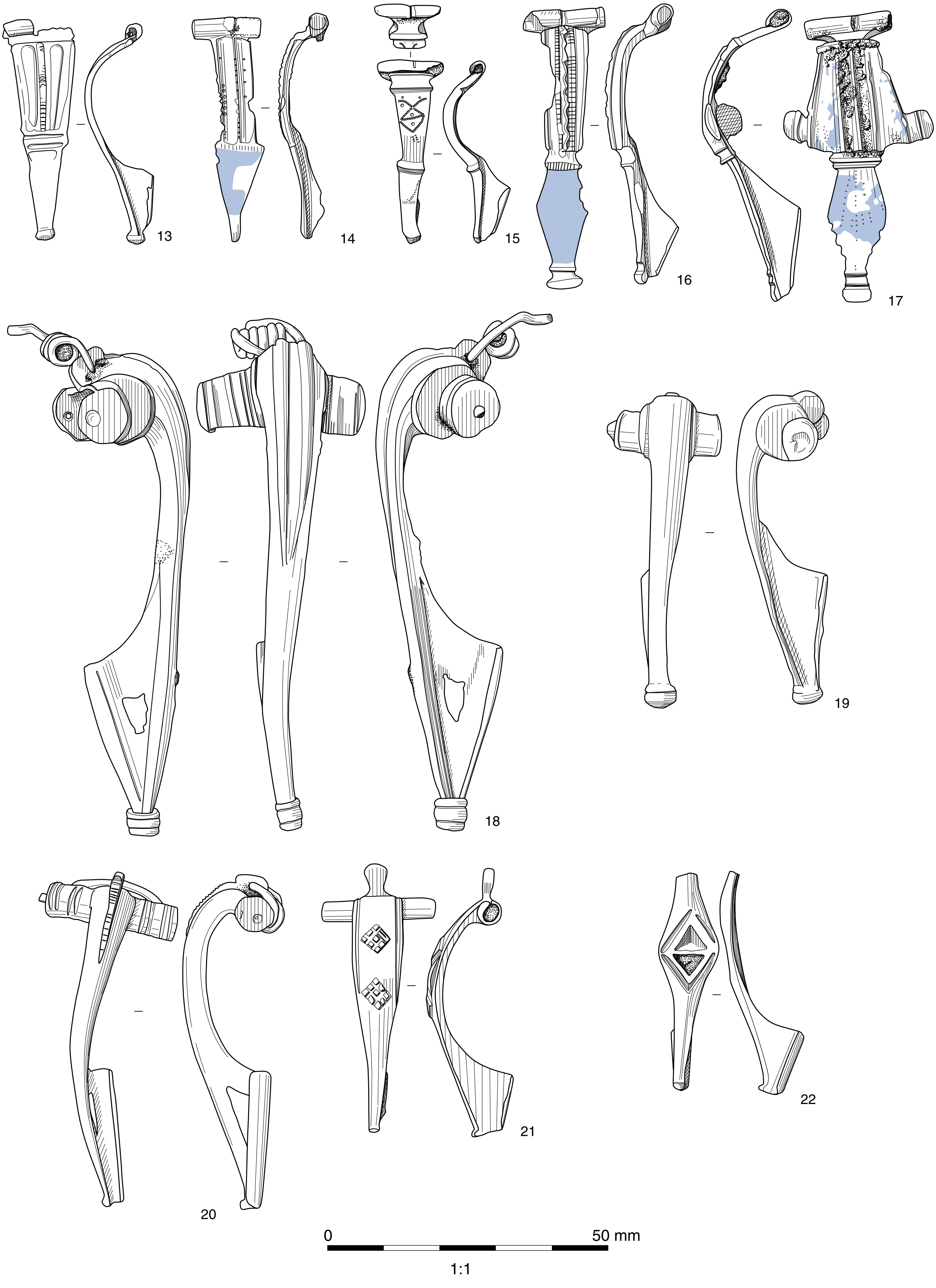

Figure 7.2 Copper alloy objects 13-22

(Manning 1985, type 11 cf pl. 54 Q34) or a cleaver (Manning 1985, type 3, cf pl. 57 Q100). The blade was attached to a tanged handle; the straight back continued from the line of the tang while the edge was slightly convex. It is unclear whether the tip was pointed or rounded. Similar objects were found at Thornhill Farm (Boyle 2004, fig. 4.7, no. 70) although this was much smaller, and at Kingscote (Scott 1998a, 189, fig. 90, 10.9).

The blade from waterhole 12211 may have been a fragment of reaping hook (cf Manning 1985, pl. 22 F24) although its fragmentary state makes this difficult to ascertain and it could equally have been a curved knife or cleaver. The object from pit 17640 was a fragment of rectangular sectioned iron bar 98 mm long, broadening at its central point to a thickness of 14 mm. It was broken at one end and with a short leg at the other at an angle of more than 90 degrees. It resembled a joiners dog but was very thick and may have been a different object type.

Miscellaneous fittings and unidentified objects

Other miscellaneous objects from this phase included a possible iron furniture handle or similar (SF 2336, 96 mm long and 15 mm wide) from pit 19266. The object was made using a strip of iron which arched and broadened in the centre with flat rounded terminals at 90 degrees to the main body at either end.

Several fragments of iron strip were found in structure 10480 and in ditch 20142 (complex 19999) and fragments of iron and copper alloy sheet came from three contexts. The latter included possible binding from pit 15805 and a possible blade tip from 19516, although these identifications are tentative. Structure 10480 also produced an object which may have been metal working waste.

Groups

The majority of the metal finds dated to this phase were scattered amongst a variety of features, mainly pits but also including boundary ditches, probably within normal patterns of disposal. However the presence of a broken blade within two of the major waterholes is notable and may have some ritual significance.

The only feature which produced multiple objects was 10480, identified as a probable iron-working area. The assemblage of two nails, iron strip and possible-metal working waste is consistent with this interpretation.

Phase 7/8

Features assigned to Phase 7/8 produced a total of six metal finds. For the most part these were single iron nails from different contexts. As well as a nail, pit 14274 also produced an iron ring of D-shaped section with a diameter of 27 mm and a small gap in the circuit, possibly as a result of corrosion.

One noteworthy find was a further copper alloy Colchester brooch (SF 2022, Fig. 7.1, 2) from pit 15823. This was very similar to SF 1287 but at 85 mm long was particularly large for this brooch type. The bow appears to be undecorated and attached to a spring which may have originally had 6 coils, though only 5 remain. The spring appears to be of iron rather than copper alloy. The brooch was comparable in all but length to a brooch from Dragonby (Olivier 1996, 241 fig. 11.4 no. 38).

Phase 8 (mid Roman)

Of the 160 finds which can be assigned to Phase 8, 71 were iron nails and a further 12 were probable nails or fragments of rod. The remaining finds were categorised as described below (Table 7.11).

Dress accessories

For the most part the objects classified as dress accessories were remnants of shoes and brooches. A total of 22 iron hobnails and two possible hobnails were recovered in addition to five bootplates and three possible bootplates, from a number of contexts. The significance of hobnails has been discussed above. Bootplates or cleats served a similar function, fastening the soles of shoes, generally although not always in combination with hobnails. Observation of surviving shoes and shoe patterns indicates that bootplates were often placed at the toe and heel of shoes or around the circumference. The difficulty in identification of bootplates lies in the fact that they are almost identical to small joiners dogs or staples used in woodworking. None of the bootplates were found accompanying hobnails in this phase, although a group of four bootplates was found in ditch 20050. Multiple hobnails were found in ditch 20016 (19) and pit 10749 (?4). Overall this assemblage is indicative of occasional discard of shoes, typical of Roman sites.

A total of four copper alloy brooches and a presumed brooch pin came from Phase 8 contexts. These will be considered in chronological order here. A 'Nauheim derivative' brooch (SF 1946, Fig. 7.1, 10) was recovered from a burnt deposit within dryer 14400. This brooch type was abundant in Britain during the 1st century AD, most commonly following the Roman conquest, and the flat bow is typically considered to be pre-Flavian (prior to *c* 70 AD). This object may therefore have been curated for some time, and its presence within this context may indicate some ritual significance. The brooch was of Bayley and Butcher (2004) type 'a' with a rectangular sectioned bow tapering to the foot and no visible decoration, comparable to an example from Gorhambury (Butcher 1990, 116 fig. 121, no. 3). The bow curves from the four-coil spring and is not angled at the foot. The brooch was in good condition when found with the interior chord, pin and solid catchplate all still intact. Overall the brooch appears to be quite a refined example of its type.

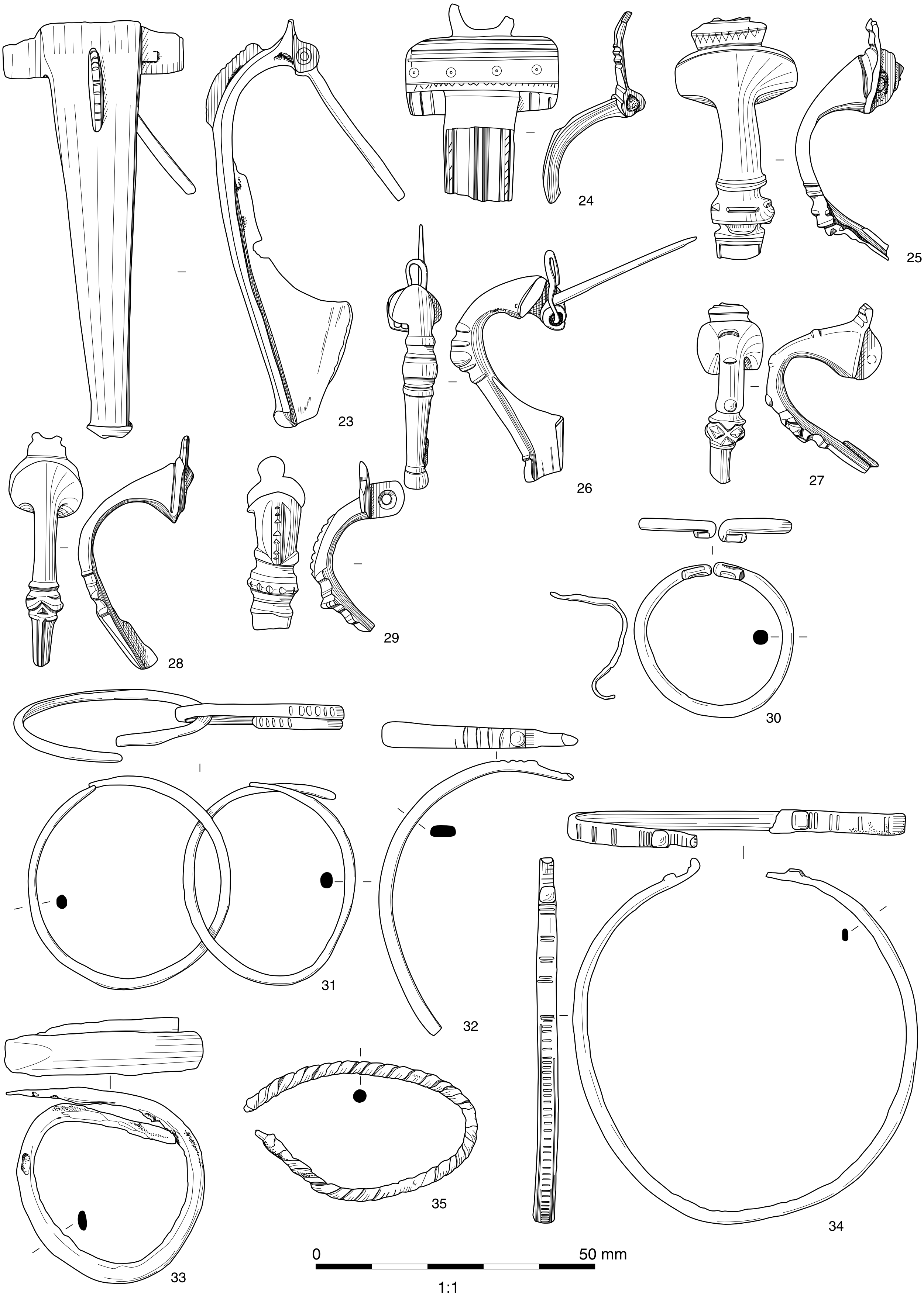

Figure 7.3 Copper alloy objects 23-35

Later brooch styles included two Colchester two-piece brooches, successors to the simple Colchester brooches described above, which dated to the latter half of the 1st century AD. These were recovered from gully 13814 (SF 1779, Fig. 7.1, 7) and ditch 20042 (SF 1682, Fig. 7.1, 6). The latter was complete except part of the pin, and was only lightly corroded. It is of Bayley and Butcher (2004) type bi or bii on the basis of the crest on the upper bow. The bow itself was narrow and D-sectioned and the small central crest terminated mid-brooch with a cross groove, repeated at the foot of the bow. The crossbar was plain with the exception of a transverse groove at either end and fronted a spring of eight coils. SF 1779 was somewhat more unusual, the rectangular sectioned bow had a clear break to the lug rather than a continuous surface. The brooch was not closely matched but was most similar to Bayley and Butcher (2004) type d. It was decorated with longitudinal grooves running down each side of the bow. Neither of these objects had obvious parallels from contemporary assemblages.

SF 1490, from ditch 20050, was a Fowler type D2 penannular brooch, with its ends turned back and flattened to make terminals, and small depressions on either side of the turned back parts. The ring was plain and of circular section, the pin still attached but very corroded. This brooch type was used throughout the Roman period, although Cool has suggested that dated examples of this type indicate a mid 1st century AD date. In the present case it is likely that the brooch was contemporary with the ditch fill. It is comparable to brooches from nearby sites such as Somerford Keynes Neigh Bridge (Cool 2007, digital section 5.3, fig. 5.3.5k), Whelford Bowmoor (ibid., digital section 6.3, fig. 6.3.3) and Barnsley Park (Webster and Smith 1982, 121, fig. 30 no. 86) as well as more distant sites such as Dragonby (Olivier 1996, 241, fig. 11.4 nos 154 and 155). An additional rolled sheet of copper alloy presumably forming a brooch pin (SF1494) came from pit 11992.

Other copper alloy dress accessories included a bracelet fragment (SF 974. Fig. 7.3, 32) and a further fragment of pin or bracelet (SF 2088). SF 974 came from ditch 20106, running north beyond the settlement boundary, and consisted of almost half of an oval to D-sectioned bracelet with one terminal remaining. Corrosion hides any possible decoration, although transverse grooves were visible near the terminal, itself separated by a raised rib and tapering to a point. The bracelet falls into Allason Jones and Miket (1984) type 1 although it is not possible to tell if the terminal has a loop or a hole. Comparable examples were found at Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.2b nos 67 and 68) as well as at Shakenoak (Brodribb *et al*. 2005, 56, fig. 1.30 no. 23). Bracelet wearing was generally a fashion of the late Roman period in Britain and most examples belong to the 3rd or 4th century. The context suggests that SF 974 falls within the earlier part of the range.

SF 2088 from ditch 20061 was a circular sectioned fragment of copper alloy rod which did not appear to taper and may have been part of a pin or bracelet.

A copper alloy ring (SF 1990) from pit 15301 may have been a finger ring or a fitting. The ring was oval in section and had been squeezed open. While this may have been a simple fitting the ends appear to have been straightened, possibly suggesting it was an expanding finger ring (cf Neal and Butcher 1974, 136, fig. 60 nos 129-133), although this is uncertain.

Military and weapons

Other finds of note from this phase include a 90 mm long iron spearhead (SF 2, Fig. 7.6, 18) from a trackway ditch within complex 17615. The spearhead had a narrow leaf-shaped blade with rounded asymmetrical shoulders and a closed socket and was bent at the tip. Such items have a long life and although this example was comparable with Manning's Hod Hill group 1A (1985) the object is not necessarily of mid 1st century AD date. Similar examples were found at Hod Hill and Dragonby and may indicate a military presence. As the spearhead was found in a trackway ditch this may simply indicate the passing of troops, but its presence next to the settlement is interesting.

Household objects?

Phase 8 also produced two of the most elusive objects found during the excavation (SFs 1481 and 1531, Fig. 7.4, 45-6). These were found in different contexts *c* 45 m apart (ditches 20016 and 20050) but were identical in form. Both were flat sheets of copper alloy *c* 1 mm thick, pelta-shaped with the addition of a defined fleur-de-lys pattern between the curving elements. It is notable that the crescent openwork design on the objects was the reverse of the usual pelta design. Both had a clear front and reverse side, the reverse being rougher and more corroded in both cases, but with no evidence of fastenings. Neither object is complete and both are broken in similar areas, adding to the problem of identification. On first inspection the objects appear military in nature; the pelta motif is repeated widely in militaria such as pendants/mounts, equine equipment, sword or scabbard fittings and belt fittings (see 'cheekpiece' Bishop and Coulston 2006, 191, no 4; 'mount' Wardle 1990, 172; 'armour' Crummy 1983, 137 no. 4237 and 166 no 4637; 'baldrick fitting' Cool 2007, 144, fig. 5.32 no. 64). This is emphasised by the fact that the two objects were identical, suggesting mass production. However, the combination of fleur-de-lys and pelta is rare in military equipment and where found the floral addition is usually on the other side of the pelta (see winged pendant from Wanborough and mount from Cold Kitchen Hill (Griffiths 2001, 55, fig. 3.3 no. 6; 67, fig. 3.9 no. 54)). In contrast there is a striking comparison with the reflector from a copper alloy lamp discovered in Abbey Field, Colchester (N Nolan pers. comm.). This is particularly interesting when considered alongside a similarly elusive item from the excavations at Claydon Pike. In the latter case the object was a copper alloy vine leaf, also similar to a military pendant but identified as a likely lamp

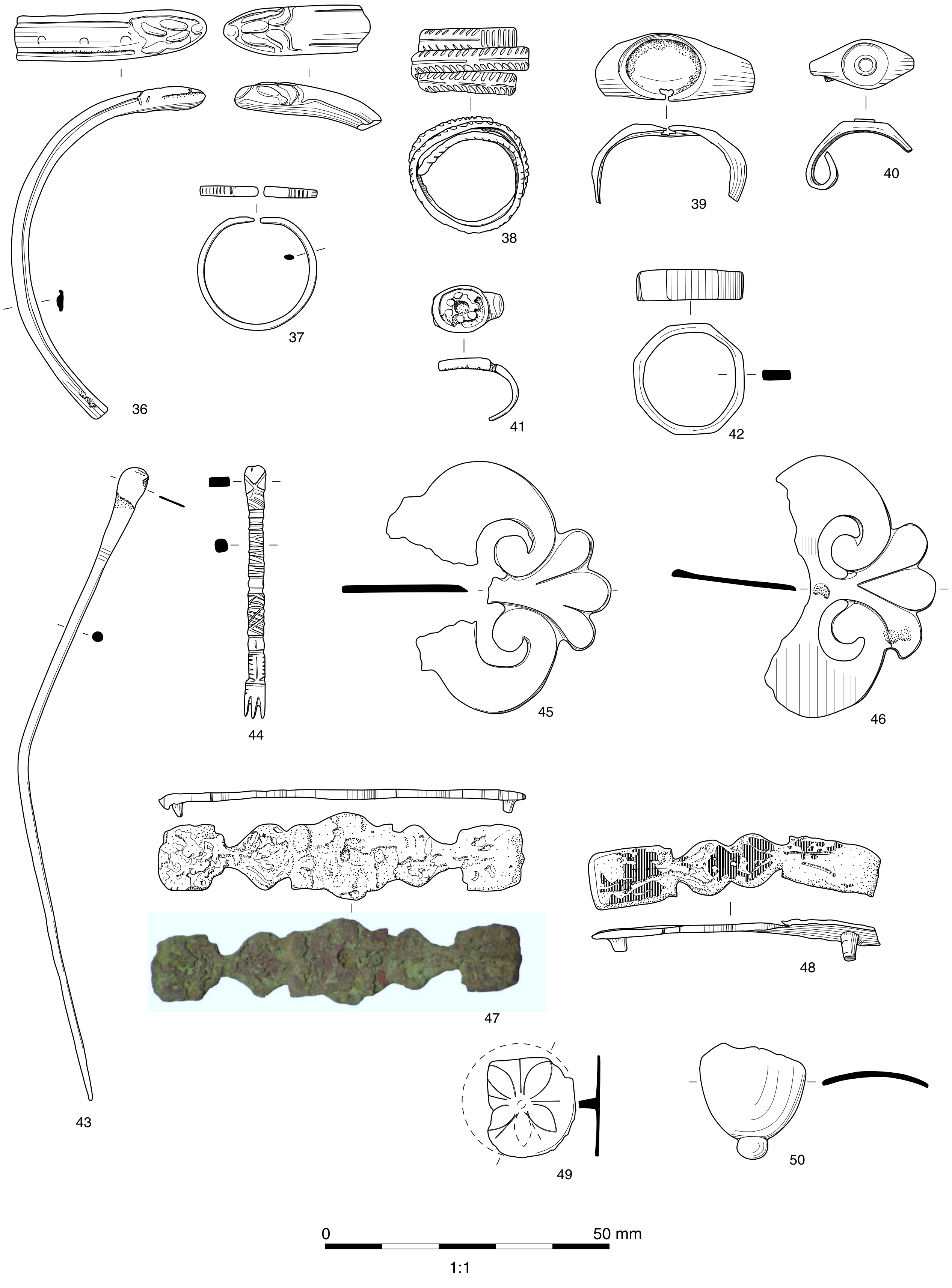

Figure 7.4 Copper alloy objects 36-50

Figure 7.5 Iron objects 1-11

reflector (Cool 2007, 140, fig. 5.28 no. 31).

A further household object found in pit 18061 was a socketed iron candle holder with three rectangular sectioned legs radiating from the base, all of the feet appear to be missing or incomplete and the socket is split. Similar examples of these candle holders have been found at Verulamium (Manning 1972, 177, fig. 65 no. 51), Uley (Henig 1993, fig. 149 no. 2), Alcester (Mould 2001, 242-3, no. 155) and Kingscote (Scott 1998a, 175, fig. 85 no. 4.103).

Equine objects

The equine objects category is represented by a fragment of iron hipposandal wing (SF 1361), measuring 91 mm long, probably of Manning (1985) type 3. The wing tapers to a point and is broken at the point where it would have joined the sole. Hipposandals are considered to be a form of temporary horseshoe probably used when unshod animals were brought onto metalled roads (ibid., 63).

Miscellaneous tools

Tools from this phase included a near complete Manning (1985) type 22 iron knife from pit 14334 (SF 1862, Fig. 7.5, 7). The knife was a small example of the type, measuring 112 mm long as found, with a straight back in line with the socket, the edge sloping downwards and turning sharply up to form the tip (cf Manning 1985, l56 Q63/64). The knife was a later Roman type, commonly found in the London area.

A number of other objects, including fragments of shaped iron (SF 1283 and SF 15), may have originally been blades of some kind. A tanged iron object from ditch 20082 (SF2233) may have been a knife but is broken at either end making identification difficult. The proposed blade may have had a straight back in line with the flat tang, which sloped gently to a possible tapering edge.

Two further iron objects may have been tools but were of unknown function. SF 2060 (Fig. 7.6, 13) from ditch 16252 resembled a possible punch or chisel, the body having a rectangular to triangular section with a square sectioned central tang. The object was broken at both ends. One break is at a 45 degree angle, giving the object the potentially misleading appearance of a chisel. If this was the case, however, it can be compared to examples in Manning's corpus (1985, pl. 11 B41/42) and from Dragonby (Manning and McDonald 1996, 294, fig. 11.33 no. 22). Alternatively the object could be a structural fitting or longer tool handle missing organic elements.

SF 1840 from gully 14149 appeared to be a tanged tool with a flat, fish-tail shaped blade resembling a wind up key from a child's toy. The main body became oval sectioned before breaking. Similar objects have been recovered from Kingscote (Scott 1998a, 200, fig. 97 nos 18.25 and 18.26) and Gorhambury (Wardle 1990, 139, fig. 131 nos 391 and 392), although the function is unknown.

Toilet/medical implements

A single object (SF 1215, Fig. 7.4, 44) from ditch 20168 (complex 17590) probably fell into this category. The implement was a circular sectioned rod, tapering to a point, with a flattened head which was sub-rounded but possibly broken. Incised transverse lines existed below the head on one side of the object, but it is unclear if this was intentional. Overall the object most resembles a toilet or unguent spoon, although the head is not set at an angle as in many comparable examples, and it is possibly a broken needle. Similar objects from Gorhambury are described as ligulae (Wardle 1990, 125, fig. 124 nos 143-144). Other comparisons have been found at Kingscote (Viner 1998a, 166, fig. 80 2.16), Gadebridge Park (Neal and Butcher 1974, 142, fig. 63) and Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.6 nos 167-170).

Miscellaneous fittings and unidentified objects

Overall 23 finds were classed as miscellaneous fittings or were not identifiable. These included six possible fragments of iron binding, some with rivets still attached, and one possible example of copper alloy binding curled round to form a circle (SF1246). Further fragments of iron, copper alloy and lead strip and sheet were too fragmentary to class as binding or other objects. One of the copper alloy objects appeared to be circular with a central hole, but may have been an intrusive modern find.

An iron washer, with an external diameter of 35 mm and an internal diameter of 8 mm, came from ditch 20065. This resembled similar objects from Uley (Woodward and Leach 1993, 208, fig. 154 no. 5) and Gadebridge Park (Manning 1974, 185, fig. 78 no. 661) and may have had a number of uses. Fragments of copper alloy and iron rod may have been chain link and a nail respectively but were too fragmentary to tell. Objects which were not possible to identify included SF 1876, a 4 mm thick iron strip, terminating at one end in a sub rounded terminal and widening into a sub-rectangular 'head' at the other end This could possibly have been a tool such as a gouge, but its state of completeness is uncertain. An unusual copper alloy object from ditch 20166 had a section of near diamond-shape with a central rib on one side and irregular herringbone pattern, on the other side. This may have been some form of waste from metal working.

Groups

Where multiple metal finds could be assigned to single contexts or features in this phase the majority were nails and fittings. Larger assemblages were, however, noted from ditches 20050 and 20317. The former may have included a later dump of material perhaps more correctly assigned to the later Roman period, in which context its presence would not be particularly unusual (see below). All the components within the assemblage from ditch 20317 may have come from a single object. Overall, therefore, there are no deposits of real interest from Phase 8.

Phase 8/9

A total of 90 objects came from contexts which straddled Phases 8 and 9 or could not be assigned with certainty to either phase (Table 7.12). Of these, 20 were nails varying from 1-6 in number in different contexts.

Dress accessories

The majority of objects classed as dress accessories were iron hobnails. Two groups, of 22 and 34 nails respectively, both from waterhole 11760, presumably represented discarded shoes. Van driel Murray (1999, 135) has pointed out that there has been a long tradition of association between shoes and water and these finds may be an example of this.

The remaining dress accessory was a complete copper alloy bracelet (SF 1739) from pit 13347. The bracelet had a diameter of 34 mm when found, although it was looped round. It is unclear if this was its original form or if this was a post depositional alteration; if the former, the bracelet was probably made for a child. The bracelet was D-sectioned, up to 3 mm wide with flattened terminals but no apparent decoration. It is of Allason-Jones and Miket (1984) type 18 (undecorated penannular) and is similar to their number 3.304 (ibid., 137). Similar bracelets have been found at nearby Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.2a no 62) as well as at Shakenoak (Brodribb *et al*. 2005, 152, fig. II.48 no. 74). Penannular bracelets, unlike many other bracelet types, were worn throughout the Roman period and cannot be closely dated.

Toilet/medical implement

A very unusual copper alloy object, the exact function of which is unclear, was recovered from ditch recut 20122. SF 2146 (Fig. 7.4, 44) was 45 mm long and 3.5 mm wide with a flat rectangular head and foot either end of a roughly circular sectioned shank. The foot terminated in three very sharp prongs with traces of webbing in between. The head was 4 mm long, tapered slightly towards the top and was incised with a lozenge shape, below which was 3 mm of diagonally incised grooves. The main shank was intricately decorated with incised criss-crossing diagonal decoration with two plain but slightly circular bead-like elements within. The foot was decorated with transverse grooves. The object was clearly a form of toilet or medical implement although its exact nature is unclear, particularly as the three prongs remain so sharp. No three-pronged parallels were found within the literature consulted.

Equine object?

A possible equine object (SF 1774, Fig. 7.5, 4) was recovered from pit 13707. It comprised a square sectioned iron rod curved at each end to make loops, one of which was larger than the other (28 mm and 18 mm diameter respectively). The object resembles a snaffle bit or mouth bar, although the loops are on the same plane as the bar and the curled construction is unusual (cf Manning 1985, Pl. 28 H11; Scott 1998a, 175, fig. 85 8.3).

Miscellaneous fittings and unidentified objects

An unusual object of unknown function (SF 5) came from trackway complex 17615. The object comprised an iron rod of changing section with an apparently broken-off head, with a combined length of 192 mm. The head was flat with a square central eye and would have been attached to a rectangular sectioned tapering shank. This altered abruptly part way down, the section remaining rectangular but turning 90 degrees before tapering to a point. The object may have been a tool but also resembles a strut or fastener.

The ten remaining objects included fragments of probable copper alloy binding and sheet, one fragment of which appeared to form a corner and contained a rivet hole (SF 2003). Iron fragments included a rectangular or triangular sectioned item which may have been part of a blade (SF 1845) a leaf-shaped fragment (SF 1846) and a triangular object of oval section (SF 1608) which resembled a bolt or arrowhead, although this is not likely as a function.

Groups

The largest group of objects from a single feature were from waterhole 11760 but mainly consisted of nails and hobnails. No other groups of significance were noted.

Phase 9 (late Roman)

A total of 362 objects (53% of stratified finds from the Roman settlement) were assigned to Phase 9 contexts and a further 15 to possible Phase 9 contexts (Table 7.13).

Buildings and structural

Of these 377 finds 112 were nails or possible nails which are treated as a group above and will not be discussed in detail here. However, a number of these objects may have been other items of interest. SF 1705, for example, was much larger (143 mm long) than most of the nails from the site and may be better identified as a spike rather than a type 5 nail. SF 1722 may have been a T-clamp as it had a long, flat head, which was broken on one side and bent over on the other. SF 1274 appeared to be the large head of a type 2 nail (39 mm diameter) or possibly a spatulate linch pin (type 2a cf Manning 1985, Pl. 31 H40). The shank section was rectangular and the head sub-triangular,

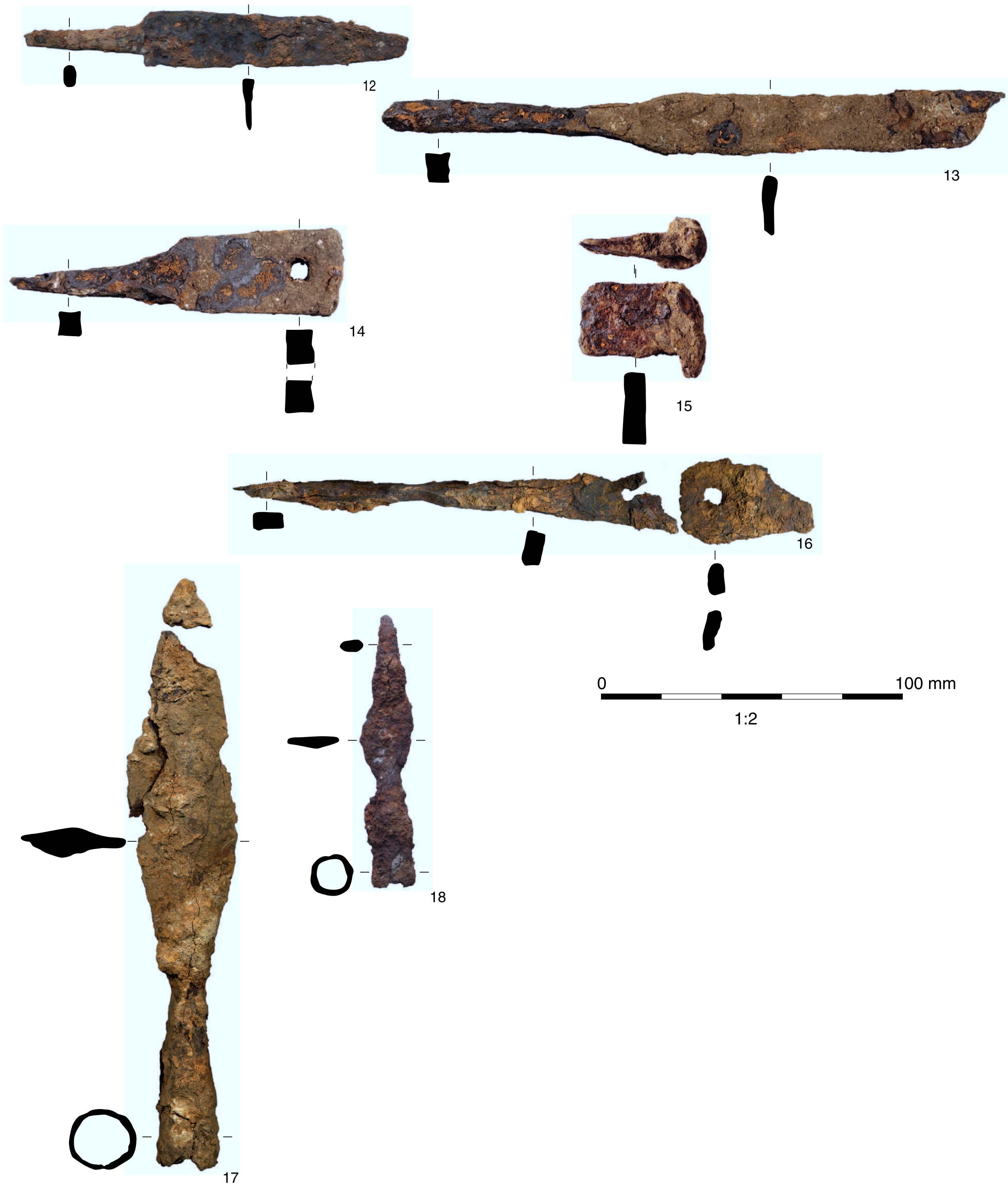

Figure 7.6 Iron objects 12-18

but corrosion made identification difficult. SF 1275 may have been a cleat and SF 1436 a handle, but this is unclear. A number of other items were classed a nail or rod fragment, although the former is most likely.

Other objects in this category included a 137 mm long T-clamp from ditch 20151 (cf Manning 1985, Pl. 62 R66; 1974, 174, fig. 74 no. 513). These objects are relatively common in ironwork assemblages and can be used for a variety of functions including fixing tiles (Manning 1985, 132). This context also produced a possible iron looped pin (SF 1291), a length of bar 119 mm long, tapering to a point at one end and split into two at the other, possibly originally forming a loop. Finally, a further structural fitting (SF 1295) came from the same context. This was a tapered iron rod of unclear section, the point appears to be complete but encrusted with corrosion product. At the opposite end a 'head' is formed by a flattened oval with a central perforation. The function of the object is unknown though it could be a strut or reinforcement or a form of binding (cf Wardle 1990, 149, fig. 136 660).

Dress accessories

Once again the majority of objects within this functional category were iron hobnails (37) and bootplates (4, plus 2 possible) representing shoes, from various contexts. The two object types were found together in ditches 20151 and 20331, and the largest group of nine hobnails originated in ditch 20163. All presumably represent casual disposal of footwear; all the contexts mentioned are regarded as being dumps of material late in the period, preceding abandonment of the settlement. The bootplates varied in form from diamond-shaped to sub-round, oval and teardrop-shaped, and in size from 20-40 mm long. The two examples not identified with certainty as bootplates were quite small and may have been fasteners.

Other dress accessories included three brooches and a pin from a brooch or buckle, two bracelets and a strap fitting. The brooches were all of different date within the Roman period. SF 2272 was an early hinged or strip bow brooch, usually recognised as dating to AD 25-70. Most were probably produced pre-conquest and are likely to be of British origin. This example is made of iron, a feature normally found earlier in the Iron Age, although the brooch was found within late Roman building 14291. The brooch was heavily corroded, therefore its exact form and the presence or absence of decoration could not be established. Early hinged brooches were constructed by rolling the head backwards to hold the axial bar. The brooch tapered to the base of the bow, gently curving, and measured 49 mm long and up to 11 mm wide. It is not clear if the absence of a foot is the result of corrosion or manufacture. Similar examples found in the wider region tend to be copper alloy (cf Hattatt 1989, 49, fig. 23 no. 1489; Butcher 1990, 116, fig. 121 no. 10).

A Polden Hill brooch (SF 1771, Fig. 7.2, 19) was found within pit 13439. Polden Hill brooches are recognisable from the distinctive method of attaching the spring within a semi-cylindrical crossbar with closed ends to secure the axial rod, the chord is held by a crest on the head. The brooches were a form of Colchester derivative popular between *c* AD 65 and 125. This example is classified as Bayley and Butcher (2004) type b (cf Hattatt 1989, 300, fig. 159 no. 898) with the upper bow humped over the crossbar. The plain bow tapers and is sub-D-sectioned with a rounded footknob separated by a cross-groove. Slight lateral extensions of the crossbar show as disc flanges beside the upper bow. The spring is of iron and badly corroded, therefore the number of coils is unclear, but the axial bar is copper alloy.

The third brooch (SF 1572, Fig. 7.3, 25) is a trumpet brooch of type b or c (Bayley and Butcher 2004) dating to the 2nd century AD, from pathway 12906. The brooch had an elongated head with a fixed headloop on the backplate (loop missing) and zigzag decoration at the base of the plate. The upper bow is plain with a flat back and a moulding at the waist consisting of a double cross ridge, the bulbous central element also has a cross ridge flanked by further short mouldings. The lower bow is mostly missing although a groove is visible at each edge. An iron spring of two coils remains, held by two lugs and an axial rod in a recessed head (cf Hatatt 1989, 326, fig. 185 no. 959).

A further pin from a penannular brooch or buckle came from ditch 20052, as did both copper alloy bracelets. The first (SF 2418, Fig 7.3, 34) was a near complete example of Allason Jones and Miket (1984) type 1, rectangular-sectioned, with an external diameter of 61 mm, missing only the pierced terminal. The majority of the bracelet was decorated with transverse grooves set within a central band. On the complete side this decoration terminated with pairs of longer transverse grooves followed by a series of more closely spaced transverse grooves either side of the rib, the hook survives `in full. The decoration may be identical at the other terminal but this has been broken and lost (cf Woodward and Leach 1993, 165, fig. 128 no. 17). This form of light bangle was common in the 4th century AD and this object is likely to be of that date.

The second bracelet (SF 1557) was much more fragmentary and was formed by twisting two rectangular sectioned rods, or a length of rod folded in half (cf Allason Jones and Miket 1984, type 13). An almost identical example was recovered from Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.2a no. 51) and similar bracelets appear quite widespread (cf Brodribb *et al*. 2005, 56 fig. I.30 no. 26 and 204 fig. III.30 no. 131; Neal and Butcher 1974, 140, fig. 61 no. 164; Crummy 1983, 39, fig. 41 1610 and 1611; Woodward and Leach 1993, 163, fig. 127 no. 19). This is the most common form of bracelet type found from Romano-British sites and is also likely to date to the 4th century AD.

The final object to fall into this functional category was a copper alloy strap fitting, 54 mm long and 16 mm wide, from ditch 20151, also a late Roman dumping deposit. One side of the object was complete while the other side was snapped in half. The basic form was rectangular but slightly shaped on one edge with a collar before a bulbous end. Two rivet holes were present in the centre and in the complete end. The object has no known Roman parallel and may be intrusive, possibly post-medieval in date.

Equine objects

As in Phase 8 this category was represented by a single fragment of hipposandal wing (SF 1593). Like SF 1361 the 4 mm thick sheet was curved and broken where it would have attached to the sole. The tip of the wing was damaged, but the form suggests that this was a Manning (1985) type 1 hipposandal (cf pl 26 H2).

Miscellaneous tools

A number of the iron finds from this phase may have fallen into this category. A possibly complete knife, 143 mm long in total, was recovered from ditch 20163, (SF 1273, Fig. 7.5, 8. This was of Manning (1985) type 11 or 13 (cf pl 54 Q39/42). The back of the knife continues the line of a relatively square-sectioned tang or handle. The edge forms a downwards convex curve from the tang and is rounded, although it is unclear if this is deliberate or the result of damage. No local parallels were found for this object.

A further probable knife came from ditch 20015 (SF 1235, Fig. 7.5, 9) most closely matching Manning (1985) type 14, 15 or 16. The object appeared to be similar to ones from Claydon Pike (Cool 2007, 195, fig. 6.17 no. 30) and Gorhambury (Wardle 1990, 141, fig. 132 no. 436), with a tang which rises gently to a straight back sloping to the tip. The edge is stepped down from the tang, rising up to the tip.

Other tools included a possible fragmentary chisel end (SF 1442) from ditch 20350. The object was flat on one side, tapering to a point on the other with a splayed end (cf Manning 1985, Pl. 10 B38 and Pl. 11 B40). A further tracer or chisel (SF 2085) came from deposit 12306. The length of rod, 99 mm long and 8 mm wide, appeared circular in section at the top end, becoming square before changing alignment and becoming rectangular in section with a slightly rounded tip. The object was heavily corroded and not easily identified but was similar to a tracer for decorating metal described by Manning (1985, Pl. 6 A33). A possible carpenter's wedge (SF 1524, Fig. 7.6, 15) came from ditch 20052. The object was heavy with a triangular section, at the widest end is a flange, possibly formed by hammering. It is unclear if the object is complete due to corrosion. A similar object was found at Gadebridge Park (Manning 1974, 170, fig. 73 no. 476).

Ditch 20151 produced a number of objects which may have been tools of varying description. SF 1289 comprised a rectangular shank with a flared, fan-shaped end, surviving to 32 mm in length. This resembled a stylus or modelling tool but its degree of completeness is unclear. A tapering length of sub-circular sectioned rod 52 mm long (SF 1315) may have been part of a punch-type tool, although this is one of several possible interpretations. SF 1292 may have been a broken joiner's dog surviving to a length of 82 mm. This comprised a rectangular-sectioned rod bent at right angles with the arm tapering to a point. The object appears to be broken at the other end. Several fragments of possible blade also came from ditches 20151, 20163 and 20350.

An unusual item (SF 1587, Fig. 7.6, 14) from deposit 12306 was at one end a rectangular-sectioned bar 27 mm wide, perforated with a sub-circular hole, 8 mm in diameter. This tapered slightly to sharply sloping shoulders becoming a possible tang or pointed element. This is similar to an object described by Manning as a pin (1985 137, PL70 S137) although here the head is much larger and the spike shorter and wider, and also has elements in common with objects from Shakenoak (Brodribb *et al*. 2005, 66, fig. I.35 no. 46) and Gadebridge Park (Manning 1974, 185, fig. 78 no. 955). It is possible that the object is a small anvil (I Scott pers. comm.).

Miscellaneous fittings and unidentified objects

A total of 87 objects were classed as miscellaneous fittings or were not closely identifiable. These included fragments of iron, copper alloy and lead sheet, possible bindings of iron and copper alloy, and rings. Copper alloy objects also included two possible plates or mounts (SF 1305 and 1665) the former of which was almost complete, sub-rectangular with circular holes in each corner, and may have been an intrusive object. SF 1405 was an irregular sheet of copper alloy with one original edge which may have been a fragment of vessel. A further two copper alloy items may have been metal working waste.

Iron objects included a length of rectangular sectioned bar (SF 1526) curled over at one end to make a loop and broken at the other end. This may have been part of a handle or loop-headed spike (cf Manning 1985, Pl. 59 R32). Three items (SFs 1525, 1589 and 1229) may have been hinges or similar fittings. A fourth object (SF 1685, Fig. 7.5, 3) may have been a handle mount or hinge comprising an iron sheet with a thick loop at one end joined to a baluster-shaped element. A rectangular strip emerged from this with a small baluster-shape at the other end, all of which was integral. Two rivets still survive through the bulbous parts. This object is similar to possible bucket side mounts from Well 1 at Dalton Parlours (Scott 1990, 201, fig. 118 nos 55 and 52) and also an object from Kingscote (Scott 1998a, 205, fig. 99 18.31).

Ditch 20350 produced a probable iron handle (SF 1426) of sub-rectangular section, possibly chamfered, flaring out to a fan-shaped end. A rivet was still attached at the wider end. The object was clearly broken at the narrower end and may have been the handle of a saucepan or skillet (cf Crummy 1983, 72, fig. 76 no. 2043) although there are some similarities between the object and the woodworking scraper or farrier's tool from Uley (Woodward and Leach 1993, 194, fig. 145 no. 8).

In addition a 52 mm long sub-rectangular plate with a rivet hole at one end (SF 1549) came from deposit 12306. Ditch 20052 produced a three sided solid pyramidal object (SF 2403), probably broken off a larger object such as a vessel or plough share/coulter. Other iron objects included fragments of strip, circular fragments, fragments of bar or rod and at least 20 objects which were not possible to identify owing to corrosion and their incomplete state.

Lead finds included drips and possible metal-working debris, offcuts, bar fragments and entirely unidentified items. An unworked lump of lead ore with quartz crystals and sandstone attached came from ditch 20350. Its presence within this dump in addition to offcuts and similar items suggests that there may have been some lead working in the immediate vicinity.

Groups

In contrast to the preceding phases the majority of the metalwork from Phase 9 features was found within large deposits of material, rather than as discrete finds. The largest assemblage from a single feature was a collection of 83 metal finds from enclosure ditch 20350, most of which came from a single cut (11728) at the north eastern terminus,. Much of this assemblage was unremarkable, comprising mainly nails, miscellaneous fragments and waste material, clearly discarded as rubbish in an established dumping area. This deposit was notable for containing lead waste and lead ore.

A further 66 finds came from ditch 20018 or, more specifically, from deposit 12306, interpreted as a levelling layer over the ditch for surface 12906. Again much of this assemblage consisted of nails and miscellaneous fragments and fittings although a few more interesting finds included trumpet brooch SF 1572, a fragment of hipposandal, a number of tools and the possible bucket mount and anvil (see above). This deposit may have derived from an already established midden, used to fill the underlying ditch.

A total of 56 metal finds were recovered from ditch 20151, 18 from ditch 20163 and 6 from ditch 20331, all of which were late Roman recuts to Enclosure 17590. Again the majority of these finds were nails or similar structural fastenings, tools or binding, all of which were probably from day to day refuse, dumped into the boundary ditch.

Ditch 20052, notable for its proximity to later 12306 and the later Roman settlement area, also produced 46 finds. The assemblage was typically dominated by nails but also included dress accessories such as bracelets 1557 and 2418, possibly reflecting the proximity of the domestic area at this time.

Smaller assemblages came from a number of other boundary ditches beyond the settlement area including 20015 (16 objects) and 20007 (8 objects) neither of which was remarkable. Waterholes and wells also appeared to be common locations for discard of refuse as illustrated by the finds assemblages from well 17264 (15 objects) and waterhole 12003 (20 objects). These showed no signs of being votive deposits and were similar in nature to the assemblages from ditches.

Iron Age/Roman

A small group of objects (19) came from features which could not be phased more closely than Iron Age/Roman. Typically the majority (10) were iron nails or possible nails but a number of pieces were of more interest (Table 7.14).

Buildings and services

A probable T-clamp measuring 53 mm long came from pit 12310. The uncertainty in the identification is a consequence of corrosion, but both arms appear to taper.

Dress accessories

A fragment of pin or possible brooch pin (SF 954) was recovered from tree-throw hole 10500, adjacent to the Roman cemetery above ring ditch 16072 and a fragment of bracelet came from borehole 11070 through a possible Roman feature. The latter (SF 1266) was of Allason-Jones and Miket (1984) type 14, (cf 135, 3.271) formed by wrapping a wire tightly around a shank. The section was circular and 2 mm thick and the bracelet was originally plated with a white metal. Similar bracelet types were found at Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.2a no. 53) as well as Gadebridge Park (Neal and Butcher 1974, 140, fig. 61) and Barnsley Park (Webster and Smith 1982, 122, fig. 31 no. 98). The bracelet could not be dated exactly but is likely to be of 4th century date.

Household objects?

A probable fragment of L-shaped lift key (SF 2471) came from pit or posthole 19371, the object was fragmentary, measuring 60 mm long with two teeth and a rounded end. The other end was curving upwards but broken. This is similar to an object from Claydon Pike (Cool 2007, 196, fig. 6.18 no. 35) and examples from Gorhambury (Wardle 1990, 149, fig. 136) and Castleford (Scott 1998b, 135, fig. 48). In addition, a possible fragment of iron vessel fragment (SF 1540) came from deposit 12242.

Miscellaneous/unidentified

The remaining four objects comprised two probable waste objects from metal-working, an unidentifiable copper alloy object (SF 2307) from pit 19331, and a socket with fragments of an implement (SF 140) from pit 4255. The copper alloy object was a relatively flat coffin-shaped object, slightly broadening in the centre with a hole at the top for attachment or suspension. The object was encrusted in a possible organic substance which left diagonal deposits. It broadly resembled a nail cleaner without the points and may have been a strap end or pendant.

The socket with remains of an integral implement, possibly a tool, was 50 mm long and 15 m in diameter. The socket tapered towards the top and the remains of the implement were oval-sectioned with a central ridge curving to a rounded point. The object may have been a one of a number of types of tool, or a small spearhead, but was too fragmentary to tell.

Phase 10 (Saxon)

Only three objects were recovered from identified Saxon features, two from waterhole 2507 (SFs 78 and 82) and a third from waterhole 2864 (SF 104). SF 82 was a 34 mm long fragment of iron strip, 15 mm at widest point, and appearing to taper. This may have been a fragment of blade but was very thin. SF 78 was a strip of iron with a right-angled corner at one end and a broken protrusion. The other end was rounded and also broken. The object resembled part of a key but its identification remains uncertain. SF 104 was a copper alloy disc, 14 mm in diameter and 2 mm thick, slightly dished and apparently modern.

Phases 11-12 (medieval–post-medieval)

Six objects came from features assigned to medieval, post-medieval or modern periods. Ditch 19988 produced an iron nail and a possible iron handle (SF 1206), the latter comprising a circular-sectioned length (57 mm) of rod which appeared to taper at both ends but was broken at one. At the opposite end the object curves to form a rectangular-sectioned arm. The ditch also produced a modern circular tinned copper alloy button 20 mm in diameter.

A further nail and a possible nail or tang came from ditch 7100 and a piece of modern corrugated iron was recorded from ditch 10385.

UNSTRATIFIED ROMAN FINDS

Some 430 metal finds were recovered from unstratified or uncertain contexts including topsoil, natural subsoil and plough furrows and metal-detected and surface finds (Table 7.15). The archaeological value of such material can be limited, but only six of these objects were found in locations removed from the large Roman settlement, indicating that this was the likely origin of the majority of the assemblage. Further consideration of the assemblage may therefore contribute to understanding the site as a whole.

Buildings and services

In contrast to the other groups only 17 of the finds within this group were nails or possible nails. This is inevitably the result of collection bias, with nails not being considered worthy of collection from unstratified contexts. The majority of the nails were similar to those found in stratified contexts suggesting they were likely to be Roman in origin. One object may have been a badly corroded T-clamp (SF 1450). The head of a copper nail or stud with a circular shank, SF 2317 may have been Roman in date.

Dress accessories

In total 52 of the 430 finds were classified as dress accessories, 32 of which were brooches or brooch elements. Brooches can be indicators of chronology and fashion and can shed light on the nature of sites. As such the brooches in this assemblage will be considered chronologically to help understand the development of the settlement.

Colchester brooches

One of the best represented brooch types was the Colchester one-piece brooch, of which five possible examples were found unstratified, in addition to the two stratified examples discussed above. SFs 1095, 1098 and 1116 were definite examples of simple Colchester brooches with rod bars of oval section, tapering to a point. All three were probably plain, although decoration could be obscured by corrosion. Brooch 1095 was 30 mm long and sharply angled, identified as of Bayley and Butcher (2004) type c or d (small or miniature). Part of one side of the crossbar and the rearward hook survived, as well as remains of the catchplate. The brooch was comparable with examples from Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.1a no. 4) and Gorhambury (Butcher 1990, 116, fig. 121 no. 27; see also Bayley and Butcher 2004, 63-4, fig. 46 no. 58 and fig. 47 no. 66).

Brooch 1116 was very similar to 1095 but longer (48 mm, and therefore of Bayley and Butcher (2004) type c), steeply angled and tapering to a very thin point. It is possible that the whole crossbar remains but it is very short (8 mm long); the catchplate and spring are missing. Similar examples were found at Thornhill Farm (Mackreth 2004, 71, fig. 4.1 no. 12) and at Dragonby and Gorhambury (Olivier 1996, 241 and 243 fig. 11.4 and 11.5 nos 39, 40 and 46; Butcher 1990, 116, fig. 121 no. 28). SF 1098, in contrast, was of Bayley and Butcher (2004) type a with a straight bow 60 mm long. Again part of the crossbar remained on one side and the rearward hook and lug to hold the spring were still present. The spring, pin and most of the catchplate were missing. No local parallels were found, but the brooch is comparable to an example from Dragonby (Olivier 1996, 241, fig. 11.4 no. 39; see also Hattatt 1989, 296, fig. 155 no. 249).

In addition, two rather more fragmentary brooches (SFs 1970 and 860) were likely to be Colchester one piece brooches. SF 1970 is missing the spring, pin and all the attachments from the head, although the bow appears complete at 48 mm. The rectangular bow section changes plane from top to bottom and is slightly curved. The remaining part of the crossbar is very thin but appears to have transverse grooves. The condition of the brooch makes it difficult to classify, but it may be of Bayley and Butcher (2004) Colchester type c, similar to brooch 18 from Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.1c). SF 860 comprised a very thin, almost sheet-like and bent over bow and crossbar; the spring and pin are missing. Again this may be of Bayley and Butcher (2004) Colchester type c (cf Butcher 1990, 116, fig. 121, no. 30).

Langton Down brooch

A single example of a Langton Down brooch (SF 857) was recovered from topsoil. This was a mid 1st century AD brooch type with a cylindrical spring-cover. This example was 48 mm long with a spring cover of 22 mm. This brooch type is found across southern England and is likely to have been going out of use by the time of the conquest (Bayley and Butcher 2004, 150). The spring cover is damaged on the reverse but decoration is clear on the front and comprises at least three grooves running along the top and two transverse grooves at either end of the crossbar. There is a break between the crossbar and the bow, the latter begins with a transverse ridge and six ribs extend from this to the foot of the brooch over a steeply angled top bar. The bow flares slightly towards the foot. X-ray showed a minimum of six coils within the spring cover. No exact local parallels were found but the brooch is similar to examples described by Bayley and Butcher (2004, 150, fig. 112 T21) and Hattatt (1989, 306, fig. 165 769) and other examples of the type were recovered from Somerford Keynes Neigh Bridge (Cool 2007, digital section 5, fig. 5.3.5e).

Nauheim Derivative brooches

As outlined above the Nauheim Derivative brooches were most commonly found in Britain following the Roman conquest, although in use prior to this. Unlike SF 1946 discussed above these examples have rod bows likely to belong to the later 1st century. Both had simple curved bows tapering to the foot, although SF 2399 (Fig. 7.1, 8) was 63 mm long in contrast to the 38 mm of SF1354 (Fig. 7.1, 9). Both were badly corroded so it is not possible to be sure if decoration was present, although raised areas were noted on brooch 2399. The larger example had the remains of three coils of the spring whilst the smaller had two, but both were incomplete. Brooch 2399 still had the remains of a sub-triangular catchplate. The foot of brooch 1354 was split in two and bent but it is not clear if this is the result of post-depositional processes. A similar example to SF 2399 was found at Thornhill Farm (Mackreth 2004, 71, fig. 4.1 no. 7) as well as further afield (Bayley and Butcher 2004, 56, fig. 38 21 or 25; Olivier 1996, 236, fig. 11.2 no. 17). Brooch 1354 is comparable with Bayley and Butcher's T11 (2004, 146, fig. 107) as well as finds from Dragonby, Gorhambury and Gadebridge Park (Olivier 1996, 236, fig. 11.2 no. 16; Butcher 1990, 116, fig. 121 no. 4; Butcher 1974, 124 fig. 54 no. 1).

Aucissa brooch

A number of hinged brooches were introduced by the Roman army in the mid to late 1st century AD. The earliest of these is the Aucissa, so called because of the name stamped on some examples. It is presumed that the brooch type was copied by local manufacturers and is therefore not an indication of military presence. A single Aucissa type was found at Cotswold Community (SF 2045). As with other Aucissa brooches the spring tube was formed by rolling forward the top of the bow, beneath the tube the head is squared off with a central recess. The head flares out, with a beaded decoration visible before it slopes gently back to the main bow. The bow is typically highly arched with a central beaded rib, mostly corroded away, and two flanking ribs. The upper and plain lower bow are separated by two cross ribs and the bow terminates with a plain footknob. A local parallel was found at Thornhill Farm (Mackreth 2004, 75, fig. 4.3 no. 30; see also examples in Bayley and Butcher 2004, 67, fig. 50 nos 75-78; Crummy 1983, 9, fig. 5 no. 19).

Hod Hill brooches

The second type of early hinged brooch is the Hod Hill type, brought over by the Roman army and probably falling out of use in the AD 60s. Six examples were found in unstratified contexts from Cotswold Community. This brooch type is diverse and Bayley and Butcher divide it into six groups (2004), of which at least three are represented here, all have the head rolled forwards to form an axial tube. SF 1895 is of Hod Hill type a, identified by a distinctive panel on the upper bow with side wings. The brooch is waisted above the bow. The upper bow has a central moulding at the top with three central ribs, possibly beaded, ribs at each edge and moulded lugs on each lower corner. It is separated from the diamond-shaped lower bow by two cross mouldings. The lower bow is decorated with lines of punched dot decoration and has scalloped lower edges; two cross mouldings sit above a flat foot. The entire brooch has traces of white metal on the surface. No exact parallel was found but the brooch was composed of common elements (cf Bayley and Butcher 2004, 71, fig. 53 no. 95 for the upper panel and Hattatt 1989, 322, fig. 181 no. 315 for the lower bow).

Three of the Hod Hill brooches from this site were classed as type b, having a narrow upper panel without side wings. SF 2439 (Fig. 7.2, 16) was similar to type a brooch 1895 without the side wings and with a thinner upper bow. The upper bow has a large central rib with transverse grooves interrupted by a raised zigzag decoration and a ridge on either side. The waist has a transverse rib with beaded grooves flaring into a diamond shaped lower bow with evidence of white metal plating. The collar beneath has a wide terminal moulding. The upper bow of this brooch is comparable to one from Dragonby (Olivier 1996, 250, fig. 11.7 71), although no overall parallel was found. SF 950 (Fig. 7.2, 15) has a tapering upper bow terminating in a cross moulding and is decorated with punched dots, forming diamond patterns. It is unclear if the lower bow is decorated but it may originally have had a small footknob. Brooch 1795 (Fig. 7.2, 14) had an upper bow with a central beaded rib and plain flanking ribs either side. Punched dot decoration is again visible between the central rib and the flanking rib on one side. The lower bow is wider than the upper bow and apparently undecorated, although traces of white metal were found. A similar brooch was found at Thornhill Farm

(Mackreth 2004, 75, fig. 4.3 no. 33).

Brooch 2314 is a probable type e Hod Hill, although only part of the upper bow and axial tube remain. The two elements were separated by a waist and the tapering bow was decorated with six cross ribs (cf Bayley and Butcher 2004, 78, fig. 58 no. 139; Crummy 1983, 9, fig. 5 no. 34).

SF 1096 was not classified to type and as such falls into Bayley and Butcher (2004) category f . The brooch shares characteristics with both the Aucissa and Hod Hill brooches, possibly bridging the two. The upper bow begins with a cross rib and is decorated with a central beaded rib flanked by two wider plain ridges. The lower bow is separated by a transverse ridge flanked by shallow grooves and is plain with a small footknob. Traces of white metal on the brooch associate it more firmly with the Hod Hill type.

Early Plate brooch

One of the more unusual brooches from the assemblage was an early plate brooch (SF 856, Fig. 7.1, 12) dating to the mid-late 1st century AD. The brooch comprised a disc component which would have originally had a central boss, this has corroded away leaving only part of the rivet and the stain. At least five peripheral lugs were noted, one of which was curling. A groove around the outside of the disc probably originally held enamel. An appendage below the disc consisted of a central concave sided element spreading widely at the foot with a vertical strut from each extremity connected with the disc As worn the brooch would have resembled a two-handled flask. An almost identical example is known from Bury St Edmunds, Suffolk (Hattatt 1989, 343, fig. 202 no. 1560) and a further example from Camulodunum (Hawkes and Hull 1947, Pl. XCVIII no. 164). These appear to be the only parallels for this brooch and are different from continental forms, possibly suggesting that this is a British variant (Hattatt 1989, 114).

Colchester Derivative brooches?

The lower bow and catchplate of a brooch (SF 1071) could not be identified to type but the thin bow and curved catchplate, typical of a Colchester derivative, may suggest a mid-late 1st century date. This group of brooches is similar to the simple Colchester brooch in form but the spring and pin assembly were separate, they were undoubtedly British in origin (Bayley and Butcher 2004, 155). The bow was very thin and circular-sectioned, possibly with a central ridge, the catchplate was triangular and curved into the bow.

Polden Hill brooches

Three further Polden Hill type brooches were recovered from unstratified contexts. SF 2026 is of Bayley and Butcher (2004) type a with a beaded crest on the upper bow, a ribbed crossbar and a small thin footknob. The axial rod is still attached in one side of the cross bar and six coils of the spring including the chord remain. The brooch is almost identical to an example from Richborough (Bayley and Butcher 2004, 90, fig. 71 no. 209) and similar examples have been found in some numbers locally at Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.1d no. 29; 82 fig. 4.6 no. 9) and Somerford Keynes Neigh Bridge (ibid., 255, fig. 9.12 no. 24).

Brooch 951 was of Bayley and Butcher (2004) type b and was heavy and large (85 mm long). The upper bow is humped forward over the crossbar with slight lateral extensions showing as disc-shaped flanges beside the bow and two parallel ribs for decoration. The lower bow is plain with a footknob composed of two ridges flanking a larger central part. Six coils of the spring remain. Brooch 1097 was a little more unusual; at 25 mm long the bow is presumably broken but the end appears to have been deliberately rounded, possibly to make a smaller brooch. The bow is slightly D-shaped with a slight crest on the top but is otherwise plain. Overall the brooch is closer to Bayley and Butcher (2004) type a than b, but does not really fit into either category.

Trumpet brooches

Four trumpet brooches and a possible trumpet variant were found unstratified. These brooches are so called because of their distinctive head shape and are a British design, dating to the late 1st and 2nd centuries AD. SF 890 (Fig. 7.3, 26) is of Bayley and Butcher (2004) category Aii, being of the plain variety with a waist moulding at the front only. The two-coiled spring was held on a single lug on the reverse of the head with a simple loose wire headloop. The head expanded with flattened 'ears' on either side and a central ridge extended down to the waist moulding. This comprised a central lobe with cross mouldings either side. The lower bow continued the central ridge with a cross moulding and a round flat bottomed foot. Almost identical brooches were recovered from Claydon Pike (Cool 2007, 136, fig. 5.25 no. 5) and Thornhill Farm (Mackreth 2004, 79, fig. 4.4 no. 35).

SFs 1083 and 945 were type B trumpet brooches with a fixed headloop and spring held on a bar between two lugs. The headloop had broken off brooch 1083 but both lugs were intact. The head was very square and recessed to hold the spring. The upper bow was highly curved and long with three mouldings, the top one linear, the second shorter and the third rounded. An elaborate acanthus moulding marked the waist with a further cross moulding below. The remaining lower bow was plain but broken. Brooch 945 also had a broken headloop but remains of the lugs on either side of the expanded head, recessed at the back. The upper bow was steeply arched and long, raised into a central ridge which terminated at a cross moulding, one of two which flanked a central acanthus moulding. The remains of the tapering lower bow had a defined central rib (cf Hattatt 1989, 328, fig. 187 no. 960). Both brooches were notably longer and more slender than most of this type.

SF 1117 was a fragment of the head from a type B or C trumpet brooch. The fixed headloop remains intact and one lug survives. The recessed head became part of the plate with two cross mouldings and a central ridge. The remainder of the brooch was lost.

The possible trumpet variant, SF 869 (Fig. 7.3, 29) is likely to have been a Wroxeter-type brooch and lacked the expanded head seen on most trumpet brooches. In its place was a simple hemispherical backplate with an integral closed loop. The upper bow was D-sectioned with a central knurled rib set in a wider, shallow recess. This terminated with one of three cross mouldings, two of which were knurled. The loop to hold the pin remained on the back of the plate. This is an unusual brooch and no parallels were found.

T-shaped brooches

Four unstratified brooches fall into this category. All exhibit elements noted in 'developed' T-shaped brooches dating to the 2nd century (Bayley and Butcher 2004, 167-8). The most typical of these was SF 1791 (Fig. 7.2, 21), constructed with an undecorated tube, holding an axial bar and an unperforated headloop. The bow was flat but recessed on the reverse and was decorated with two longitudinal grooves at each edge and two lozenge-shaped patterns in the centre. These comprised nine smaller raised lozenges. This brooch was almost identical to one from Claydon Pike (Cool 2007, 136, fig. 5.25 no. 3) and similar brooches are known from Gadebridge Park (Butcher 1974, fig. 54), Shakenoak (Mackreth 2005, fig. I.27) and Kingscote (Mackreth 1998, fig. 68). SF 868 (Fig. 7.6, 22) was the lower part of a bow of a probable T-shaped brooch on the basis of its decoration. The triangular-sectioned bow tapers from the centre in both directions. The central decoration comprised two recessed triangles forming a lozenge within an overall recess which would have undoubtedly originally held enamel. A tiny foot and catchplate also survive. Comparanda are described by Bayley and Butcher (2004, 166, fig. 138 T122) Hattatt (1989, 303, fig. 162 nos 918 and 919) and Butcher (1974, 54, fig. 124 no. 18).

The two remaining brooches were extremely unusual but most resemble the south-western variant of large T-shaped brooches with fixed headloops, large headplates and sparse decoration. SF 871 (Fig. 7.3, 23) was the more complete of the two, measuring 77 mm long, with a bow 17 mm wide. The brooch appears crude and bulky, comprising a flat bow which expands at the top to the width of a crossbar. It is likely that the slight head plate which rises from the bow was originally larger and is broken at the current level, bur this is not certain. The axial bar was held in a cylindrical tube integral to the bow with the pin still attached. The bow is plain with the exception of a prominent knurled crest 3 mm high and 17 mm long over the arch of the bow; the foot has a slight protrusion. The catchplate illustrates the bulkiness of the brooch, being two thirds the length of the bow and elaborate. A similar example illustrated by Hattatt (1989, 305, fig. 164 no. 409) has a short headplate and integral loop, possibly demonstrating the original form of this brooch.

SF 873 (Fig. 7.3, 24) was much less complete, with only the head and part of the upper bow remaining. This also appeared bulky and crude with a flat bow 14 mm wide. The bow was plain at the top with a raised panel some way down, decorated with two central ribs and a beaded rib set into a groove on each side. The headplate, with integral axial tube on the reverse, was 30 mm long and 14 mm high. It was decorated with three transverse grooves along the top with the remains of a headloop. Below this was a row of punched ring and dot decoration before the plate stepped out to a strip decorated with diagonal lines, which steps out again to the bow. This brooch also bears similarities to an example illustrated by Hattatt (1989, 305, fig. 164 no. 921A). These brooches are likely to be 2nd century in date and appear to be of a type only found in south-western England.

In addition to these brooches three fragments of pin and a spring were found unstratified. Two had fragments of spring or whole springs still remaining, the third may have been from a brooch but this is uncertain.

Bracelets

Four bracelet fragments were unstratified, but two of these (SF 1969 and SF 859) come from the same object, although they were found separately (Fig. 7.4, 36). The bracelet was of Allason-Jones and Miket (1984) type 6 and was decorated with snakes head terminals. Most of the length of the bracelet had a raised central area flanked by longitudinal grooves, making the section D-shaped with protrusions either side. The snakes head detail was formed by raised areas, and crescent shaped or circular incisions can be seen on the 'body'. Both terminals are present but part of the body has been lost. The terminals are paralleled in a bracelet from Whelford Bowmoor (Cool 2007, digital section 6.3, fig. 6.3.4 no. 225) which Cool terms the 'Asclepian Snake' design. A similar, though not identical bracelet came from Gadebridge Park (Butcher 1974, 136, fig. 60 no. 158) and similar decoration can be seen on a child's bracelet from Derby Racecourse (Wheeler 1985, 270, fig. 119 3i and ii), although this was an object of beaten bronze.

The other two fragments were of Allason-Jones and Miket (1984) type 18, undecorated penannular bracelet with plain terminals or Crummy (1983) group 3 plain bracelets. SF 1105 was a terminal of elliptical section, flaring across both the width and breadth (cf Brodribb *et al*. 2005, 153 fig. II.49 no. 74). SF 1106 was a fragment tapering towards the terminal with an elongated D-shaped section. This become slightly bulbous before the terminal with a groove and a raised collar-like flattened end. Similar objects were found at Somerford Keynes, Neigh Bridge (Cool 2007, digital section 5.3, fig. 5.3.6) and are not closely datable.

A further tapering fragment of copper alloy strip of changing width, SF 1367, may have been from a bracelet. The object had a rectangular section but was very thin, a possible terminal with evidence of a form of fastening was evident at one end, but the object may have been decorative binding. SF 888, a steeply tapering strip with a rounded end, broken at the wider end, may also have been a bracelet fragment.

Finger rings

Five finger rings, all different in form, were unstratified. SF 878 (Fig. 7.4, 38) was constructed from a coiled strip decorated with herringbone pattern and a central longitudinal groove for its entire length, with the exception of the final 7 mm of one end which had transverse grooves. The pattern is similar to that on an example from Gadebridge Park (Neal and Butcher 1974, 136, fig. 60 no. 137). SF 2057 (Fig. 7.4, 42) was a rectangular-sectioned plain ring, 4-5 mm wide, octagonal on the outside and more circular on the inside. This is comparable to examples described by Crummy (1983, 50, fig. 52 no. 1788) and Allason Jones and Miket (1984, 121, no. 3.166). This octagonal form of finger ring is most common in the 4th century AD.

The remaining three rings were of bezel and loop construction and were less complete. SF 1897 (Fig. 7.4, 39) was the largest of these and comprised an oval bezel with a flat frame around it, clearly lacking an intaglio. The bezel gently tapers into an angled, thick D-sectioned loop which is broken at the back and probably part missing. The ring is quite bulky and the reverse of the bezel is slightly bulbous. A similar item was found at Claydon Pike (Cool 2007, digital section 3.4, fig. 3.4.3a no. 98; see also Crummy 1983, 48, fig. 50 no. 786). Cool suggests that this type of ring was simply a medium for carrying an intaglio and was predominantly in use in the 1st to 2nd centuries AD and into the 3rd.

SF 972 (Fig. 7.4, 40) has a circular recessed bezel with a smaller central circular area separated by a ridge. This would almost certainly have been decorated with enamel. The bezel angles down to an oval-sectioned loop, which is incomplete. A number of parallels exist for the bezel type, although these are usually winged. It is possible that this item was of medieval date.

Finally SF 2054 (Fig. 7.4, 41) survives as a fragment of loop and an oval shaped recessed bezel within which appears to be a raised floral decoration and further central recess. The design retains traces of glass or enamel. The loop is separated from the bezel by a groove, and tapers in section from oval to D-shaped. A close parallel to this object was found at Barnsley Park (Webster and Smith 1982, 121, fig. 30 no. 95).

Shoes?

Unlike the stratified assemblage no hobnails were found from unstratified contexts although SF 2236 may have been a single iron bootplate. The object was an extended oval, 33 mm long with one short arm. The second arm was missing.

Dress accessories/military

A small group of items were identified as mounts or fittings although their exact purpose is unknown. They may perhaps have been dress accessories or equine equipment or similar. It is notable that all of these items may have had a military function. In particular SFs 1854 and 1759 (Fig. 7.4, 47-8) are objects firmly associated with the military; although their purpose is disputed they are commonly referred to as apron mounts. The objects were slightly different in form. SF 1759 had a pierced central element with square shoulders flanked by two further bulbous elements and square ends beyond. SF 1854 lacked the pierced central element and had rectangular rather than square ends. Both had two integral spikes or rivets placed at either end of the mount on the reverse. The decoration on the mounts appeared to be vine tendrils in relief, a theme which came into favour in the reign of Claudius. This would have been covered in silver foil and inlaid with niello using designs drawn from Bacchic imagery (Bishop and Coulston 2006, 121). Only SF 1854 had remains of the white metal. Similar objects are described by Bishop and Coulston (2006, 120, fig. 70 no. 1) Crummy (1983, 133, fig. 151) and Griffiths (2001, 57, fig. 3.4 nos 11 and 12).

Similarly SF 1979 (Fig. 7.4, 49) was a flat-headed circular stud presumably used in clothing or military equipment. A fragment of the circular-sectioned shank survives on the reverse. X-ray revealed that the item was decorated with a peripheral groove and an incised pattern of quarters, each with a geometric floral design. Almost identical items have been found in Caerleon (Bishop and Coulston 2006, 109, fig. 63 no. 7) and Uley (Woodward and Leach 1993, 204, fig. 151 no. 4) and are described as coming from a military apron or belt. This, like the previous mounts, would have dated to the 1st or 2nd century AD and suggests some military presence on the site.

The remaining item, SF 1350 (Fig. 7.4, 50), appears to have been part of an amphora-shaped strap end. According to Simpson's typology (1976) this would have been group II, terminal boss with no collar. The surviving fragment was bell-shaped, broken at the wider end with a circular knop at the apex, the front is convex and the reverse concave. This item was late Roman in date and can be compared with items from Colchester and Winchester (Bishop and Coulston 2006, 219, fig. 137 no. 12).

Toilet/medical implements

A single pair of tweezers (SF 2048) was recovered, badly corroded but apparently complete at 62 mm long and 9 mm wide. These appeared to be undecorated, although possible mouldings were observed below the loop (cf Neal and Butcher 1974, 141, fig. 62 no. 182; Wardle 1990, 125, fig. 124 no. 118).

Miscellaneous tools

A number of items were classed as miscellaneous iron tools. These included two knives or cleavers, a further possible knife, a blade fragment and a ferrule or socket fragment. The two definite knives or cleavers were SF 2029 (Fig. 7.5, 10) and 2284 (Fig. 7.5, 11). The former was a Manning (1985) type 3 cleaver or socketed type 11 knife, missing only the tip. The knife comprised an open socket with a straight back along the line of the socket, the edge rose up gently with a slight curve from a corner below the socket (cf Manning 1985, pl. 57 Q100). Similar objects were found at Kingscote (Scott 1998a, 189, fig. 90 10.11) and Gorhambury (Wardle 1990, 141, fig. 132 431/2). SF 2284 is closest to a Manning (1985) type 2 cleaver with a closed socket. The back is straight, in line with the handle before curving up to the tip. No Roman parallels were found and it is possible the object was of post-Roman date.

SF 423 was a further possible fragment from one of a number of types of knife. The object is tanged, with a back curving up towards the point, the edge is stepped out from the tang. It is possible that this is similar to a knife from Claydon Pike (Cool 2007, 142, fig. 5.30 no. 50) and may be a leatherworking knife. A triangular sectioned fragment of iron SF 1108 may also be part of a blade.

SF 896 appears to be an open, flaring socket from a tool, or possibly a ferrule.

Weaponry

A single leaf-shaped spearhead, SF 892 (Fig. 7.6, 17) was found unstratified. It had a long blade and a closed socket, and was a Roman form with a long life (cf Manning 1985, pl. 76 V26). Although this object is not closely datable it again hints at a military presence on the site.

Weights and measures

A small assemblage of lead objects were probably weights. These objects are not closely datable and could be of any date from Roman through to post-medieval. Most of these objects were found in metal-detecting and have a single number (SF 852). These include nine rolled sheets resembling net weights or similar objects, one cylindrical object with flat ends, four perforated discs and one flat circular object. Other probable weights included an asymmetrical perforated object with a flat bottom and a domed top and a rolled cone pierced at one end only. A biconical weight had small protrusions either side of the perforation at both ends, with the remains of an iron hook still within the hole; this may have been a steelyard weight. A cylindrical, slightly waisted weight with a domed top and flat bottom also had evidence of a suspension loop or hook. One object appeared to be a misshapen weight.

Miscellaneous fittings

As many as 167 objects were classed as miscellaneous fittings or deemed impossible to identify. Some of the more typical finds are outlined below. Many of these items may have been of post-Roman date.

SF 880 may have been a buckle or belt fitting. The object was a wedge shaped fragment of copper alloy, the thinnest end possibly original, but broken at the other end where there was originally a rivet or buckle hole. Similarly SF 1857 looks like very small copper alloy strap fitting or fastener. The strip of D-shaped section expanded in the centre to form a square plate, almost cruciform. On the other side the strip is thinner and appears to form a hook which resembles a bracelet terminal. A rivet remains attached through the object.

A possible copper alloy stud with an iron shank (SF 1789) could not be further identified due to corrosion. SF 2476 appears to be a small copper alloy tack from furniture or upholstery. The head was rounded at the top and bottom with a sub square shank, probably complete (cf Cool 1998, 103, fig. 38 no. 616). This type of tack is found ubiquitously on Roman sites but its exact function is unknown.

Possible tools or similar objects included SF 1449, a possible handle mount or tool comprising a tang flared out to a flat iron element, bent round like a gouge with a rivet hole in the centre. SF 1939 may have been a bent loop-headed spike or hook, with a square sectioned rod curved into a hook shape but missing the tip, other end is curved into a loop.

A number of objects may have been handles and similar fittings such as SF 1109, an iron drop handle, presumably from furniture and possibly modern. SF 2040, a slightly dished circular sheet of copper alloy with a square central hole, may have been box furniture. SF 1081 was probably a knob handle from a box or furniture. This had a hemispherical head with a groove and a second hemispherical section below with an iron shank of circular section (cf Frere 1983, 50, fig. 20 no. 176).

The remainder of the finds from this category included 39 fragments of irregular lead sheet and 25 of copper alloy, rings and probable binding of iron, copper alloy and lead, further unremarkable handles and fragments of bar or rod. On occasion these objects resembled more specifically identifiable pieces, but they were usually too fragmentary. One of the copper alloy rings may have been a finger ring and one of the iron rings may have been horse equipment. One of the fragments of presumed lead binding (SF 1909) was chamfered on one edge. The lead finds also included a possible 17 plugs or pot mends of varying sizes and forms, found ubiquitously on Roman sites. A small number of these had fragments of Roman pottery still attached, including Central Gaulish samian ware dating to AD 120-200 (SF 864) and locally produced grey ware (SF 2316). Details of all these finds can be found in the metal finds catalogue.

Industrial waste

A total of 152 objects and fragments were classed as possible industrial waste, all but one or two of which were lead. This included possible slag deposits, drips and offcuts. None of these objects was dateable.

UNSTRATIFIED POST-ROMAN FINDS

Dress accessories

The objects in this functional category and clearly post-Roman in date included two buckles and three buttons. The buckles included SF 852, an asymmetrical double loop with a central pin bar; one loop was sub-rectangular, the other D-shaped with an integral scalloped knop. This type is dated to AD 1575-1700. SF 1107 appeared to be one half of a spectacle buckle also dated late medieval/post medieval. The buckle remains D-shaped with the pin intact, in the form of a tapering strip curved around the bar. Small protrusions either side of the bar were probably the broken stumps of the other half. SF 2027 may have been a further buckle fragment but this is uncertain.

The buttons were all circular and flat, 15-20 mm in diameter. SF 852 had gold coloured decoration and a loop on the reverse. Decoration comprised lettering around the outside with concentric rings and symbols, and the object may have been quite modern. SF 966 was tinned with a raised peripheral ridge and fastening loop on the reverse. SF 875 was concave with a central circle containing four perforations *c* 1.5 mm in diameter.

Coins, tokens and jettons

A post medieval coin weight (SF 889) was a regular 16 mm square, 4.5 mm thick and appears to have an X on one side. A circular copper alloy disc of 26 mm diameter may have been a coin with no detail remaining.

Household items?

Items in this category included a copper alloy vessel handle (SF 867) and a possible key fragment (SF 866). The handle appears to be cast and varies from D-shaped to oval in section with a central ridge alternating from the outside to the inside. The handle is hooked over, almost at a right angle with transverse ridge decoration. There is a clear division where the vessel should be with a groove on one side and a plug on the other. SF 866 was a rectangular strip with teeth either side and a hollow channel on the reverse and may have been quite modern.

Literacy

One of the most unusual items in the post-Roman assemblage is a book clasp SF 829, found within a furrow. Only the front plate of the clasp survived, hooked at one end and scalloped at is wider end. The clasp was decorated with double ring and dot with open centres and incised lines at the hook end. In total six rivet holes were extant in lines of 2, 3 and 1 with an iron rivet present in one. This is almost identical to a similar item from Oxford (Allen 2006, 376, fig. 14.3) and is likely to date to the mid 16th century.

A similar object, SF 1103, may have been another book clasp but could also have been a strap end. This consisted of a thin rectangular strip broken at one end with the remains of a hole or holes, a further two holes survived intact. Grooves ran parallel with the edge of the object and three transverse grooves were present next to the circular end, which was perforated with concentric rings.

Weaponry

A single unremarkable post-medieval lead shot (SF 971) was recovered from topsoil.

Weights and measures

There were two possible lead seals. One was a hollow circular object with rectangular openings around the sides which would have originally held cord. The second, sub-circular object has an animal in relief, clearly created by pressing the lead into a mould.

DISCUSSION

The majority of the metal finds assemblage was of Iron Age or Roman date, as would be expected on a site of this nature. It is notable that there is no identified prehistoric metalwork on the site, despite the discovery of a middle Bronze Age axe mould (see Poole this volume). Objects discovered within Phase 4 features are all considered to be intrusive. While this is disappointing it is not necessarily remarkable. A small percentage of the finds were clearly medieval or post medieval in date. These are described above and do not warrant further discussion. The finds are not related to settlement activity and probably represent casual losses over a long period of time. The book clasp (SF 829) is of interest as an object but its presence is unusual and is not likely to shed light on the function of the site at this time.

The assemblage therefore essentially relates to and sheds light upon the late Iron Age and Roman settlement. Overall the assemblage is unremarkable and can be related to material from many of the contemporary sites in the area. However, certain elements of the assemblage are somewhat unusual and will be discussed below.

As a result of collection bias there are often differences between the stratified and unstratified assemblages on sites of this nature. For example, most of the surface finds are recovered through metal-detecting which can bias collection towards the chunky, missing slim items such as hairpins and toilet instruments (Cool 2007, digital section 5.3). In the present case a large proportion (20%) of the metal finds, and in particular most of the brooch assemblage, was found in this manner. The differences in the current assemblage are most clearly seen in the proportion of metal types (Table 7.2) from stratified and unstratified contexts, rather than in differences in functional categories. The stratified assemblage is dominated by iron finds whereas the unstratified assemblage is mainly composed of lead and copper alloy.

The iron within the stratified assemblage typically consists mainly of nails and hobnails, with the result that there are large numbers of dress accessories and objects associated with buildings and services (Table 7.6). In contrast the unstratified assemblage contains many more objects classed as miscellaneous fittings and industrial waste. This partly reflects a single cache of metal detected lead finds from across the whole area of the Roman settlement.

Only two functional categories were present in the unstratified assemblage but absent in the stratified finds. These were objects associated with literacy and weights and measures. The former category is only represented in the unstratified assemblage by one or possibly two medieval bookclasps, so this has no bearing on the assemblage as a whole. The absence of weights in the stratified assemblage is more unusual and it is possible (although perhaps unlikely) that all the unstratified weights recovered were post-Roman in date. If this is the case the lack of these categories in the stratified assemblage seems to indicate a lack of central control or administration on the site during the Roman period.

Object dating

Unfortunately the majority of the unstratified assemblage lacks any detailed positional data so its value is limited. However much of the dateable material came from unstratifed contexts. Dating metal finds can be problematic and it has been argued that small finds are the least reliable artefactual dating evidence (Viner 1998b, 309). There are many unknown factors such as accidental loss, redeposition, continued use of objects beyond their period of floruit/fashion and heirloom survival etc (ibid.).

As would be expected most objects which were considered dateable were dress accessories which were subject to changes in fashion. Brooches are the most obvious example of this, and were the most numerous dateable object type. As many as 47 brooches or fragments of brooch were recovered, 32 of which were unstratified. It is notable that there was a strong pre-conquest presence in the brooch assemblage, with as many as 16 brooches falling into this category. The remaining brooches were also predominantly mid-late 1st century in date, with only a handful potentially falling into the 2nd century AD. There was a distinct absence of the later brooch types such as Knee brooches and crossbow brooches.

Cool has noted a similar pre-conquest dominance and lack of later brooches at Somerford Keynes Neigh Bridge, suggesting that the impetus for brooch wearing was passing by the 2nd century in this area (2007, digital section 5.3).It has been noted that the later 2nd to 3rd centuries AD are often difficult to identify from small finds assemblages as brooch wearing has fallen from favour and later forms of personal ornamentation have yet to be developed (Cool 1998, 222). However, the complete lack of later forms here is remarkable.

From the later 3rd century onwards it became fashionable to wear bracelets, necklaces and finger rings. These object types are conspicuously few at Cotswold Community with a maximum of 11 bracelets and 6 finger rings. When compared with nearby sites this appears all the more unusual. For example at least 40 bracelets and 41 finger rings were found at Cleveland Farm and 43 bracelets and 12 finger rings from Claydon Pike. While this may be indication of the cessation of activity on the site early in the period this is not attested by the pottery and coins, or indeed by the stratigraphic evidence. It is more likely that for some reason the inhabitants of Cotswold Community did not wholeheartedly encompass the Roman way of life in the later period.

Other early datable objects included the military mounts and stud which indicate a 1st–2nd century AD date and the amphora strap end which suggests a 4th century date; these are discussed below.

Finds by phase

Consideration of the stratified assemblage by phase (although subject to its own biases) can give us a better insight into the evolution of the settlement at Cotswold community. As may be expected the stratified assemblages from Phases 6 and 7 were small but showed an increase in size, numbering 5 and 23 finds respectively. Both were typically dominated by nails, with very little else from Phase 6 excepting the unusual Unguiforme brooch.

In Phase 7 the range of objects on the site expands. Although only one recognisable brooch survives, evidence of others exists. In addition knives appear to have been more common and the presence of possible cleavers suggests adoption of Roman methods of butchery. Overall, however, there is a little evidence of Romanisation of material culture as demonstrated by the metal objects.

In Phase 8 the number of stratified metal finds expanded dramatically with 160 finds recovered from Phase 8 features. A notable feature of this was the evidence for the adoption of Roman footwear in the form of hobnails and boot plates. Far from being a single unusual deposit these were found across the site in a variety of contexts, including graves. Evidence for up to five brooches, a bracelet and a possible finger ring illustrate the adoption of Roman ornamentation. Some objects, such as the Nauheim derivative brooch, may have been curated for some time. Other Romanised objects include knives and other tools, household items such as lamps and candle holders and a possible unguent spoon.

Once again, the number of metal finds more than doubled from Phases 8 to Phase 9, with 362 finds (53% of stratified finds) recovered from Phase 9 features, suggesting this was the most intensive phase of activity on the site. What is notable is the presence of a number of large dumps of material from which most of the metal finds were recovered. In many cases these may have been related to abandonment of the settlement as they appear in the upper fills of the large ditches surrounding the domestic activity. In the case of deposit 12306 it is likely that the material was obtained from an existing midden and used as 'hardcore' for surface 12906.

The buildings and structural category is particularly large in this phase (112 or 31% of the finds). This may relate to increased construction as evidenced by the stone footed buildings. The presence of Romanised tools also remains constant. Categories which are missing from the Phase 9 assemblage are items of military function occasionally seen in previous phases, and toilet or medical implements. The former absence is not surprising as military presence would not be expected on smaller sites in the late Roman period. The lack of toiletry items may be a result of the impoverishment of the site if personal appearance can be seen as a high status preoccupation.

In terms of dress accessories brooches remain within the assemblage, some of which are very early forms. Brooches had probably ceased to be made in Britain by AD 150-175 (Mackreth 1998, 114) and had been superseded by other forms of personal ornamentation by this period. Most notable is the early hinged brooch which is probably post conquest in date but came from late Roman structure 14291. This seems to suggest that the brooch had been curated over a very long period of time, unless its presence is residual.

The main form of personal ornamentation in the late Roman period was the bracelet or groups of bracelets. Only two such items were found in stratified features. Overall this may indicate lack of need or affluence to follow the latest fashions. Earlier brooches may have been curated for long periods in the absence of the newer bracelet forms, but of course the two types were functionally quite distinct. The presence of at least two bracelets in addition to the unstratified assemblage does indicate that bracelets were worn in this period, although the numbers of these objects do not suggest this was a common practise, particularly when considering that bracelets were often worn in groups.

Ritual and religion

One of the functional categories notably absent from the assemblage was that of objects associated with religion and the 'normal' ritual background goes very much unnoticed here. A number of items may shed light on Roman ritual practises but these are tentatively proposed.

First, the presence of the La Tene III Gaulish Unguiforme brooch in a middle-late Iron Age pit is notable for a number of reasons. The presence of the brooch on this low status rural settlement is remarkable and is cause alone to question its purpose. In addition, although broken (possibly post deposition) the brooch is in remarkable condition. It is possible that the object was placed in the pit as a votive offering rather than representing a casual loss. Similarly, there are two finds of blades from waterholes in Phase 7. This may be coincidence, particularly considering that one of the blades is broken and may have been discarded for this reason, but the ritual placement of blades into waterholes at this time cannot be ruled out.

The only evidence of ritual behaviour from the later and more intensive Roman phases came from burials. Overall it is clear that the majority of individuals were interred in coffins with no discrimination pertaining to age or sex. Grave goods were not common, although most individuals appeared to have been buried in their shoes or accompanied by a pair of shoes for their journey to the underworld. The exceptions to this were the burial of a juvenile with a set of interlinked bracelets and a finger ring from a possible adult male burial. It is possible that both represented the status of the individuals, the latter maybe a respected older man, the former could conceivably be a juvenile female. This would fit into a long established Roman tradition of furnishing unmarried females richly in the grave, thought to hint at the 'non-attained wedding' (Martin-Kilcher 2000, 73).

Military finds

The presence of military finds on a small rural settlement is curious but not unknown. Military objects have been found at Claydon Pike, Cleveland Farm (Wessex Archaeology 2007) and Kingscote amongst others. It is likely that these small groups of objects represent small scale policing of these areas. Evidence from Cirencester has suggested that a mounted garrison was established in Corinium between *c* AD 50 and 65. Military presence in the 2nd and 3rd centuries has been confirmed and there is a theory that military equipment was being manufactured or distributed in the town in the 3rd and 4th century AD (Paddock 1998, 306). Given the proximity of this site to Cirencester the presence of occasional military artefacts may not be so unusual. With regard to the amphora-shaped strap end, it is possible that by the later Roman period the civilian elite were wearing military-style ornamentation, although the low status of this site renders this an unlikely origin for the item. The spearhead recovered from the trackway may also be indicative of this small scale policing, although spearheads could have been used in hunting (Scott 1998a, 216) and this should not necessarily be considered a military item.

Metal working

Elements of the metal finds assemblage indicate that metal working was carried out on the site, as attested by the large amount of slag (Keys this volume). In particular the assemblage produced some of lead-working debris, including unworked lead ore. As the site appears to have been of quite low status, with little indication of domestic and agricultural activities, it can be suggested that at least part of the site was an industrial area. A number of more unusual and high status items which have been found on the site may point to recycling and reworking of scrap metal, which would also account for the large quantities of fragments recovered.

Oddities

A number of metal finds were somewhat unusual given the overall context. For example several brooches such as the crude developed T-shaped brooches 871 and 873 were slightly abnormal in form, although not unknown from elsewhere in the region. The early plate brooch SF 856 is also particularly uncommon, but paralleled by an example from Bury St Edmunds. The most unusual form, however, is the La Tene III Gaulish Unguiforme. The reason for the presence of this continental item is an enigma as the site is clearly not high status at this time. It demonstrates links from the region to the continent, but the processes whereby it reaching its final resting place in a pit on this site are unknown.
Other unusual finds included the two possible lamp-back reflectors (SFs 1531 and 1481), which are without exact parallel and may be objects of military equipment. The three pronged toilet implement (SF 2146) is not only extremely unusual but intricately decorated and is somewhat at odds with the other evidence for lack of toilet implements from the site. It is hoped that all of these items will find parallels in future research.

The wider context

As a result of the intensive excavation in this area in recent years (in particular the sites in the Cotswold Water Park area) there are a number of small finds assemblages with which that from Cotswold Community can be compared. These are shown in terms of assemblage size in Table 7.16. There are inherent problems with this comparative approach, most notably in the differing nature and size of the sites and their level of archaeological investigation. In addition some of these figures include small numbers of finds from other periods or of material other than metal. However, these sites give a valuable overview of assemblages in the area and Claydon Pike provides a very close parallel. As such, it is of note that the assemblage from Cotswold Community is somewhat smaller in size.
Detailed inspection of the assemblage from Cotswold Community shows that a number of functional categories are underrepresented in comparison with neighbouring sites. Most notably absent is the consistent background noise of objects associated with the household, such as vessel fragments, handles, spoons etc and toilet or medical implements which are found in considerably larger numbers elsewhere. A number of functional categories are completely absent including agricultural objects, religious and recreational objects and metal finds associated with textile working. In addition, whilst the dress accessories category is typically well represented, a number of key object types do not seem to be present, most notably metal hairpins as well as necklaces and earrings.
There are a number of factors of bias which may have had an effect on this, in particular the manner of collection. Items such as beads and earrings would be small and easily missed. Certain object types may not have survived well and many of the unidentified fragments might have boosted these figures slightly had they been more complete. However, the overall trends are difficult to ignore.
In general the assemblage is impoverished in comparison with those nearby such as Claydon Pike and Somerford Keynes Neigh Bridge. It is likely that this represents a lower status site, lacking many of the trappings of Romanisation. Although the brooch assemblage is relatively substantial it does not compare to sites such as Neigh Bridge (279 brooches) and Cleveland Farm (87 brooches) although similar numbers came from Claydon Pike and Thornhill Farm and the Neigh Bridge figures probably incorporates votive material. Finds assemblages from the comparative sites are typically wider in date range and form. These sites include Thornhill Farm and Neigh Bridge where the total assemblage size (particularly at Thornhill Farm) is smaller than at Cotswold Community. The later brooches at Cotswold Community lack sophistication and it appears that the inhabitants of the site only conservatively adopted brooch wearing. In addition the absence of necklaces and hairpins indicates that other forms of jewellery and Roman hairstyles were not adopted. It is not likely that this was a conscious decision and more likely was a question of affluence. Two bone hairpins were recovered from the site. Bone was generally much cheaper than metal and this may indicate adaptation of the Roman culture in a more affordable way.

ILLUSTRATION CATALOGUE

FIG 7.1

1 Brooch. Copper alloy. La Tene III Gaulish Unguiforme type 11a (Feugère 1985). Made of very thin metal. Head shell-shaped, convex at the front. Attached to a spring of four coils by a chord wrapped around the top of the head. Presumably an integral rod cast with it. Spring in very good condition. Front snapped where chord attached. Head decorated with incised pattern and peripheral groove. Design has longitudinal central line with curving lines connecting it to the outer groove making a sub-lozenge shape.

Shank rectangular sectioned and tapering to foot.
L: 49 mm, W: (bow) 4 mm, D: (head) 15 mm. SF 854, Context 10408.

2 Brooch. Copper alloy. Colchester type a (Bayley and Butcher 2004) with straight bow. Spring and tip still present. Appears to be plain. Five coils remain on spring, probably originally six. Spring appears to be iron (cf Olivier 1996, 241 fig. 11.4 no. 38).
L: 85 mm, W: 17 mm (crossbar), 4 mm (bow). SF 2022, Context 15822.

3 Brooch. Copper alloy. Colchester type a (Bayley and Butcher 2004) with straight bow. Similar to SF 2022 but heavily corroded. Spring, bow and part of pin and catchplate survive. Catchplate may have been perforated. Unclear if decorated. 8 coil spring.
L: 70 mm, W: 23 mm (crossbar), 4 mm (bow). SF 1287, Context 11405.

4 Brooch. Copper alloy. Colchester type a (Bayley and Butcher 2004) with straight bow. Similar to SFs 2022 and 1287. Missing spring, pin, tip and most of catchplate. Rod bow of oval section. Probably plain but too corroded to tell. Part of crossbar missing on one side. Rearward hook and lug to hold spring still present. cf Hattatt 1989, 296, fig. 155 249, Olivier 1996, 241, fig. 11.4 no. 39.
L: 60 mm, W: 13 mm (crossbar), 4 mm (bow). SF 1098, Context 10400.

5 Brooch. Copper alloy. Langton Down type. Cylindrical spring cover. X ray shows minimum of six coils. Pin present but only tiny fragment of catchplate remains. Spring cover damaged on reverse. Front is decorated with at least 3 grooves running along the top, two transverse grooves at either end of the crossbar. Break between the crossbar and the bow, bow begins with a transverse ridge. Six ribs running down to the foot of the brooch over steeply angled top bar. Flares slightly towards the foot (cf Hattatt 1989, 306, fig. 165 no. 769; Bayley and Butcher 2004, T21 fig. 112).
L: 48 mm, W: 23 mm (crossbar), 10 mm (bow). SF 857, Context 10400.

6 Brooch. Copper alloy. Colchester two piece type b (Bayley and Butcher 2004) with crest on upper bow. On the verge of bi or bii (length). Complete except for part of pin, axial bar broken, part missing making spring come away from head. Narrow D-sectioned bow with small central crest (plain). Spring of 8 coils behind crossbar, plain except for transverse groove at each end. Crest terminates mid bow with cross groove, also at the foot. Catchplate unperforated. No real parallels.
L: 46 mm, W: 24 mm (crossbar), 4 mm (bow). SF 1682, Context 12864.

7 Brooch. Copper alloy. Colchester two-piece. Slightly unusual, bow flat and rectangular sectioned, lug does not continue onto bow. There is a clear break where bow begins at right angle from lug. Does not fit to Bayley and Butcher type, most like type D but bow not rounded. Has longitudinal grooves running down each side of the bar. Not clear if these go to the bottom. Catchplate has small triangular opening. Unclear if head has Polden Hill type ends but looks less like this. No real parallels.
L: 47 mm, W: 19 mm (crossbar), 6 mm (bow). SF 1779, Context 13894.

8 Brooch. Copper alloy. Nauheim derivative. Rod bow, tapering to foot. Remains of 3 coils in spring but broken, sub-triangular catchplate mostly present but pin missing. Some raised parts on bow but could be corrosion rather than decoration. Cf Bayley and Butcher 2004, 56, no. 21 or 25.
L: 63 mm, W: 6 mm. SF 2399, Context u/s.

9 Brooch. Copper alloy. Nauheim derivative. Square sectioned rod bow with simple curve, badly deteriorated. Only parts of two coils of the spring remain. Foot splits into 2 and is bent, catchplate and pin missing.
L: 38 mm. SF 1354, Context u/s.

10 Brooch. Copper alloy. Nauheim derivative. Bayley and Butcher (2004) type a. Flat (rectangular) sectioned bow tapering to foot. Four coil spring, inferior chord, pin and solid triangular catchplate still in tact. No decoration visible on the bow. Bow curves from spring, no angle at the foot, one piece. Flat bow suggested to be pre Flavian continuing to end 1st century AD (cf Butcher 1990, 116, fig. 121 no. 3) but bow more curved and catchplate finer. Very smooth curve. Bow thin at bottom, quite refined.
L: 43 mm, W: 3 mm (bow). SF 1946, Context 15004.

11 Brooch. Copper alloy. Aucissa type. Spring tube formed by rolling forward top of bow. Beneath tube head is squared off with recess on either side below. Flares out and slopes gently back into main bow. Last component has beaded decoration. The bow itself is highly arched as normal with a central beaded rib, mostly corroded away. Two further ribs on the outside. Separated from lower bow by 2 cross ribs. Lower bow plain with plain footknob. Catchplate triangular, pin missing (cf Bayley and Butcher 2004, 67 fig. 50 nos 75-78; Crummy 1983, 9, fig. 5 no. 19).
L: 50 mm, W: 13 mm (spring cover), 9 mm (bow). SF 2045, Context 17844.

12 Brooch. Copper alloy. Early Plate. Very thin plate, tinned with hinge. Had central boss now corroded away, part of rivet and stain remains. At least five peripheral lugs, one curling up. One groove around outside, probably held enamel. Appendage below disc consists of a central concave sided element spreading widely at the foot with a vertical strut from each extremity connected with the disc. As worn would have resembled a two-handled flask, (Hattatt 1989, 343, no. 1560; Hawkes and Hull 1947, Pl. XCVIII

no. 164).
L: 35 mm, W: 18 mm (foot), 18 mm (centre). SF 856, Context 10400.

FIG 7.2

13 Brooch. Copper alloy. Hod Hill. Shares characteristics with Aucissa and Hod Hill brooches, probably bridging the two. Head is rolled forward to create the spring tube with a plain head. The upper bow begins with a cross rib. Decorated with a central beaded rib flanked by 2 wider plain ridges. Separated from lower bow by a transverse ridge flanked by shallow grooves. Lower bow is plain with a small footknob. Catchplate triangular. Part of tube, pin and rod missing. Traces of white metal covering indicates Hod hill class but fairly arched.
L: 40 mm, W: 12 mm (crossbar), 11 mm (bow). SF 1096, Context 10400.

14 Brooch. Copper alloy. Hod Hill. Bayley and Butcher (2004) type b. Head rolled forward to form tube. Upper bow has central beaded rib with ribs on either edge. Punched dot decoration is visible between the centre and peripheral ribs on one side. Lower bow retains signs of white metal, is wider than the upper bow. No other decoration was observed. No footknob. Part of catchplate and pin missing. cf Mackreth 2004, 75, fig. 4.3 no. 33 but larger.
L: 40 mm, W: 12 mm (crossbar), 6 mm (bow). SF 1795, Context 14014.

15 Brooch. Copper alloy. Hod Hill. Bayley and Butcher (2004) type b. Head rolled forward to form tube. Tapers steeply to cross moulding. Decoration visible - diamonds formed from punched dots. Unclear if any on lower bow. Possibly small footknob. Catchplate complete, pin missing. No good parallel.
L: 34 mm, W: 12 mm (crossbar), 6 mm (bow). SF 950, Context 10456.

16 Brooch. Copper alloy. Hod Hill. Bayley and Butcher (2004) type b, similar to SF 1895 but no side wings and upper bow thinner. Head rolled forward to form tube. Upper bow has large central rib with transverse grooves interrupted by a raised wavy line. Two ridges on the sides. Waist with transverse rib, beneath beaded grooves. Lower bow diamond shaped with evidence of white metal plating. Collar beneath with wide terminal moulding. Part of bow corroded away. Pin missing, catchplate triangular. Upper bow cf Olivier 1996, 250, fig. 11.7 no. 71.
L: 50 mm, W: 14 mm (crossbar), 7 mm (bow). SF 2439, Context u/s.

17 Brooch. Copper alloy. Hod Hill, Bayley and Butcher (2004) type a. Upper bow panel with side wings and lugs. Head rolled forward to form tube, waisted above bow. Cross moulding on the top of the panel. Three central ribs, possibly beaded, ribs at each edge and moulded lugs on each lower corner. Separated from lower bow by two cross mouldings. Lower bow diamond shaped. The whole object has traces of white metal. Clear punched dot decoration following contours on the lower bow, lower edges are scalloped. Two cross mouldings above flat foot, catchplate triangular, pin missing.
L: 51 mm, W: 16 mm (tube), 10 mm (bow). SF 1895, Context 14941.

18 Brooch. Copper alloy. Polden Hill, Bayley and Butcher (2004) type b. Heavy and large, upper bow humped forward over crossbar, slight lateral extensions showing as disc-shaped flanges beside the bow. Upper bow has two parallel ribs, lower bow plain. Footknob comprising larger centre part and two ridges top and bottom. Six coils of spring remain. Axial rod and pin missing. Catchplate has small triangular hole. Bow roughly D-sectioned.
L: 85 mm, W: 28 mm (crossbar), 11 mm (bow). SF 951, Context 10456.

19 Brooch. Copper alloy. Polden Hill, Bayley and Butcher (2004) type b. Upper bow humped over crossbar. Slight lateral extension showing as disc flanges beside the upper bow. Bow tapers, sub D-sectioned. Bow plain with rounded footknob separated by a cross groove. Solid catchplate. Spring badly corroded therefore number of coils not clear, Spring iron, axial rod copper alloy (cf Hattatt 1989, 300, fig. 159 no. 898 (identical)).
L: 56 mm, W: 21 mm (crossbar), 8 mm (bow). SF 1771, Context 13631.

20 Brooch. Copper alloy. Polden Hill, Bayley and Butcher (2004) type a. Six coils including chord remain. Axial rod still attached in one side of semi-cylindrical crossbar. Pin missing. Beaded crest on upper bow, crossbar ribbed. Triangular opening in catchplate. Small thin footknob part of bow. Almost identical to Bayley and Butcher (2004), 90 no 209 but without ridge flanges around top of bow. cf Hattatt 1989, 300, fig. 159 no. 26. Similar to Cool 2007, 82, fig. 4.6 no. 9 digital section no. 29; 255 fig. 9.12 no. 24.
L: 58 mm, W: 22 mm (crossbar), 8 mm (bow). SF 2026, Context 16023.

21 Brooch. Copper alloy. Developed T-shape. Narrow undecorated tube holding axial bar, pin missing. Headloop unperforated. Bow tapers, relatively flat but recessed on the reverse. Longitudinal grooves at each edge. Decorated with two lozenge-shaped patterns comprised of nine smaller raised lozenges. Any break with lower bow is indistinguishable due to encrustation. Small foot. cf Cool 2007, 136, 5.25 no. 3; Hatatt 1989, 303, fig. 162 nos 908, 386 and 28. Bayley and Butcher 2004, 166, fig. 138 104/5.
L: 47 mm, W: 20 mm (crossbar), 9 mm (bow). SF 1791, Context 14014.

22 Brooch. Copper alloy. Developed T-shape. Head and pin missing. Most of bow remains. Bow tapers from centre, both ways, making it diamond shaped with central pattern comprising

two recessed triangles, forming a lozenge, presumably once holding enamel. Surrounded by lozenge shaped recess. Section triangular. Tiny foot and catchplate remain. Central ridge cf Hattatt 1989, 303, fig. 162 nos 918 and 919; Butcher 1974, 54, fig. 124 no. 18.

L: 47 mm, W: 10 mm (bow). SF 868, Context 10400.

FIG. 7.3

23 Brooch. Copper alloy. Developed T-shape, south-western variant. Unusual, crude and bulky. Hinged pin (broken) on axial bar held in cylindrical tube integral (cast) with flat cross bar and bow. Bow expands at top to thickness of crossbar, slight headplate (broken). Plain except for very prominent knurled crest and footknob. Bow flat and rectangular sectioned. Crest 3 mm high and 17 mm long over arch of bow. Catchplate two thirds length of bow, rectangular part with a notch and triangular part with curved edge. Foot slightly protrudes (cf Hattatt 1989, 305, fig. 164 409).
L: 77 mm, W: 34 mm (crossbar), 17 mm (bow). SF 871, Context 10400.

24 Brooch. Copper alloy. Developed T-shape, south-western variant. Extremely unusual brooch cf SF 871. Bulky and crude bow joined to large head plate 14 mm high cast in one with narrow tube to hold axial rod, pin missing. Plate decorated with three transverse grooves along the top, remains of a headloop (*c* 13 mm diameter). Row of four punched ring and dot decoration below grooves. Plate steps out at base with decorated strip, diagonal lines. Steps out again to bow, plate tapers to bow. Bow plain at top with raised panel some way down, decorated with two central ribs and two at ends.
L: 42 mm, W: 30 mm (crossbar), 14 mm (bow). SF 873, Context 10400.

25 Brooch. Copper alloy. Trumpet, Bayley and Butcher, type b or c. Elongated head with fixed headloop on backplate (loop missing) and zig-zag decoration at base of plate. The head is recessed on the reverse containing an iron spring with two coils held by two lugs and an axial rod. Upper bow plain. Moulding at waist, double cross ridge above and below bulbous central element flanked by further short moulding. Lower bow broken but has groove at each edge. A fragment of the catchplate remains. (cf Hattatt 1989, 326, fig. 185 no. 959).
L: 43 mm, W: 22 mm (head). SF 1572, Context 12306.

26 Brooch. Copper alloy. Trumpet, Bayley and Butcher, type aii. Head expanded with central ridge continuing to waist moulding. On either side of head are flattened 'ears'. The brooch has a two-coiled spring held on a single lug on the reverse of the head with a simple loose wire headloop. At the waist a central lobe has cross mouldings either side which do not continue to the back. Lower bow continues ridge with cross moulding and flat bottomed round foot. (cf Cool 2007, 136, fig. 5.25 no. 5 (identical) Hattatt 1989, 328, fig. 187 no. 437. Mackreth 2004, 79, fig. 4.4 no. 35 (almost identical).
L: 40 mm, W: 10 mm (head). SF 890, Context 10455.

27 Brooch. Copper alloy. Trumpet, Bayley and Butcher, type b. Very square expanded head with broken headloop, recessed for spring on reverse. Both lugs to hold axial rod in tact. Very curved bow with three mouldings, the upper linear, second is shorter and third is rounded. Upper bow is long as SF 945. Quite elaborate acanthus moulding at waist with a cross moulding below. Remaining lower bow is plain; part of catchplate remains. Back flat. Unusual, no parallels found.
L: 30 mm, W: 12 mm (head). SF 1083, Context 10400.

28 Brooch. Copper alloy. Trumpet, Bayley and Butcher type b. Fixed headloop cast in one with bow, loop broken. Expanded head with recess behind to hold spring. Remains of lugs on either side. Back flat. Upper bow raised into central ridge on the front. Terminates at cross moulding. Acanthus or 'floral' type moulding and second cross moulding. Remains of lower bow have defined central rib and tapers. Part of catchplate on reverse, spring, pin and foot missing. Long upper bow, steep arch, longer and more slender than most.
L: 42 mm, W: 13 mm. SF 945, Context 10456.

29 Brooch. Copper alloy. Trumpet variant/ Wroxeter type. Hinged bow brooch, with simple hemispherical backplate with an integral closed loop. Characteristics in common with headstud brooch. Part of lower bow lost. Upper bow D-sectioned with central knurled rib set in a wider shallow recess. This terminates with a cross moulding, a waist, two further knurled cross mouldings and a further waist. Loop to hold a pin still on back of plate.
L: 26 mm, W: 9 mm. SF 869, Context 10400.

30 Brooch. Copper alloy. Penannular, Fowler type D2. Ends turned back and flattened to make terminals with small depressions on either side of the turned back part. Ring plain with circular section. Pin existing but very corroded. (cf Oliver 1996, 263, fig. 11.4, 154 and 155). Used throughout Roman period but many mid 1st century AD.
W: 2 mm, D: 28 mm. SF 1490, Context 12150.

31 Bracelet. Copper alloy. Pair of child's interlinked expanding bracelets of D -shaped section. Decoration is unclear due to corrosion but one clearly has transverse grooves near the terminal. One slightly larger and thicker. Doesn't fit to Allason-Jones and Miket type as appears to be plain with decorated terminals. Crummy type is 'transverse grooves in groups'. Cf finger ring

1196, Similar non-linking bracelets from Claydon Pike (Cool 2007, digital section 3.4, nos 60 and 62; Crummy 1983, 42 fig. 44 no. 1683, although not interlinked; Neal and Butcher 1974, 140, fig. 61 no. 172 (similar design)).
D: 35/27 mm. SF 906, Context 10465.

32 Bracelet. Copper alloy. One terminal remains, broken at the other end. Oval- to D-sectioned, corrosion hides any possible decoration, although there seem to be transverse grooves near the terminal. Terminal is separated by a raised rib and tapers to a point. Allason-Jones and Miket (1984) type 1, not possible to tell if this is terminal with hole or loop. (Cf Mackreth 2005, 56, fig. 1.30 no. 23; Cool 2007, digital section 3.4, nos 67 and 68).
L: 52 mm, W: 4 mm, B: 1.5 mm. SF 974, Context 10566.

33 Bracelet. Copper alloy. Very small, possible child's bracelet. D-sectioned, up to 3 mm wide with flattened terminals. No decoration. Crummy plain type (Cf Allason-Jones and Miket 1984, 137-8, no. 3.304, type 17 or 18, undecorated penannular; Mackreth 2005, 152, Fig. II.48 no. 74; Cool 2007, digital section 3.4, no. 62 similar).
D: 34 mm. SF 1739, Context 13269.

34 Bracelet. Copper Alloy. Allason-Jones and Miket (1984) type 1. Near complete, pierced terminal missing. Hook and both ribs still present. Majority of shank decorated with transverse grooves set within a central band, except at terminals. On complete side band terminates with pairs of longer transverse grooves (three or four). After this grooves either side of rib. Other end possibly the same but encrusted and broken (rectangular central raised area widens out to form a series of more closely spaced transverse section) (cf Woodward and Leach 1993, 165, no. 17).
D: 61 mm (ext), B: 4 mm. SF 2418, Context 12155

35 Bracelet. Copper Alloy. Allason-Jones and Miket (1984) type 14/Crummy cable type. Fragment of twisted wire bracelet, circular sectioned, formed by wrapping wire tightly around a shank. 2 mm thick. Plated with white metal (Cf Allason-Jones and Miket 1984, 135, 3.271; Woodward and Leach 1993, 163, fig. 127 20 and 21).
L: 95 mm. SF 1266, Context 11244.

FIG 7.4

36 Bracelet. Copper Alloy. Allason Jones and Miket (1984) type 6. Two fragments of the same bracelet found separately. SF 1969 is the larger piece, SF 859 just terminal and short length of shank. Snakes head terminals and raised central area flanked by longitudinal grooves making the section D-shaped with small protrusions either side. Heads are decorated by raised areas and crescent shaped/circular incisions can be seen on the body (cf Butcher 1974, 136, fig. 60 no. 158, similar but not identical)
D: 61 mm (ext), W: 8 mm, B: 3 mm. SF 859 and SF 1969, Contexts 10400 and 15445.

37 Finger Ring. Copper Alloy. Delicate oval-sectioned penannular ring *c* 1 mm thick, gap *c* 1.5 mm. Plain all the way around except at the terminals. Parallel, unflared terminals, slightly flattened with incised transverse grooves. Cf Neal and Butcher 1974, 136, fig. 60 no. 141, which has lizard or snake heads on terminal, the present example may have had similar originally. Cf Crummy 1983, 48, fig. 50 no. 1773, possibly post-Roman. Crummy type has transverse grooves in groups.
D: 21 mm (ext), 19 mm (int). SF 1196, Context 10726.

38 Finger Ring. Copper Alloy. Formed from coiled strip decorated with herringbone pattern for entire length, except final 7 mm of one terminal which has transverse grooves. 2-3 coils remain. Central longitudinal groove. For pattern cf Neal and Butcher 1974, 136, fig. 60 no. 137.
D: 20 mm (ext). SF 878, Context 10400.

39 Finger Ring. Copper Alloy. Oval bezel with exterior flat frame. Gently tapers into thick loop. Broken at the back and probably part missing. Quite bulky. D-shaped section. Reverse of bezel slightly bulbous. Has angled areas on loop near bezel. Missing intaglio. Similar to Cool 2007, digital section 3.4, fig. 3.4.3 no. 98; Crummy 1983, 48, fig. 50 no. 786.
L: 26 mm, D: 15 x 11 mm (bezel). SF 1897, Context 14941.

40 Finger Ring. Copper Alloy. Missing part of loop. Circular bezel, originally decorated with enamel. Circular recess remains with smaller circular area separated by a ridge in the centre. Slopes down to loop with oval section. Number of parallels for bezel but not the same shape. This type is usually winged.
W: 9 mm (bezel), D: 19 mm. SF 972, Context 10400.

41 Finger Ring. Copper Alloy. Fragment of loop and bezel remain. Bezel is oval, with ?floral raised decoration within the recess with a further central recess. Remains of glass/enamel within the recesses. Fragment of loop on one side separated from the bezel by a groove. Tapers, oval to d-sectioned. No parallel found.
L: 14 mm, W: 8-9 mm (bezel). SF 2054, Context 17844.

42 Finger Ring. Copper Alloy. Octagonal on the exterior, more rounded on the interior, rectangular section. Plain. Polygonal rings are usually 4th century (Cf Crummy 1983, 50, no. 1788, although white metal; Allason-Jones and Miket 1984, 121, 3.166).
W: 5 mm, D: 19 mm (ext). SF 2057, Context u/s.

43 Possible Unguent Spoon. Copper alloy. Circular sectioned rod tapering to a point. Flattened head, sub rounded but possibly broken. Has possible incised transverse lines below head on one side,

unclear if intentional. Doesn't seem to be set at an angle as many, could be broken needle (cf Wardle 1990, fig. 24 143-144 'ligula'; Redknap 1998, 166, fig. 80 2.16).
L: 118 mm, W: 5 mm (head). SF 1215, Context 10893.

44 Toilet Implement. Copper alloy. Intricately decorated. Unusual as three very sharp prongs on bottom. Flat rectangular head slightly tapering in section towards the top, 4 mm long. Incised with a lozenge shape. Below this diagonally incised grooves for 3 mm before rounded part. Below this incised criss-crossing diagonal decoration to foot with two more plain but slightly circular bead-like elements within. Foot flattens to same section as head with transverse grooves, carved into three very sharp prongs with webbing in between.
L: 45 mm, W: 3.5 mm, B: 2 mm. SF 2146, Context 17785.

45 Lamp Reflector/Miscellaneous Mount? Pelta-shaped openwork objects. No evidence of fastenings. Crescent shaped holes typical of pelta openwork but direction reversed. Other unusual feature is fleur-de-lys type protrusion at the centre top. When this occurs in other metalwork tends to be other side. Broken below pelta. Bar between the crescent shaped holes but missing bottom. Function uncertain - possibly equine equipment/scabbard fitting/mount box attachment etc.
L: 40 mm, W: 44 mm. SF 1531, Context 12150.

46 Lamp Reflector/Miscellaneous Mount?, as SF 1531. Probably identical when complete.
L: 30 mm, W: 45 mm. SF 1481, Context 12096.

47 Apron Mount? Copper alloy. Pierced central element with square shoulders flanked by two bulbous parts and square ends. On reverse two rivets, one at either end. Some remains of decoration - vine tendrils in relief, no plating remains. Apparently common design of military equipment (cf Bishop and Coulston 2006, 120, fig. 70, no. 1; Crummy 1983, 133, fig, 151) but interpretation of function varies.
L: 66 mm, W: (central) 15 mm (ends) 11 mm. SF 1759, Context 13816.

48 Apron Mount? Copper alloy. Similar decoration to 1759, missing central element. Double circular element with rectangular ends. On reverse single rivet either end.
L: 52 mm, W: 9 mm. SF 1854, Context 14407.

49 Stud. Copper alloy. Flat headed, circular with edge damage and corrosion, fragment of circular-sectioned shank remains. X-ray shows peripheral groove and incised pattern of quarters each with a geometric floral design in dots within. Military from belt or apron. (cf Woodward and Leach 1993, 204, fig. 151, no. 4; Bishop and Coulston 2006, 109, fig. 63, no. 7, from Caerleon).
L: 6 mm, D: 18 mm. SF 1979, Context 15445.

50 Strap end? Copper alloy. Amphora-shaped but broken at wider end with circular knop at apex. Front convex, reverse concave. Simpson (1976) group II, terminal boss with no collar. Further decoration not found on broken fragment. Late Roman (cf Allason-Jones and Miket 1984, 191, no. 3.611; Bishop and Coulston 2006, fig. 137 no. 12, from Colchester)
L: 19 (remains) mm, W: 19 mm. SF 1350, Ctx u/s.

FIG 7.5

1 Socketed Candle Holder. Iron. Three legs radiating from the base of apparent rectangular section, all feet appear to be missing or incomplete. socket appears to be split. Cf Manning 1972, fig. 65 no. 51; Woodward and Leach 1993, fig. 149, 4.103.
L: 86 mm. SF 2239, Context 18062.

2 Possible Handle. Iron. Probable furniture handle made from arched flat strip, which broadens in the centre with flat, rounded terminals at 90 degrees at either end. Presumably to be attached to furniture (probably originally had rivet holes). No parallels found.
L: 96 mm, W: 15 mm. SF 2336, Context 19264.

3 Possible Handle/Mount. Iron. This fitting could be a handle mount or hinge. Flat with thick loop at the top joined to baluster-shaped part, a rectangular strip emerges from this with a smaller baluster shape at the bottom, all integral. Rivets for attachment are present through the baluster-shaped parts. The loop has a sub-rectangular cross section, the main plate is thinner. Possible bucket side mount (cf bucket mounts from Well 1 at Dalton Parlours; Scott 1990, 201, fig. 118 nos 55 and 52; Scott 1998a 205, fig. 99 18.31).
L: 134 mm, W: 36 mm (centre). SF 1685, Context 12306.

4 Possible Snaffle Bit. Iron. Square-sectioned rod curved at each end to make loops, one is larger. Probably a snaffle bit, mouth bar etc but loops are on the same plane and curled construction is unusual. Cf Manning 1985, pl. 28 H11; Scott 1998a, 175, fig. 85 8.3).
L: 83 mm, D: 28/18 mm (loops). SF 1774, Context 13710.

5 Knife/Cleaver. Iron. Either large type 11 knife (Manning 1985, pl. 54, Q34) or Type 3 cleaver (ibid.. pl. 57, Q100). Triangular sectioned blade and tanged handle. Back straight, continuing from line of tang. Edge slightly convex, unclear whether tip rounded or pointed.
L: 249 mm, W: 39 mm, B: 4 mm. SF 1955, Context 15240.

6 Blade. Iron. Possible fragment of reaping hook blade (Cf Manning 1985, pl. 22 F24) Type 1-1A blade with triangular section, curved at the end. Alternatively, could be a fragment of knife with a curved blade, eg Type 7 or 23/24 or Type 1 cleaver.
L: 80 mm, W: 28 mm. Context 12212.

7 Knife. Iron. Manning 1985 type 22. Quite small

for this type. Socketed with straight back in line with socket, edge sloping downwards and turning sharply up to form tip. Later Roman, common in London (cf Manning 1985, Pl. 56, Q63/64).

L: 112 mm, W: 16 mm, D: 19 mm (socket). SF 1862, Context 14337.

8 Knife. Iron. Possibly Manning (1985) type 11 or 12, cf pl. 54 Q39/42. Back continues line of relatively square-sectioned tang or handle. Unclear if edge is damaged or was deliberately rounded. Downwards convex curve from tang. Section unclear.
L: 143 mm, W: 31 mm (blade). SF 1273, Context 11281.

9 Knife. Iron. Probably Manning (1985) type 14/15/16. Tang rises gently to straight back sloping to tip. Edge stepped down from tang, rising up to tip. Potentially similar to Cool 2007, 195, no. 30; Wardle 1990, 141, no. 436.
L: 104 mm, W: 17 mm. SF 1235, Context 10908.

10 Cleaver/Knife. Iron. Manning (1985) type 3 cleaver or socketed type 11 knife. Triangular sectioned blade, open socket. Straight back along line of socket, curved corner rising with slight curve to the tip (missing). Cf Manning 1985, pl. 57 Q100; Scott 1998, 189 10.11; Wardle 1990, 141 no. 431/2.
L: 174 mm, W: 40 mm, D: 15 mm (socket). SF 2029, Context 16023.

11 Cleaver/Knife. Iron. Possibly Manning (1985) type 2 or 1b. Socketed, suggesting that this is a cleaver, socket closed. Back straight, in line with the handle, back arches from socket before curving up to the tip (missing).
L: 138 mm, W: 40 mm, D: 21 mm (socket). SF 2284, Context u/s.

FIG. 7.6

12 Knife. Iron. Probably Böhner type C (Saxon). Near complete whittle-tang knife with a short, tapering, rectangular sectioned tang. Back slopes up from tang and is quite straight, dips gently to tip (missing). Edge straight with a right angled shoulder from the tang.
L: 128 mm, W: 18 mm. SF 2459, Context 10765.

13 Possible Punch or Chisel. Iron. Parallel rectangular- or possibly triangular-sectioned object with square-sectioned central tang. Broken at both ends, one at 45 degree angle. Similar to mortise chisels (Manning 1985, pl. 11 B41/42). Sloping end does appear broken and may be structural fitting or long handle from tool, eg shovel. It is possible that there are missing organic elements.
L: 205 mm, W: 19 mm, B: 9 mm (tang). SF 2060, Context 16252.

14 Fitting/Anvil. Iron. Unusual object, rectangular-sectioned bar at one end, perforated with sub circular hole, 8 mm diameter. Tapers slightly to shoulders, sloping sharply into what resembles a tang or pointed component. Similar to Manning (1985) pl. 70 S137, described as a 'pin', but head is much larger and spike shorter and wider. Also similar to Brodribb *et al*. 2005, fig. 1.35 no. 46.
L: 109 mm, W: 27 mm, B: 8 mm. SF 1587, Context 12306.

15 Wedge. Iron. Heavy with triangular section. At the widest end is a flange, possibly formed by hammering. Possibly carpenter's wedge. Unclear if complete or corroded. Cf Manning 1974, 170, no. 476, though slightly larger.
L: 41 mm, W: 30 mm, B: 17 mm. SF 1524, Context 12155.

16 Strut/Fastener. Iron. Rod with changing section and possible broken-off head, which is flat with a square eye. The shank is flat at the top and tapering downwards, becoming flat at a 90 degree angle, continuing to a point.
L: 192 (combined), W: 28 mm (head). SF 5, Context 889.

17 Spearhead. Iron. Leaf-shaped, long blade with closed socket (cf Manning 1985, V26, pl. 76). Roman form with a long life. Similar to Hod Hill type 2.
L: 195 mm, W: 34 mm, D: 20 mm (socket). SF 892, Context 10456.

18 Spearhead. Iron. Probable Hod Hill group 1A spearhead (cf Manning 1985, V42 pl. 76). Narrow leaf-shaped blade with rounded asymmetrical shoulders and closed socket, bent at the tip. This type has a long life, but most of Manning's examples are mid 1st century AD.
L: 90 mm, W: 17 mm, : 14 mm (socket). SF 2, Context 564.

WORKED BONE SMALL FINDS

by Rose Grant and Kelly Powell

A small assemblage of Iron Age and Roman worked bone objects was recovered from Cotswold Community. The assemblage comprised dress accessories in the form of a possible toggle/fastener and three pins, tools and fittings such as two gouges and a handle, and a number of pieces of waste from possible bone working. The assemblage is detailed by phase and context in Table 7.17.

Dress accessories

The possible toggle/fastener (SF 1198) was recovered from within a late Iron Age/early Roman ditch (20031) and is made from a sheep metatarsal. It is squared off at both ends with a single perforation in the centre of one face. The adjacent face is decorated with an incised zigzag pattern. The toggle is not polished but the ends are smoothed, possibly through use. The identification as a toggle is tentative and the object is not closely datable.

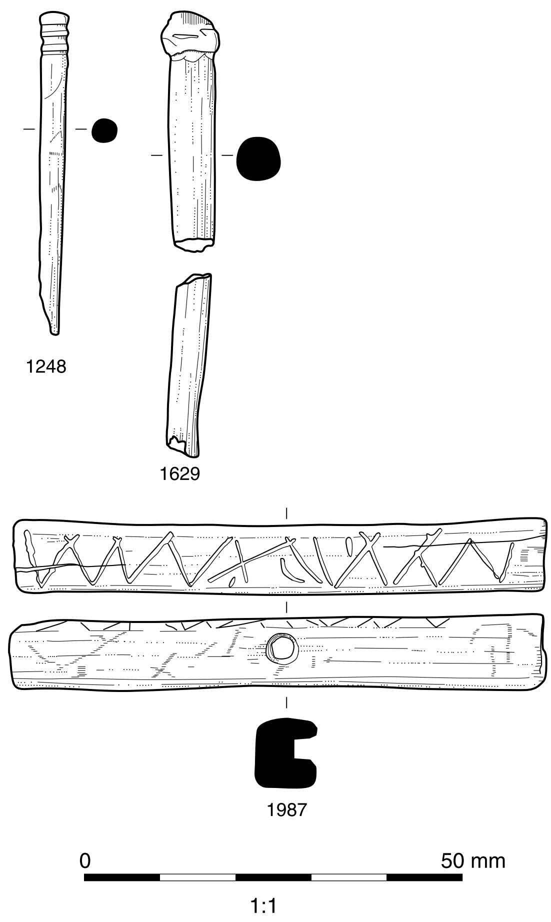

Figure 7.7 Worked bone objects 1-3

Pin (SF 1248) was recovered from middle Roman ditch 20016. It has one or possibly two transverse grooves running around the top of the shaft beneath a roughly conical head, the same diameter as the shaft. The pin is missing its tip and has been broken across its shaft (cf Crummy 1983, 21, fig. 18 no. 177). Pin SF 1629 was recovered from the upper fill of a late Roman water hole 12003. It is also decorated with three transverse grooves cut around the top of the shaft, beneath a flat head. The pin has a simple tapering shaft but is missing its tip and is rough and unpolished (cf Crummy1983, 21, fig. 18 no. 159). Both these pins can be identified as of Crummy Type 2, the former a more crude example. Type 2 pins are thought to be weak as almost all examples have broken tips, but they lend themselves to being re-pointed and reused. The third pin, recovered from late Roman ditch 20050 (fill 12150) is missing both head and tip, the remaining shaft is straight and unpolished. This pin can be assigned to Crummy Type 1 or 2.

Tools/fittings

Two gouges were recovered from pits 12451 and 17733, both were cut obliquely in a longitudinal direction, the larger of the two, from pit 12451, was carved into a point, the second gouge is missing its tip. The edges of the tip from the former had been smoothed and rounded, possibly from wear. Gouges are most commonly made from sheep bones and this is the case with the gouge from pit 17733, but the gouge from pit 12451 is made from a deer metatarsal. There are examples of these objects from Iron Age contexts at Danebury (Sellwood 1984, 383), made from horse and cattle bones, but none using deer bones (ibid., 386).

An incomplete handle from a whittle tang implement was also recovered from ditch fill 12150. It is made from a sheep tibia and has a circular, polished shaft.

Miscellaneous

A small number of animal bones recovered from the site had holes drilled through them but display no other sign of working. Two cattle phalanxes from Phase 7 waterhole 10495 and Phase 8 corn dryer 14400 had holes drilled through the distal end. The example from feature 10495 was drilled from both sides whilst the second does not go all the way through. A cattle tibia from Phase 7 ditch 20142 (complex 19999) has a small drilled hole near the proximal end. Three sheep metatarsals also have drilled holes. The fragments from pit 13301 and ditch 20006 have holes drilled longitudinally through the centre of the bone. The third fragment, from pit 13707, has a central perforation from one side of the shaft to the other and could represent the early stages of production of a toggle. Those objects which have central holes are often interpreted as bobbins for textile working and similar items were found at Claydon Pike (Cool 2007, digital section 3.4.1).

Discussion

Overall the worked bone assemblage is unremarkable and limited in size. Consideration of the assemblage by phase shows that bone implements were used throughout the Roman period with no particular emphasis on any one phase. No real concentrations of worked bone objects were found within the settlement area and it is likely that objects were used in daily life and discarded accordingly. Bone objects were undoubtedly manufactured on site as illustrated by some possible unfinished objects and waste, but if a specific area was set aside for this it is not archaeologically recognisable. Although a number of items were recovered from context 12150 this is interpreted as a midden-like dump of material.

The presence of hairpins does, however, indicate the adoption of Romanised hairstyles, while the pierced elements are usually recognised as objects used in weaving or bobbins therefore providing evidence of textile working.

The lack of bone artefacts on a low status site such as this one is perhaps unusual. As Cool has pointed out (2007, digital section 5.3) bone was the plastic of the Roman world and was a cheaper alternative to metal. The lack of metal hairpins is therefore partly compensated for by the presence of three bone pins, but comparison with other excavated assemblages from the wider area suggests that the small number of worked bone objects at Cotswold Community is notable. Assemblages of over 20 worked bone items came from Roughground Farm (Allen and Brunner-Ellis 1993, 158) and 27 came from Cleveland Farm (Atkins 1997) including 11 and 12 pins respectively. In addition a number of commonly-found worked bone object types were missing from Cotswold Community. These include tools such as awls and pin beaters, domestic items such as spoons and veneer and recreational objects like counters and dice.

A number of other rural sites in the region also had very small assemblages of worked bone, however. These include Somerford Keynes Neigh Bridge (Miles *et al*. 2007), Whelford Bowmoor (ibid.), Thornhill Farm (Jennings *et al*. 2004) and Latton Lands (Powell *et al*. 2009). It is possible that this characteristic is a feature of the more impoverished settlements in the area.

ILLUSTRATION CATALOGUE
(FIG. 7.7)

1 Incomplete Pin. Bone. Crummy Type 2. Missing tip and broken across its shaft. One or possibly two transverse grooves running around the top of the shaft beneath a roughly conical head of the same diameter.
L: 32 mm + 29 mm. SF 1248, Context 11000.

2 Incomplete Pin. Bone. Crummy Type 2. Missing tip. Three transverse grooves cut round the top of the shaft beneath a flat head. Simple tapering shaft.
L: 42 mm. SF 1629, Context 11740.

3 Possible Toggle. Bone. Squared off at both ends with a single perforation in the centre of one face. The adjacent face is decorated with an incised zigzag pattern.
L: 71 mm. SF 1198, Context 10799.

Chapter 8: Metallurgical Debris

By Lynne Keys

INTRODUCTION

Just over 64 kg of material described as slag was recovered during excavations and examined for this report (see Table 8.1). The assemblage was fully examined and categorised on the basis of morphology. Each slag or other material type in each context was weighed; smithing hearth bottoms were individually weighed and measured to obtain statistical information. A full quantification spreadsheet is in the site archive. Before the medieval period activities involving iron could take two forms:

1) Smelting is the term used for manufacture of iron from ore and fuel in a smelting furnace. The resulting products are a spongy mass called an unconsolidated bloom (iron with a considerable amount of slag still trapped inside) and slag (waste). The latter may take various forms depending on the technology used: tap slag, run slag, dense slag, or furnace slag.

2a) Primary smithing is hot working (by a smith using a hammer) of the bloom on a string hearth (usually near the smelting furnace) to remove excess slag. The bloom becomes a rough lump of iron ready for use; the slags from this process include smithing hearth bottoms and micro-slags, in particular tiny smithing spheres.

2b) Secondary smithing: hot working, using a hammer, of one or more pieces of iron to create or repair an object. As well as bulk slags, including the smithing hearth bottom, this generates micro-slags: hammerscale flakes from ordinary hot working of a piece of iron (making or repairing an object) or tiny spheres from high temperature welding to join or fuse two pieces of iron.

Table 8.1 Slag types by weight (g)

Slag (etc) type	*Weight*
coal	552
cinder	234
iron-rich undiagnostic	84
undiagnostic	42258
smithing hearth bottoms	15576
hammerscale	42
vitrified hearth lining	1120
fuel ash slag	429

A smith is likely to have worked in a forge or smithy rather than in the open air. The greatest quantity of hammerscale (which is invisible to the naked eye when in the soil) would remain in the immediate area of smithing (around the hearth and anvil within the building) when the larger slags are removed and thrown into the nearest pit, ditch or rubbish heap. The presence of quantities of smithing hearth bottoms in features usually indicates that smithing was taking place somewhere nearby. The hearth(s) may have been at ground level or raised (the latter using stone, brick or tile) so that the smith could work standing up. After the forge went out of use the raised hearth was usually demolished and the material taken away for re-use – leaving no archaeological indications (except for hammerscale) of the building's function.

There were no slags diagnostic of smelting in the Cotswold Community assemblage; the diagnostic slags (smithing hearth bottoms and some flake and spherical hammerscale) were derived from secondary smithing activity. Most of the slag in the assemblage was undiagnostic slag. It is so described because it could not be assigned to smelting or smithing activity, either because of its morphology or because it had been broken up during deposition, re-deposition or excavation. Other types of debris in the assemblage may be products of a variety of high temperature activities - including domestic fires - and cannot be taken on their own to indicate that iron-working was taking place. These include fired clay, vitrified hearth lining and cinder (the inner portion of vitrified hearth lining closest to the fire), and fuel ash slag (which can be produced not only by high temperature activities but also by the burning down of houses).

THE SLAG BY PHASE

Phase 1 (middle Neolithic)

Cinder. Cinder is a very porous, highly vitrified material formed at the interface between the alkali fuel ashes and siliceous material of a hearth lining. On many excavations it represents the lighter portion (nearest the heat) of vitrified hearth lining. If in association with diagnostic material from some industrial activity it may be assigned to that activity, however here it cannot be assigned.

Phase 2b (early Bronze Age)

Pit [4416] fill 4411 Sample with one hammerscale sphere.

Pit [9121] fill 9124 sample with occasional very tiny

hammerscale spheres and fired clay
The hammerscale is probably intrusive, as it is a product of iron smithing.

Phase 4 (late Bronze Age/early Iron Age)

Group 7321. Round house [7896] fill 7895. The sample taken from this feature contained four hammerscale spheres but since no other slag was recovered these may be intrusive.

Phase 7 (late Iron Age/early Roman)

Group 20182, ditch [10483] fill 10481. Small quantities of undiagnostic slag, quantities of coal and vitrified hearth lining.

Phase 8 (mid Roman)

Group 11904. Hayrick gully 11946, fill 11945. A soil sample contained very occasional hammerscale spheres and magnetised clay and dust.
Group 20004. Ditch 15092, fill 15093. One smithing hearth bottom.
Group 20004. Ditch re-cut 15162, fills 15164 and 16165. One smithing hearth bottom
Two smithing hearth bottoms were also found in features belonging to Phase 8/9.

Phase 9 (late Roman)

At least 44 smithing hearth bottoms (fragments of more were also recovered), with some hammerscale adhering, were dumped in ditches to the southern side of the site (group 20350, [11728] fills 11731, 11732, 11812, 11813, and 11815). These contexts alone also produced over 29 kg of undiagnostic slag - some 69% of the overall total of this material from the site. Since so little slag was recovered from earlier phases or Phase 9 features within the settlement, the sudden appearance of so many smithing hearth bottoms in dumped material is striking. Although they may have been amassed somewhere nearby, the general absence of slag within the site (at least within the main settlement area) does not indicate any detectable smithing activity taking place before this dumping episode.

DISCUSSION

At least 48 recognisable smithing hearth bottoms were recovered from features – mainly ditches - of Phases 8 and 9; 44 from Phase 9 alone. Despite these, and the large quantity of undiagnostic slag, no definite focus of smithing was located during excavation and could not be located during post-excavation analysis. It is possible that, since only small quantities of slag were found within the settlement and because smithing hearths were probably of the raised fire bed type and so had been demolished, there were no indicators to prompt sampling of layers for micro-slags (hammerscale flakes and spheres).
The thorough clearing of the settlement area of slag indicates that some central authority was enforcing and overseeing the disposal of slag and other rubbish into the large enclosure ditch(es). At first sight this might appear to represent a mass clean-up within the settlement to free more space for occupation and keep it tidy, but if smithing had been taking place over time, more debris should have been found in pits and dug features within the settlement. During the Roman period slag was often amassed and collected for use as metalling on roads and could, over time, be washed by rain from the road surface into ditches beside it. Here, however, it may be that slag and other rubbish was amassed and deposited in an effort to fill the enclosure ditches.

Chapter 9: Glass

By H E M Cool

VESSEL GLASS

With the exception of one vessel which is discussed at the end, this little assemblage is relatively typical of what is to be expected at a small rural site. A rapid overview can be achieved by considering Table 9.1. The strong colours (deep blue and dark yellow/green) are from vessels in use during the 1st century AD, the blue/green glass indicates a 1st-3rd century date with the bottle element of that going out of use early in the 3rd century. There are also a small number of fragments of the greenish colourless bubbly glass that is typical of the 4th century. The poor showing of colourless glass (3 small fragments all from the same context) is noteworthy. Colourless glass is typical of good quality tablewares of the 2nd and 3rd century. By the early 3rd century these were being used on many rural sites, but Table 9.1 suggests there was not much call for them here.

Many of the pieces are relatively undiagnostic body fragments whose forms cannot be identified with certainty. The 1st century pieces may both have come from jugs, though this is only certain in the case of No. 3. No. 25 is a fragment of a base type that was used on both jugs and jars (Price and Cottam 1998, 137-8, 147-52). The commonest vessel type represented is the blue/green square bottle (ibid., 194-8) whose main period of use was between the later 1st and early 3rd centuries. Only three fragments retain the 90^{o} angle that indicates definitively that they are from square bottles (Nos 9, 10 and 31), but the rim, neck and shoulder fragments (Nos 18, 27 and 34) and flat body fragments (Nos 7-8, 16-7, 20 and 28) are also most likely to come from the square form in the absence of any indications of the presence of cylindrical bottles or those with other prismatic outlines. Where there is evidence of glass vessel use on early to mid Roman rural settlements it often takes the form of fragments from these containers. Presumably the inhabitants had a use for whatever was transported inside them, so the fact that they make up just over a third of the assemblage (by fragment count) here is not surprising.

The 4th century material includes a shoulder from a cylindrical bottle (No. 29), which could have come from either the funnel-mouthed form with one or two ribbon handles (Price and Cottam 1998, 204-5), or the form with two dolphin handles (ibid., 206-7). One body fragment (No. 30) appears to be from an indented vessel. This is most likely to have come from an indented truncated conical bowl (ibid., 128-9) in which case a later 4th into 5th century date is indicated. Other 4th century forms that might be present are the conical beakers and hemispherical cups that dominate all 4th century assemblages (ibid., 117-9, 121-3). The abraded body fragment No. 12 probably came from the former; the unusual lugged fragment No. 23 probably from the latter. This last piece is of special interest because of the way in which the decoration has been formed.

None of the pieces discussed so far are particularly unusual, uncommon or unexpected at a site such as Cotswold Community. The same cannot be said for the three fragments that make up No. 14 (Fig. 9.1). These were found in the fill of a ditch that forms part of enclosure complex 17590. This fill had a large assemblage of pottery dating to AD 300 onwards and the only other item of vessel glass was also of 4th century date judged by its colour, although unfortunately it was a relatively undiagnostic base so the form cannot be identified.

The fragments come from a blue/green vessel that has combined both hot-worked decoration and incised decoration completed after the vessel had been annealed. This is extremely unusual, especially as incised decoration appears to have been carried out between what would have been quite delicate rows of openwork trails. The two joined fragments retain

Table 9.1 Roman vessel glass by colour and site phase (fragment count)

Phase	Dark yellow /brown	Deep blue	Colourless	Blue/green vessel	Blue/green bottle	4th century green	Total
7	-	-	-	-	1	-	1
8	-	1	3	3	4	-	11
8-9	-	1	-	1	5	2	9
9	1	1	-	6	2	5	15
11	-	-	-	1	-	-	1
Unphased	-	-	-	1	2	-	3
Total	1	3	3	12	14	7	40

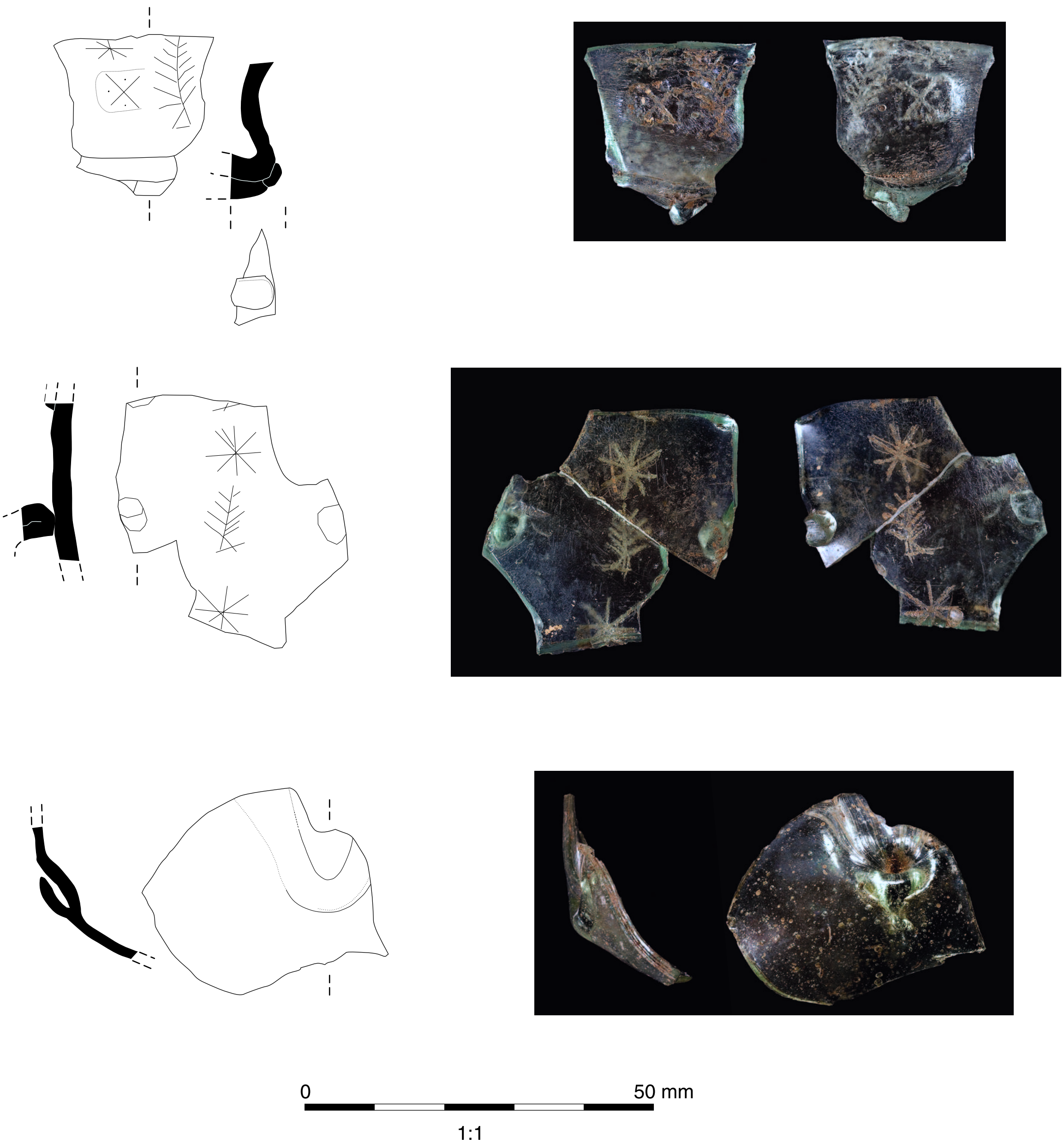

Figure 9.1 Body fragments from glass vessel No. 14

the stumps of two attachments for the openwork decoration together with the edge of a third, and these are consistent with an overall decoration of alternate openwork and incised vertical bands. The attachments consist of a 'U'-shaped trail, where the two arms of the 'U' are melted together and broken at the point where the trails would have curved over to form the openwork element. The only vessels known to me on which this feature can be seen are a small group where the link between the attachments takes the form of a moulded scallop shell. One of these, from a grave at Kartäuserhof in the Jacob Strasse at Köln, was a tall colourless stemmed beaker (Doppelfeld 1959, see epecially Taf. 30 top left for detail of attachment). Four vertical scallop shell bands originally alternated with vertical bands consisting of two trails twisted together. A similar vessel, though with the body beneath the scallop shell 'cage' decorated with polychrome snake thread decoration, came from a grave in the Luxemburger Strasse cemetery at Köln (Harden *et al*. 1987, 252, no. 142). In both cases the scallop shell band consisted of three elements and each band had two 'U'-shaped attachments at a distance of *c* 30 mm from each other. On both vessels the vertical scallop shell and twisted bands were attached to a slender horizontal trail top and bottom, and the heat-affected piece of No. 14 shows a similar junction. The third vessel known with these openwork shell bands was recovered from the villa at Rapsley, Ewhurst, Surrey. It consists of parts of six shells and two other elements and the 'U'-shaped attachment is clearly visible between two of the shells (Harden 1968, fig. 28c).

Two of these vessels were obviously in use in the earlier 3rd century. The Rapsley fragments were thought to have been deposited about the beginning of site Period IV (*c* AD 220), and the pottery in the grave containing the polychrome example was dated to the early 3rd century (den Boeselager 1989, 27). The vessel from Kartäuserhof had obviously been curated for nearly a century as the grave belonged to the early 4th century, or later, based on coin evidence.

Clearly these shell-decorated vessels do not give a precise parallel for No. 14. On one hand they are made of colourless glass rather than the blue/green glass seen here, and on the other, the distance between the attachments is much narrower than on the beakers from Köln. The shell beakers do, however, provide a hint of how elaborate the openwork decoration on No. 14 could have been.

Turning now to the incised decoration. It is freehand, as would have been necessary given the small space available between the openwork decoration, making wheel-cutting extremely difficult. Freehand incised decoration like this tends to be of 4th century date. In the north-western provinces the best known style is that found on the Wint Hill bowls, which generally show religious and hunting scenes (Harden 1960), and which are relatively common in Britain (Price 1995, 27). A much less common style of free-hand decoration is occasionally found on cylindrical cups of the late 2nd to 3rd century (for the basic undecorated type see Price and Cottam 1998; for the decorated ones see Fremersdorf 1970, Abb. 1-3, 5). Neither the Wint Hill style nor the earlier style has the cross and 'tree' motifs seen on No. 14. A fragment of one of the earlier cups found at Chesters retains part of a palm frond (Fremersdorf 1970, Abb. 1 no. 10) but it is altogether a more elegant rendition than the somewhat stunted tree or palm frond seen here. To have incised decoration of this type on a blue/green vessel is also very unusual. Normally it is applied to properly decolourised glass or the green-tinged colourless glass of the 4th century.

The combination of the openwork decoration created by hot-working and incised decoration like this created by cold-working is, to my knowledge, unparalleled. The only vessels that have anything similar are the two stemmed beakers which were decorated with gold foil on the exterior, into which a figured scene of cupids and foliage was scratched. Both have an openwork cage of free-standing trails around the gold foil area (Fremersdorf 1968, Tafn. 282-3; Harden *et al*. 1987, 253, no. 143). It has to be assumed, difficult though it would have been to do, that the figured scene was produced after the vessel with its cage had been blown and annealed, as the hot-working of the cage and the handles would surely have damaged the delicate working of the gold foil it they had been applied afterwards

All in all, these fragments are a great puzzle and full of contradictions. The fragments were undoubtedly deposited in the 4th century; and, as will have become clear from the discussion so far, individual features seen on them can be paralleled amongst 3rd and 4th century vessels. The comparanda belong to the extreme luxury end of late Roman vessel glass production, yet No. 14 is of blue/green glass, which is normally a sign of a relatively utilitarian vessel. The incised decoration too appears far from competent – though that, of course, is a value judgement. Nothing in the structures or the rest of the material culture from the site suggests that luxury glass, or even an incompetent copy of luxury glass, is to be expected here; yet that is what we appear to have. All that can be done is to place them in the public record and to hope that future discoveries will cast more light on what is currently a unique vessel.

CATALOGUE

Phase 7

1 Body fragment. Blue/green. Group 20182, context 10481, sample 5.

Phase 8

2 Bottle or jug; handle fragment. Blue/green. Edge of angular handle broken at edge of reeding or ribs. Length 24 mm. EVE 0.14. Group 13951, context 14756, SF 1925.

3 Jug; handle fragment. Deep blue. Edge of straight handle with one rounded rib. Length 30 mm. EVE 0.14. Group 14088, context 12914, SF 1713.

4 Body fragment. Blue/green. Group 14149, context 14150, SF 1839.

5 Body fragment. Blue/green. Group 20012, context 16130, SF 2086.

6 Body fragment. Blue/green. Group 20012, context 16131, SF 2087.

7 Prismatic bottle (?); chip from side. Blue/green. Group 20016, context 13874, SF 1780.

8 Prismatic bottle; body fragment. Blue/green. Group 20166, context 13971, SF 2477.

9 Square bottle; body fragment. Blue/green. Group 20169, context 10976, SF 1234.

Phase 8/9

10 Square bottle; body fragment. Blue/green. Group 11556, context 11655, SF 1371.

11 Chips (2). Blue/green. Group 12698, context 12699, SF 1655.

12 Body fragment. Pale green-tinged colourless. Straight side. Abraded band. Dimension 11 x 5 mm, wall thickness 1 mm. Group 12704, context 12708, sample 6187.

13 Body fragment. Deep blue. Group 12781, context 12783, SF 1712.

14 Body fragments (3). (Figure 9.1) Blue/green. Two joining fragments from vessel with slightly convex-curved side; third fragment heat-affected, possibly from a base or lower body. Joining fragments have free-hand incised decoration in

a vertical row - two 8-rayed stars made of four crossed lines with a tree or olive branch motif between consisting of a central 'trunk' and four pairs of upward facing branches, the base formed by two additional lines forming a triangle, an incised line on the broken edge suggests it was the base of a similar motif and so the stars and 'trees' alternated. On either side of the linear band of incision there are the stumps of two trails, one shows that the trail was dropped down onto the surface and immediately lifted as if from an arcaded pattern where the bulk of the arcade was free-standing and not attached to the side of the vessel. The other stump is slightly heat-distorted but has a broken scar to either side which would also be consistent with a free-standing arcade. The broken edge of a third stump placed vertically above the first stump gives a span of 12 mm for the arcaded loops. The heat-distorted fragment would be consistent with a concave base and vertical side, the base edge being marked by a narrow trail with a vertical trail attached to the side and top of the base trail; the underside of the base has a similar tree design with at least 5 pairs of branches, part of a possibly 6-rayed star and a diagonal cross motif with traces of dots between the arms. Dimensions (joined fragments 34 x 33 mm, wall thickness 3 mm; (base fragment) 25 x 23 mm, wall thickness 2.5 mm. Group 20151, context 11349, SFs 1301, 1303 and 1304.

15 Base fragment. Pale greenish colourless with small bubbles. Flat base curving up. Dimensions 21 x 15 mm, wall thickness 3 mm. Group 20151, context 11349, SF 1302.

Phase 9

16 Prismatic bottle; body fragment. Blue/green. Group 11087, context 11078, SF 1251.
17 Prismatic bottle; body fragment. Blue/green. Group 11087, context 11078, SF 1252.
18 Bottle; cylindrical neck fragment. Blue/green. Neck diameter 30 mm. Group 11843, context 11830, SF 1398.
19 Body fragments (3). Colourless. Group 12483, context 12482, SF 1599.
20 Prismatic bottle; body fragment. Blue/green. Group 20006, context 14165, SF 1833.
21 Melted fragment. Blue/green. Group 20007, context 13244, SF 1732.
22 Body fragment. Deep blue. Group 20017, context 12622, SF 1649.
23 Body fragment. Pale greenish colourless with many small bubbles. Convex-curved side; crescentic curved lug formed by pressing a tool into hot glass and attaching tip to inner face of vessel. Dimensions 32 x 27 mm, wall thickness 1.5 mm. Group 20052, context 12304, SF 1560.
24 Body fragment (2). Pale greenish colourless bubbly. Straight side. Group 20052, context 12155, SFs 1530 and 2405.
25 Jug (?); base fragment. Dark yellow/brown. Concave base with part of (?)open pushed-in base ring. Base diameter *c* 90 mm. Group 20348, context 12306, SF 1353.
26 Body fragment. Blue/green. Group 20348, context 12306, SF 1919.
27 Bottle; rim fragment. Blue/green. Rim bent out, up, in and flattened. Rim diameter 45 mm, EVE 0.14. Group 20348, context 12306, SF 1669.
28 Prismatic bottle; body fragment. Blue/green. Group 20348, context 12306, SF 1920.
29 Cylindrical bottle; shoulder fragment. Green-tinged colourless; small bubbles. Shoulder curving over to straight side. Two abraded bands on upper side. Body diameter *c* 130 mm, wall thickness 3 mm. Group 20348, context 12306, SF 1708.
30 Indented truncated bowl(?); body fragment. Greenish colourless bubbly. Straight side with asymmetric curve. Dimensions 22 x 20 mm, wall thickness 1.5 mm. EVE 0.2. Group 20348, context 12306, SF 1659.

Phase 11

31 Square bottle; body fragment. Blue/green. Group 12428, context 12429, SF 1598.

Unphased

32 Molten lump. Blue/green. Base has some white specks melted in. Dimensions 33 x 22 x 14 mm. Weight 13 g. Group 14948, context 14949, SF 1942.
33 Body fragment. Blue/green. Group 18842, context 18933, SF 2324.
34 Bottle; shoulder fragment. Blue/green. Group 20080, context 16150, SF 2092.

GLASS BEADS

Both of the beads recovered are common late Roman forms.

Phase 8

1 Ovoid bead; opaque dark green, wound. Probably one segment from a segmented bead. Length 4.5 mm, diameter 4 mm, perforation diameter 1.5 mm. Group 20150, context 11351, SF 1332.

Phase 9

2 Short cylindrical bead; translucent dark green. Length 5 mm diameter 3.5 mm, perforation diameter 1.5 mm. Group 14526, context 14408, SF 1869.

WINDOW GLASS

Roman window glass was recovered in contexts belonging to Phases 8 and 9 and in an unphased ditch

Table 9.2 Roman window glass by type and site phase (quantified by surface area)

Period	*Cast (cm^2)*	*Blown (cm^2)*	*Total (cm^2)*
8	10.5	-	10.5
8-9	3	-	3
9	8	9	17
Unphased	7	-	7
Total	28.5	9	37.5

fill (Table 9.2). Two different types are represented. Cast matt/glossy glass is in the majority and this can be dated to the 1st to 3rd centuries (Nos 1-3, 6-7). There is also a smaller amount of thinner blown window glass with its characteristic elongated bubbles (Nos 4 and 5). This type was in use during the 4th century. The cast glass is in three different colours (blue/green, an unusual dark blue/green and colourless) indicating at least three different panes.

The differing date ranges of the two types suggest that there were glazed buildings in the vicinity during both Periods 8 and 9. To date there has not been sufficient systematic recording and reporting of window glass on rural sites to explore to what extent the provision of glazing can be viewed an indicator of high status. It is not uncommon to get appreciable quantities of blown window glass on 4th century villa sites, but fragments of cast glass are not unusual finds on early sites of lower pretensions. Cast glass has regularly been found during the excavations of the roadside settlement at Wilcote (Cool 2004) and a fragment was also recovered from Whelford Bowmoor (Price and Cool 2007).

Producing blown panes is definitely the work of highly skilled, specialist craftsmen with the ability to blow glass. Experimental work has suggested that producing cast glass, though not necessarily pleasant for the workers, is relatively straightforward and would not need the same degree of craft expertise (Taylor 2001; Allen 2002). It may well be, therefore, that it is the presence of the blown glass here that is significant, and that cast glass was more widely available to the general population. At present this can only be speculation, but this small group from a not particularly pretentious site will be a useful addition to aid the exploration of the use of glazed windows in the Romano-British countryside.

CATALOGUE

(site information is given in the form Group : Context : Small Find number)

Phase 8

1 Window; cast matt/glossy. Blue/green. Area 9 cm^2. Group 14400, context 15742, SF 2265.

2 Window; cast matt/glossy. Blue/green. Area 1.5 cm^2. Group 16285, context 16290, SF 2117.

Phase 8/9

3 Window; cast matt/glossy. Colourless with one rounded edge. Area 3 cm^2. Group 20005, context 14947, SF 1943.

Phase 9

4 Window; blown. Blue/green with elongated body. Area 3 cm^2. Group 17264, context 17339, SF 2169.

5 Window; blown. Blue/green with elongated bubbles. Rounded edge. Area 6 cm^2. Group 20052, context 12155, SF 1529.

6 Window; cast matt/glossy. Blue/green. Area 8 cm^2. Group 20348, context 12306, SF 1670.

Unphased

7 Window; cast matt/glossy. Dark blue/green. One rounded edge. Area 7 cm^2. Group 14915, context 14916, SF 1922.

Chapter 10: Structural Fired Clay and Clay Objects

by Cynthia Poole

INTRODUCTION

Structural fired clay amounted to a total of 1874 fragments weighing 22702 g, of which small clay objects accounted for 205 fragments weighing 4484 g. The fired clay was found in a wide variety of features with over half from pits, 35% from ditches/gullies and the next largest concentration, of only 3% each, in postholes and waterholes; all other feature types produced minimal quantities. The fired clay assemblage is distributed through all phases from the Neolithic to the late Roman period. The only Saxon material identified are bun shaped perforated weights.

The assemblage has been recorded on an Excel file, which forms part of the archive. The term oven is used as a generic term for enclosed structures or those with a fixed superstructure, where a variety of functional types (domestic ovens, kilns, corn dryers, malting kilns etc) are under consideration. All percentages quoted in the report are by weight unless otherwise stated.

The condition of the assemblage is variable and the mean fragment weight (MFW) of 12 g overall reflects the lack of definition in identification of forms for much of the assemblage. A mean fragment weight of less than *c* 15 g generally indicates a low proportion of diagnostic material and is reflected in the quantities of non-diagnostic material (21%) and an equal amount given very generalised designations.

FABRICS

The fabrics were very similar in character to the ceramic building material (CBM) fabrics and some material was not easily assigned to one category or the other (Table 10.1). Fabric groups D and E and their sub-types have the same characteristics as those described for the ceramic building material (see below).

Table 10.1 Quantification of fired clay fabrics

Fabric	*Nos*	*% Nos*	*Wt (g)*	*% Wt*
B	169	9	1744	8
C	75	4	730	3
D	337	18	3490	15
D/E	262	14	4996	22
E	971	53	11254	50
G	32	2	418	2
Total	1846		22632	

Fabric C contained frequent medium-coarse quartz sand, but a sandy fabric containing shelly grits broadly equivalent to CBM fabric C was designated fabric G. This had a fine laminated clay matrix with a low density of quartz sand and common angular calcite/shell grits 0.5-3 mm; some examples had coarser limestone grits up to 10 mm. Fabric B was similar to E, but was not laminated, and was more mixed with frequent sand and red iron oxide pellets 1-5 mm. There were many given intermediate designations between the fabrics and subtypes such as B/E3, which suggests a considerable overlap in fabric groups.

Clay used for oven, hearths and similar structures is usually sourced locally to a site. No clay deposits were recorded on site, but Oxford Clay deposits are available within a few kilometres. Some of the fabrics (B, G) may have derived from clayey subsoils or alluvial clays closer to the site.

FORMS AND FUNCTION

The structural fired clay has been divided into broad functional categories: hearth, oven structure and oven furniture. The non-diagnostic material, which comprised amorphous fragments (unidentified) or those with a single plain moulded surface (utilised), are likely to have derived from similar structural material. The small objects are divided by function. Forms are quantified by phase in Table 10.2.

Hearths, ovens and corn dryers: structural elements

Very few features producing fired clay were positively identified as ovens, hearths or corn dryers, but this may be partly because such structures were not recognised as such during excavation and were recorded merely as pits. Two features (19865, 4181) have been identified as probable oven bases during analysis and it is likely that many more of the shallow pits in fact had such a function. The mass of shallow intercutting pits surrounding 19865 in Phase 7 is typical of a mass of re-cut figure of eight/keyhole shaped Roman oven bases. A corn dryer (14400) of dual flue type was identified, but this produced only a tiny undiagnostic crumb of fired clay.

Hearths

(Fig. 10.1, 1-3)

No *in situ* hearths or areas of *in situ* burning were identified on site and hearth surfaces rarely preserve diagnostic features. During the Roman period brick

Table 10.2 Quantification of fired clay by function type and phase

Type		***2: Neo***	***3: BA***	***4: LBA/ EIA***	***5: MIA***	***6: LIA***	***7: LIA/ ERB***	***8: MRB***	***9: LRB & 8/9: M/ LRB***	***10: AS (& 11 Med)***	***UnPh & RB/Med***	***Total***
		Phase										
Oven struct	Count					102	1	71				174
	Weight (g)					1333	16	1184				2533
Oven wall	Count						1	20			8	29
	Weight (g)						22	108			203	333
Oven/hearth	Count					14	4		1			19
	Weight (g)					255	72		10			337
Hearth?	Count					26	224	4	27			281
	Weight (g)					419	2209	258	220			3106
Oven str/furn	Count	2		5			8	30				45
	Weight (g)	267		128			120	35				550
Oven furn	Count		1				34	12			21	68
	Weight (g)		9				384	785			238	1416
OP/OC?	Count						5	1				6
	Weight (g)						142	90				232
Oven plate	Count							13	40			53
	Weight (g)							273	528			801
Firebar?	Count							4				4
	Weight (g)							144				144
Pedestal	Count		17			1	8	5				31
	Weight (g)		359			80	632	159				1230
TOB	Count							40	2			42
	Weight (g)							2191	126			2317
Mould	Count		100				11					111
	Weight (g)		276				76					352
Loomwt	Count									197	3	200
	Weight (g)									4310	80	4390
Sling Shot	Count						4					4
	Weight (g)						78					78

Table 10.2 Quantification of fired clay by function type and phase (continued)

Type		2: Neo	3: BA	4: LBA/ EIA	5: MIA	6: LIA	7: LIA/ ERB	8: MRB	9: LRB & 8/9: M/ LRB	10: AS (& 11 Med)	UnPh & RB/Med	Total
		Phase										
SpWh	Count						1					1
	Weight (g)						16					16
Unid	Count		72	15	2	24	24	35	7		5	184
	Weight (g)		177	19	9	55	154	145	63		23	645
Util	Count		30	1	88	76	129	247	43		8	622
	Weight (g)		232	22	329	682	1109	1234	503		111	4222
Total Sum of Count		2	220	21	90	243	454	482	120	197	45	1874
Total Sum of Weight (g)		267	1053	169	338	2824	5030	6606	1450	4310	655	22702

or tile was frequently used to construct hearth floors, though in the prehistoric period clay was normally used to form the hearth surface. Most clay floor surfaces are characterised by a single well smoothed surface and irregular underside reflecting either the underlying ground surface or a deliberately laid foundation. Apart from a plain surface, hearths rarely produce other features that allow material not *in situ* to be identified, though the thickness, character of the surface and underside, and surface burning may be subtly different to those seen in oven structures.

All the material had a smooth surface, sometimes burnt or blackened and fragments were between 8 and 28 mm thick with a rough unshaped underside. One had evidence of a circular worn hollow in the surface outlined by sooting, that may mark the position of a pedestal set on the surface. The eight examples of decorated surface divided equally into two types of decoration. One group consisted of impressed circles (Fig. 10.1, 1-2) that appear to have been made with the cut end of a hollow bone. The circles occur in two broad size ranges: the smaller were 18 and 21 mm diameter and the larger 38 mm and 40-50 mm across. Both sizes occur together on both examples: on one (13149) as concentric circles and on the other (12155) as separate circles, sometimes overlapping.

The second type of decoration took the form of impressed wedge shaped depressions, square ended measuring *c* 17-20 mm wide by *c* 7 mm deep with the base gradually sloping up in an elongated line up to *c* 50 mm long to join with the surface (Fig. 10.1, 3).

On account of the decoration the group of decorated fired clay has been identified as hearth surface, though it cannot be ruled out that it derives from a decorated oven cover akin to such material found at Danebury (Poole 1984, fig 4.78). The rectangular impressions are certainly similar to possible oven cover found at Danebury. It could, however, be argued that this wedge-shaped decoration is in fact a form of keying using a trowel tip or similar tool, though it is not closely similar to that found on wall daub at Verulamium (Frere 1972) or Colchester (Crummy 1984); moreover the character of the fired clay is not typical of wall daub and none produced evidence of wattles or structural timbers.

A few instances of decorated hearths have been found in excavations in an Iron Age context at Glastonbury (Bulleid and Gray 1917), and Danebury (Cunliffe and Poole 1991, fig. 4.18), which both have a similar decoration of impressed circles *c* 100 mm diameter, randomly arranged and some overlapping. These are clearly much larger than those found at Cotswold Community and no directly comparable patterns have been found. Decorated hearth was reported from Gussage All Saints (Wainwright 1979, 101-103), but here the fired clay fragments appear to be oven cover or superstructure rather than hearth as designated. All the hearth examples at Cotswold Community have been found in Roman Phases 7-9, though it is possible that some pieces could be from the late Iron Age. The character of this decorated material has more in common with Iron Age fired

Figure 10.1 Fired clay fragments 1-5

clay than Roman, but it seems unlikely that it could have survived very long if left over any extended period on surfaces or exposed to the weather. The pieces exhibited little sign of abrasion and much of the material was quite fragile, suggesting that it had been deposited fairly rapidly in the ditch and pit fills in which it was found.

Oven lining, walls and superstructure

The floors and linings of ovens have similar characteristics to hearth floors, though with ovens some curvature and finger depressions from moulding the clay surface may be apparent. In addition, at least some of the clay surface may be more intensely fired, often to a yellowish-brown colour in the main firing chamber with a very hard surface grading to red and yellowish-red further from the heat source. In some structures, such as corn drying/malting kilns where areas only required a low degree of heat, much of the superstructure will have remain unfired unless an accidental conflagration occurred, and this accounts for the sparse occurrence of fired clay in corn dryers. Moreover the clay lining would present only a single flat surface which would be difficult to differentiate from hearth surface or oven lining, if not found *in situ*.

The material assigned to this category had moulded flat, undulating or concave surfaces with finger tip depressions and grooves from moulding and measured 20-60 mm in thickness. On some pieces a curving edge may have indicated the presence of a stokehole or vent in the wall. All examples were from contexts of Phases 6 to 8.

Oven wall was poorly represented; only a few fragments produced evidence of interwoven wattle impressions. The sizes were concentrated within the typical size range for oven walls (Fig. 10.2) with horizontal rods measuring 8-16 mm and vertical sails 16-22 mm. It is thought that the wattle framework formed a support for the upper oven walls, though it is possible that wattles may have been used to support drying floors for crop drying in small crop-processing ovens.

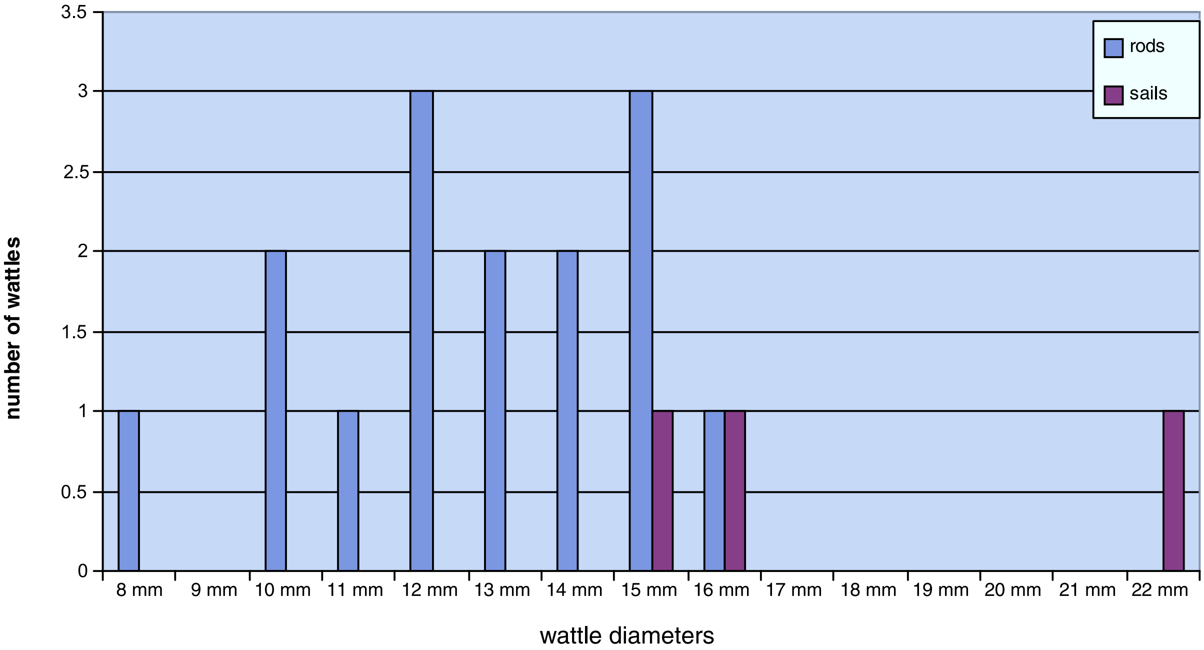

Figure 10.2 Wattle sizes in oven wall

Oven or hearth furniture

Portable furniture in the form of oven plates, oven covers, fire-bars, pedestals and miscellaneous items could have been used in association with ovens or hearths. Ovens with more than one chamber would utilise such items, whilst hearths could be converted to a semi-enclosed space by using a plate supported on pedestals over the fire. Some pieces were assigned only to the general category of oven furniture, where the overall form was uncertain, though most were thought to fall into the categories of oven plate, pedestal or triangular oven brick. Wherever possible more specific functions were assigned, though often only tentatively.

Plates and covers

Very few fragments could be identified as oven plate or cover and none were sufficiently well preserved to establish overall shape and size. Plates in the form of flat slabs, measuring between 20 and 40 mm thick had smooth flat or concave surfaces, usually a straight flat or chamfered edge, one with a squared corner and in two cases with evidence of perforations piercing the plate. The perforations were circular, conical or oval and in the region of 30-40 mm wide.
A small number had evidence of a curving rim forming a circular aperture or vent which ranged between 130 and 150 mm diameter. These are more likely to be oven cover than plate with the aperture forming a vent to allow smoke to escape. Alternatively a pot could have been set over the opening for cooking, either set into an oven structure or as a portable plate supported over an open hearth.

Pedestals
(Fig. 10.1, 4-5)

Eight pedestals were identified, two of Bronze Age date, one from the late Iron Age and the remainder from early and middle Roman phases.
The Bronze Age pedestals are spherical with flattened ends producing an elliptical profile. The more complete (Fig. 10.1, 4) measures 90 mm in diameter by c 80 mm high and is pierced by a perforation 16 mm diameter. The second was probably of similar or slightly smaller size. These have been traditionally regarded as loomweights, but evidence for suspension is lacking, and there is increasing evidence for there association with ovens, hearths or kilns (Woodward 2009).
The pedestal from the late Iron Age pit (12076) appears to be a fragment from the central section of a type of pedestal which expands to top and base with a horizontal perforation 18 mm diameter across the central narrow waist measuring c 95 mm diameter. The surface is roughly moulded with finger depressions and grooves.
The pedestals of early and middle Roman date have a circular, oval or subrectangular cross-sections and are either cylindrical or flared. Two are flared to one or possibly both ends (hourglass shape). Diameters range from 55-60 mm up to c 80 mm. The most complete (Fig. 10.1, 5) measures 93 mm at the base tapering to 70 mm at its centre where it is pierced by a horizontal perforation 13 mm diameter; the surviving height is 70 mm and the total height may have been c 140 mm, assuming that the perforation was equidistant between top and base.

Triangular perforated bricks
(Fig. 10.3, 6-7)

Triangular bricks with perforations piercing the corners are a well known Iron Age-early Roman form, traditionally regarded as loomweights, but more likely to be associated with ovens or kilns as lining or pedestals (Lowther 1935; Poole 1995). Six definite and a small number of possible examples were found. All were incomplete, but the best preserved (Fig. 10.3, 6), probably *c* 65% complete, measured 75-95 mm thick by *c* 200 mm long and weighed 1564 g, being the largest individual fragment of fired clay recovered. It was pierced by two perforations both *c* 12 mm in diameter and it is probable that a third never existed. The remaining examples comprised either corner fragments or side surfaces pierced at an angle by a perforation. The perforations measured 14 x 18 mm, 15, 16 and 20 mm wide. The only complete dimension was thickness, measuring 55 and 85 mm on two examples.

One oddity (context 19812) appears to be part of a triangular oven brick that may have been deliberately bisected down the middle through the perforations, though this surface is poorly preserved and may be a result of accidental breakage (Fig. 10.3, 7). It measures 42 mm thick by over 100 mm long and the two grooves in the position of normal perforations are 13 and 16 mm in diameter. Much of the surface is covered with dense organic impressions. A similar object was found at South Cadbury hillfort (Poole 2000, 214).

Firebar
(Fig. 10.3, 8)

Three roughly hand-moulded fragments can be interpreted as firebars. They had a rectangular cross-

Figure 10.3 Fired clay triangular oven bricks and fire bar 6-8

section with two measuring 35 and 40 mm thick and with a maximum surviving length of 55 mm. The third complete example (context 19812) was a roughly shaped oblong bar hand-moulded to form one flattish surface and one convex, and narrowing to form wedge shaped ends. The surface is covered with straw impressions and is similar to straw-impressed discs, which have been found in association with oven daub of Iron Age date (Cunliffe and Poole 1991, 149). This piece was probably an impromptu creation to serve a one-off need for a prop or support.

Industrial: refractory material - moulds
(Fig. 10.4, 9-16)

The almost complete dearth of evidence for industrial activity is noteworthy. No furnace lining or other structural elements indicative of high temperature activities was found in any phase. The only evidence survived in the formed of mould fragments, with one group dating from the Bronze Age and a second from the Roman period.

The middle-late Bronze Age moulds
(Fig. 10.4, 9-15)

The Bronze Age mould material from pit 18304 comprised 101 fragments weighing 277 g. The pieces were very abraded, but it has been possible to identify most elements and the objects being produced. In this I am indebted to Dr Stuart Needham for his help and advice in identifying and analysing the fragments and this report incorporates his comments. Terminology used follows Needham (1980), where more detailed explanation of the technology may be found.

The refractory material was made in a very fine sandy fabric fired to reduced dark grey-black or on some pieces to an oxidised light orange-brown on the exterior and dark grey on the interior. The fabric contains a high density (*c* 50%) of well sorted quartz sand and fine organic matter, probably chaff fragments, surviving only as impressions and voids.

Wrap fabric: the clay matrix is mixed with a high density (*c* 50%) of sand 0.1 mm or less, mostly quartz, well sorted, subangular-subrounded, of white-clear colour; larger sand grains are very rare. The matrix has frequent fine pores from very fine organic temper possibly crushed chaff. (No mica was observed.) [Type sample: wrap for mould assembly A].

Mould fabric: the fabric was unusually slightly coarser than the wrap. The clay matrix from mould B contained a high density of fine sand *c* 0.1 mm, but with a noticeably greater proportion larger than this compared to the wrap, up to 0.2 mm, and also with a few sand grains of 0.5 and 0.7 mm noted. There were fewer voids indicative of organic temper, much of which appeared to be awns. The fabric for Mould A was very similar, but this also had noticeably more sand in the 0.2-0.5 mm grade. [Type samples: mould assembly A and B].

The fragments all appear to derive from double layered mould units consisting of outer wrap and inner valves. Most pieces could be allocated to one of these categories on the basis of morphology. Several pieces could be joined, which aided identification of forms present. The assemblage has been divided into the categories of outer wrap, mould assembly A, mould assembly B, mould assembly C, mould group 1, mould group 2, gate fragments and outer wrap.

Mould assembly A
(Fig. 10.4, 9.1-3):

This consist of three parts: a section of outer wrap (9.1), valve 1 (9.2) and valve 2 (9.3). The outer wrap, which has impressions of the binding, fits with the end of valve 1.

Valve 1: This is the most complete piece of mould measuring 54 mm wide by 90 mm long with walls 6-10 mm thick. It is the most informative of all the units comprising 9 joining fragments from the lower half of a palstave mould. The contact surface is concave round the base and left hand side and flat round the right hand side. It measures 7-9 mm wide round the blade end, 8-10 mm on the right hand side and 9-18 mm wide on the left hand side, where the mould widens to take in the loop. The step to the casting surface is barely perceptible around the blade end, but progressively deepens to 4 mm by the loop. At about the level of the loop, a transverse step in the casting surface may form the stop ridge. The blade end measures 33 mm wide narrowing to 25 mm close to the loop, which forms a semi-circle *c* 20 mm in diameter by 7 mm thick. The surviving length of the mould is 90 mm.

Valve 2: Two joining fragments form part of the curved end with a slightly convex contact surface 7-8 mm wide and with very slight shallow step to the casting surface. Three joining fragments form part of the left hand side, the contact surface 12 mm wide flat or barely concave, with the step to the casting surface more pronounced *c* 1-2 mm deep as it approaches the hafting end. There is a shallow transverse step which may form the stop ridge. The third part has a steeply angled flat contact surface around the curved outline of the loop and a deeper angled step forming the side of the casting surface as the object becomes thicker towards the central area with the loop.

Outer wrap: The outer surface is oxidised to a biscuit brown with red veneer in places; the inner surface is dark grey. The wrap has a smooth convex outer surface. The inner surface preserves an impression of part of the binding in the form of two converging lines 7 mm wide and less than 1 mm deep, probably indicating a leather thong with the end wrapped over to hold it in place.

Mould assembly B
(Fig. 10.4, 10):

This is very fragmentary compared to mould A but demonstrates the presence of a second mould.

Valve 1: Three pieces, two joining, derive from one valve from the blade end of the mould. The contact

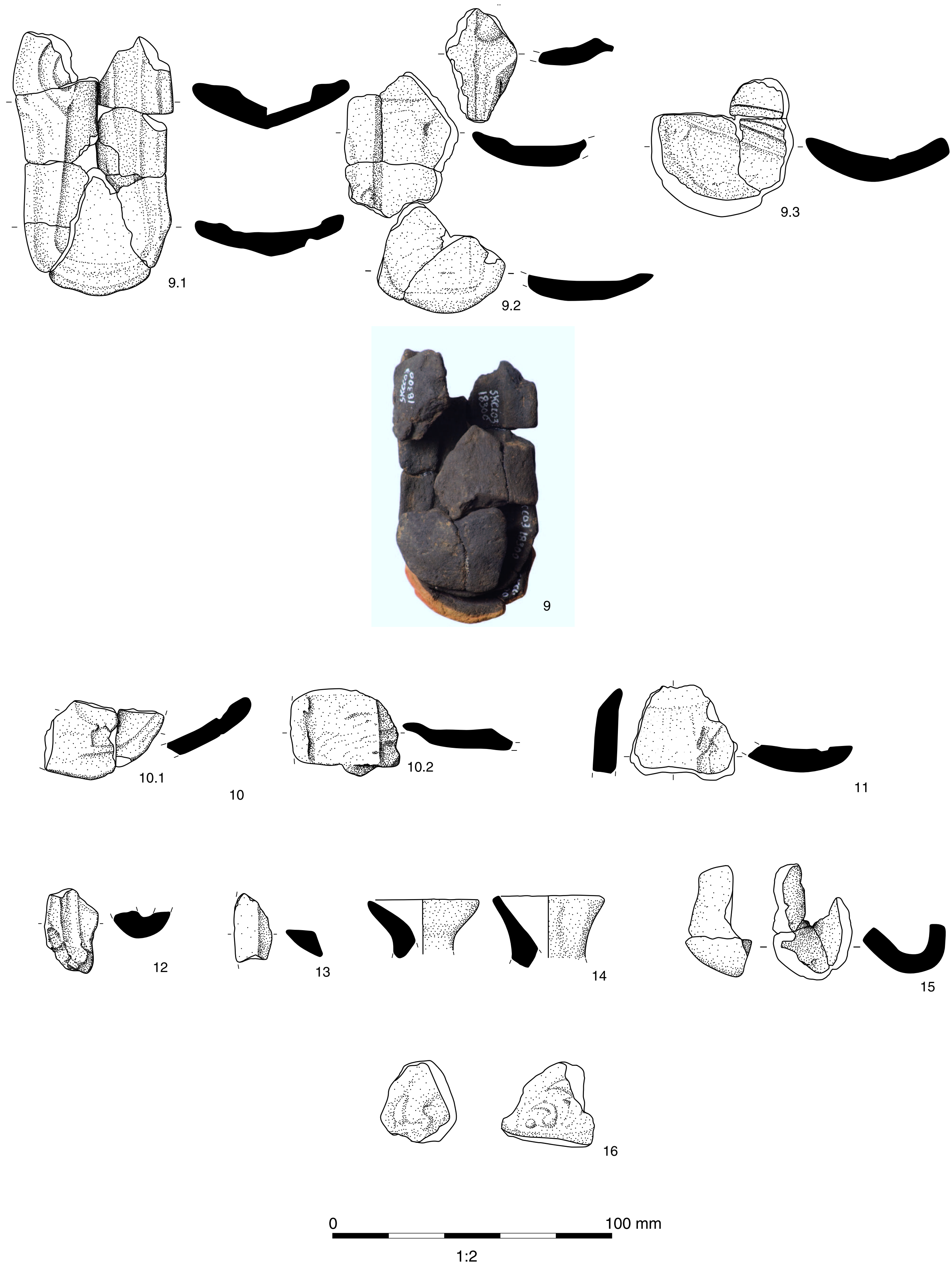

Figure 10.4 Fired clay mould fragments 9-16

surface is concave and fairly narrow, *c* 5 mm towards the side, but widens to 12 mm along the side edge of the blade.
Valve 2: This has a fairly narrow contact surface 5-7 mm wide with a convex surface, most of which has been oxidised brown, though reduced dark grey over the remainder of the fragment. The step to the casting surface ranges from barely perceptible to 2 mm deep. The creased character of the casting surface is similar to Mould C, so these may be opposite ends of the same mould.

Mould assembly C
(Fig. 10.4, 11):

Two fragments come from the haft end of the mould. These have some similarities to mould B in the character of the surface, which suggests these may be parts of the same mould. One piece is not especially diagnostic; the other, however, has part of the contact surface, *c* 8 mm wide and barely concave. Along the edge of the step is a narrow groove 3 mm wide, which would form the flange at the edge of the palstave, becoming shallower to the top of the mould, where the profile changes angle and starts to flare out, clearly joining with the gate at this point. This angled area is oxidised brown, as is a patch on the other fragment suggesting that it comes from close to this section of the mould, possibly from the opposed valve.

Mould Group 1
(Fig. 10.4, 12):

This group comprises eight fragments with a tightly curved narrow profile. The exterior curved surface suggests a width of 17-20 mm with an internal groove with semi-circular cross-section of 4-5 mm wide. It is unclear exactly what these represent, but the edge of a projecting flange is possibly indicated.

Mould Group 2
(Fig. 10.4, 13)*:*

These fragments are similar, characterised by a broad flat contact surface 10 mm wide with a sharp deep step 8 mm deep to the casting surface. The contact surfaces forms an acute angle with the outer convex surface. The edges include both straight and curving elements.

Gate
(Fig. 10.4, 14)*:*

The gate served as a funnel for pouring and as a reservoir for the molten metal to ensure that sufficient was present as the metal cooled and contracted. The gate fragments have a wedge-shaped profile narrowing to a simple thin rounded rim and have a flared curving funnel-shaped form. One piece extends from the narrow neck, with the walls flaring out either side to the mouth of the gate and into the mould proper. Mouth diameters measured 31 and *c* 50 mm and heights 24 and 30 mm.

Outer wrap
(Fig. 10.4, 15):

A total of 46 fragments (78 g) were identified as outer wrap in addition to those forming the outer casing of mould assembly A (Fig. 10.4, 9.1). All occurred as separate pieces with none attached to inner valves. The pieces were curved to varying degrees with smooth surfaces and varying in thickness from 4-8 mm. Three pieces (Fig. 10.4, 15) have been refitted and form the tightly curved edge around the side or end of a mould. They were fired on the exterior to a reddish or yellowish-brown to a depth of 2-4 mm, with an abrupt boundary to a dark grey-black interior. On the inner surface of several fragments flat grooves were impressed in the surface running slightly diagonally across the objects. These were barely 1 mm deep and ranged in width from 5-8 mm (Fig. 10.4, 9.1). These represent the bindings which held the inner valve units together while being encased in the outer wrap. The flat character and sharp edges of the binding suggest in this case that leather thongs were utilised for this purpose.
This group of mould debris was found in pit 18304, which was *c* 1 m in diameter by 0.56 m deep. It is considered worth describing this in some detail here as the evidence suggests that this pit may have formed the hearth for the bronze working. The lowest layer (18303) can be interpreted as burnt *in situ* clay, though it is unclear whether this was a lens of *in situ* natural clay or deliberately laid clay lining. A small lens of soil and gravel (18302) eroded from the pit edge on one side before a further deposit of highly burnt clay (18301) accumulated across the base of the pit. It is unclear from the site record whether this was burnt *in situ* or redeposited. The mould fragments were found in the overlying soil layer (18300) which also contained amorphous fragments of burnt clay, burnt limestone and flint artefacts. Further burnt debris was found in the uppermost soil layer (18299) which produced a large quantity of charcoal, dominated by oak, which formed the main fuel with kindling provided by a variety of shrubby species and ash. The sequence of materials and deposits suggests this pit is the *in situ* hearth base used for producing the bronze implements.

The Roman moulds
(Fig. 10.4, 16)

The early Roman mould fragments come from two separate features. Pit 13034 produced fragments from the rounded mould edge which are very similar to the Late Bronze Age material. Insufficient survives to judge what type of object was produced and whether the material was in fact Roman or consisted of earlier residual pieces. It is unlikely that such material would survive for any length of time if not deposited in a pit or feature protected from further abrasion.

From waterhole 12211 (12212) came two fragments of mould with very abraded surfaces. They were made in a fabric with oxidised orange-brown exterior skin and black core, containing a high density (*c* 50%) of quartz sand, well sorted, angular-subangular 0.1 mm or less. The clay matrix contained rare mica plates and was moderately porous with voids up to 0.5 mm from burnt out organic matter. In the second fragment the sand is slightly coarser, 0.2-0.3 mm, and the organic inclusions were larger with one impression 2.5 mm. The pieces do not join and the fabrics suggest that they are unlikely to come from one mould. They are 15-18 mm thick and are basically flat, but have a gentle concave exterior. The interior surface has a decorative pattern in relief, which includes motifs of a dot, pelta and possible foliate pattern.

This type of mould has been identified as being used for making vessels to be inlaid with enamel and the designs are similar to those found on moulds for enamel inlaid vessels from Castleford, Yorkshire (Bailey and Budd 1998).

Small clay objects

Loomweights

(Fig. 10.5, 17-21)

All the loomweights recovered were of Saxon type. A total of 25 individual weights were found of which 24 occurred in eight contexts from a pit (possibly recut) assigned to Phase 10 (Saxon), and one in an undated 'tree root hollow'.

They are all similar and basically fall into the broad category of Saxon weights commonly described as 'bun'-shaped loomweights and generally dated to the later Saxon period, appearing *c* 9th century AD. All were sub-spherical in shape with a wide moulded perforation axially. Within this broad grouping it was possible to define three sub-types based on the profile in cross section. The character of the surface finish and profile of the central axial perforation was also recorded. The data for all the weights are tabulated in Table 10.3.

All were roughly hand-moulded with fingertip depressions and grooves from moulding visible on many of the weights, both on the exterior and on the interior surface of the perforation. Surface finish was assigned to three categories: S1: smooth and even; S2: moderately smooth, but undulating with shallow fingertip depressions; S3: very irregular with lots of depressions from moulding and fingertips.

The profiles in cross-section range from sub-spherical/elliptical (type A) through flattened on one end (type B) to cylindrical with convex sides and both ends flattened (type C). The internal profile of the perforation included cylindrical (type 1), hour-glass (type 2) and cylindrical widening to a bulbous profile at one end (type 3). The last type always had deep finger grooves vertically down the wider half of the perforation, and some of the other types also exhibited finger grooves moulding the internal surface, though not to the same degree as in type 3. Wear from suspension was not visible on most, though two had a short narrow groove at the end of the perforation, which may be a result of wear.

None was complete but total weights can be estimated to have ranged probably from *c* 500 g to 700 g. The external diameter ranged from *c* 80 mm to *c* 170 mm and internal diameter from 20 to 80 mm. Height (or breadth) ranged from 38 to 65 mm. The majority concentrated within a size range of 110-130 mm diameter (40-60 mm internal diameter) by 50-55 mm high and included all profile types. Type B all lay at the upper end of the height range, type A had a greater diameter range than other types and type C included the smallest height. One very fragmentary type A object with an internal diameter of 12-13 mm may have been a spindle whorl rather than a weight.

Saxon weights have been frequently found on Anglo-Saxon settlement sites with occurrences from Pakenham (Plunkett 1999) and West Stow in Suffolk (West 1985) of piles or rows of weights in some of the sunken featured buildings, which have been interpreted as evidence for their use as weights in conjunction with the warp-weighted upright loom. These are of the earlier form of annular weight with a D-shaped profile, which generally have a more symmetrical and regular profile and a wide central perforation. They normally occur on sites dated to the 5th-7th centuries. The bun-shaped weights are regarded as developing from them, but although superficially similar they would appear to be of poorer quality, being rougher, sometimes asymmetric and more variable in size. Some certainly have the feel of having been made to sit with the perforation set vertically.

Slingshots

(Fig. 10.6, 22)

Five clay sling shots were recovered from Phase 7 (LIA-ERB) contexts. They were very similar in size and shape. The small size and light weight suggests they were probably not intended for warfare, but were used in hunting or herding.

Spindle Whorls

(Fig. 10.6, 23)

Two spindle whorls were found: one made from a potsherd and one moulded from clay.

DISCUSSION

The prehistoric period: Neolithic–early Iron Age

Small quantities of fired clay were found in contexts of these phases, most of it non-diagnostic, but probably derived from oven/hearth structure or furniture. Throughout the prehistoric period the density of fired clay for a site of this size is sparse and the relative absence of *in situ* ovens or hearths is notable, with

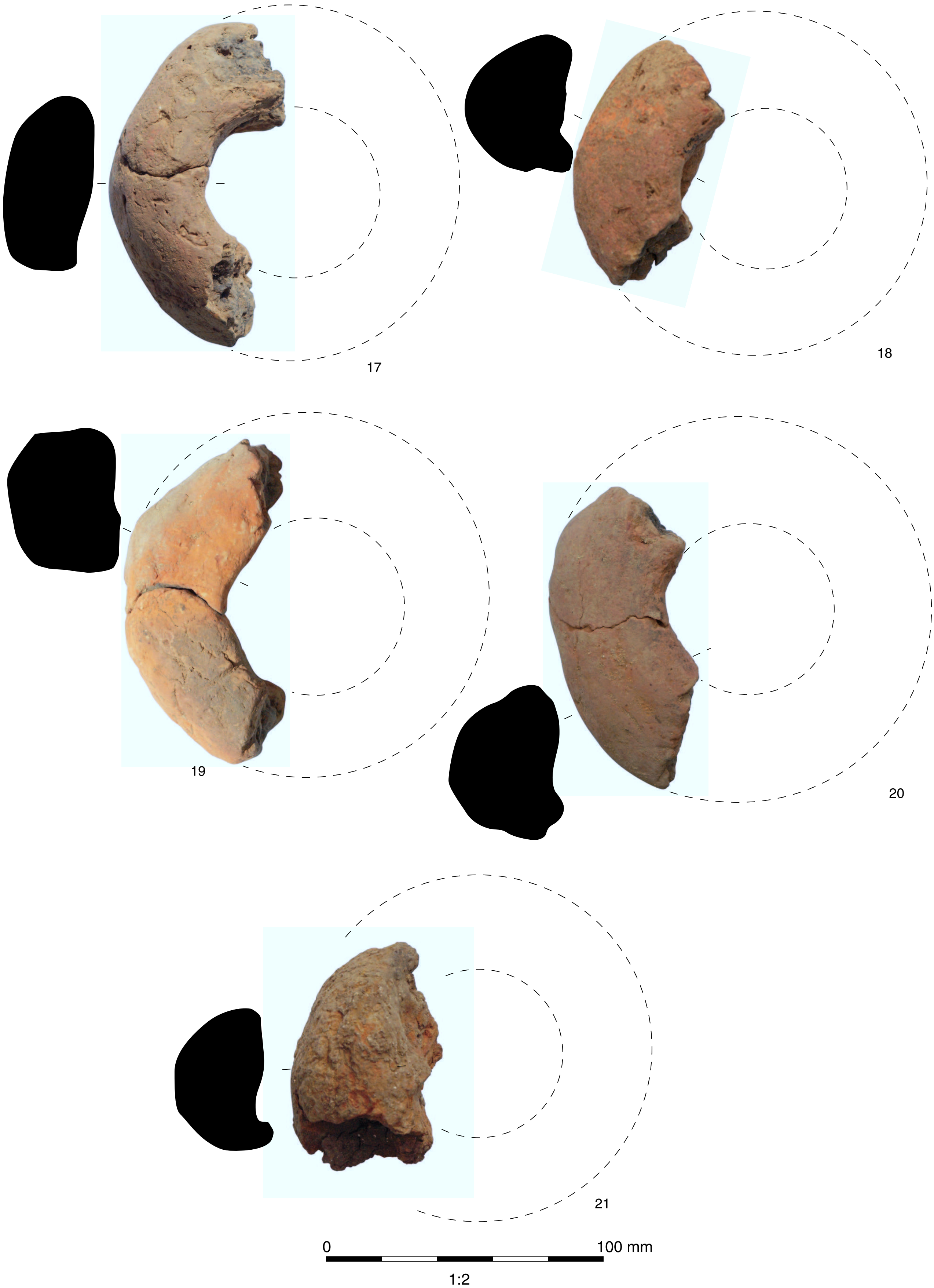

Figure 10.5 Fired clay loomweights 17-21

Table 10.3 Anglo-Saxon weights: tabulation of size and forms

Context	*SF No*	*Count*	*Weight (g)*	*% complete*	*Profile external*	*Profile perforation*	*Surface Finish*	*Thickness*	*Height*	*Diam. Ext.*	*Diam. Int.*
5528	304	8	19	~	~	~	~	~	~	~	~
5937	363	57	337	~	~	~	S1	*c* 40 mm	>40 mm	*c* 135 mm	50-60 mm
5936	362	12	75	<10%	A	~	S1	>28 mm	>22 mm	>66 mm	12-13 mm
5503	374B	4	305	60%	A1	3	S1	35-37 mm	49-51 mm	115-120 mm	60 mm
5503	325	4	95	20%	A1var	3	S3	>32 mm	>32 mm	*c* 120 mm +	50 mm
5938	364C	7	352	50%	A1var	3a	X: S1; Int: S2	42-45 mm	57 mm	*c* 170 mm	*c* 60 mm
5940	372	11	283	40%	A2	3	S2	33 mm	51 mm	110 mm	50 mm
5502	366	6	166	30%	A2	3	S2	45 mm	43 mm	130 mm	
5528	304B	1	125	20%	A2	3b	S1	40 mm	55 mm	130 mm	50 mm
5528	304A	1	208	28%	A2	1a	S2	35-38 mm	59 mm	135 mm	60 mm
5503	374E	2	194	35%	A2	1	S2	30, 40 mm	55 mm	120-130 mm	40, 80 mm
5526	303	21	238	25%	A2	3b	X: S1;Int: S2	40-43 mm	53 mm	130 mm (?x120 mm)	
5503	374J	1	35	10%	A2	2B	S1	>/*c* 30 mm	>44 mm	*c* 100 mm	*c* 30 mm
5503	374G	2	99	20%	A2	2B	S2	38 mm	*c* 45 mm	*c* 100 mm	*c* 30 mm
5503	374D	1	168	30%	A2	2	S1	35 mm	50 mm	*c* 120 mm	*c* 60 mm
5503	374F	2	212	35%	A2	3	S3	35 mm	51, 55 mm	*c* 120 mm	*c* 50 mm
5502	326	10	58	10%	A2	1	S1	>27 mm	>30 mm	*c* 90-100 mm	40 mm
5938	364B	3	206	25%	B	3	X: S1-S2; Int: S3	30-40 mm	52-60 mm	?100 x120 mm	50 mm
5528	304C	1	109	15%	B	1b	X:S2-S3; Int: S1	37 mm	55 mm	120-125 mm	40 mm
5503	374A	3	337	50%	B	3	S1	30-40 mm	58-65 mm	*c* 130 mm	45-50 mm
5528	304D	1	73	10%	B/C	1b	S1	30 mm	50 mm	80-90	20 mm
5938	364A	3	265	50%	C2	1a	S2-S3	30, 40 mm	51 mm	120 mm	60 (?x50)
5503	374C	2	181	30%	C2	1	S1	28-33 mm	54 mm	115 mm	60 mm
5503	374H	3	75	15%	C2	1	S1	*c* 33 mm+	>25 mm	*c* 120-130 mm	*c* 60 mm
2403	~	3	80	25%	C2	3	S1	30 mm	*c* 38 mm	*c* 130-140 mm	80 mm

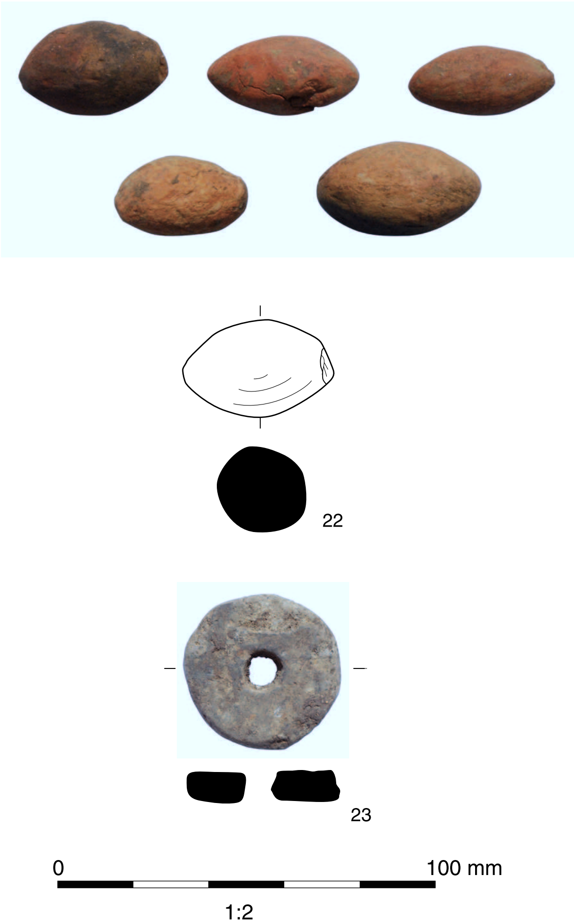

Figure 10.6 Fired clay sling shot and spindlewhorl 22-23

only a single hearth or oven base (4181) identified in the middle Iron Age. Diagnostic items comprised a middle Bronze Age cylindrical perforated pedestal and Bronze Age mould fragments.

Mould fragments from this period are not common, though increasingly recognised on a range of sites, including unenclosed settlements, suggesting that bronze working was undertaken on a small scale at a variety of sites. This concentration within a small pit (18304) associated with deposits of burnt clay may be significant. It is not uncommon for mould fragments to be found with little associated evidence of industrial activity, and evidence of hearth or furnace bases has rarely been positively identified in this country. Hearth bases may be difficult to identify since *in situ* burning would not necessarily be intense, as heat is directed upwards during the process, not to the hearth floor. However, in the case of pit 16304 the sequence of lower layers of burnt clay with charcoal-rich layers above containing the mould fragments suggests that this pit may be the actual bronze-working hearth.

The pit is situated peripherally and some distance from the main centres of Bronze Age activity on the site, suggesting that this production was a small-scale activity undertaken by itinerant craftsmen visiting each community and providing only a few implements as required. Another small group of moulds producing socketed axes dated to 900-700 BC was found at Shorncote Quarry (Hearne and Heaton (1995) only a few kilometres to the north-west of Cotswold Community and suggests a similar level of production, though later in date than the Cotswold Community palstaves. These small deposits contrast with those from sites such as Holborough, Kent (Boden 2005) or Springfield Lyons, Essex (Hedges and Buckley 1982), where large deposits of sword moulds have been found, possibly placed as structured or special deposits in ditches. Analysis of the bronze working crucibles and moulds from Dainton, Devon (Needham 1980) has suggested that metalworking was carried out intermittently here over a period of time utilising local clays. The archaeological evidence of bronze working suggest different levels of production, with some more permanent centres. These contrast with a larger number of sites, both enclosed and open settlements, which have produced mould fragments from one or two objects, perhaps representing the activities of itinerant craftsmen serving the needs of a locality. The moulds from Cotswold Community are likely to fall into the latter scenario.

The late Iron Age and Roman periods

There is a notable increase in the quantity of fired clay in the late Iron Age (Phase 6), with a significant increase in fragments of general oven and hearth structure, but only one piece of oven furniture, part of a pedestal, was found. Quantities of fired clay double in the early Roman period and the range of forms is more diverse with oven plates or covers appearing for the first time, and also unusual decorated hearth floors. Pedestals, of tapered form, are most common in this phase and a pottery spindle whorl and four clay slingshots are the only small objects from early Roman period contexts. The general absence of *in situ* hearth and oven bases noted in the prehistoric period continues into the Roman period, though there is one group of features that could be interpreted as typical Roman keyhole shaped ovens in Phase 7 centred around feature 19865.

The fired clay assemblage is more 'Iron Age' in character rather than Roman. The slingshots are comparable to those found throughout the Iron Age across southern England and the decorated hearth has more in common with decorated Iron Age oven covers than Roman fired clay. This may imply that the inhabitants clung to traditional native habits or that the material occurred in earlier deposits that were cleared and dumped in pits and ditches during the early Roman period. A spindle whorl was made in a fabric the same as that of some early-middle Iron Age pottery and points to material deriving from an earlier phase of activity.

In the middle Roman period quantities decrease slightly overall, but the same range of hearth, oven structure and portable furniture continue, but with the addition of firebars, perforated oven plates and triangular oven bricks. The latter two types also occur in the late Roman phase, which otherwise sees a dramatic fall in the quantity of fired clay, returning to the prehistoric levels and with little diagnostic material surviving.

Apart from a few diagnostic forms fired clay cannot be dated, though often an assemblage will have a combination of forms and characteristics that point to a certain period. In this respect the assemblage during the Roman period as a whole is odd in that much of the material is not typically Roman. The triangular oven bricks, which appear from the middle Iron Age, do not normally continue in use later than the early Roman period. Similarly the decorated hearth fragments, which continued to occur into the middle and late Roman period, though without close parallels, are atypical for the Roman period. The fired clay has suffered only low to moderate abrasion, and would not have survived to be incorporated in deposits of a much later date if it had been lying on floors or yard surfaces or mixed with general occupation debris. Moreover, it is strange that these typically Iron Age forms do not appear to have been present on the site during the Iron Age. Though some material must be contemporary with the settlement, the impression is that much of the assemblage may have originated elsewhere: could this be the residue of rubbish or land clearance for new building works associated with the development of Roman Cirencester and its hinterland?

Material of definite Roman date comprises two fragments of mould for metal vessels decorated with enamel inlay. Such finds are rare, with the large assemblage from Castleford Yorkshire (Bailey and Budd 1998) being the only major production centre identified in the country. At Castleford the moulds were in use *c* AD100. The inlaid bowls themselves, though still uncommon, occur more widely in both Britain and continental Europe and are generally dated to the late 1st and 2nd centuries AD. British and European parallels are fully discussed by Moore (1978) and Bayley and Budd (1998). It has recently been suggested (Künzl 2008) that these inlaid vessels were produced as tourist souvenirs. One of the earliest discoveries (in 1725) of this type of inlaid vessel was the Rudge cup, at Rudge villa, Wiltshire 60 kms (36 miles) to the south-west of Cirencester (via the Fosse Way and Aquae Sulis). The dot and lunate pattern on the Rudge cup is similar to the motifs on the mould fragments and it is tempting to see a link with the vessels produced in or near Cirencester. However the mould fragments are from a Phase 7 (late Iron Age-early Roman) context, so they are likely to be earlier than the 2nd-century Rudge cup with its links to Hadrian's Wall. The decoration may indicate that local native craftsmen were producing items with a similar strong Celtic influence. It is likely that this craft was practised in Cirencester, producing items for visitors to the town, rather than at this site, and adds to the theory that waste from Cirencester was being brought to rural settlements for sorting, recycling or manuring of fields.

The Anglo-Saxon period

An absence of structural fired clay is not unusual in the post-Roman period. The only fired clay items found were bun-shaped weights, generally dated to 9th-12th centuries, all but one deposited through the fill of a single feature. These are normally interpreted as loomweights on the basis of rows of weights found at earlier Saxon settlements of 5th-6th century date such as West Stow (West 1985) and Pakenham (Plunkett 1999) in Suffolk, where they have been interpreted as representing the positions of looms. The weights used in those settlements are different in character being annular made from a coil of clay with a symmetrical rounded or D-shaped cross-section and are more regular in shape and size than the later form. Evidence from sites such as West Stow (West 1985) and Willington (Elsdon 1979) indicates that this type was often used green and unfired. The early Saxon annular loomweight with an average weight of 200-450 g appears much better suited to function as a loomweight than the later forms. Weaving experiments have shown that loomweights need to be closely matched in weight and size (Mårtensson *et al*. 2007) and the width of the row of weights needs to be ideally very slightly larger than the width of cloth to be woven. The increasing size (450-700 g) found in middle and late Saxon weights is greater than the upper limit preferred in experiments and together with the greater irregularity, occasionally asymmetric shape and consistent firing, calls into question whether these larger weights should be linked to weaving or whether some other function should be considered.

CATALOGUE OF SELECTED PIECES

(FIGS 10.2-10.6)

1 Hearth. Decorated surface impressed with two concentric circles 21 and 38 mm diameter. Context 13149

2 Hearth. Decorated surface impressed with series of circles 18 mm, and 40-50 mm diameter. Context 12155

3 Hearth. Decorated surface with wedge shaped impressions. Context 11411.

4 Pedestal. Spherical middle Bronze Age pedestal. Diameter 90 mm, height 63 mm (total est. *c* 80 mm), perforation 16 mm diameter. Context 5840, SF 327

5 Pedestal. Late Iron Age-early Roman tapered pedestal. Base 93 mm diameter, centre 70 mm diameter height 70 mm (total est. *c* 140 mm), perforation 13 mm diameter. Context 2216.

6 Triangular oven brick, *c* 65% complete. Two perforations, 12 and 12-13 mm diameter. Length *c* 200 mm, thickness 75-95 mm, weight 1564 g. Context 14730, SF 1924, Phase 8 (middle Roman).

7 (Not illustrated). Triangular oven brick?. Triangular brick fragment bisected through two perforations: 13 and 16 mm diameter. Length >100 mm, thickness 42 mm. Context 19812, Phase 8 (middle Roman).
8 Fire-bar. Oblong bar roughly moulded and narrows to wedge-shaped terminals. Length 80 mm, breadth 38 mm, thickness 25 mm; weight 68 g. Context 19812, Phase 8 (middle Roman).
9 Mould. Mould assembly A for producing a Middle Bronze Age palstave:
9.1 Valve 1,
9.2 Valve 2,
9.3 outer wrap
The pieces are from the blade end up to the loop. Total of 18 fragments; weight 98 g. Context 18300, Phase 3 (Bronze Age).
10 Mould. Mould assembly B for Middle Bronze Age palstave:
10.1: Valve 1
10.2: Valve 2
From the blade end: 4 fragments; weight 18 g. Context 18300, Phase 3 (Bronze Age).
11 Mould. Mould assembly C for MBA palstave: fragment from hafting end of palstave showing groove for flange and base of gate beginning to flare out from the mould end. This may be the other end of mould assembly B, as there are some similarities in colour and surface finish. Two fragments (one illustrated); weight 20 g. Context 18300, Phase 3 (Bronze Age).
12 Mould. Group 1: example from a group of similar mould fragments with a tightly curved surface and narrow groove on the interior. Context 18300, Phase 3 (Bronze Age).
13 Mould. Group 2: example from a group with similar characteristics of edge fragment with contact surface and deep step of 8 mm to casting surface. Context 18300, Phase 3 (Bronze Age).
14 Mould. Gate fragments. Four gate fragments, of which two are illustrated, were identified. Heights 24 mm and 30 mm, diameter at mouth 31 mm and *c* 50 mm, weight 13 g. Context 18300, Phase 3 (Bronze Age).
15 Mould. Outer wrap comprising 3 joining fragments forming a tightly curved edge section. A total of 46 fragments weighing 78 g of outer wrap were identified, several with the impression of diagonal binding. Context 18300, Phase 3 (Bronze Age).
16 Mould. Mould fragments with pattern of relief decoration. Total 7 fragments, weight 66 g. Context 12212, Phase 7 (middle Roman).
17 Loomweight, <50% complete. Profile B, diameter *c* 130 mm, internal diameter 45-50 mm, height 58-65 mm, weight 337 g. Context 5503, SF 374A, Phase 10 (Anglo-Saxon).
18 Loomweight, 60% complete. Profile A, diameter 115-120 mm, internal diameter 60 mm, height 49-51 mm, weight 305 g. Four fragments, one illustrated. Context 5503, SF 374B, Phase 10 (Anglo-Saxon).
19 Loomweight, <50% complete. Profile C, diameter 120 mm, internal diameter 60 mm, height 51 mm, weight 265 g. Context 5938, SF 364A, Phase 10 (Anglo-Saxon).
20 Loomweight, 50% complete. Profile A, diameter *c* 170 mm, internal diameter 60 mm, height 57 mm, weight 352 g. Context 5938, SF 364C, Phase 10 (Anglo-Saxon).
21 Loomweight, 40% complete. Profile A, diameter 110 mm, internal diameter 50 mm, height 51 mm; weight 283 g. Context 5940, SF 372, Phase 10 (Anglo-Saxon).
22 Slingshot, pointed ovoid, well smoothed and quite narrow. Complete, but with slight damage to surface on one side. Diameter 17 x 18 mm, length 40 mm, wt 16 g. Pit 13034 (13031) SF 1720. Slingshot, pointed ovoid, well smoothed and quite narrow. Complete. Diameter 21 mm, length 40 mm, wt 12 g. Pit 13034 (13031) SF 1721.Ovoid slingshot, pointed at one end, slightly flattened at the other. Complete. Cross-section sub-circular. Burnt and mottled on surface. Diameter 24 x 25 mm, length 40 mm, wt 22 g. Ditch 13429 (13430) SF 1765. Slingshot, pointed ovoid, well smoothed. Complete and undamaged. Surface burnt black on one side. Diameter 23 x 26 mm, length 44 mm, wt 28 g. Pit 16485 (16487) SF 2520. Complete ovoid slingshot, slightly rounded ends, fairly smooth surface, though clay slightly creased on one side. Lightly burnt on one side. Diameter 22 mm, length 36 mm, weight 16 g. Waterhole 12211 (12216).
23 A circular disc trimmed from a pot sherd, with edges carefully finished and smoothed, has been pierced with a central perforation carefully drilled from both sides resulting in a slightly biconical/hourglass profile. There is slight damage to the surfaces. Diameter 40 mm, height 9 mm, weight 16 g. Pit 16064 (15941) SF 2063. Phase 7, early Roman. About a third of a sub-cylindrical spindle whorl (not illustrated) with smooth even surfaces, slightly convex flat top and more angled base. Central perforation 11 mm diameter. Dated early-middle Iron Age on the basis of pottery fabric: Fi (fossil shell). Diameter 32 mm, height 18 mm, weight 6 g. Ditch 11728 (Group 20350) 11732. Phase 9, late Roman.

FIRED CLAY FROM THE TVAS EXCAVATIONS

Eighteen fragments of fired clay weighing 88 g were recovered from the Phase 3 excavations in the area of the middle Iron Age settlement, all from the later prehistoric features. The pieces are all unfeatured and are most likely structural fragments relating to the settlement.A tiny quantity of fired clay was also recovered from Phase 4 excavations further north, just six fragments from five contexts, weighing no more than 83 g in total. None of the pieces showed any form or any identifiable impression or decoration. Seven pieces of fired clay were recovered from the pit alignment, one from pit 4025 weighing 6 g, with a further six pieces (10 g) from pit 4240.

Chapter 11: Ceramic Building Material

by Cynthia Poole

INTRODUCTION

Roman ceramic building material amounting to 2134 fragments and weighing 194873 g was recovered from the 1999-2003 excavations at Cotswold Community. The Roman tile assemblage is quantified and summarised by phase in Table 11.1. Roughly equal amounts were found in Phase 8 (middle Roman) and Phase 9 (late Roman) with negligible quantities in Phase 7 (early Roman). The small quantity of plain and miscellaneous tile found in Phase 6 (middle-late Iron Age) may in fact be fired clay, as some material was extremely difficult to separate into fired clay or ceramic building material. Brick is the dominant form of the assemblage, accounting for just over a third by weight of the assemblage. Voussoir and flue tiles form together about a quarter of the assemblage and roofing (tegulae and imbrices) about a fifth. A very small quantity of possible coarse tesserae was also identified. The term 'tile' is used throughout the report when referring in general terms to all ceramic building material from the site; it is qualified if referring to a specific form or function. Percentages are by weight unless otherwise specified.

A small number of complete voussoirs and bricks were refitted, but in general the assemblage consisted of fragmented tile with few complete measurements other than thickness. The mean fragment weight was 91 g, which is low for ceramic building material.

The assemblage has been fully recorded on an Excel spreadsheet. Fabrics were characterised with the aid of a binocular light incident microscope at magnification of x25 and generally identified when necessary with a hand lens at magnification of x10.

FABRICS

Two fabric groups dominate the assemblage, which have been designated D and E. During analysis it became apparent that the sub-types within these groups represent a continuum of variants probably from a single geological source, the Oxford Clay. There has been detailed examination of fabrics of stamped tiles from Cirencester (Darvill 1986), which has identified two main sources for tile in the town. One major source is the Roman tile kilns at Minety, which lie 5 km to the south of Cotswold Community site, with a second area of exploitation suggested outside Cirencester to the south-west. A more distant potential source about 18 km to the east is at Highworth, a centre for brick production in later periods, which may have been a source for some of the tile at Wanborough (Darvill 2001).

Although no stamped tile has been found on the Cotswold Community site Fabric Group E can be equated with Minety products whilst Fabric Group D is less certain, having some characteristics in common with the fabric suggested to originate from a source south-west of Cirencester. Fabric C has some similarity to fabric 12 at Claydon Pike (Allen in Miles *et al.* 2007, Digital section 3.9), which it has been suggested originates in the vicinity of Fairford, Gloucestershire.

Fabric C: Colour: orange, red; occasionally a pinkish maroon core present. Matrix: fine sandy-silty micaceous uniform clay matrix with small thin lentoidal voids mostly 0.5 mm or less. The origin of the voids is unclear though the present of calcareous deposits within some may indicate that they represent dissolved shell, rather than organic voids. Inclusions: frequent quartz sand 0.4-0.7 mm, subangular-subrounded and common red iron oxide grains c 1 mm. In some there are white crypto-crystalline limestone grains of the same size as the quartz. Coarse inclusions: scattered limestone grit, rounded-subrounded 1-2 mm.

Fabric Group D: Colour: light reddish-yellow to yellowish-red, orange, red; core may be reduced to varying shades of grey. Matrix: fine sandy-silty micaceous clay matrix; may be silty and powdery Inclusions: no visible inclusions in hand specimen.

D1: Inclusions: low density (scattered, rare) of small cream calcareous silty clay pellets 1-3 mm. This is the very fine end of E1-E2 spectrum (see below). There is very little difference between some examples of D1 and E2.

D2: Compared to other fabrics this contained a noticeably higher density of fine mica visible under magnification; the mica grains are slightly larger in size.

Fabric Group E: Colour: Predominantly reddish-yellow to yellowish-red, but also varying shades and hues from pale pink, through orange and red to brownish-red. Matrix: micaceous laminated clay. Inclusions: fine-medium quartz sand. Coarse inclusions: cream calcareous and reddish ferric silty clay pellets in varying sizes and proportions.

E1: Fine-medium sand generally in fairly low densities and normally much less compared to E2. It is characterised by coarse cream calcareous silty clay pellets and orange-brown or red ferric silty clay pellets up to 15 mm and generally rounded. Some examples contained much whiter grits, mostly *c* 1-4 mm, that had the appearance of chalk or crypto-crystalline limestone. Some tiles also had fine lentoidal voids (<2 mm), which may originate from organic inclusions, though no impressions could be clearly seen.

E2: This is differentiated by a higher density of

Table 11.1 Quantification of Roman ceramic building material by tile forms and phase

Phase	*6*	*6 (M-LIA)*	*7*	*7 (LIA-ERB)*	*8*	*8 (MRB)*	*8/9*	*8/9 (M-LRB)*	*9*	*9 (LRB)*	*7-9*	*7-9 (LIA-LRB)*	*10-12*	*10-12 (post-Roman) & Unphased*	*Total*		*Total*	
Form	**Nos**	**Wt (g)**	**Nos**	**Wt (g)**	**Nos**	**Wt (g)**	**Nos**	**Wt (g)**	**Nos**	**Wt (g)**	**Nos**	**Wt (g)**	**Nos**	**Wt (g)**	**Nos**	**%**	**Wt (g)**	**%**
Tegula	0	0	5	634	77	12351	33	2954	59	6463	0	0	25	3078	199	9.5	25480	13.6
Imbrex & Ridge	0	0	1	270	14	1380	1	28	41	5759	1	124	5	546	63	3.0	8107	4.3
Box flue	0	0	4	222	64	5249	12	2466	34	4138	0	0	16	1693	130	6.2	13768	7.4
Half box flue	0	0	0	0	2	1378	0	0	1	172	0	0	0	0	3	0.1	1550	0.8
Voussoir	0	0	0	0	2	250	0	0	232	36263	0	0	0	0	234	11.2	36513	19.6
Wall tile	0	0	0	0	1	145	0	0	0	0	0	0	1	566	2	0.1	711	0.4
Brick	0	0	4	402	162	42894	24	8489	100	10957	0	0	22	4333	312	15.0	67075	35.9
Brick/ tegula	0	0	0	0	2	174	0	0	1	409	0	0	4	197	7	0.3	780	0.4
Brick/ plain	0	0	1	137	24	2251	2	190	6	640	0	0	3	303	36	1.7	3521	1.9
Plain tile	18	130	6	661	339	8940	53	3772	177	7897	3	139	48	2169	644	30.9	23708	12.7
Tessera	0	0	1	30	6	102	0	0	11	265	1	4	2	56	21	1.0	457	0.2
	21	304	53	362	153	2288	26	271	128	1384	0	0	53	434	434	20.8	5043	2.7
Total	39	434	75	2718	846	77402	151	18170	790	74347	5	267	179	13375	2085			
%	1.9	0.2	3.6	1.5	40.6	41.5	7.2	9.7	37.9	39.8	0.2	0.1	8.6	7.2				

fine-medium sand compared to E1 or E3, creating a grainy texture under magnification. The quartz sand is generally <0.2 mm (rounded-subrounded) and the coarser inclusions of fine cream (calcareous) and red (ferric) silty clay pellets 1-4 mm.

E3 The laminated clay matrix with cream streaks is the defining characteristic. A finer version (E3f) is very finely laminated with a fine dense clay matrix with very fine or diffuse laminations (generally straight/undulating). A coarser variant (E3c) is very strongly laminated resulting in a swirly-marbled pattern with cream streaks, which may bulge to form bulbous cream pellets. In hand specimen it appears sand free or, where coarse sand grains are visible, they seem to be derived from moulding sand. However at higher magnifications fine sand is visible, creating a grainy texture.

Both fabrics D and E occurred in hard heavy dense form and in softer soapy or more powdery varieties. In some heavily or overfired examples it was not possible to identify the fabric with certainty.

FORMS

Tegulae

No complete tegulae were recovered and the greatest surviving length was 165 mm. The only complete dimension was thickness, which measured between 13 and 32 mm with 85% falling between 18-27 mm. There was little variation in the thickness of any single tile, reflecting the regular character and finish of most tiles. The majority were well finished with even surfaces, the base frequently reflecting the irregularities of the ground surface on which they were made. The minimum number of tiles represented is eleven, based on the number of upper left-hand corners, compared to a total number of corners of 40 (upper LH – 11, upper RH – 9, lower LH – 9, lower RH – 7, 1 lower and 3 unspecified). The total weight of tegula fragments is equivalent to between four and five individual tegulae.

Tegulae were produced in a standard manner using moulds, which formed the cutaways, with both upper and lower on occasions being wholly knife-cut or trimmed. Eighty-nine intact flange sections were present out of a total of 120 records of tegulae, the remainder being damaged or deflanged. Flange and cutaway types are referred to using the type series developed at OA and illustrated in the data file. The flange forms represented were rectangular (type A), angular, widening to the base (type B) and curved (types D, E, F) in profile. Type A flanges were most common with 31 examples and sizes ranged from 17-35 mm wide by 37-56 mm high. Type B (13 examples) measured 20-40 mm wide by 41-55 mm high. Type D (23 examples) measured 22-40 mm wide by 32-55 mm high. Type E (21 examples) measured 20-40 mm wide by 38-53 mm high. One type F flange measured 20 mm wide by 47 mm high. All height measurements are of the external height of the flange. All flange types occurred in Phase 7, 8 and 9 deposits, except for flange B, which occurred only in Phase 8 and 9 contexts and flange F in Phase 8 alone.

A total of 41 cutaways at the tile corners were recorded. Of these 20 were upper cutaways made at the top end of the tile and 21 lower cutaways made at the bottom of the tile. The object of these features is to facilitate the close fit of the overlapping tiles to ensure that the roof is weatherproof. All the upper cutaways were of type A2, formed by the removal of the whole flange to the same level as the body of the tile normally leaving a straight vertical face truncating the flange. These were made both by the tile mould, and by knife cutting; only one preserved clear evidence of having been formed in the mould and subsequently knife trimmed. Several tiles had the end of the flange cut at an angle or chamfered to form a pointed end. The upper cutaways measured 40-65 mm long and 20-26 mm deep.

The lower cutaways were limited to three types. The majority were of type C1, which takes the form of a triangular wedge cut from the lower outer angle of the flange. These were all knife-cut and measured 20-35 mm wide by 20-30 mm high and 36-58 mm long. There were also two unusually wide examples, at 40-45 mm. Type C3 was similar but was unusually high (40-44 mm) cut almost the full height of the flange stopping just a few millimetres short of the top. This type has been found in contexts of Phases 7 to 9, though the wider variant and C3 were only found in contexts of Phases 8 and 9.

Less common were type A3 cutaways, formed by the tile mould in which a rectangular section from the outer side of the flange was removed for its full height to a width of 8-10 mm. No complete lengths survived. Two examples combined with a C1 cutaway to form a composite type.

A single type A3a cutaway was similar to the A3, but differed in that it widened from top to bottom; it measured 6-12 mm wide by 50 mm long. This occurred in a Phase 9 context, the others through all Roman phases.

The cutaways can be equated with the types designated by Warry (2007, 44) (Table 11.2). Warry has suggested a development of cutaway types, which represent improvements in functionality, and has provided a broad date range for the periods in which they were produced. There is broad agreement, with type C1, the earliest according to Warry, first appearing in Phase 7, whilst the latest type A3a was only found in the late Roman Phase 9.

Four tegulae had cylindrical nail holes made pre-firing. They measure 6, 6 x 8, 8 and 9 mm in diameter. One was centred 30 mm from the tile edge, but this did not survive on the other fragments. One was from Phase 9 and the remainder from Phase 8 contexts.

The tegulae were made predominantly in fabric groups D and E, with smaller quantities in fabric C, the latter occurring only in Phase 8. There appeared to be no difference in the characteristics of the tiles made in each of the fabrics. Nine had signature marks and one a possible tally mark (described below).

Table 11.2 Tile cutaway forms present and Warry (2006) equivalents

Cutaway form	*Warry equivalent*	*Date range proposed by Warry*	*Site Phase*
C1	B6	AD 100-180	Phases 7, 8, 9
A3	C4	AD 160-260	Phases 8, 9, 10
A3 / C1 composite	C5	AD 160-260	Phase 8, 10
A3a	D1	AD 240-380	Phase 9

Imbrices and ridge tile
(Fig.11.1)

No complete tiles were found, and only one complete profile survived. A total of eight corners were found representing a minimum number of two imbrices. The total weight of imbrex fragment is equivalent to three to four tiles.

The complete profile (context 1596) (Fig.11.1) comprised the lower end and part of the upper side of an imbrex, which was 225 mm wide at the base decreasing to an estimated 155 mm at the top by 110 mm high at the base decreasing to 90 mm in the centre and *c* 75 mm high at the top. The surviving length of the two separate blocks combined (though not actually joining) is *c* 390 mm, which may be close to the original length. It was 15-19 mm thick.

For a few other tiles widths were estimated, based on curvature, of 120, 150 and 160 mm and heights of *c* 80, 100 and 125 mm, which all fall within the normal range for imbrices. For the remainder the only complete measurement was thickness, which ranged from 12 to 25 mm, with nearly two thirds of fragments falling between 16 and 20 mm thick. Two slightly thicker tiles at 22 and 25 mm may have been ridge tiles and for one the curvature suggested a diameter of *c* 240 mm.

Profiles of imbrices included both curved and more angular examples, with the only complete profile being an asymmetric combination of the two (Fig.11.1). Most tiles were well-finished with smooth outer surfaces and the underside impressed with the ground surface on which the clay was prepared. One of the possible ridge tiles appeared to have the angular shape of a wooden former impressed on the underside. No other markings were present.

Bricks
(Fig. 11.2, 2-3)

Bricks account for a third of the assemblage, and probably more when the plain tile classification is taken into account. Fabric E accounted for 70%, the remainder made in fabric D, apart from two fragments in Fabric C. Three complete bricks – two bessales and one lydion - were recovered, together with substantial parts of one other bessalis and one or two lydions. Minimum numbers for the remainder indicated by the number of corners (22) is six. The weight of the remaining brick would represent about six lydions, compared to about twenty bessales. However it is clear from the brick thicknesses that a range of brick types is represented.

The two bessales measured 220-223 x 215-220 x 27 mm and 220 x 230 x 25-30 mm. These both came from the same context (12416) and further brick fragments from the same deposit are probably part of a third bessalis. The complete lydion (Fig. 11.2, 2) measured 450 x 302-305 mm x 31-50 mm and was found in the fill (13895) of pit 13815. The variation in thickness from one end to the other may indicate that this was a solid voussoir. Substantial parts of two other bricks (or possibly parts of just one) came from the same context and are likely to be of the same type.

Figure 11.1 Ridge tile 1

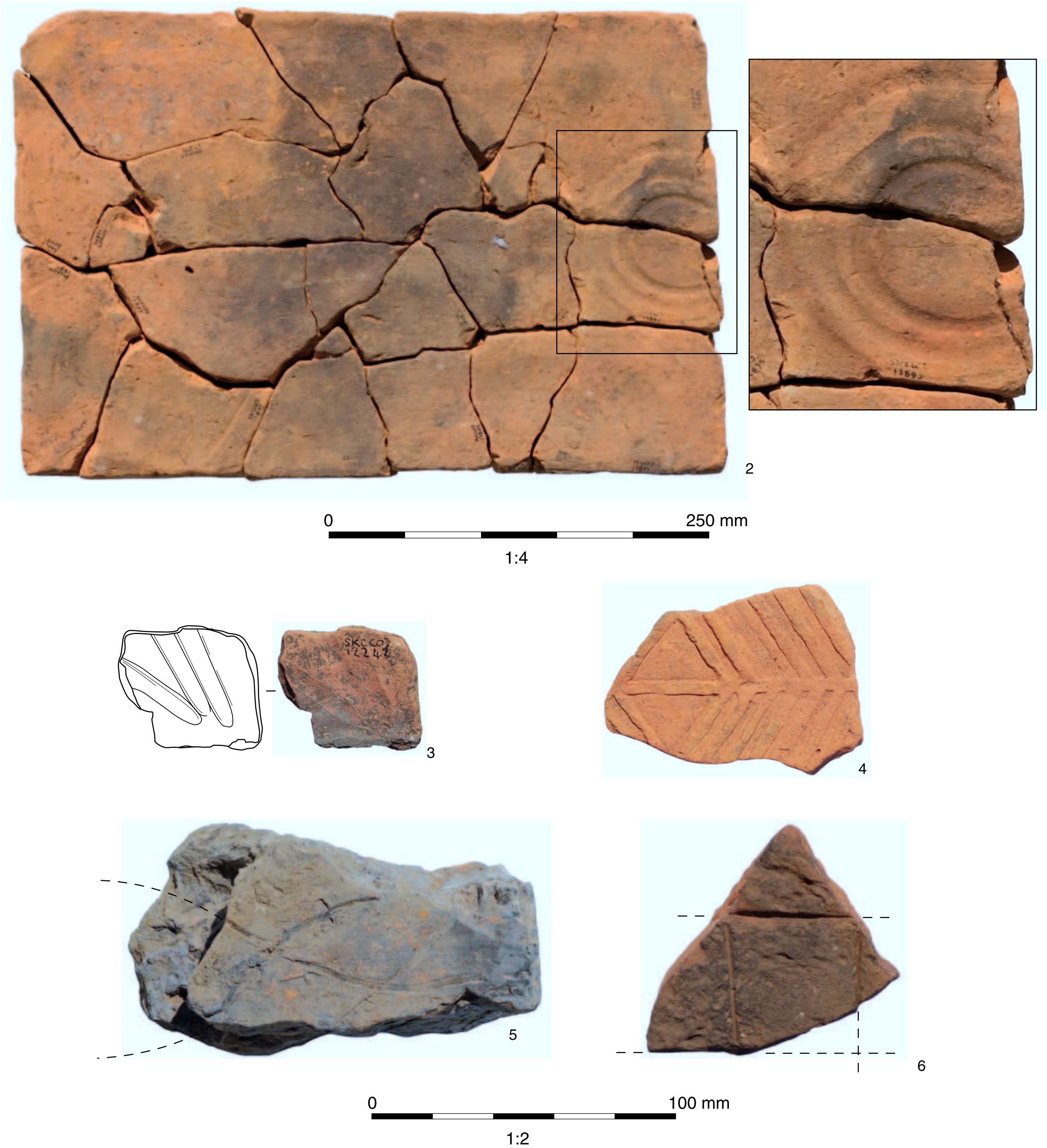

Figure 11.2 Brick and tile 2-6

In general thickness ranged from 25 to 80 mm, with all plain flat pieces without other features over 40 mm designated as brick. In addition a number of fragments were categorised as brick/flat, which ranged in thickness from 30-37 mm and in character were more akin to brick than other forms, though no diagnostic features were present. The near-complete absence of other identified forms over 30 mm thick suggests the strong probability that these are indeed bricks.

Brick thickness:	No. of fragments
25-30 mm	6
30-34 mm	8
35-39 mm	36
40-44 mm	34
45-49 mm	11

50-54 mm	6
55-59 mm	3
60-65 mm	4
80 mm	1

Only a quarter showed any signs of burning or heavy/over-firing, which might indicate their use in hearths, ovens or corn dryers. Few pieces were found in association with any structures (foundation or robber trenches) suggesting that little if any of this material was used in wall structures. Signature marks were identified on nine bricks .

Wall tile - parietalis
(Fig. 11.2, 5-6)

Two examples of brick or plain tile with keying have been identified as wall tiles. Both had scored keying, one cut and the other using the handle or edge of some implement, probably wooden. The tiles measured 26 mm and 52 mm thick respectively.

Cavity wall: tubulus, half box flue and tubulus cuneatus
(Fig. 11.2-11.5, 4, 7-13)

Tile in this category formed a remarkably large proportion (26% by weight) of the assemblage, with a wide range of varieties for a site of this type. The majority are combed box flue and voussoir, together with a few instances with scored and relief patterned flue tiles and combed and scored wall tile. Fabric groups D and E were the most commonly used, with very few examples of box flue in fabric C.

Tubulus – box flue
(Fig. 11.3, 8)

No complete box flue tiles were found and few dimensions survived apart from thickness, which covered a range from 10-30 mm, with 65% of records between 15 and 20 mm inclusive. Those over 25 mm thick differed from the majority in being made in a more powdery variant of fabric D and having more rounded angles and corners and distinctly convex surfaces. One of these measured *c* 120 mm in depth and over 200 mm in height (probably *c* 300 mm or slightly more in total). Of the more common type one width of 150 mm and one depth of 130 mm were recorded. Twenty-one corners survived, which represent a minimum number of three tiles. However it is clear from the range of comb sizes used that considerably more tiles than this are represented. Keying (described below) on nearly all the flue tile was combed and only one piece of relief-patterned tile was found.
Eleven flue tiles retained part of the vent cut in the plain face. These were all rectangular, with dimensions of 40 mm, 60 mm and 55 x >60 mm wide with one larger, at more than 70 mm. They were set at variable distances from the side angle of 24-55 mm, and one of the better preserved was set 24 mm

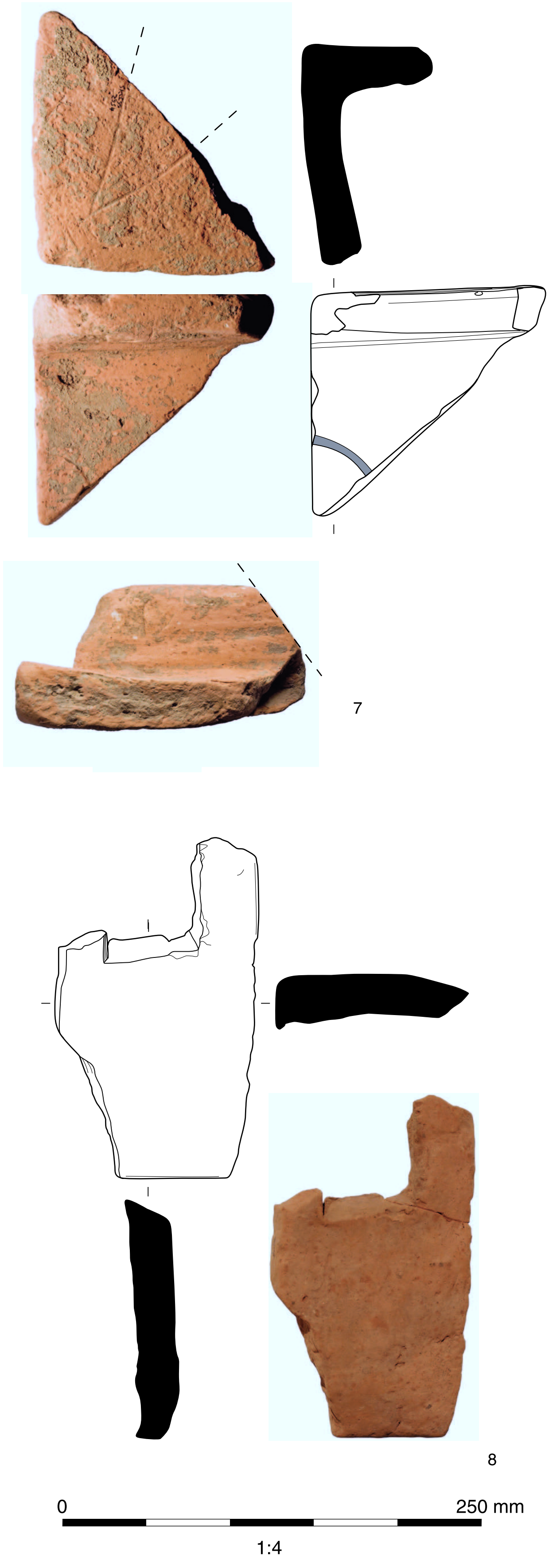

Figure 11.3 Cavity wall tile 7-8

from one side and 35 mm from the other. Distances from the top/base edge were 100 and 130 mm. Vents cut in the thicker variety of flue tile had the upper/lower edge cut to a chamfer, widening to the outer surface, whilst the side edges of the vent were cut perpendicular to the surface (Fig. 11.3, 8).

Half box flue

(Fig. 11.3, 7)

Three fragments of half box flue with thin tall flanges measuring 20, 25 and 30 mm wide by 70 and 75 mm high were found. All three had a triangular, or at least angled, cut-out removed from the flange prior to firing. This was cut starting at a distance of 80, 85 and 100 mm from the corner and sloping inwards to form a diagonal cut removing an angled section of flange, 33-40 mm wide. No fragment survived beyond the angled cut so the full size and shape of the cut-out is not known. A tile with the same type of cut-out was found at the Beeches Road excavations in Cirencester (Viner and Stone 1986) The fragments are very similar to tegulae in the method of manufacture and one has a finger groove along the base of the flange, a signature on the tile surface and two very shallow score marks forming a V on the sanded underside (Fig. 11.3, 7).

Tubulus cuneatus - voussoir

(Figs 11.4-5, 7-13)

Nearly all the voussoir came from a dump in well 17264, apart from two fragments in waterhole 1544, which have been designated as voussoir rather than flue based on their similarity to the material from the well. The well fill has been assigned to Phase 9, whilst the waterhole is of Phase 8.

The material in the well is a coherent group of voussoirs, apparently derived from a demolished building, perhaps with the intention of reuse. Four complete or near complete examples and five 50%-70% complete survived. The total number of corners is 137, which represents eighteen tiles. The total number of bases is 19, but taking into account complete, partial tiles and bases the minimum number is at least 21 tiles. All were made in the same fabric, a very fine E3/D. Some were fired to orange throughout, some to a light orange exterior and light grey core and some to a pinkish-greyish brown, sometimes with a grey core. Some of the variations may relate to the initial firing, but some may relate to use or re-use and the subsequent heating to which they were subjected.

Several complete (Nos 9-12) and partial tiles were refitted and many of the other pieces formed complete faces, tops or bases. Two varieties appeared to be present: one in which one side of the face was perpendicular to the top and base and the other side angled to create the taper from top to bottom; the second had both sides of the face angled. It was also found that not only did the width taper, but in some there appeared to be evidence that the tiles tapered in respect of depth also. However this taper was not to the same degree as in the width (never exceeding 10 mm), so it probably reflects variations in manufacture and shrinkage during firing.

The measurements in Table 11.3 were obtained for the voussoirs from the well 17264 (fill 17339, unless otherwise indicated). All faces were combed and the keying is described further below. None of the voussoirs had vents cut in the faces.

Tesserae

A small number of tile fragments may have been deliberately shaped to rectangular, trapezoidal, rhomboidal, triangular (1) and pentagonal (1) shapes to form coarse tesserae of orange, orange-red, pinkish-red or purplish red colours. They occurred in the following size ranges:

<20 mm:	1
20-24 mm:	4
25-29 mm:	2
30-34 mm:	6
35-40 mm:	5
>40 mm:	1

It is uncertain whether these are genuine tesserae or may have formed accidentally if tiles were used as flooring and subjected to heavy pressure and wear, causing them to crack and fragment.

Plain tile

Non-diagnostic tile was classified as plain tile (or miscellaneous if extremely fragmentary). Some distinction has already been noted above with the subdivisions of brick/tegula and plain/brick. The remaining plain tile less than 30 mm thick will represent a mixture of tegula, imbrex and flue tile. Flat plain tile was often selected from any type which could provide flat slabs suitable for use in ovens, corn dryers and hearths, for use as floors, walls or kerbs, bridging flues or bonding in the arch over flues and as baffles/vent/stoke-hole covers for controlling air flow.

MARKINGS

The only deliberate markings found within the assemblage were signature marks and keying, though there is a possibility that some grooves on tile edges are tally marks. No stamps were found in spite of their frequency in the area around Cirencester.

Signature marks

(Fig. 11.2, 2, 3)

A total of 26 tiles had evidence of signature marks, all of simple common varieties. Types and sizes are summarized in Table 11.4. The majority occurred in Phase 8 contexts and only six in Phase 9. Nine occurred on bricks, eight on tegulae and one on a

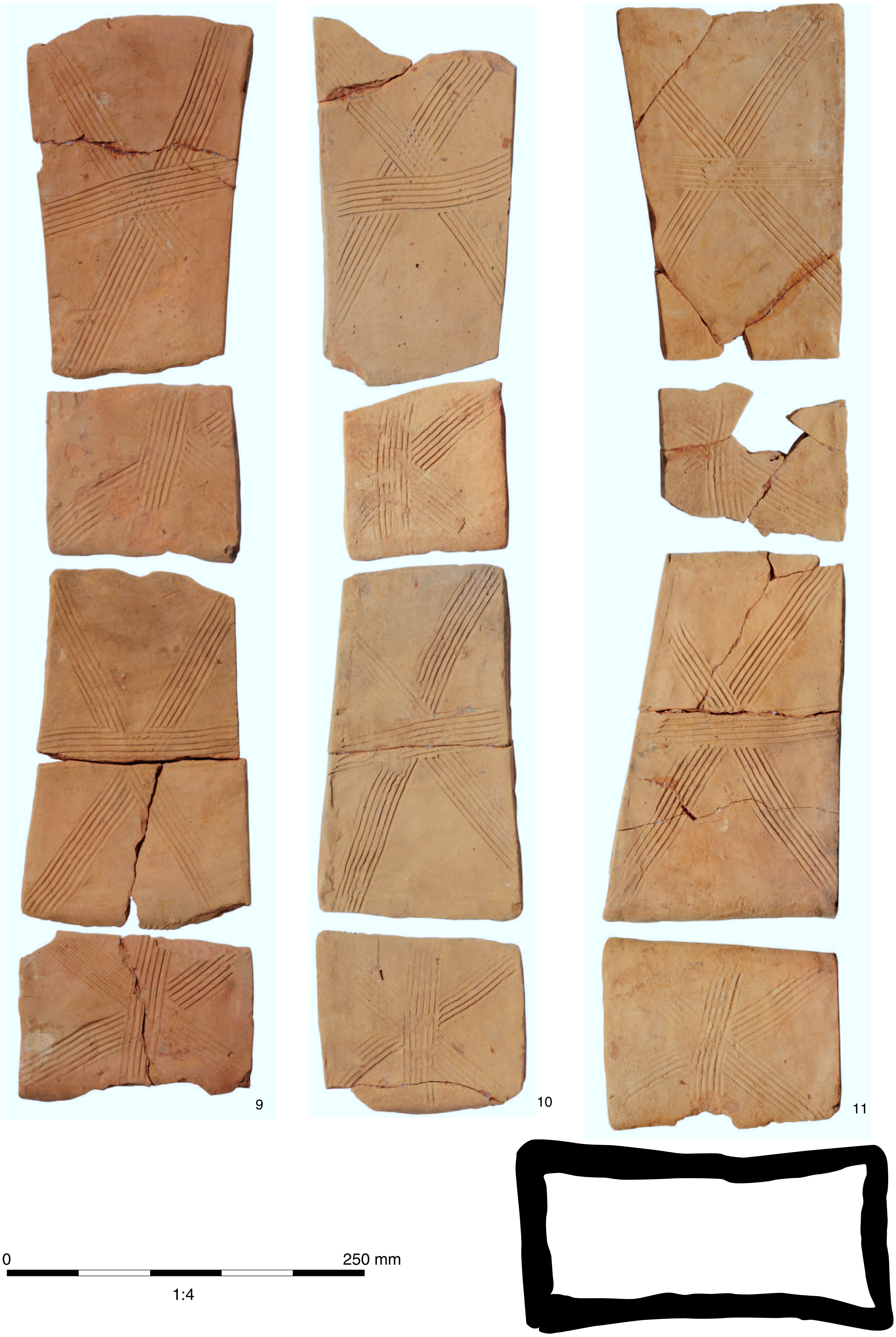

Figure 11.4 Cavity wall tile 9-11

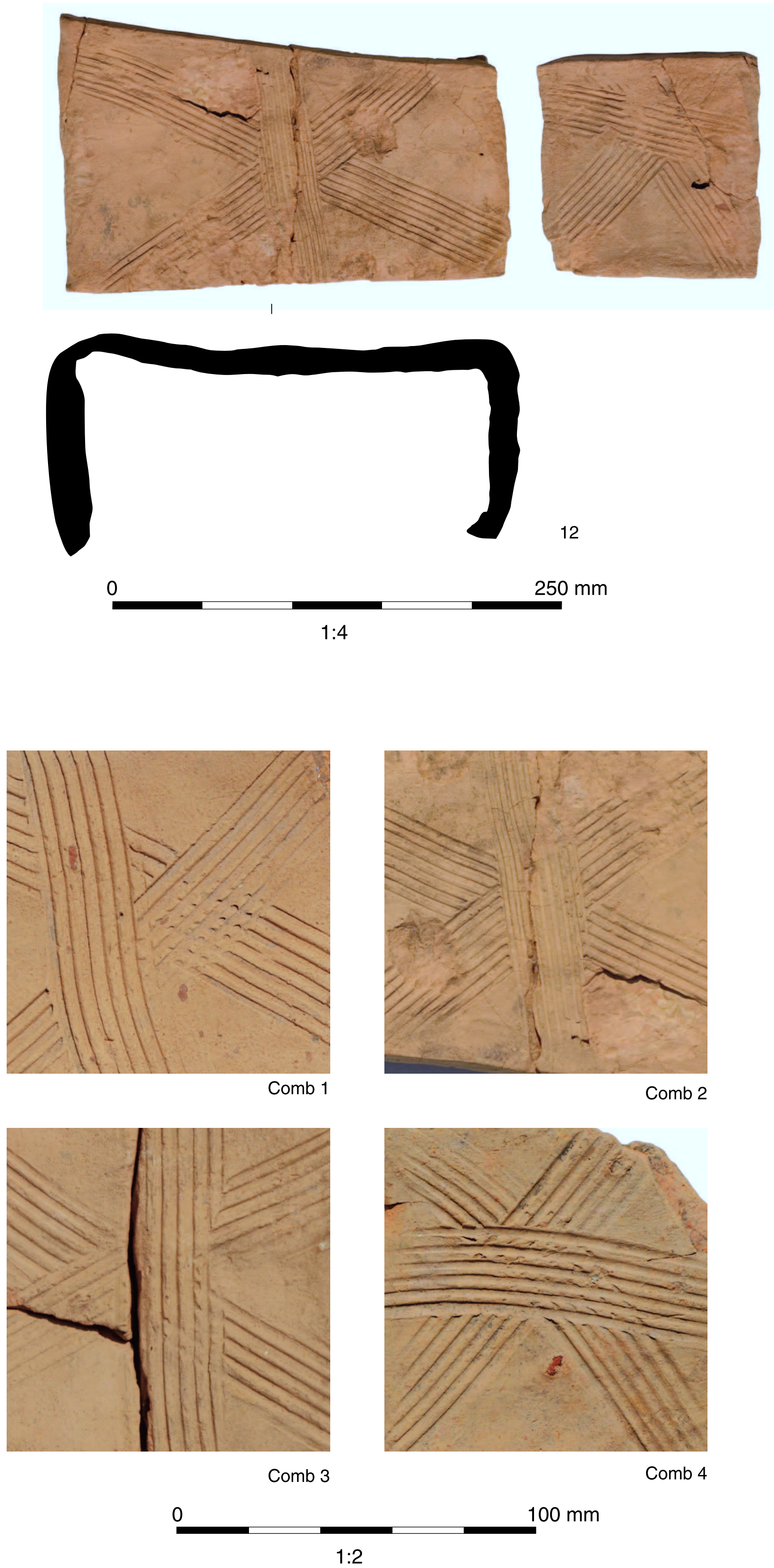

Figure 11.5 Cavity wall tile 12 and comb styles

Table 11.3 Measurements (in mm) of voussoir tiles

Tile	*Height*	*Width base*	*Width top*	*Depth base*	*Depth top*	*Thickness*	*Comb*
(15948)	>150	110, 120	>130	*c* 140	~	17	3
(17263)	>145	122	>137			20-22	3
(17263) base	~	120-124	~	115	~	18	4
(17263) Misc bases	~	120	~	120, 125	~	17, 18, 20-22	1
(17263) Misc faces	>125->160	115, 123, 125	~	~	~	16, 19, 20, 21	1
A	253	128	155	~	~	19	1
B	>235	<135	162	~	~	17-20	1
C (3 tops; 2 bases)	~	112; 130	160, 160	~	~	18, 20	2
D	~	158	170	*c* 120	~	18	1
E	~	114-125	~	*c* 120	~	17-20	1
F	~	130-135	~	122	~	18-20	4
G	~	115-120	~	125	~	16-22	1
H	~	125-133	~	120-125		18-20	4
J	~	122	~	120-125	~	20	2
K	~	120	~	~	~	18	2
SF2500 100%	250-255	125-130	160	125	132	20	1
SF2501 100%	250	115	140	120	130	18-22	1
SF2502 60%	250	117	155	125	125-130	20	2
SF2503 95%	255	120	162	123	133	18	1
SF2504a 50%	250	110	160	105	115	15-16	2
SF2504b 15%	>105	~	140	~	~	20-21	2
SF2505 c 70%	235	125	160, 147, 152, 155	107	110	15-20	1
SF2506 100%	255	126-130	163	130	128	20	3
SF2507 30%	255	105	145	~	~	20	1
SF2508 60%	240-250	125	145	125	115-120	15-17	3
SF2509 50%	>120	120-128	>140	125	(mid 118)	15-20	1
SF2510 30%	250	133	156	~	~	15-18	3

half-box flue; the remainder occurred on tiles of uncertain form, but probably of these types. Nearly all identifiable signatures were in the most common forms of a semicircular hoop (type 1) or a horseshoe hoop (type 2) (Fig. 11.2, 2) occurring in combinations of one (.1) up to four (.4) finger grooves starting and ending at the tile edge. Sub-types included very small (s), very shallow (sh) arcs and unusually large (L). One of a less common form (type 16) consisted of three straight finger grooves radiating out from the corner of the brick (Fig. 11.2, 3).

Tally marks

Two possible examples of incised lines occurred on a tegula and a tile of uncertain form. The tegula had two horizontal incised lines 8 mm apart cut into the end of the flange. These could be accidental, associated with forming the cut-away. The other example was a single incised line, probably diagonal on either the surface or edge of the tile.

Keying

(Nos 4-6, 9-13)

Combing (Nos 9-13)

Combing was found on both box flue tiles and voussoirs. None of the box flues were sufficiently well preserved to present complete combing patterns. Comb sizes varied from 15 to 60 mm in width with 4-15 teeth. The most common was 20-40 mm wide with 4-8 teeth. A fineness ratio (width/no. of teeth) from 3 (fine) to 8 (coarse) reflects this, with most falling into the 4-6 categories. Teeth profiles could be U, V or flat ended and teeth width and distance apart averaged 2-3 mm, though this could vary from 1 mm to 6 mm. Four separate combs were identified on the voussoir tile (Fig. 11.5, 13). Comb 1 measured 27 mm wide and had 7 teeth, though the tooth at one end was damaged or worn as it usually appeared intermittently as a thin score line. In general the teeth were U-shaped in

Table 11.4 Summary of tile signature types and their sizes (dimension in mm)

Context	*Signature type*	*Width (base)*	*Diameter*	*Height*	*Form*	*Phase*
15142	1.1	>60	est. 180-200	>73	tegula	8/9
12426	1.1				tegula	9
13133	1.2			60	brick/tegula	8
14455	1.2		c 180	75-80	tegula	8
12312	1.2				brick/tegula	8
16077	1.3	230		110	brick	8
12416	2.2				tegula	8
13895	2.3	100	110	90	brick: lydion	8
14299	2.3				tegula	8
2954	1.1s	>45		35-40	half-box	8
13302	1.2sh			>33	tegula	8
12312	1.2sh				brick/tegula	8
11740	1.3sh	*c* 150-160		53	brick/tegula	9
13895	2.2L				brick	8
13895	2.4L	165	>225	>135	brick	8
13123	4?				brick	9
12242	16				brick	U

profile measuring 1-1.5 mm wide and lying 2-3 mm apart. Comb 2 was (30)-32 mm wide and had 8 teeth. The teeth were U-shaped in profile, 1-2 mm wide and lying 1.5-2 mm apart. Comb 3 measured (29-)31 mm wide and had 7 teeth with a U-shaped profile 2-2.5 mm wide and lying 2 mm apart. Comb 4 measured 23 mm wide and had 6 teeth with a U-shaped profile 2 mm wide and lying 2 mm apart. It is possible that combs 1, 2 and 3 were in fact the same comb suffering damage and wear during its use. The regularity, order of combing bands and similarity in the style of combing on all the voussoir suggest that a single tiler was responsible for the keying on these tiles. The voussoirs were probably set on edge and the faces consistently combed as the tiler faced them from top left to bottom right, followed by top right to bottom left and finally on the side faces vertically top to base and on the ends (top and base faces) horizontally to create a saltire pattern (combing pattern type 5a and 5b).

Combing patterns on the flue tiles were very partially preserved, with little indication of the complete pattern. Straight bands were most common and some of these could be linked to commonly occurring patterns including vertical and horizontal bands alongside the edges (OA type 1, 8 and 18), and diagonal bands crossing. Some diagonal bands started from the tile corners and some probably formed a simple X (OA type 4), but others may have formed a series of criss-cross (OA type 6) or diamond (OA type 12) patterns. These may on occasion have been combined with types 1, 8 and 18. Curved or wavy bands were infrequently identified and some may have formed vertical wavy bands (OA type 3).

Relief pattern keying
(Fig. 11.2, 4)

A single fragment of relief pattern keying of die 56 (Betts *et al*. 1997) was found in an undated gully 20080. This is one of the diamond and lattice designs and has been found at the Minety kilns. It has a distinct west country distribution from west Oxfordshire and Berkshire to Somerset. Most finds of this die have been from poorly or undated contexts: only one from Shakenoak villa (Brodribb *et al*. 1971) comes from a building dated to *c* AD 120.

Scored keying
(Fig. 11.2, 5-6)

One brick or wall tile from a Phase 8 ditch (20004) had four blade score marks, one pair at right angles to the other two cut on the inner/lower surface. The pairs of marks were 40 mm and 42 mm apart.

A second unstratified wall tile was scored with three criss-crossed incised lines, slightly curving rather than straight, but forming a spaced cross-hatch pattern. It had possibly been made with the end of comb handle or other wooden tool.

Impressions

Impressions were sparse, including only rare fingertip depressions from handling before firing. The imprint from some cloth occurred near a signature mark on a brick (12186). No animal impressions such as footprints were found. Plant impressions included one of a leaf on the edge of an imbrex (10908) and a well-preserved impression of a cereal spikelet occurred on the edge of a brick (18933).

DISCUSSION

Tile production

The fabrics indicate that the majority of tile came from the Minety kilns. Certainly fabric group E is typical of this production site and it is possible that some of the group D varieties, especially D1, also came from this production area. However, some of Group D tile bears a similarity to material from the source to the south-west of Cirencester. Fabric C probably came from a clay source with shell or limestone inclusions, possibly from the Lias. It is similar to fabric 12 from Claydon Pike, which has been identified as coming from the Fairford area. As all tile on the site has probably derived from a primary situation elsewhere and represents secondary or tertiary use at this site, it cannot be taken as indicative of trading patterns in the area, apart from reflecting the general reliance on local production sites.

Of interest in terms of manufacturing techniques is the similarity of the half box flue tiles to tegula with finger grooves made along the base of the flange and the presence of a signature mark, normally only associated with tegulae or bricks. This suggests that in some tileries, at least, the half-box form was a direct adaptation and development of tegulae to another function. Brodribb (1987) notes that at Glan y Mor tegulae had been adapted to such a use by roughly hacking away the centre of the flange.

The voussoir tiles illustrate the production of a batch of tiles by one or possibly two tilers: the single combing pattern employed and the repetitive similarity of the strokes on all the tiles suggest that just one person was responsible, possibly getting through two or more combs in the process (Nos 7-11).

The use and character of the assemblage

Phase 7: late Iron Age – early Roman

The quantity of tile from this phase was minimal, with less than 3 kg found comprising tegula, imbrex, flue and brick together with non-diagnostic fragments. Burning on some bricks suggests use in ovens or hearths, though all material was discarded in secondary contexts, mostly ditch and pit fills.

Phase 8: middle Roman

During this phase there was a dramatic increase in the quantity of tile reaching the site with nearly 79 kg recovered, but still from secondary contexts, predominantly ditches and pits together with three postholes and two waterholes. A wider range of forms was recovered, though brick accounted for more than half the material of this phase and tegula, imbrex and flue dominated the remainder, with a small number of more unusual forms – voussoir, half-box flue and wall tile present.

Phase 9: late Roman

There was a slight decline in the quantity of material, to nearly 75 kg, and much of the assemblage still occurred in secondary situations, predominantly ditches and pits, with lesser amounts in two postholes and four waterholes. One particularly large dump (*c* 40 kg), accounting for more than half the assemblage from this phase and comprising predominantly voussoir, was found in a well (17264).

The other significant contexts were structural features, which included walls, foundation and robber trenches associated with the stone building 14291. This included brick and a range of other forms including tegula, imbrex, flue and half-box flue. From the evidence of burning on both bricks and other forms it would seem the tile had already been reused before further use within the walls of the building. The tile would appear to have formed only a small proportion of the wall structures, though it may have been preferentially used for door and window surrounds or quoins. However, there is no evidence to suggest it was used as anything but components of the walls.

A sub-circular disc was found discarded in a ditch. This had been deliberately chipped to a diameter of 66 mm from a tile 27 mm thick.

CONCLUSIONS

The general character of the assemblage remains similar throughout all phases. All the material was fragmented, with few large or substantial pieces. All the complete or near complete tiles were refitted from pieces broken in antiquity. The majority was found discarded in ditches or pits and virtually none occurred in features where it could have had a functional use. The site is interpreted as a relatively low status rural settlement, probably a farmstead or hamlet essentially dependent on agricultural activity. In such circumstances the expected picture would be an assemblage of brick and tile obtained or scavenged from a higher status settlement for use in small structures such as hearths, ovens and corn dryers. Brick and flat tile, especially tegula, is preferred for such use, whilst imbrex occurs in smaller quantity and flue tile may be barely represented.

The site is half way between the town of Cirencester and the tile kilns at Minety which supplied a high proportion of tile for the town (Darvill 1986). A network of trackways has been found in relation to the sites extensively revealed on the gravel and it is likely that tile was being transported into Cirencester along roads or trackways in the area. This raises the question of whether these communities were involved directly in the tile industry or had some other symbiotic arrangement to supplement their income from agriculture. A variety of hypotheses may be proposed. One possibility is that they undertook seasonal work at the tileries, whilst another option is that they supplied transport for carrying tile into Cirencester, but in both cases one might anticipate some evidence of access to surplus tiles or seconds and preference for forms that might be of use on such a site, whether as a perk of the job or 'falling off the back of a cart' en route to Cirencester. Moreover, the tileries might be expected to control their own transport and distribution arrangements.

The transport of tile may nevertheless be the key to understanding the assemblage. If carts were going into Cirencester full of tile, were they coming back empty or did they return with some other load? Is it possible that the carters were collecting waste material, that reached this site for sorting, reuse or disposal? The character and quality of the tile is atypical for a site of this type, as are elements of some of the other finds assemblages from the site, and one may suggest that rubbish was brought here from Cirencester to be sorted or recycled in the same way that rubbish dumps are scavenged for anything with some value in the third world today by the poorest members of society.

Such an interpretation would fit the tile assemblage, which superficially is of a character that would suggest it originated from a high status settlement such as a nearby villa, but the area has been extensively excavated and no villa has been found in the vicinity of the site. Moreover, the assemblage is very heterogeneous, suggesting that it derived from different sources in terms of structures and date. In view of this Cirencester is the nearest likely source for the tile, probably recovered from a range of buildings either during demolition or refurbishment. This is best exemplified by the group of voussoirs, which certainly appear to have been used for their intended purpose, presumably in a bath-house with vaulted roof, before recovery during demolition. Whether the voussoirs dumped in the well represent the broken tiles from a much larger consignment sent for use elsewhere or a small batch of material hoarded as something 'that might come in handy', ultimately only to be discarded, we shall never know.

The precise dynamics of the process must remain speculative. The archaeological record does not allow us to determine whether this was an official arrangement by the officials of Cirencester to dispose of the town's waste, or the initiative of enterprising tradesmen using transport which would otherwise be leaving the town empty to make some additional profit, in conjunction with poorer rural settlements of the sort examined here.

ILLUSTRATION CATALOGUE

(FIGS 11.1-11.5)

1. Imbrex. Complete profile from lower end of the tile: not asymmetric cross-section. Width 225 mm - *c* 155 mm, height 110 mm - *c* 75 mm, estimated length *c* 390 mm. Context 1596, Phase 9 (late Roman).
2. Lydion. Complete brick (or solid voussoir) with horseshoe-shaped signature mark (type 2.3) made with three fingers. Width 302-305 mm, length 450 mm, thickness 31-53 mm. Context 13895, Phase 8 (middle Roman).
3. Signature mark: type 16. Three finger grooves radiating from corner of a brick. Thickness >46 mm. Context 12242 (unphased).
4. Relief pattern keying (roller stamp impression). Die 56 (Betts *et al*. 1997) diamond and lattice design (or herringbone/chevrons around triangles/diamond). Context 16150, Phase 8-9 (mid-late Roman).
5. Wall tile with scored keying. Three incised slightly curving lines criss-crossing forming a cross-hatch pattern, possibly made with the end of a wooden or bone implement. Thickness 52 mm. Context 190, unphased.
6. Wall tile with scored keying. Four incised blade marks forming a cross-hatch pattern (two pairs of lines crossing at right angles set 40 and 42 mm apart). Thickness 26 mm. Context 18963, Phase 8 (middle Roman).
7. Half-Box. Edge of diagonal cut-out through flange, finger groove alongside flange and signature mark small semi-circular hoop (40 mm high) formed of a single finger groove (type 1.1s). Thickness 22 mm, flange 75 mm high, 20-30 mm wide (tapers to top of flange). Context 2954, Phase 8 (middle Roman).
8. Flue. Rectangular vent 55 mm wide by >60 mm high with chamfered top and base. An associated but non-joining fragment has coarse combing of vertical and diagonal or curving bands. Width >100 mm, depth *c* 120 mm, height >200 mm (total estimated *c* 330 mm), thickness 25-27 mm. Context 17339, Phase 9 (late Roman).
9. Voussoir. Complete. Combing pattern: saltire (type 5a/5b), Comb 3. Width 126-163 mm, depth 128-130 mm, height 255 mm. Context 17339, SF 2506, Phase 9 (late Roman).
10. Voussoir. Complete. Combing pattern: saltire (type 5a/5b), Comb 1. Width 115-140 mm, depth 125-132 mm, height 250-255 mm. Context 17339, SF 2501, Phase 9 (late Roman).
11. Voussoir. Complete. Combing pattern: saltire (type 5a/5b), Comb 1. Width 125-160 mm, depth 120-130 mm, height 250 mm. Context 17339, SF 2500, Phase 9 (late Roman).
12. Voussoir. 60% complete (top, base and one face) Combing pattern: saltire (type 5a/5b), Comb 2. Width 117-155 mm, depth 125-130 mm, height 250 mm. Context 17339, SF 2502, Phase 9 (late Roman).
13. Comparison of the patterns produced by the four different combs identified on the voussoir tiles. Comb 1 (17339, SF 2501); Comb 2 (17339, SF 2502); Comb 3 (17339 SF 2506); Comb 4 (17263), Phase 9 (late Roman).

Chapter 12: Worked Wood

by Steven Allen

Five archaeological timbers were recorded from excavations at Cotswold Community (Table 12.1). These timbers formed part of the lining of a Roman well, context 17264, of late Roman date (Phase 9) (Fig. 12.1). All of the wood has been preserved through burial in a waterlogged anoxic environment and it appears that these conditions were maintained in all contexts in which the material survived up to the time of excavation. The timbers were in a generally poor condition. Species identification follows Schweingruber (1982).

The five timbers form the bottommost or 'ground tier' and part of the second tier of a well lining. The technique is reasonably well known (cf Carver *et al.* 1978, 15) and would be described as a box-framed well (Wilmott 1982, 26). A construction pit (in this case 15942) is excavated and the lining is built in the base of the pit as a stack of jointed sub rectangular frames laid on face, one above the other. As the timber structure is built, the construction pit around the timbers is backfilled, leaving a wood lined shaft from which clean water may be drawn.

Much of the Cotswold Community wood structure has been lost, leaving only the lowermost timbers in the ground. As all of the original surfaces have been lost, little can be said about the shaping or jointing of the structure. All four timbers of the ground tier are boxed heart, cut from logs which were already of approximately of the required size and simply squared. It is not known whether this conversion was sawn or hewn. A simple halved joint or lap was cut at each end. The north-south aligned timbers on each side (17433, 17505) were laid parallel with each other with the cut joint facing up and the east-west timbers (17430, 17432) laid over them with their halved ends facing down, so as to engage with the halved joints in the first two timbers. No pegs or nails appear to have been used to secure the joints. These four timbers form a solid broad base for the remainder of the timber lining.

Only one timber, the northernmost, survived of the second tier. This timber is different from the others in being cut from a halved log and laid horizontally on edge so as to maintain the same height, but with reduced thickness. Nonetheless, simple laps were cut

Table 12.1 Structural timber (dimensions in mm)

Context	*Description*	*Species identification*
17429	Halved timber cut from medium diameter parent log. Fairly fast grown, *c* 4-5 annual rings/10 mm. No bark or sapwood present, though some sapwood has been lost, leaving a more rounded face than originally present. Several knots and slightly spiralling grain. Crude halved lap at each end to engage with missing eastern and western timbers of second tier of well lining. Very eroded surfaces, much shrinkage damage. L 978, W 229, Th 108.	*Quercus spp**
17430	Boxed heart timber cut from medium diameter parent log. Fairly fast grown, *c* 4-5 annual rings/10 mm. No bark or sapwood present, though some sapwood has been lost, leaving a more rounded cross section than originally present. Fairly knotty, beginnings of fork at east end accentuated by shrinkage. Crude halved lap at each end to engage with 17505 to the west and 17433 to the east. Very eroded surfaces, much shrinkage damage. L 1009, W 152, Th 148.	*Quercus spp*
17432	Boxed heart timber cut from medium diameter parent log. Fairly fast grown, *c* 4-5 annual rings/10 mm. No bark or sapwood present, though some sapwood has been lost, leaving a more rounded cross section than originally present. Very knotty. Crude halved lap at each end to engage with 17505 to the west and 17433 to the east. Very eroded surfaces, much shrinkage damage. L 1049, W 198, Th 145.	*Quercus spp*
17433	Boxed heart timber cut from medium diameter parent log. Fairly fast grown, *c* 4-5 annual rings/10 mm. No bark or sapwood present, though some sapwood has been lost, leaving a more rounded cross section than originally present. Fairly straight grained with few knots. Crude halved lap at each end to engage with 17430 to the north and 17432 to the south. Very eroded surfaces, much shrinkage damage. L 1038, W 255, Th 213.	*Quercus spp*
17505	Boxed heart timber cut from medium diameter parent log. Fairly fast grown, *c* 4-5 annual rings/10 mm. No bark or sapwood present, though some sapwood has been lost, leaving a more rounded cross section than originally present. Several well spaced large knots present. Crude halved lap at each end to engage with 17432 to the south and 17430 to the north. Very eroded surfaces, much shrinkage damage. L 1092, W 220, Th 200.	*Quercus spp*

*Quercus spp.-Oaks, species not differentiated

Figure 12.1 Structural timber in well 17264

at each end in the same fashion as the ground tier and again no evidence of fastenings was present. No trace of a housing for a corner brace was present in the upper edge of the timber.

Toolmarks and marking out lines are suggested on the wood record sheets compiled at the time. No physical evidence of these marks has survived and their presence and nature cannot be confirmed.

PART 2

Environmental Reports

Chapter 13: Charred Plant Remains

by Wendy Smith

INTRODUCTION

The Cotswold Community excavations resulted in the collection of 258 samples for the recovery of charred plant remains, which dated from the Neolithic to Roman periods. An initial assessment (Bonsall and Druce 2007) recommended that 29 samples should be fully analysed. Most of the middle Roman samples recommended for full analysis were from corn dryer 14400. Six of these samples were dropped from the analysis because all of the corn dryer samples were found to have similar chaff-rich assemblages. In total, the results of analysis of 23 samples are presented here.

Samples date from the middle Neolithic to late Roman period. One of the samples (pit sample 363, context 9067) has returned a modern date (OxA 17613) from an AMS radiocarbon determination on a single barley (*Hordeum* sp.) grain (see Chapter 19), and the results of this sample are confined to the archive. Sample volumes range from 10–80 L, but typically are 40 L in volume. All the Neolithic–Bronze Age samples are from pits; middle Iron Age samples are from pits and ditches; and middle–late Roman samples are from a cremation burial, two corn dryers and a ditch. Corn dryer 14400 produced seven of the ten samples studied from the middle Roman phase.

METHOD

Charred plant remains (excluding charcoal) were sorted from the flots using a low-power binocular microscope at magnifications between x10–x20 by environmental assistants and volunteers under the direct supervision of the author. The author identified plant remains using a low-powered binocular microscope at magnifications between x12.5 and x40. Identifications were made in direct comparison to the Oxford Archaeology modern comparative collection and using standard archaeobotanical identification keys (eg Cappers *et al*. 2006; Jacomet 2006). Nomenclature for the plant remains follows Stace (1997) for indigenous species and Zohary and Hopf (2000) for cultivated species. The traditional binomial system for the cereals is maintained here, following Zohary and Hopf (2000, 28, table 3; 65, table 5). Quantifications of most seeds (in the broadest sense) were made on embryos, except in the case of hazel (*Corylus avellana* L.) nutshell fragments. Quantifications reported in Tables 13.1–3 are only for the portion of the flot sorted. Fragments of hazel nutshells were weighed and then equated to complete hazel nutshells (see below). Richer samples (samples with flots producing >300 identifiable items) were sub-sampled using the 'riffle method' (van der Veen and Fieller 1982) to produce a statistically reliable sub-sample. When a sub-sample was taken, the scores on Tables 13.1–4 are only for those items identified within the sub-sample itself.

RESULTS

The results are presented by phase in Tables 13.1–3 and are discussed by phase below. Figures 13.1–3 present the relative proportion of plant remains for middle Neolithic–middle/late Bronze Age, middle Iron Age and middle–late Roman assemblages respectively. Table 13.4 presents a comparison of plant remains recovered in all phases of occupation at the site, as well as habitat information. Plant remains are fairly poor in middle Neolithic to middle Iron Age deposits, producing assemblages of <100 quantified plant remains. The richest middle Neolithic to middle Iron Age deposits were dominated by hazel (*Corylus avellana* L.) nutshell fragments and were all from pits. Middle Iron Age assemblages produced small assemblages (ie <100 identifications) with a mixture of cereal grain, cereal chaff and accompanying weeds of crop. Small quantities of hazel nutshell fragments were recovered from samples 102 and 685.

The middle to late Roman phase assemblages are much richer and dominated by cereal grain and chaff. Indeterminate wheat (*Triticum* spp.) glume bases were the most abundant chaff remain recovered in this phase. Unfortunately most of this material was highly abraded or had broken low, just above the abscission scar so secure identification to emmer (*Triticum dicoccum* Schübl.) or spelt (*Triticum spelta* L.) was not possible. These samples typically produced >300 quantifiable items and were so rich that sub-samples of 1/8th or 1/16th of a flot were sufficient.

Middle Neolithic, early Bronze Age and middle–late Bronze Age

(Table 13.1 and Figure 13.1)

The quantified results for samples from middle Neolithic, early Bronze Age and middle–late Bronze Age deposits are presented in Table 13.1. The relative proportion of plant remains is presented in Figure 13.1. Six samples (samples 113, context 4050; sample 117, context 4510; sample 346, context 7625; sample 347, context 7971; sample 357, context 8695 and sample 696, context 18299) from middle Neolithic–middle/late Bronze Age period pit deposits were fully analysed. All of these samples had limited charred plant remains, but are clearly dominated by hazel nutshell fragments. In five cases less than 20

Table 13.1 Neolithic–Bronze Age charred plant remains

	Site Code	**SKCC02**	**SKCC00**	**SKCC00**	**SKCC02**	**SKCC02**	**SKCC03**	
	Sample No	**357**	**113**	**117**	**346**	**347**	**696**	
	Context No	**8695**	**4050**	**4510**	**7625**	**7971**	**18299**	
	Feature Type	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	
	Phase	**MNEO**	**EBA**	**EBA**	**EBA**	**EBA**	**MBA/LBA**	
	Description	**Upper fill of pit containing Neolithic pottery, flint, charcoal etc.**	**Charred remains and micro-debitage. Largest sample of flint on site.**	**Upper fill of pit 4512**	**Neo/EBA pit cont. Beaker pottery and burnt hazelnut shells. Top fill. (? Part of circular pit group 9100)**	**Domestic dumping within rubbish pit. Poss cont. Shells and grains. Human femur also recovered.**	**Upper fill [18304] metal moulding fragments, pottery - ?metal working**	
	Sample Vol (L.)	**40**	**40**	**39**	**30**	**10**	**40**	
	Flot Vol (ml)	**25**	**110**	**40**	**2**	**34**	**40**	
	Proportion of flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	
	Seeds per litre	**0.45**	**0.45**	**2.13**	**0.47**	**1.90**	**0.00**	
CPR Fraction	**Latin Binomial**							**English Common Name**
Flot	*Triticum* cf. *dicoccum* Schübl. - grain	-	-	-	-	-	1	Emmer
Combined HR/ Flot	*Corylus avellana* L. - complete nutshell estimate count	4	13	55	4	7	-	Hazel
Flot	*Chenopodium* spp./*Atriplex* spp. - ?ancient	-	-	-	-	1	-	Goosefoot/ Orache
Flot	*Vicia* spp./ *Lathyrus* spp.	-	-	-	-	-	1	Vetch/ Vetchling
Flot	*Plantago major* L.	-		-	-	-	1	Greater Plantain
Flot	POACEAE - small caryopsis	-	-	1	-	-	-	Grass Family
Flot	POACEAE - large caryopsis	-		-	-	-	1	Grass Family
Flot	POACEAE - culm base	-	-	-	-	4	-	Grass Family
Flot	POACEAE - culm node	-	-	1	-	-	-	Grass Family
Flot	cf. POACEAE - small caryopsis	-	-	-	-	1	-	Possible Grass Family
Flot	Unidentified bud	-	-	3	-	-	-	Unidentified
Flot	Unidentified seed coat - fragments	-	-	2	-	-	-	Unidentified

Table 13.1 Neolithic–Bronze Age charred plant remains (continued)

	Site Code	**SKCC02**	**SKCC00**	**SKCC00**	**SKCC02**	**SKCC02**	**SKCC03**	
	Sample No	**357**	**113**	**117**	**346**	**347**	**696**	
	Context No	**8695**	**4050**	**4510**	**7625**	**7971**	**18299**	
	Feature Type	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	
	Phase	**MNEO**	**EBA**	**EBA**	**EBA**	**EBA**	**MBA/LBA**	
Flot	Unidentified twig/ root - fragments	-	-	4	-	-	-	Unidentified
Flot	Unidentified	-	1	2	-	-	-	Unidentified
Flot	Indeterminate	14	4	15	10	6	-	Indeterminate
Flot	Fungal body (score not included in total count)	-	-	(2)	-	-	-	Fungal body
	Total	**18**	**18**	**83**	**14**	**19**	**4**	
HAZEL NUTSHELL IDENTIFICATIONS								
Fraction								
>10 mm HR	*Corylus avellana* L. - nutshell fragments weight (g)	0.00	0.00	0.87	0.00	0.00	0.00	
10-4 mm HR	*Corylus avellana* L. - nutshell fragments weight (g)	0.56	0.20	14.59	0.00	0.28	0.00	
4-2 mm HR	*Corylus avellana* L. - nutshell fragments weight (g)	0.13	0.00	0.00	0.53	0.49	0.00	
FLOT	Corylus avellana L. - nutshell fragments weight (g)	0.94	5.39	7.66	1.02	2.18	0.00	
TOTAL WEIGHT (g)	*Corylus avellana* L. - nutshell fragments	1.63	5.59	23.12	1.55	2.95	0.00	
ESTIMATE COUNT*	*Corylus avellana* L. - approx. no. complete nutshells	3.88	13.31	55.05	3.69	7.02	0.00	

*The estimate count of complete hazel nutshells is based on a calculation presented by Wendy Carruthers in Mithen *et al*. 2001; whereby 42 g of charred hazel nutshell fragments is equivalent to 100 hazelnuts.

Table 13.2 Middle Iron Age charred plant remains

	Site Code	**SKCC00**	**SKCC00**	**SKCC00**
	Sample No	**101**	**102**	**111**
	Context No	**4182**	**4183**	**4366**
	Feature Type	**Pit**	**Pit**	**Ditch**
	Sample Vol (L.)	**15**	**40**	**40**
	Phase	**MIA**	**MIA**	**MIA**
	Description	**Pit [4181] Upper fill (sample 2 of 4)**	**Pit [4181] Lower fill (sample 3 of 4)**	**Fill of ditch [4363]**
	Flot Vol (ml)	**50**	**50**	**50**
	Proportion of flot sorted	**100%**	**100%**	**100%**
	Seeds per liter	**5.93**	**2.28**	**1.48**
Fraction	**Latin Binomial**			
	Cereal Grain			
Flot	*Hordeum* spp. - hulled	-	1	3
Flot	cf. *Hordeum* spp. - hulled	2	-	1
Flot	*Triticum spelta* L.	-	-	-
Flot	*Triticum* spp. - indeterminate	1	-	-
Flot	Cereal - indeterminate	-	7	4
Flot	Cereal/ POACEAE - indeterminate	11	10	5
	Cereal Chaff			
Flot	*Triticum* cf. *spelta* L. - glume base	-	1	-
Flot	*Triticum* spp. - glume base	3	4	4
Flot	*Triticum* spp. - rachis node	6	3	-
Flot	Cereal - indeterminate rachis node	1	-	-
Flot	Cereal/POACEAE - indeterminate culm base	-	1	-
	Trees/Shrubs			
Flot	*Corylus avellana* L. - nutshell fragments [est count (weight g)]	-	0.33 (0.14g)	-
10-4mm HR	*Crataegus monogyna* Jacq.	-	1	-
	Weed/Wild Plants			
Flot	*Papaver rhoeas* L./*dubium* L.	-	-	1
Flot	*Urtica dioica* L.	-	-	2
Flot	cf. *Urtica dioica* L.	-	-	2
Flot	*Chenopodium* spp.	4	-	-
Flot	*Chenopodium* spp. - pitted seed coat	-	-	1
Flot	*Chenopodium* spp. - ?ancient	-	5	-
Flot	cf. *Cerastium* spp.	-	-	1
Flot	*Agrostemma githago* L. - calyx tip	-	-	1
Flot	CARYOPHYLLACEAE - unidentified, small-seeded	-	-	1
Flot	*Persicaria* spp.	1	-	-
Flot	*Polygonum* cf. *aviculare* L.	-	-	1
Flot	*Polygonum* spp.	-	-	-
Flot	*Polygonum* spp./*Rumex* spp./*Carex* spp. - internal structure	4	4	2
Flot	*Fallopia convolvulus* (L.) Á. Löve	-	-	3
Flot	*Rumex* spp.	-	-	4
Flot	*Lysimachia* spp./ *Anagallis* spp.	1	-	1
Flot	cf. *Aphanes arvensis* L.	-	-	1
Flot	cf. *Lotus* spp.	-	-	1

Table 13.2 Middle Iron Age charred plant remains (continued)

	Site Code	**SKCC00**	**SKCC00**	**SKCC00**
	Sample No	**101**	**102**	**111**
	Context No	**4182**	**4183**	**4366**
	Feature Type	**Pit**	**Pit**	**Ditch**
	Sample Vol (L.)	**15**	**40**	**40**
	Phase	**MIA**	**MIA**	**MIA**
	Weed/Wild Plants continued...			
Flot	cf. *Vicia hirsuta* (L.) Gray	-	-	1
Flot	*Melilotus* spp./*Medicago* spp./*Trifolium* spp.	1	1	-
Flot	FABACEAE - unidentified medium-seeded	-	-	1
Flot	*Plantago media* L./*lanceolata* L.	-	-	1
Flot	*Euphrasia* spp./*Odontites* spp.	-	2	-
Flot	*Galium* cf. *verum* L./*mollugo* L.	15	11	-
Flot	*Galium* spp.	-	-	-
Flot	cf. *Valerianella dentata* (L.) Pollich	1	-	-
Flot	cf. *Anthemis cotula* L.	-	-	1
Flot	ASTERACEAE - internal structure (*Anthemis*/*Tripleurospermum* type)	-	-	2
Flot	*Avena* spp. - awn	-	1	-
Flot	cf. *Avena* spp. - floret base	1	-	-
Flot	POACEAE - small-sized caryopsis	6	4	2
Flot	POACEAE - medium-sized caryopsis	-	4	1
Flot	POACEAE - large-sized caryopsis	3	-	-
Flot	POACEAE - culm node	-	1	-
Flot	Unidentfied - fruit	1	-	-
Flot	Unidentified - seed pod	-	-	1
Flot	Unidentified - stalk	1	-	-
Flot	Unidentified - thorn	1	-	-
Flot	Unidentified	25	19	-
Flot	Indeterminate	-	10	10
Flot &HR	**Total (hazelnut count rounded to nearest 1)**	**89**	**91**	**59**

identifiable items were recovered in these samples, and the richest sample still produced less than 100 identifiable items.

In all cases the hazel nutshell was highly fragmented. Rather than quantify individual fragments (which are variable in size) the weight of charred hazel nutshell fragments was recorded and this was converted to whole hazel nuts using the calculation devised by Carruthers (Mithen *et al*. 2001, 227), where an experiment established that the charred nutshells of 100 hazelnuts weigh 42 g. Most of the hazel nutshell quantities in the Neolithic and/or Bronze Age pits are relatively small - 20 nuts or less, which could conceivably have arrived with hazel wood fuel or represent general household detritus. It seems wasteful to 'accidentally' burn hazel nuts coming in with hazel wood fuel; nevertheless, Challinor (below, Chapter 14) found that hazel wood charcoal was dominant in many of these deposits. Perhaps this is a combination of intentional collection of hazel nuts, as a wild foodstuff, combined with the use of hazel wood (possibly a managed resource) for fuel. Certainly, the recovery of the equivalent of 55 hazel nuts in pit sample 117, context 4510 is less easy to explain away and may well represent a discrete event, even though hazel wood charcoal was dominant in this assemblage (see Challinor below, Chapter 14).

Middle–late Bronze Age pit sample 696 (context 18299) is different from the middle Neolithic and early Bronze age samples. This sample produced no hazel nutshell fragments but instead contained one possible emmer (*Triticum* cf. *dicoccum* Schübl.) grain and a few weed seeds (see Table 13.1).

Interpretation of such small assemblages is difficult. The limited recovery of cereal crops and frequent recovery of remains of collected wild foodstuffs, such as hazel nutshells, is typical of Neolithic–early Bronze Age archaeobotanical assemblages (eg Moffett

Table 13.3 Roman charred plant remains

Site Code	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03
Sample No	**685**	**711**	**649**	**632**	**632**	**637**	**638**
Context No	**18649**	**18831**	**15336**	**15131**	**15131**	**14998**	**14999**
Feature Type	**Pit**	**Pit**	**Ditch**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**
Description		**burnt layer**	**burnt deposit in ditch 15340**	**top fill of corn dryer 14400**	**top fill of corn dryer 14400**	**fill of corn dryer 14400**	**fill of corn dryer 14400**
Phase	**ROM**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**
Sample Vol (L.)	**40**	**30**	**10**	**40**	**40**	**40**	**40**
Flot Vol (ml)	**300**	**175**	**10**	**100**	**100**	**100**	**200**
Fraction sorted	**Flot**	**Flot**	**Flot**	**Flot**	**2.0 - .5mm HR***	**Flot**	**Flot**
Proportion of flot/HR sorted	**12.50%**	**12.50%**	**12.50%**	**6.25%**	**6.25%**	**6.25%**	**6.25%**
Seeds per liter	**59.4**	**89.3**	**479.2**	**378.0**	**363.2**	**154.4**	**275.2**
Latin Binomial							
Cereal Grain							
Hordeum spp. - hulled	5	10	-	-	-	-	-
cf. *Hordeum* spp. - hulled	-	-	-	-	-	-	-
Triticum spelta L.	-	1	-	-	-	-	-
Triticum cf. *spelta* L.	-	-	-	-	-	-	-
Triticum spp. - indeterminate	3	2	-	1	-	8	18
Triticum spp. - indeterminate, tail grain	-	-	-	-	-	1	-
Cereal - indeterminate	20	91	3	6	-	26	46
Cereal/POACEAE - indeterminate	25	75	20	25	15	10	20
Cereal/POACEAE - detached embryo	-	-	2	-	10	-	2
Cereal/POACEAE - coleoptile	-	-	4	21	11	-	1
Cereal Chaff							
Hordeum distichum L. - rachis node	-	-	-	-	-	-	1
Hordeum spp. - rachis node	2	1	-	-	-	-	-
Triticum cf. *dicoccum* Schübl. - glume base	-	-	-	1	-	1	-
Triticum spelta L. - spikelet fork (count glume base/ rachis internode)	-	-	-	-	-	-	8 (=12gb + 4r)
Triticum spelta L. - glume base	2	2	39	60	50	20	18
Triticum spelta L. - glume	-	-	++	++	++	+	+
Triticum cf. *spelta* L. - spikelet fork (count glume base/rachis internode)	-	-	3 (=5gb + 3r)	3 (=5gb + 1r)	2 (=4gb + 2r)	-	-
Triticum cf. *spelta* L./*turgidum* L./*durum* Desf. - rachis node	-	-	-	-	-	-	2
Triticum cf. *turgidum* L./*durum* Desf.	-	-	-	-	-	-	-
Triticum spp. - free-threshing type rachis node	-	-	-	-	-	-	-
Triticum spp. - spikelet fork (count glume base/ rachis node)	-	-	-	-	1 (=2gb + 1r)	4 (=5gb + 0r)	-
Triticum spp. - terminal spikelet fork (count glume base/rachis node)	-	-	-	-	-	1 (= 2gb)	-
Triticum spp. - glume base	47	6	319	469	421	122	300

* Sample 632 was the only sample to produce CPR in a heavy residue (HR) fraction. The results are shown separately here but are combined with the flot results for the summary statistics.

Table 13.3 Roman charred plant remains (continued)

Site Code	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03
Sample No	**685**	**711**	**649**	**632**	**632**	**637**	**638**
Context No	**18649**	**18831**	**15336**	**15131**	**15131**	**14998**	**14999**
Feature Type	**Pit**	**Pit**	**Ditch**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**
Description		**burnt layer**	**burnt deposit in ditch 15340**	**top fill of corn dryer 14400**	**top fill of corn dryer 14400**	**fill of corn dryer 14400**	**fill of corn dryer 14400**
Phase	**ROM**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**
Cereal Chaff continued...							
Triticum spp. - rachis node	42	-	96	224	286	125	108
Cereal - indeterminate basal rachis internode	-	-	-	-	-	-	-
Cereal - indetermiante rachilla	-	-	-	1	-	-	-
Cereal/POACEAE - indeterminate rachis node	-	2	-	-	-	-	-
Cereal/POACEAE - indeterminate culm base	-	-	-	-	-	-	-
Cereal/POACEAE - indeterminate culm node	1	2	2	-	-	-	-
Cereal/POACEAE - indeterminate straw fragments	-	-	-	-	-	-	-
Cereal/POACEAE - indeterminate chaff/ glume ashy fragments (unquantified)	-	-	-	++	++	-	++
cf. Cereal/POACEAE - indeterminate culm base	-	-	-	-	-	-	-
Pulses							
Vicia spp./ *Pisum sativum* L.	-	-	-	-	-	-	-
Trees/Shrubs							
Corylus avellana L. - nutshell fragments [est count (weight g)]	0.14 (0.06g)	-	-	-	-	-	-
Weed/Wild Plants							
Ranunculus subg. RANUNCULUS	-	1	-	-	-	-	-
Papaver rhoeas L./*dubium* L.	-	-	-	-	-	-	1
Papaver argemone L. - type	-	-	-	-	-	-	-
Chenopodium spp. - ?ancient	11	6	-	-	-	-	-
Chenopodium spp./*Atriplex* spp.	2	-	-	1	-	-	-
Atriplex spp.	-	-	-	-	-	-	2
Atriplex spp. - ?ancient	-	-	-	-	-	2	-
CHENOPODIACEAE/CARYOPHYLLACEAE - unidentified	-	-	-	-	-	-	-
Cerastium spp. - ? ancient	1	-	-	-	-	-	-
Agrostemma githago L. - calyx tip	-	-	1	4	4	2	1
cf. *Agrostemma githago* L.	-	1	-	-	-	-	2
Silene spp.	1	-	-	2	-	1	-
CARYOPHYLLACEAE - unidentified	1	-	-	-	-	-	-
Polygonum cf. *aviculare* L.	-	-	-	-	-	-	-
Polygonum spp.	1	-	-	-	-	1	-
cf. *Polygonum* spp.	-	-	1	-	-	-	-
Polygonum spp./*Rumex* spp./*Carex* spp. - internal structure	-	-	1	1	-	1	-
Fallopia convolvulus (L.) Á. Löve	-	2	-	-	-	-	1

Table 13.3 Roman charred plant remains (continued)

Site Code	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**
Sample No	**685**	**711**	**649**	**632**	**632**	**637**	**638**
Context No	**18649**	**18831**	**15336**	**15131**	**15131**	**14998**	**14999**
Feature Type	**Pit**	**Pit**	**Ditch**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**
Description		**burnt layer**	**burnt deposit in ditch 15340**	**top fill of corn dryer 14400**	**top fill of corn dryer 14400**	**fill of corn dryer 14400**	**fill of corn dryer 14400**
Phase	**ROM**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**
Weed/Wild Plants continued...							
Rumex spp.	1	6	1	2	1	3	8
Lysimachia spp./*Anagallis* spp.	-	1	-	-	-	-	-
Vicia spp./*Lathyrus* spp.	-	3	-	-	-	-	-
cf. *Vicia* spp./*Lathyrus* spp.	-	-	-	1	-	1	-
Melilotus spp./*Medicago* spp./*Trifolium* spp.	1	1	-	-	1	-	-
Medicago cf. *lupilina* L.	3	-	-	-	-	-	-
FABACEAE - unidentified pod	-	-	1	-	-	-	-
Prunella vulgaris L.	-	-	-	1	-	-	-
cf. *Prunella vulgaris* L.	-	-	-	2	-	-	-
Plantago major L.	-	-	-	-	-	-	-
Plantago media L./*lanceolata* L.	-	-	-	-	-	-	-
Euphrasia spp./*Odontites* spp.	-	1	-	-	-	-	-
Euphrasia spp./*Odontites* spp. - ?ancient	-	-	-	-	-	-	-
cf. *Euphrasia* spp./*Odontites* spp.	-	-	-	1	-	-	-
Sherardia arvensis L.	-	-	-	-	-	-	-
Galium spp.	1	-	-	-	-	-	-
Anthemis cotula L.	-	-	10	-	-	-	-
Tripleurospermum inodorum (L.) Sch. Bip.	-	-	-	-	-	1	1
Tripleurospermum cf. *inodorum* (L.) Sch. Bip.	-	-	-	-	-	-	-
ASTERACEAE - internal structure *(Anthemis/ Tripleurospermum* type)	-	-	1	-	-	-	-
Eleocharis palustris (L.) Roem. & Schult./*uniglumis* (Link.) Schult.	17	29	-	-	-	-	-
Carex spp. - 2-sided urticle	-	-	-	2	-	-	-
Carex spp. - 3-sided urticle	6	9	-	2	1	-	1
cf. *Carex* spp. - 3-sided urticle	-	1	-	-	-	-	-
CYPERACEAE - unidentified	1	-	-	-	2	-	-
Lolium spp.	-	-	-	-	-	-	-
Lolium spp. - rachis node	-	-	-	-	-	-	-
cf. *Lolium* spp. - rachis node	-	-	-	1	-	-	-
Cynosurus cristatus L.	-	-	-	-	-	-	-
Avena spp. - awn	-	+	-	+	+	-	1
Avena spp. - floret base	-	3	-	2	2	-	-
cf. *Avena* spp. - floret base	-	-	-	-	-	-	-
Avena spp./*Bromus* spp.	-	-	-	1	-	1	2
Bromus spp.	-	-	-	-	-	-	-

Table 13.3 Roman charred plant remains (continued)

Site Code	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**
Sample No	**685**	**711**	**649**	**632**	**632**	**637**	**638**
Context No	**18649**	**18831**	**15336**	**15131**	**15131**	**14998**	**14999**
Feature Type	**Pit**	**Pit**	**Ditch**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**
Description		**burnt layer**	**burnt deposit in ditch 15340**	**top fill of corn dryer 14400**	**top fill of corn dryer 14400**	**fill of corn dryer 14400**	**fill of corn dryer 14400**
Phase	**ROM**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**	**MRO**
Weed/Wild Plants continued...							
cf. *Bromus* spp.	-	-	-	-	-	1	-
POACEAE - small-sized caryopsis	6	4	-	-	-	2	-
POACEAE - medium-sized caryopsis	16	2	-	8	4	20	54
POACEAE - large-sized caryopsis	1	2	1	5	-	-	-
POACEAE - basal rachis node	-	-	-	-	-	-	-
POACEAE - culm base	-	2	-	-	-	-	-
POACEAE - culm node	14	-	-	-	-	-	-
Unidentified - seed pod/ capsule fragment	-	-	1	-	-	-	-
Unidentified - sprout	-	-	-	-	-	-	-
Unidentified - thorn	1	-	-	-	-	-	-
Unidentified - tuber	-	-	-	-	-	-	-
Unidentified	6	57	-	1	3	2	2
Indeterminate	50	4	2	26	16	15	50
Total (spikelets counted as individual glume bases/ rachis internodes)	**297**	**335**	**599**	**945**	**908**	**386**	**688**

Site Code	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**
Sample No	**640**	**645**	**647**	**634**	**551**	**588**	**604**
Context No	**15171**	**15004**	**15444**	**15150**	**10618**	**11488**	**11700**
Feature Type	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Ditch**	**Corn dryer**	**Cremation**
Sample Vol (L.)	**25**	**20**	**28**	**40**	**10**	**40**	**80**
Phase	**MRO**	**MRO**	**MRO**	**MRO**	**?MRO**	**MRO-LRO**	**MRO-LRO**
Description	**in situ charcoal layer corndryer 14400**	**fill of corndryer 14400**	**charcoal in corn dryer 14400**	**ashy deposit**	**ditch cut 10616**	**fill of corndryer 11486.**	**cremated layer/bone**
Flot Vol (ml)	**25**	**135**	**45**	**150**	**10**	**50**	**115**
Fraction sorted	**Flot**	**Flot**	**Flot**	**Flot**	**Flot**	**Flot**	**Flot**
Proportion of flot/HR sorted	**12.5%**	**6.25%**	**12.5%**	**6.25%**	**12.5%**	**100%**	**25%**
Seeds per liter	**56.3**	**333.6**	**70.6**	**93.6**	**379.2**	**7.3**	**23.6**
Latin Binomial							
Cereal Grain							
Hordeum spp. - hulled	-	-	2	-	2	7	-
cf. *Hordeum* spp. - hulled	-	-	-	-	-	1	-

Table 13.3 Roman charred plant remains (continued)

Site Code	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**	**SKCC03**
Sample No	**640**	**645**	**647**	**634**	**551**	**588**	**604**
Context No	**15171**	**15004**	**15444**	**15150**	**10618**	**11488**	**11700**
Feature Type	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Ditch**	**Corn dryer**	**Cremation**
Sample Vol (L.)	**25**	**20**	**28**	**40**	**10**	**40**	**80**
Phase	**MRO**	**MRO**	**MRO**	**MRO**	**?MRO**	**MRO-LRO**	**MRO-LRO**
Cereal Grain continued...							
Triticum spelta L.	-	-	-	-	-	-	-
Triticum cf. *spelta* L.	-	-	-	-	-		7
Triticum spp. - indeterminate	-	1	7	-	4	14	88
Triticum spp. - indeterminate, tail grain	-	-	-	-		1	-
Cereal - indeterminate	2	20	29	-	12	80	40
Cereal/ POACEAE - indeterminate	20	-	20	-	25	25	75
Cereal/ POACEAE - detached embryo	-	-	1	2	1	8	1
Cereal/ POACEAE - coleoptile	2	-	2	1	7	-	-
Cereal Chaff							
Hordeum distichum L. - rachis node	-	-	-	-	-	-	-
Hordeum spp. - rachis node	-	-	-	-	-	-	-
Triticum cf. *dicoccum* Schübl. - glume base	-	-	-	-	-	-	-
Triticum spelta L. - spikelet fork (count glume base/rachis internode)	-	4 (=5gb + 1r)	-	-	-	-	1 (=2gb/ 0r)
Triticum spelta L. - glume base	14	18	8	4	28	2	18
Triticum spelta L. - glume	-	++	-	-	+	-	+
Triticum cf. *spelta* L. - spikelet fork (count glume base/rachis internode)	-	2 (=4gb + 0r)	-	-	-	-	
Triticum cf. *spelta* L./*turgidum* L./*durum* Desf. - rachis node	-	-	-		-	-	
Triticum cf. *turgidum* L./*durum* Desf.	-	-	1		-	-	
Triticum spp. - free-threshing type rachis node	-	1	-	-	-	1	-
Triticum spp. - spikelet fork (count glume base/rachis node)	3 (=3gb + 3r)	-	-	1 (=2gb + 0r)	-	-	5 (=8gb/ 0r)
Triticum spp. - terminal spikelet fork (count glume base/rachis node)	-	-	-	-	-	-	-
Triticum spp. - glume base	54	194	84	71	133	7	54
Triticum spp. - rachis node	50	107	53	60	110	50	22
Triticum spp. - basal rachis node	-	1	-	-	1	-	-
Triticum spp. - terminal rachis node	-	-	-		-	-	
Triticum spp. - awn	-	-	-	-	+	-	-
Triticum spp. - glume	+	++	++	+	-	+	+
Cereal - indeterminate rachis node	-	-	-	7	-	-	-
Cereal - indeterminate rachis internode	17	19	16	-	-	3	1
Cereal - indeterminate basal rachis internode	-	-	-	3	-	2	-
Cereal - indeterminate rachilla	-	-	-	-	-	-	-
Cereal/POACEAE - indeterminate rachis node	-	-	-	15	4	-	-

Table 13.3 Roman charred plant remains (continued)

Site Code	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03
Sample No	**640**	**645**	**647**	**634**	**551**	**588**	**604**
Context No	**15171**	**15004**	**15444**	**15150**	**10618**	**11488**	**11700**
Feature Type	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Ditch**	**Corn dryer**	**Cremation**
Sample Vol (L.)	**25**	**20**	**28**	**40**	**10**	**40**	**80**
Phase	**MRO**	**MRO**	**MRO**	**MRO**	**?MRO**	**MRO-LRO**	**MRO-LRO**
Cereal Grain continued...							
Cereal/POACEAE - indeterminate culm base	-	-	-	-	-	-	1
Cereal/POACEAE - indeterminate culm node	1	1	-	-	-	-	-
Cereal/POACEAE - indeterminate straw fragments	-	-	-	-	-	-	+
Cereal/POACEAE - indeterminate chaff/ glume ashy fragments (unquantified)	-	-	++	-	-	-	-
cf. Cereal/POACEAE - indeterminate culm base	-	-	-	-	-	1	-
Pulses							
Vicia spp./*Pisum sativum* L.	-	-	-	-	-	1	-
Trees/ Shrubs							
Corylus avellana L. - nutshell fragments [est count (weight g)]	-	-	-	-	-	-	-
Weed/ Wild Plants							
Ranunculus subg. RANUNCULUS	-	-	-	-	-	-	-
Papaver rhoeas L./*dubium* L.	-	-	1	3	-	1	-
Papaver argemone L. - type	-	-	-	-	-	1	-
Chenopodium spp. - ?ancient	-	-	1	1	2	-	-
Chenopodium spp./*Atriplex* spp.	-	-	-	2	-	-	-
Atriplex spp.	-	-	-	-	-	-	-
Atriplex spp. - ?ancient	-	-	-	-	-	11	10
CHENOPODIACEAE/ CARYOPHYLLACEAE - unidentified	-	-	1	-	-	-	-
Cerastium spp. - ? ancient	-	-	-	-	-	-	-
Agrostemma githago L. - calyx tip	1	-	3	2	2	-	-
cf. *Agrostemma githago* L.	-	-	-	-	-	-	-
Silene spp.	-	-	-	-	1	-	-
CARYOPHYLLACEAE - unidentified	-	-	-	-	-	-	-
Polygonum cf. *aviculare* L.	-	-	-	-	-	-	2
Polygonum spp.	-	-	-	-	-	-	-
cf. *Polygonum* spp.	-	-	-	-	-	-	-
Polygonum spp./*Rumex* spp./*Carex* spp. - internal structure	1	-	-	2	2	1	-
Fallopia convolvulus (L.) Á. Löve	-	-	-	-	-	-	-
Rumex spp.	1	2	1	1	11	1	2
Lysimachia spp./*Anagallis* spp.	-	-	-	-	-	-	-
Vicia spp./*Lathyrus* spp.	-	-	-	3	-	2	2
cf. *Vicia* spp./*Lathyrus* spp.	-	-	-	-	-	-	-

Table 13.3 Roman charred plant remains (continued)

Site Code	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03
Sample No	**640**	**645**	**647**	**634**	**551**	**588**	**604**
Context No	**15171**	**15004**	**15444**	**15150**	**10618**	**11488**	**11700**
Feature Type	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Ditch**	**Corn dryer**	**Cremation**
Sample Vol (L.)	**25**	**20**	**28**	**40**	**10**	**40**	**80**
Phase	**MRO**	**MRO**	**MRO**	**MRO**	**?MRO**	**MRO-LRO**	**MRO-LRO**
Weed/ Wild Plants continued							
Melilotus spp./*Medicago* spp./*Trifolium* spp.	-	-	-	-	-	-	3
Medicago cf. *lupilina* L.	-	-	-	-	-	-	-
FABACEAE - unidentified pod	-	-	-	-	-	-	-
Prunella vulgaris L.	-	-	-	-	-	-	-
cf. *Prunella vulgaris* L.	-	-	-	-	-	-	-
Plantago major L.	-	-	-	-	-	-	1
Plantago media L./*lanceolata* L.	-	-	1	-	-	-	-
Euphrasia spp./*Odontites* spp.	-	-	-	1	-	-	1
Euphrasia spp./*Odontites* spp. - ?ancient	-	-	-	-	-	-	1
cf. *Euphrasia* spp./*Odontites* spp.	-	-	-	-	-	-	-
Weed/Wild Plants continued...							
Sherardia arvensis L.	-	-	-	-	-	1	-
Galium spp.	-	-	-	-	-	-	-
Anthemis cotula L.	1	-	1	-	9	-	16
Tripleurospermum inodorum (L.) Sch. Bip.	-	-	1	2	-	-	-
Tripleurospermum cf. *inodorum* (L.) Sch. Bip.	-	-	-	1	-	-	-
ASTERACEAE - internal structure (*Anthemis*/*Tripleurospermum* type)	1	-	1	15	-	1	-
Eleocharis palustris (L.) Roem. & Schult./ *uniglumis* (Link.) Schult.	-	-	-	-	-	2	4
Carex spp. - 2-sided urticle	-	-	-	-	-	-	-
Carex spp. - 3-sided urticle	-	1	-	7	-	1	1
cf. *Carex* spp. - 3-sided urticle	-	-	-	-	-	-	-
CYPERACEAE - unidentified	-	-	-	-	-	-	-
Lolium spp.	-	1	-	-	-	-	-
Lolium spp. - rachis node	-	1	-	-	-	-	-
cf. *Lolium* spp. - rachis node	-	1	-	-	-	-	-
Cynosurus cristatus L.	-	-	-	-	-	-	2
Avena spp. - awn	-	+	+	-	+	-	+
Avena spp. - floret base	-	-	-	-	-	-	-
cf. *Avena* spp. - floret base	1	-	-	-	-	-	-
Avena spp./*Bromus* spp.	2	2	-	2	-	5	-
Bromus spp.	1	-	-	-	-	-	-
cf. *Bromus* spp.	-	-	-	-	-	-	-
POACEAE - small-sized caryopsis	-	-	1	4	1	2	6
POACEAE - medium-sized caryopsis	1	26	3	5	-	1	3

Table 13.3 Roman charred plant remains (continued)

Site Code	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03	SKCC03
Sample No	**640**	**645**	**647**	**634**	**551**	**588**	**604**
Context No	**15171**	**15004**	**15444**	**15150**	**10618**	**11488**	**11700**
Feature Type	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Corn dryer**	**Ditch**	**Corn dryer**	**Cremation**
Sample Vol (L.)	**25**	**20**	**28**	**40**	**10**	**40**	**80**
Phase	**MRO**	**MRO**	**MRO**	**MRO**	**?MRO**	**MRO-LRO**	**MRO-LRO**
Weed/ Wild Plants continued							
POACEAE - large-sized caryopsis	-	1	2	-	2	1	-
POACEAE - basal rachis node	-	-	-	-	-	-	2
POACEAE - culm base	-	-	-	-	-	-	4
POACEAE - culm node	-	-	-	-	-	-	3
Unidentified - seed pod/ capsule fragment	-	-	-	-	-	-	-
Unidentified - sprout	-	-	-	1	-	-	-
Unidentified - thorn	-	-	-	-	-	-	-
Unidentified - tuber	-	-	-	1	-	-	-
Unidentified	-	6	1	2	2	6	16
Indeterminate	-	4	6	14	107	50	75
Total (spikelets counted as individual glume bases/rachis internodes)	**176**	**417**	**247**	**234**	**474**	**290**	**471**

et al. 1989; G Jones 2000; Robinson 2000). Indeed in southern England, it is generally accepted that cereal cultivation was not widely adopted until the middle Bronze Age (Campbell and Straker 2003).

Middle Iron Age

(Table 13.2 and Figure 13.2)

Three middle Iron Age samples (pit samples 101, context 4182 and 102, context 4183 and ditch sample 111, context 4366) were analysed. All of the assemblages were fairly small (<100 identifications), containing a mixture of cereal grain, cereal chaff and accompanying weeds of crop. In all cases, weed/wild plants formed a substantial portion of the assemblage, accounting for 35.1–54.2% of all identifications. Cereal grain (15.7–22.0%) and cereal chaff (6.8–11.2%) are much more abundant in these deposits than in the middle Bronze Age deposit, with hulled barley (*Hordeum* sp.) grain and indeterminate wheat (*Triticum* sp.) glume bases recovered. However, the majority of material was quite fragmented and/or abraded, so identification to species level, especially of the wheat, was not possible. The small number and size of the middle Iron Age assemblages recovered most likely means that these assemblages are not fully representative of the range of agricultural activities taking place.

Middle–late Roman

(Tables 13.3 and Figure 13.3)

Thirteen samples (both the results of the flot and heavy residue are reported for sample <632> in Table 13.3) were studied from middle–late Roman phases on the Cotswold Community Project, seven of which are from middle Roman corn dryer 14400. The samples fall into two groups: chaff-rich assemblages and relatively grain-rich assemblages. The dominance of spelt glume bases/indeterminate wheat glume bases was possibly more frequent than at the nearby Cotswold Water Park sites. Chaff-rich assemblages were observed at Claydon Pike in certain Roman deposits (eg phase 3 and 3/4; Robinson 2007c, 157 and digital archive 4.5 table 7). Typically one would expect features such as a corn dryer to produce abundant chaff remains; however, a corn dryer (context 167) at the Cotswold Water Park site of Neigh Bridge, Somerford Keynes produced limited or no cereal chaff from deposits within and/or surrounding it (Robinson 2007a, 268–9).

At Cotswold Community, only three samples

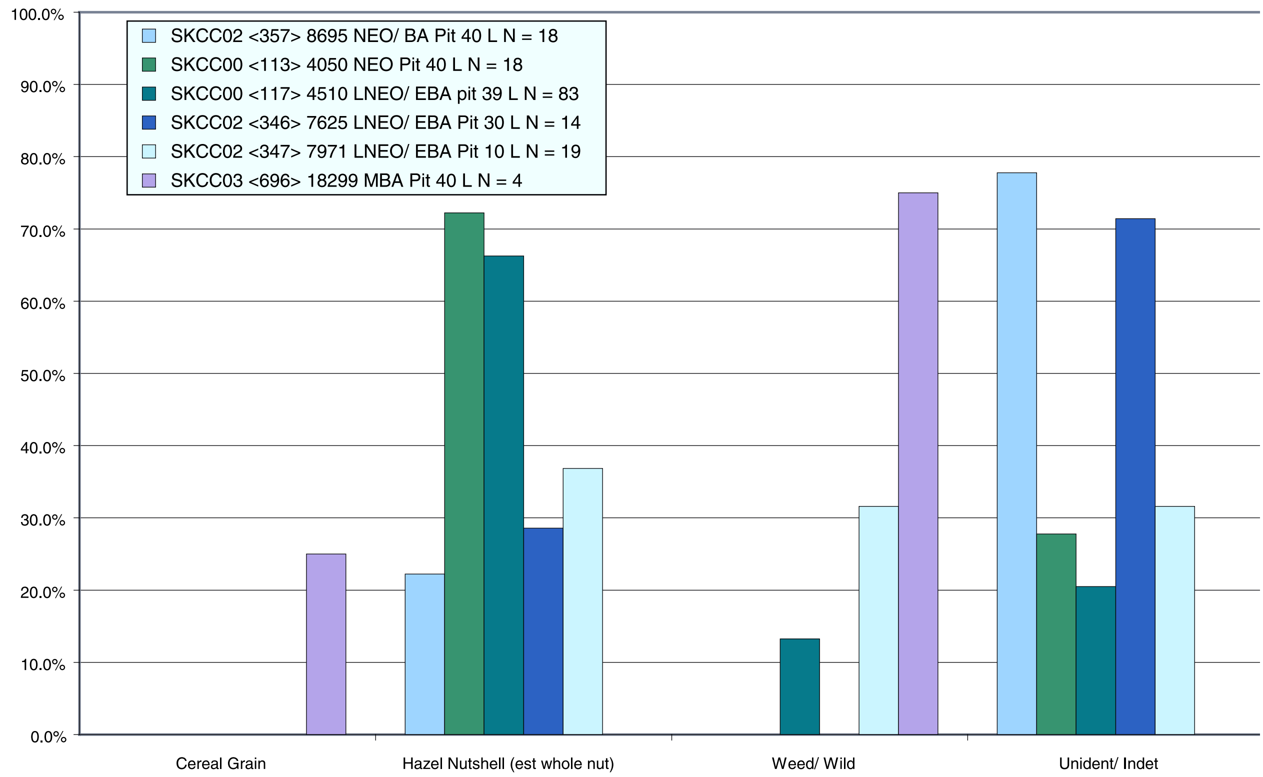

Figure 13.1 Relative proportion of charred plant remains from Neolithic–Bronze Age features

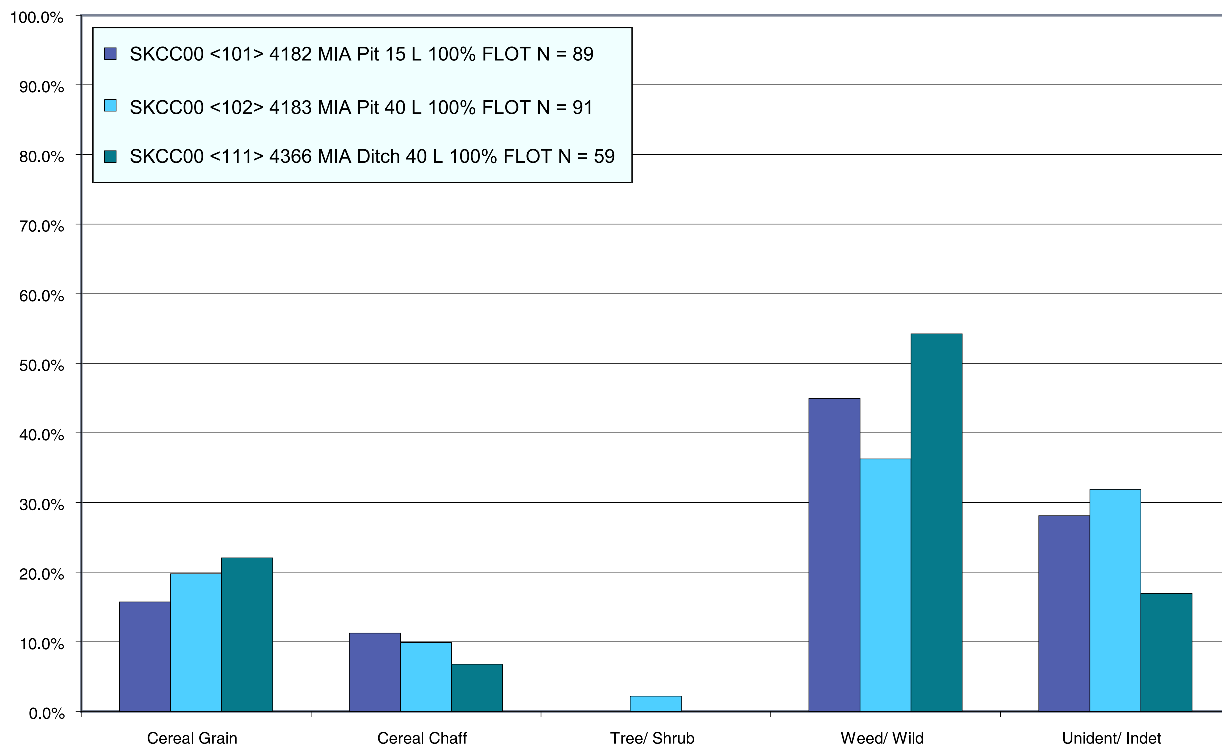

Figure 13.2 Relative proportion of charred plant remains from middle Iron Age deposits

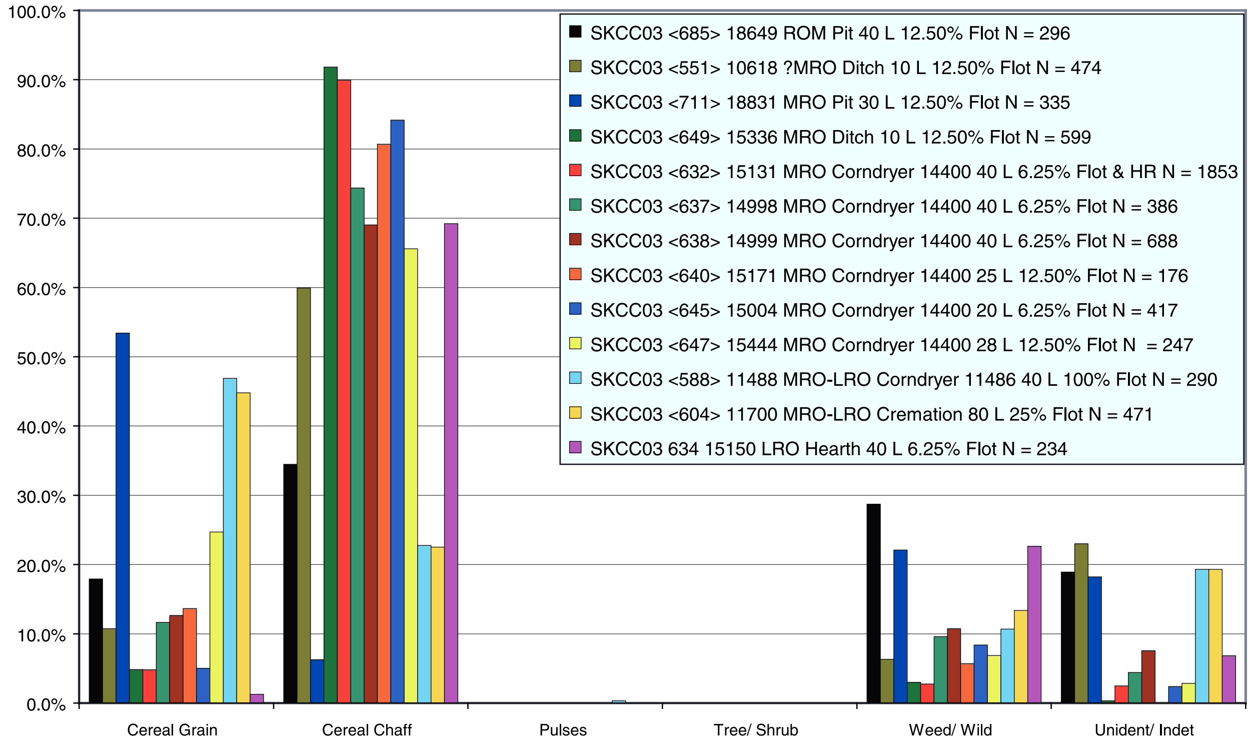

Figure 13.3 Relative proportion of charred plant remains from middle–late Roman features

produced assemblages with substantial quantities of charred cereal grain. Middle Roman pit sample 711 was dominated by poorly preserved, indeterminate cereal grain, accounting for 53.4% of all identifications from this sample. Middle to late Roman corn dryer 11486 (sample 588, context 11488) produced a mixture of cereal grain (46.9%), cereal chaff (22.8%) and weed/wild plants (10.7%). Most of the cereal grain was too poorly preserved to be identified to genus, but both hulled barley (*Hordeum* sp.) and possible spelt (*Triticum* cf. *spelta* L.) grains were identified. The middle to late Roman cremation burial (sample 604, context 11700) also produced a similar assemblage of cereal grain (44.8%), cereal chaff (22.5%) and weeds/wild plants (13.4%). Again, due to poor preservation, much of the cereal grain could not be identified.

All of the other samples (unphased Roman pit sample 685, context 18649; possible middle Roman ditch sample 551, context 10618; middle Roman ditch sample 649, context 15336 and all seven corn dryer 14400 samples: samples 632, 634, 637, 638, 640, 645 and 647) were extremely chaff-rich. Most of the wheat (*Triticum* sp.) glume bases which were too poorly preserved to be identified beyond genus level, but where identification to species level was possible the majority of glume bases have been identified as spelt (*Triticum spelta* L.).

DISCUSSION

The Neolithic to Roman period archaeobotanical remains recovered from Cotswold Community provide limited evidence for reliance on wild foodstuffs during the middle Neolithic/early Bronze Age, with adoption of cereal cultivation from at least the middle Bronze Age. The main cereal cultivated throughout all these periods appears to have been spelt (*Triticum spelta* L.), but hulled barley (*Hordeum* sp.) and some possible emmer (*Triticum* cf. *dicoccum* Schübl.) wheat also are present in lower numbers. There appears to be a more prevalent use of cereal chaff as fuel here than at Cotswold Water Park sites. Weed/wild taxa recovered in these samples are typical of three main habitats: arable/disturbed soils, grassland and damp to wet places. This is broadly consistent with previous results from Cotswold Water Park and suggests that agricultural conditions and locations were broadly similar (eg Claydon Pike – Straker *et al*. 2007a, b, c, d; Neigh Bridge – Robinson 2007a; Stubbs Farm, Kempsford – Robinson 2007b; Whelford Bowmoor – Jones 2007 and overview in Robinson 2007c).

Evidence for middle Neolithic/early Bronze Age continued reliance on wild foodstuffs

Five samples of middle Neolithic-early Bronze Age date were analysed. All were from pits and were fairly poor, but hazel (*Corylus avellana* L.) nutshell fragments were the most frequently identified plant remains. In most cases the equivalent of <20 hazel nutshells was recovered, but the recovery of small quantities of hazel nutshells from deposits of this

*Table 13.4 Habitat information and presence of weed/wild taxa at Cotswold Community**

	Habitat Code	MNEO	EBA	MBA	MIA	MRO	MRO-LRO†	LRO	
No of samples		**1**	**4**	**1**	**3**	**10**	**3**	**1**	**English Common Name**
Latin Binomial									
Cereal Grain									
Hordeum spp. - hulled	CU								Hulled barley
cf. *Hordeum* spp. - hulled	CU								Possible hulled barley
Triticum cf. *dicoccum* Schübl.	CU								Possible emmer
Triticum spelta L.	CU								Spelt
Triticum cf. *spelta* L.	CU								Possible spelt
Triticum spp. - indeterminate	CU								Indeterminate wheat
Triticum spp. - indeterminate, tail grain	CU								Indeterminate wheat
Cereal - indeterminate	CU								Indeterminate cereal
Cereal/POACEAE - indeterminate	?CU								Cereal/Large grass
Cereal/POACEAE - detached embryo	?CU								Cereal/ Large grass
Cereal/POACEAE - coleoptile	?CU								Cereal/ Large grass
Cereal Chaff									
Hordeum distichum L. - rachis node									Two-rowed barley
Hordeum spp. - rachis node	CU								Indeterminate barley
cf. *Hordeum* spp. - rachis node	CU								Possibel barley
Hordeum spp./*Secale cereale* L. - rachis node	CU								Barley/Rye
Triticum cf. *dicoccum* Schübl. - glume base	CU								Possible emmer
Triticum spelta L. - spikelet fork (count glume base/ rachis internode)	CU								Spelt
Triticum spelta L. - glume base	CU								Spelt
Triticum spelta L. - glume	CU								Spelt
Triticum cf. *spelta* L. - spikelet fork (count glume base/ rachis internode)	CU								Possible spelt
Triticum cf. *spelta* L./*turgidum* L./*durum* Desf. - rachis node	CU								Possible spelt/rivet/hard wheat rachis node
Triticum cf. *turgidum* L./*durum* Desf.	CU								Possible rivet/hard wheat
Triticum spp. - free-threshing type rachis node	CU								Free-threshing wheat

Table 13.4 Habitat information and presence of weed/wild taxa at Cotswold Community (continued)

	Habitat Code	MNEO	EBA	MBA	MIA	MRO	MRO-LRO†	LRO	
Cereal Chaff continued...									
Triticum spp. - spikelet fork (count glume base rachis node)	CU					■			Indeterminate wheat
Triticum spp. - terminal spikelet fork (count glume base/rachis mode)	CU					■			Indeterminate wheat
Triticum spp. - glume base	CU				■	■	■	■	Indeterminate wheat
Triticum spp. - rachis node	CU				■	■	■	■	Indeterminate wheat
Triticum spp. - basal rachis node	CU					■			Indeterminate wheat
Triticum spp. - terminal rachis node	CU					■			Indeterminate wheat
Triticum spp. - awn	CU					■			Indeterminate wheat
Triticum spp. - glume	CU					■	■	■	Indeterminate wheat
Cereal - indeterminate rachis node	CU				■	■		■	Indeterminate cereal
Cereal - indeterminate rachis internode	CU					■	■		Indeterminate cereal
Cereal - indeterminate basal rachis internode	CU					■	■	■	Indeterminate cereal
Cereal - indeterminate rachilla	CU					■			Indeterminate cereal
Cereal/POACEAE - indeterminate rachis node	?CU					■		■	Cereal/large grass
Cereal/POACEAE - indeterminate culm base	?CU				■	■	■		Cereal/large grass
Cereal/POACEAE - indeterminate culm node	?CU					■			Cereal/large grass
Cereal/POACEAE - indeterminate straw fragments	?CU							■	Cereal/ large grass
Cereal/POACEAE - indeterminate chaff/glume ashy fragments (unquantified)	?CU					■			Cereal/ large grass
cf. Cereal/POACEAE - indeterminate culm base	?CU						■		Possible cereal/large grass
Pulses									
Vicia spp./*Pisum sativum* L.	CU					■	■		Vetch/garden pea
Trees/Shrubs									
Corylus avellana L. - nutshell fragments [est count (weight g)]	TW	■	■		■				Hazel
Crataegus monogyna Jacq.	TW				■				Hawthorn
Weed/Wild Plants									
Ranunculus subg. RANUNCULUS	V - tG					■			Buttercup

Table 13.4 Habitat information and presence of weed/wild taxa at Cotswold Community (continued)

	Habitat Code	MNEO	EBA	MBA	MIA	MRO	MRO-LRO†	LRO	
Weed/Wild Plants continued...									
Papaver rhoeas L./*dubium* L.	Da				■	■	■	■	Common/ Long-headed poppy
Papaver argemone L. - type	Da				■		■		Prickly poppy
Urtica dioica L.	V (nitrogen-rich)				■				Common nettle
cf. *Urtica dioica* L.	V (nitrogen-rich)				■				Possible common nettle
Chenopodium spp.	V				■	■		■	Goosefoot
Chenopodium spp. - pitted seed coat	V				■	■		■	Goosefoot
Chenopodium spp. - ?ancient	V				■	■		■	Goosefoot - possibly modern
Chenopodium spp./*Atriplex* spp.	V					■			Goosefoot/Orache
Atriplex spp.	V					■			Orache
Atriplex spp. - ?ancient	V					■	■	■	Orache - possibly modern
CHENOPODIACEAE/CARYOPHYLLACEAE - unidentified	-						■		Goosefoot/Pink Family
Cerastium spp. - ? ancient	D Da						■		Mouse-ear
cf. *Cerastium* spp.	D Da				■				Possible mouse-ear
Agrostemma githago L. - calyx tip	Da				■	■		■	Corncockle
cf. *Agrostemma githago* L.	Da					■			Possible corncockle
Silene spp.	V - tW					■			Campion
CARYOPHYLLACEAE - unidentified	-					■			Pink Family
CARYOPHYLLACEAE - unidentified, small-seeded	-				■				Pink Family
Persicaria spp.	tG				■				Possible knotgrass
Polygonum cf. *aviculare* L.	D Da				■		■		Knotgrass
Polygonum spp.	V					■			Knotgrass
cf. *Polygonum* spp.	V					■			Possible knotgrass
Polygonum spp./*Rumex* spp./*Carex* spp. - internal structure	-				■	■	■	■	Knotgrass/Dock/Sedge
Fallopia convolvulus (L.) Á. Löve	Da				■	■			Black bindweed

Table 13.4 Habitat information and presence of weed/wild taxa at Cotswold Community (continued)

	Habitat Code	MNEO	EBA	MBA	MIA	MRO	MRO-LRO†	LRO	
Weed/Wild Plants contined...									
Rumex spp.	Da G M S W				■	■	■	■	Dock
Lysimachia spp./*Anagallis* spp.	V				■	■			Loosestrife/Pimpernel
cf. *Aphanes arvensis* L.	Da				■	■			Possible parsley-piert
cf. *Lotus* spp.	V				■				Possible Bird's-foot-trefoil
Vicia cf. *hirsuta* (L.) Gray	D G								Possible hairy tare
Vicia spp./*Lathyrus* spp.	Da M G S W			■		■	■	■	Vetch/Vetchling
cf. *Vicia* spp./*Lathyrus* spp.	Da M G S W					■			Possible vetch/Vetchling
Melilotus spp./*Medicago* spp./*Trifolium* spp.	V				■	■	■		Melilot/Medick/Clover
Medicago cf. *lupilina* L.	D G					■			Possible black medick
FABACEAE - unidentified pod	-					■			Pea Family
Prunella vulgaris L.	D G W					■			Selfheal
cf. *Prunella vulgaris* L.	D G W					■			Possible selfheal
Plantago major L.	D Da G			■			■		Greater plantain
Plantago media L./*lanceolata* L.	D Da G					■			Hoary/Ribwort plantain
Euphrasia spp./*Odontites* spp.	Da G				■	■	■	■	Eyebright/Bartsia
Euphrasia spp./*Odontites* spp. - ?ancient	Da G						■		Eyebright/Bartsia
cf. *Euphrasia* spp./*Odontites* spp.	Da G					■			Possible eyebright/Bartsia
Sherardia arvensis L.	D Da						■		Field madder
Galium cf. *verum* L./*mollugo* L.	Da V				■				Lady's/Hedge bedstraw
Galium spp.	Da V					■	■		Bedstraw
cf. *Valerianella dentata* (L.) Pollich	D Da				■				Possible narrow-fruited cornsalad
Anthemis cotula L.	D Da (often heavy soils)					■	■		Stinking chamomile

Table 13.4 Habitat information and presence of weed/wild taxa at Cotswold Community (continued)

	Habitat Code	MNEO	EBA	MBA	MIA	MRO	MRO-LRO†	LRO	
Weed/Wild Plants continued...									
cf. *Anthemis cotula* L.	D Da (often heavy soils)				■	■			Possible stinking chamomile
Tripleurospermum inodorum (L.) Sch. Bip.	D Da							■	Scentless mayweed
Tripleurospermum cf. *inodorum* (L.) Sch. Bip.	D Da							■	Possible scentless mayweed
ASTERACEAE - internal structure (*Anthemis/ Tripleurospermum* type)	-				■	■	■	■	Daisy Family
Eleocharis palustris (L.) Roem. & Schult./*uniglumis* (Link.) Schult.	A M G					■	■		Common/ slender spike-rush
Carex spp. - 2-sided urticle	V (mainly wet)					■			Sedge
Carex spp. - 3-sided urticle	V (mainly wet)					■			Sedge
cf. *Carex* spp. - 3-sided urticle	V (mainly wet)					■	■	■	Possible sedge
CYPERACEAE - unidentified	-					■			Sedge Family
Lolium spp.	G V					■			Rye-grass
Lolium spp. - rachis node	G V					■			Rye-grass
cf. *Lolium* spp. - rachis node	G V					■	■		Possible rye-grass
Cynosurus cristatus L.	G					■	■		Crested dog's tail
Avena spp. - awn	?CU/ Da G				■	■			Cultivated or wild oat
Avena spp. - floret base	?CU/ Da G					■			Cultivated or wild oat
cf. *Avena* spp. - floret base	?CU/ Da G				■	■			Possible oat
Avena spp./*Bromus* spp.	?CU/ Da G					■	■	■	Oat/Brome grass
Bromus spp.	Da G					■			Brome grass
cf. *Bromus* spp.	Da G					■			Possible brome grass
POACEAE - small-sized caryopsis	-		■		■	■	■	■	Grass Family

Table 13.4 Habitat information and presence of weed/wild taxa at Cotswold Community (continued)

	Habitat Code	MNEO	EBA	MBA	MIA	MRO	MRO-LRO†	LRO	
Weed/Wild Plants continued...									
POACEAE - medium-sized caryopsis	-				■	■	■	■	Grass Family
POACEAE - large-sized caryopsis	-			■	■	■	■		Grass Family
POACEAE - basal rachis node	-					■	■		Grass Family
POACEAE - culm base	-		■			■	■		Grass Family
POACEAE - culm node	-		■		■	■			Grass Family
Unidentfied - bud	-		■						-
Unidentfied - fruit	-				■				-
Unidentified - seed coat fragment	-		■						-
Unidentified - seed pod/capsule fragment	-				■	■			-
Weed/Wild Plants continued...									
Unidentified - sprout	-							■	-
Unidentified - stalk	-				■				-
Unidentified - thorn	-				■	■			-
Unidentified - tuber	-							■	-
Unidentified - twig/root	-		■						-

*Habitat codes are listed at the end of this table. Sample 363 (context 9067) is not reported here, because it is considered to be modern.

†Unphased Roman pit sample <685> data is scored here with the middle–late Roman data.

Habitat Codes follow those used by Straker *et al.* 2007a–d at Cotswold Water Park. Key: A = aquatic, B = bankside, CU = cultivated plant, D = disturbed, Da = disturbed, including arable, G = grassland, H = heaths, M = marshes, S = scrub/ hedgerow, TW = tree with edible fruit/nuts, W = Woods, V = Varied. A 't' before a habitat code indicates a plant typically occurs in such a habitat - for example 'tG' = typically occurs in Grassland.

period is common in England and was a feature of Neolithic deposits at Windmill Hill causewayed enclosure, Wiltshire (Fairbairn 2000, 169). These could simply be an accidental accumulation of hearth/floor sweepings and/or the incidental charring of nuts adhering to hazel wood fuel which was subsequently discarded (either intentionally or accidentally) into these pits. Challinor (below, Chapter 14) has identified hazel wood charcoal from many of these deposits. However, the recovery of 55 hazel nuts from sample 117 (pit context 4510) is somewhat harder to explain away and is perhaps more likely to represent processing of hazel nuts. Intentional heating of hazel nuts is likely to have been carried out in order to ease processing, digestion and portability and as much as 25% of hazel nutshells are likely to become charred during such a process (Mithen and Score 2000; Mithen *et al*. 2001, 228). Modern experiments suggest that roasting hazel nuts greatly improves their palatability, producing a flavour quite similar to that of baked potatoes (eg Mears and Hillman 2007, 26).

Range of cereals cultivated

Spelt (*Triticum spelta* L.) and hulled barley (*Hordeum* sp.) are the most frequently identified cereal crops, especially from Roman deposits. A possible emmer (*Triticum* cf. *dicoccum* Schübl.) glume base was observed in sample 637 from corn dryer 14400. A possible rivet/hard wheat (*Triticum* cf. *turgidum* sp./*durum* sp.) free-threshing hexaploid-type wheat rachis node was also recovered from corn dryer 14400, in sample 647. Small quantities of free-threshing wheat were also frequently encountered in Cotswold Water Park Sites such as Claydon Pike (eg middle Iron Age–late Roman deposits Phase 2 – Straker *et al*. 2007b, 85; Phase 3 – Straker *et al*. 2007c, 153; Phase 4 – Straker *et al*. 2007d, 204). The pattern seems to be broadly consistent with other results from Cotswold Water Park (Jones 2007; Robinson 2007a, b).

Prevalence of spelt chaff as compared to Cotswold Water Park sites

In Cotswold Water Park sites cereal chaff (especially spelt chaff) was only occasionally abundant, although frequently present (eg at Claydon Pike phase 3 – Straker 2007c, 157 and digital archive 4.5 table 7; phase3/4 – Straker 2007c, 157 or corn dryer (context 167) at Neigh Bridge, Somerford Keynes – Robinson 2007a, 268–9). In general, most of the Cotswold Water Park samples were dominated by cereal grain (eg Straker 2007b, c, d and Robinson 2007a, b).

All thirteen Roman samples from the Cotswold Community Project produced spelt glume bases/spikelet forks and/or indeterminate wheat glume bases/spikelet forks. These results are highly biased by the consistently chaff-rich assemblages from the seven corn dryer 14400 samples studied from this phase of the site; nevertheless, there does appear to be regular use of cereal chaff for fuel. A secondary deposit from middle Roman ditch sample 649 (context 15336) produced the richest assemblage of cereal chaff, accounting for 91.8% of all identifications in that sample. The two samples which were less chaff-rich, middle–late Roman corn dryer 11486 (22.8% chaff) and cremation burial sample 604 (context 11700 – 22.5% chaff) were more mixed, with larger quantities of cereal grain (46.9% and 44.8% respectively) and substantial proportions of indeterminate and/or unidentified plant remains (19.3% in each case), which are likely to be an artefact of the heating regime to which the assemblage was subjected prior to deposition. Only one sample (middle Roman pit sample 711, context 18831) was dominated by cereal grain.

At Cotswold Water Park, Robinson (2007c) interpreted the absence of cereal chaff as related to the agricultural use of the landscape, which was most likely pastoral, with cereal chaff and/or ears imported onto site, as has also been suggested for other Upper Thames Valley sites (Jones 1985). Although the presence of chaff does not automatically indicate arable cultivation, the ubiquity of chaff in Roman deposits from the Cotswold Community Project does suggest, however, the likelihood of such cultivation in the vicinity.

Evidence for cultivation conditions based on weed/wild plants recovered

Table 13.4 presents a summary of all taxa recovered from the Cotswold Community Project by period. An extremely limited range of weed/wild taxa are recovered from the middle Neolithic-early Bronze Age samples (see Table 13.4 and Table 13.1 for detail by sample). Middle Bronze Age to middle Iron Age data are also sparse, with no more than three samples per phase. As a result, it is difficult to make generalisations about cultivation conditions during these prehistoric phases, although the range of taxa recovered is similar to those from Cotswold Water Park sites (Jones 2007; Straker *et al*. 2007a, b, c; Robinson 2007a, b).

The weed/wild taxa recovered from the Cotswold Community middle–late Roman phase are highly consistent with those recovered from Cotswold Water Park (Jones 2007; Straker *et al*. 2007c, d; Robinson 2007a, b). Corncockle (*Agrostemma githago* L.) and stinking chamomile (*Anthemis cotula* L.) are both typical cornfield weeds and the latter is often associated with heavier soils (Hall 1981; Kay 1971; Stace 1997). Their recovery is of particular interest as these taxa may be associated with the adoption of heavier ploughs (Jones 1988; Straker *et al*. 2007c digital archive 4.5). At Claydon Pike, stinking chamomile (*Anthemis cotula* L.) appears prior to the late Roman period (Straker *et al*. 2007d, digital archive 4.5 and figure 4.5.5) and is certainly present in middle Roman samples from Cotswold Community. Unfortunately, there are no early Roman archaeobotanical samples to establish precisely when stinking chamomile is present in the weed flora. Taxa indicative of lighter, well-drained soils such as field madder (*Sherardia arvensis* L.) and scentless mayweed (*Tripleurospermum inodorum* L.), have also been found at Cotswold Community, but both are only recovered occasionally and in small numbers (see Table 13.3). As has been interpreted for the results from Cotswold Water Park (especially Claydon Pike), the recovery of corncockle, field madder, scentless mayweed and stinking chamomile together does suggest that several different soil types were under cultivation (Straker *et al*. 2007c, digital archive 4.5). However, the recovery of both scentless mayweed – a plant typical of medium to light texture, well-drained soils (Kay 1994, 682) – and stinking chamomile may simply be happenstance, since stinking chamomile is very 'plastic' and occurs in a wide range of habitats (Kay 1971, 623).

At Cotswold Water Park (especially Claydon Pike) plants of grassland and damp ground also are frequently recovered (Straker *et al*. 2007c, d digital archive 4.5). Roman deposits at Cotswold Community also frequently produced grassland taxa. These included possible black medick (*Medicago* cf. *lupilina* L.), crested dog's tail (*Cynosurus cristatus* L.), eyebright/bartsia (*Euphrasia* spp./ *Odontites* spp.), greater plantain (*Plantago major* L.), possibly hairy-tare (*Vicia* cf. *hirsuta* (L.) Gray), hoary/ribwort plantain (*Plantago media* L./*lanceolata* L.) and self-heal (*Prunella vulgaris* L.). Several taxa from Cotswold Community Roman deposits that could occur in a range of habitats are also frequently noted in grassland, such as dock (*Rumex* spp.), knotweed (*Persicaria* spp.), melilot/ medick/clover (*Melilotus* spp./*Medicago* spp./*Trifolium* spp.), and vetch/vetchling (*Vicia* spp./*Lathyrus* spp.). A few taxa which are indicative of damp to wetter conditions, possibly suggesting seasonal flooding of grassland/ meadow, are also present in the Cotswold Community assemblages. These 'wetland' taxa include common/slender spike-rush (*Eleocharis palustris* (L.) Roem. & Schult./*uniglumis* (Link.) Schult.) and sedge (*Carex* spp.). Like the cornfield weeds discussed above, the Cotswold Community grassland/wetland taxa are also frequently recovered at Cotswold Water Park (Jones 2007; Straker *et al*. 2007a, b, c, d; Robinson 2007a, b), again suggesting consistency in the weed floras recovered from these sites.

CONCLUSIONS

Archaeobotanical sampling at Cotswold Community was intensive, with 258 samples collected and assessed, but because of extremely poor preservation in many cases, only 23 samples were fully analysed. With the exception of the middle Roman phase, for which 10 securely phased samples were studied, most phases of occupation had between 1 to 5 samples studied, which is unlikely to be fully representative of the range of agricultural activities carried out on site. Indeed, van der Veen and colleagues (2007, 203) have recently argued that a minimum of 30 samples per phase on a Roman site is necessary to generate useful information on cultivation regime(s).

Nevertheless, the remains from Cotswold Community appear to be consistent with those recorded in other work in the region. Neolithic–early Bronze Age

Table 13.5 Carbonised plant remains and charcoal from the TVAS 2005 excavations

Sample		**9**	**10**	**12**			**16**				**17**		**20**	**21**
Cut		**44**	**47**	**104**			**123**				**127**		**136**	**124**
Deposit		**172**	**176**	**195**			**276**				**279**		**295**	**296**
Sample vol (L)		**17.5**	**20**	**20**			**16**				**25**		**5**	**20**
Spit					**1**	**2**	**3**	**4**	**5**	**1**	**3**	**4**		**4**
Cereal grains														
Triticum sp.	Wheat				1								1	
Hordeum sp. - hulled	Hulled barley							1						
Hordeum sp.	Barley		1		1									
Cereal indet.			2		2	3								
Legumes														
Vicia or *Lathyrus* sp.	Vetch or tare		1											
Charcoal														
Quercus sp.	Oak		+	+			+	+	+	+				+
Pomoideae	Hawthorn, apple etc.		+++	+++	+++	+++	++	++	+++	++	++	++	+	++
Cf. Pomoideae		++												
Rhamnus cathartica	Purging buckthorn													

+present ++some +++much

Table 13.5 Carbonised plant remains and charcoal from the TVAS 2005 excavations (continued)

Sample			***23***		***24***					***26***				***31***	***32***		***33***	***36***
Cut			***140***		***148***					***205***				***214***	***215***		***224***	***227***
Deposit			***350***		***361***					***368***				***382***	***384***		***391***	***397***
Sample vol (L)			***20***		***16***					***20***				***28***	***28***		***7***	***12***
Spit		***1***	***2***	***3***		***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***		***1***	***2***		
Cereal grains																		
Triticum sp.	Wheat																2	
Hordeum sp.	Barley																	
Hordeum sp. – hulled	Hulled barley																	
Cereal indet.																		
Legumes																		
Vicia or *Lathyrus* sp.	Vetch or tare																	
Charcoal																		
Quercus sp.	Oak				+				+			+			+			
Pomoideae		++	++	++	+	++	++	++	+	+	+	+	+	+++	++	+	++	+
Cf. Pomoideae																		
Rhamnus cathartica	Purging buckthorn						+	+			+				+			

+present ++some +++much

deposits are fairly poor, with charred hazel nutshell fragments most frequently recovered. A single middle–late Bronze Age pit deposit produced only four identifiable seeds, one of which was a single possible emmer grain. Middle Iron Age samples were only slightly richer, but primarily produced poorly preserved indeterminate cereal grain/large grass (POACEAE) caryopses, indeterminate wheat glume bases and a limited range of weed/ wild taxa. In all cases, the middle Iron Age samples produced <100 identifiable items in total. The Roman phases at Cotswold Community all produced much richer assemblages.

Roman samples primarily produced a mixture of spelt/indeterminate wheat and hulled barley grain. Spelt and indeterminate wheat glume bases and spikelet forks were the most frequently recovered cereal chaff remains, although one possible emmer glume base and one possible rivet/ hard wheat rachis node were recovered. At Cotswold Water Park sites only a few samples were dominated by cereal chaff, whereas at Cotswold Community the majority of Roman samples are strongly dominated by spelt and indeterminate wheat glume bases and spikelet forks. With so many of the Roman samples derived from one feature, it is possible that this pattern is simply a product of the consistent use of cereal chaff to fire middle Roman corn dryer 14400.

The range of cereals recovered from Iron Age and Roman phases at Cotswold Community and their associated weed/wild taxa are fairly consistent with results from the various sites associated with the Cotswold Water Park. Although there are some differences between the various assemblages studied, certain arable weed, grassland and damp–wet ground taxa are commonly recovered from both projects and are likely to suggest that cultivation conditions, or possibly the type of areas selected for arable cultivation and the method(s) of cultivation, were broadly similar between the two.

CHARRED PLANT REMAINS FROM THE TVAS MIDDLE IRON AGE SETTLEMENT

by Lucy J E Cramp

Thirty-nine samples of sediment, measuring from 5-30 L in volume, were taken from a range of deposits from the Iron Age site excavated by TVAS in 2005. These samples were assessed for environmental remains for the recovery and identification of preserved plant remains and charcoal which might aid the reconstruction of human activity or environmental conditions at the site.

Initial sorting revealed that a number of samples did not contain material which was worthy of further analysis, either due to a paucity of remains or because remains were fragmentary or poorly preserved and could not be identified further. However, fourteen samples contained wood charcoal and/or a thin scatter of cereal grains or other plant remains and were considered suitable for further analysis

All of the material recovered from the samples was preserved by carbonisation. Results are summarised overall and then by feature below, whilst results are presented quantitatively (according to a three-point scale of + present, ++ some, +++ much for charcoal, or the absolute number of grains for cereal caryopses or other plant parts) in Table 13.5.

Charcoal

Although present throughout the samples analysed, charcoal was rather fragmentary, which often limited reliable identification. The most predominant wood-type throughout the samples was the Pomoideae family, which includes scrub-type species such as hawthorn or trees such as apple. In addition, fragments of oak (*Quercus* sp.) were occasionally recovered, but this was relatively scarce. In two contexts, fragments of purging buckthorn (*Rhamnus cathartica*) were also present.

Other plants

Evidence for economic plants was limited. Cereal grains were thinly distributed throughout the samples, and where identifiable, consisted of wheat (Triticum sp.) or barley (Hordeum sp.), including hulled barley. However, these grains were very infrequent, and chaff was entirely absent, indicating that these grains were no more than a background scatter characteristic of a site of this type.

Chapter 14: Charcoal

by Dana Challinor

INTRODUCTION

The assessment showed that charcoal was abundantly preserved at Cotswold Community, with potential for analysis from a range of features and phases (Bonsall and Druce 2007). Twenty samples, from cremation deposits, pits, ditches and postholes, were analysed in full, while a further thirteen were selected for detailed assessment. The latter group of samples were included where it was thought useful to provide comparable data to the analysed samples. The results from the initial assessment by Bonsall and Druce are also included in this report where relevant. The samples were chosen to reflect the main periods represented on the site, ranging from the Neolithic to the Romano-British periods. The aims of the charcoal analysis were to characterise the wood utilised for fuel for each period represented in order to examine any changes in the exploitation of woodland resources and to look at the evidence for context-related variation.

METHOD

The majority of the samples were analysed in full, following standard procedures outlined below. Large assemblages had been divided using a riffle box during the course of the charred plant analysis (see above, Chapter 13). An optimum number of *c* 100 fragments were identified from each sample (the percentage of the flot identified is given in the tables). The charcoal was fractured and sorted into groups based on the anatomical features observed in transverse section at x7 to x45 magnification. Representative fragments from each group were then selected for further examination in longitudinal sections using a Meiji incident-light microscope at up to x400 magnification. Identifications were made with reference to Schweingruber (1990), Hather (2000) and modern reference material. The maturity of the wood was noted where possible and the presence of roundwood, sapwood and heartwood is noted in the tables. Full quantities are included in the archive.

The samples which were selected for detailed assessment were scanned under a binocular microscope at up to x45 magnification and a selection of charcoal fragments were examined in transverse section only, with rare fragments checked at high magnification. An estimate of the abundance of each taxon was made. This method provides a reasonable characterisation of the taxonomic composition of the sample, but does not give a complete species list. Classification and nomenclature follow Stace (1997). The figures are based upon fragment count as a method of quantification, but it is acknowledged that there are limitations to this method.

RESULTS

The results by fragment count are given in Tables 14.1-7 which are presented with the discussion by period below. The flots which were selected for detailed assessment are included in the tables with the following key: ++++ abundant, +++ frequent, ++ occasional, + present. The preservation of the charcoal was generally good, although frequently infused with sediment. There were a large number of small diameter roundwood fragments in the assemblages, but most were too fragmented to provide useful growth ring analysis. The full results are included in the archive.

Nine taxa were positively identified, with the taxonomic level varying according to the biogeography and anatomy of the taxa:

FAGACEAE:

Quercus spp. (oak), large tree, two native species not distinguishable anatomically.

BETULACEAE:

Corylus avellana L. (hazel), shrub or small tree, only native species.

Corylus has a very similar anatomical structure to *Alnus glutinosa* Gaertn. (alder) and can be difficult to separate, hence the category *Alnus*/*Corylus*. Within the analysed dataset, only *Corylus* was confirmed, and it is quite likely that a number of these fragments were further specimens of this species. However, *Alnus* was identified from two radiocarbon samples (contexts 9974 and 18077) so the possibility of its presence in other samples from Cotswold Community should not be discounted.

SALICAEAE:

The genera *Salix* spp. (willow) and *Populus* spp. (poplar) are rarely possible to separate. Both are trees although there is variation within the genera.

ROSACEAE:

Rosa spp. (rose), shrubs/small trees. The many native species are not distinguishable anatomically.

Prunus spp., trees or shrubs, including *P. spinosa* L. (blackthorn), *P. avium* L. (wild cherry) and *P. padus*

Table 14.1 Charcoal from Neolithic features (quantification by fragment count)

	Phase	Middle Neolithic (1)			Late Neolithic (2a)
	Sitecode	SKCC 02	SKCC 02	SKCC 02	SKCC 03
	Feature type	Pit	Pit	Pit	Pit
	Feature number	8697	10206	8700	17022
	Context number	8695	10149	8698	17024
	Sample number	357	403	355	740
	Volume floated (litres)	40	40	20	35
	% flot identified	100	100	-	100
Quercus sp.	oak	1	15	+	29hs
Corylus avellana L.	hazel	51r	19r	+++	25r
Alnus/Corylus	alder/hazel	8			
Populus/Salix	poplar/willow	1			
Prunus spinosa L.	blackthorn	3	4		22
Prunus sp.	cherry type	7		++	
Maloideae	hawthorn, pear, apple	22r	27r		3
Fraxinus excelsior L.	ash	1	2		1
Indeterminate		5	7r		4
Total		**99**	**74**	**-**	**84**

r=roundwood; h=heartwood; s=sapwood

L. (bird cherry), all native, which can be separated on the basis of ray width. *P. spinosa* was the only confirmed identification at Cotswold Community; where the category *Prunus* sp. has been used, the ray width was on the borderline between *P. spinosa* and *P. avium* or could not be ascertained.

Maloideae, subfamily of various shrubs/small trees including several genera, *Pyrus* (pear), *Malus* (apple), *Sorbus* (rowan/service/whitebeam) and *Crataegus* (hawthorn), which are rarely distinguishable by anatomical characteristics.

RHAMNACEAE:

Rhamnus cathartica L. (purging buckthorn), shrub, native species.

ACERACEAE:

Acer campestre L. (field maple), tree, sole native species.

OLEACEAE:

Fraxinus excelsior L. (ash), tree, sole native species.

Neolithic/early Bronze Age

The Neolithic samples

Three pit samples dating to the Neolithic period were analysed in full (Table 14.1). None of the samples were very rich, so all of the fragments were identified. The assemblages were very mixed in character, with a range of taxa. Hazel formed a large component of the assemblages, with a strong contingent of scrub/hedgerow-type species such as blackthorn and hawthorn type. Several roundwood fragments were recorded, suggesting that some small diameter branches had been used as fuel, but these were a minority compared to the fragments of trunkwood. Oak forms less than 25% of the assemblages in the middle Neolithic samples, though this rises to 36% in the late Neolithic sample (17022). One further middle Neolithic sample from pit 8700 (sample 355, context 8698) was assessed in detail, and proved to have a similar composition to sample 357 - hazel appeared to dominate with blackthorn, but very little oak was noted. There was a greater quantity of oak in the late Neolithic pit 17022, although the assemblage was generally very mixed, with similar percentages of hazel and blackthorn.It is apparent from the charcoal that oak-hazel woodland was available and exploited for fuel use, although the use of oak was limited. Hazel dominates the assemblages, and there is a strong component of thorny scrub species indicating a reasonably open landscape.

The early Bronze Age samples

Two of the early Bronze Age pits (4048 and 4512) are dominated by hazel charcoal, which is consistent with the earlier Neolithic samples, indicating that hazel wood was a preferred fuelwood over the transition period (Table 14.2). The quantity of hazel

Table 14.2 Charcoal from early Bronze Age features (quantification by fragment count)

	Phase	Early Bronze Age (2b)			
	Sitecode	SKCC00	SKCC00	SKCC02	SKCC02
	Feature type	pit	pit	pit	cremation pit
	Feature number	4048	4512	7972	8376
	Context number	4050	4510	7971	8377
	Sample number	113	117	347	547
	Volume floated (litres)	40	39	10	3
	% flot identified	-	100	100	100
Quercus sp.	oak	+	17h	81hsr	74sr
Corylus avellana L.	hazel	+++	67r	4	
Alnus/Corylus	alder/hazel				
Rosa sp.	rose			3r	
Prunus spinosa L.	blackthorn				
Prunus sp.	cherry type				
Maloideae	hawthorn, pear, apple		3r	9r	
Rhamnus cathartica L.	buckthorn				
Acer sp.	maple	+			
Fraxinus excelsior L.	ash			20sr	
Bark – indet.					7
Indeterminate			3	3	
Total		**-**	**90**	**120**	**81**

r=roundwood; h=heartwood; s=sapwood

charcoal also supports the suggestion by Smith (this volume) that some of the charred hazel nutshells entered the archaeological record with the wood. Of course, it is equally plausible that the hazel wood was collected while gathering foodstuffs – significant in that people would travel further to gather food than for firewood. The third early Bronze Age pit sample from 7972 is noticeably different, dominated by oak with a quantity of ash. The apparent inconsistency of pit 7972 may relate to variation in activities and it is worth noting that it is in the proximity of the cremation burial 8376, material from which was entirely dominated by oak. Some of the other features adjacent to burial 8376 appeared to contain mostly oak (Druce and Bonsall 2007), although the quantities of charcoal were low.

The early Bronze Age cremation burial

The cremation assemblage from Cotswold Community is consistent with the trend observed at other comparable sites where a single species dominates. At Radley Barrow Hills, near Abingdon, five early Bronze Age cremation deposits were dominated by oak (Thompson 1999). Oak is commonly used for cremations; indeed, it may have been that a single tree was purposely felled for such occasions (ibid.), although there was no evidence of heartwood in 8377. Recent research on early Bronze Age cremation burials from Raunds, Northamptonshire, suggests that there may be a correlation between the age/sex of the deceased and the fuelwood used, where infants and adults tend to be associated with a single species and children with mixed assemblages (Campbell 2007). It was not possible to determine gender from the cremation 8377 at Cotswold Community, but the osteological evidence did indicate an adult (Dean and Boston, below).

Middle and late Bronze Age

Two samples were dated to the middle Bronze Age, from pit 3237 which was analysed in full, and from waterhole 5018, which was assessed (Table 14.3). Both produced a range of taxa, comprising scrub type species such as blackthorn, buckthorn and the hawthorn group as well as probable hazel. These assemblages are likely to have derived from domestic fires and the general selection of wood fuel for domestic activities appears reasonably consistent with earlier periods, although the dataset is very limited. One further feature, mid-late Bronze Age pit 18304, was analysed and was dominated by oak. Interestingly, this pit was associated with metalworking, for which a high heat would have been necessary. Oak, either as wood or as charcoal, would have provided this and was apparently used as the main fuelwood, with a mixture of blackthorn, hawthorn type and alder/hazel branches used for kindling.

Table 14.3 Charcoal from middle and late Bronze Age features (quantification by fragment count)

	Phase	Middle Bronze Age (3)		Mid-Late Bronze Age (3)
	Sitecode	SKCC00	SKCC99	SKCC00
	Feature type	waterhole	pit	pit
	Feature number	5018	3237	18304
	Context number	4900	3240	18299
	Sample number	116	42	696
	Volume floated (litres)	40	38	40
	% flot identified	-	50	50
Quercus sp.	oak	+		66hsr
Corylus avellana L.	hazel		4	
Alnus/Corylus	alder/hazel	++	5	5r
Prunus spinosa L.	blackthorn		71r	15r
Maloideae	hawthorn, pear, apple	++ r	19r	6r
Rhamnus cathartica L.	buckthorn		4	1
Fraxinus excelsior L.	ash			22r
Indeterminate			3	4
Total		**-**	**106**	**119**

r=roundwood; h=heartwood; s=sapwood

Table 14.4 Charcoal from middle Iron Age settlement features (quantification by fragment count)

	Phase	Middle Iron Age (5)				
	Sitecode	SKCC 00				
	Feature type	ring gully	pit	pit	pit	ditch
	Feature number	4180	4181	4554	4565	7096
	Context number	4269	4182	4557	4566	4366
	Sample number	107	101	120	129	111
	Volume floated (litres)	40	15	40	40	40
	% flot identified	50	50	50	-	-
Quercus sp.	oak	4r	7r	13h		+
Corylus avellana L.	hazel		3r			
Prunus spinosa L.	blackthorn	23r	20r	26r		
Prunus sp.	cherry type	9r	14r	8r	++r	++r
Maloideae	hawthorn, pear, apple	35r	52r	28r	++r	
Rhamnus cathartica L.	buckthorn	24r	6r	22r	++r	++r
Acer campestre L.	field maple		1	1r		+r
Fraxinus excelsior L.	ash		1			
Indeterminate		5	3	2		
Total		**100**	**107**	**100**	**-**	**-**

r=roundwood; h=heartwood; s=sapwood

Middle Iron Age

The data for the Iron Age are limited, with no samples analysed from the early Iron Age phase. Although several middle Iron Age (Phase 5) samples were examined, they all related to a single roundhouse uncovered in the 2000 excavations (Table 14.4).Three assemblages came from pits/hearths (4181, 4554, 4565) from the interior of the house, providing evidence of domestic fuel use. These samples were all very mixed with a wide range of taxa and a notable quantity of small diameter roundwood. Apparently, small branches from thorny scrub or hedgerows (featuring

Table 14.5 Charcoal from mid-late Iron Age and late Iron Age/early Roman features (quantification by fragment count)

	Phase	Mid-Late Iron Age (6)		Late Iron Age/Early Roman (7)	
	Sitecode	SKCC 03		SKCC 03	
	Feature type	waterhole	waterhole	ditch	waterhole
	Feature number	15383	10420	10483	12211
	Context number	15385	10411	10481	12214
	Sample number	650	629	550	612
	Volume floated (litres)	40	40	30	20
	% flot identified	-	12,5	50	-
Quercus sp.	oak		56sr	105s	++
Corylus avellana L.	hazel				
Prunus spinosa L.	blackthorn		20r		
Prunus sp.	cherry type	++r	14r		++r
Maloideae	hawthorn, pear, apple	++r	8r		++r
Rhamnus cathartica L.	buckthorn		6r		
Acer campestre L.	field maple				
Fraxinus excelsior L.	ash		7r		
Bark				1	
Coal (>4mm only)				49	
Indeterminate			10		
Total		**-**	**121**	**155**	**-**

r=roundwood; h=heartwood; s=sapwood

a range of trees like blackthorn, hawthorn group, buckthorn, field maple), were being gathered for cooking and heat within the house. The assemblage from the terminal fill of the ring gully (4180) was much the same, suggesting that it may have come from similar domestic debris. The samples from pit 4565 and ditch 7096 (a short distance from the roundhouse) were not analysed in full, and it is likely that the full range of species was not recorded, but it was nonetheless clear that hedgerow/scrub species also dominated these samples. The evidence suggests a cleared landscape, and one in which hedgerows may have been used for enclosure of land.

Mid-late Iron Age

Two waterholes dating to the mid-late Iron Age (Phase 6), and from a different excavation area (2003) were examined to provide comparable data to those from the middle Iron Age roundhouse (Table 14.5). It is apparent that similar hedgerow type woods were being exploited, (blackthorn, buckthorn etc.) although there is an increased quantity of oak in waterhole 10420. While the significance of this is difficult to gauge, it seems that the general picture remains the same, as the samples assessed by Druce and Bonsall also indicated mixed assemblages, with large amounts of roundwood.

Late Iron Age/early Roman

Given the general pattern for domestic fires shown in the earlier samples, the evidence from the late Iron Age/early Roman ditch 10483 is particularly interesting (Table 14.5). This was entirely composed of oak charcoal and a large quantity of coal (more than 50 fragments in the >4 mm fraction of 50% of the sample). This amount of coal contrasts with the usual low levels found in samples, and indicates that it was deliberately used as fuel. The use of coal in Roman Britain has been established, though it is not thought that deliberate mining occurred, but rather harvesting of surface coalfields (Dearne and Branigan 1995). Coals from a range of features at the nearby site of Roughground Farm, Lechlade, were proved to have originated from the surface coal deposits in the Forest of Dean (Allen *et al.* 1993, 176-7), and this is the likely provenance of the coal from Cotswold Community. Context 10481 was associated with iron metalworking, which is a context type often connected with coal finds. The value of using coal for smelting is marginal, though it may have had advantages in secondary smithing (Dearne and Branigan 1995). Generally, it is agreed that the processes of iron smelting and smithing would both have required charcoal as fuel, rather than wood, (Edlin 1949; Cleere and Crossley 1985) and oak would have provided good quality charcoal, capable of achieving the high temperatures necessary. Certainly, oak tends

Table 14.6 Charcoal from Roman corn dryers 14400 and 11486 (quantification by fragment count)

	Phase	Mid Roman (8)					Mid-Late Roman (8-9)
	Feature	Corndryer 14400					Corndryer 11486
	Context number	14998	14999	15004	15131	15150	11658
	Sample number	637	638	645	632	634	589
	Volume floated (litres)	40	40	20	40	40	-
	% flot identified	25	-	-	-	-	-
Quercus sp.	oak	115r	++++rs	+++	++s	++	
Prunus spinosa L.	blackthorn						++
Maloideae	hawthorn, pear, apple	1					
Total		**116**	**-**	**-**	**-**	**-**	**-**

r=roundwood; h=heartwood; s=sapwood

Table 14.7 Charcoal from miscellaneous Roman features (quantification by fragment count)

	Phase	Mid Roman (8)		Mid-Late Roman (8-9)		Late Roman (9)		
	Sitecode	SKCC 03	SKCC 03	SKCC 99	SKCC 03	SKCC 03	SKCC 03	SKCC 03
	Feature type	ditch	pit	cremation pit	pit	enclosure ditch	cremation deposit in ditch	Posthole in building
	Feature number	17590	19814	1205	12704	1758	17590	18574
	Context number	11712	19812	1208	12705	11812	11700	18252
	Sample number	622	774	17	618	602	604	682
	Volume floated (litres)	6	40	13	10	10	80	20
	% flot identified	100	100	25	-	50	3.13	50
Quercus sp.	oak		63hsr	126sr	+++	53sr	4s	37r
Corylus avellana L.	hazel					14r		
Alnus/Corylus	alder/hazel	1r	1					
Populus/Salix	poplar/willow					10r		2
Prunus spinosa L.	blackthorn		2r					6r
Prunus sp.	cherry type		12r					
Maloideae	hawthorn, pear, apple		11r		+	12r	78r	4r
Acer campestre L.	field maple					8r		
Fraxinus excelsior L.	ash	119sr					44sr	60hsr
Bark				17				
Indeterminate		2	4		+	3	1	4
Total		**122**	**93**	**143**	**-**	**100**	**127**	**113**

r=roundwood; h=heartwood; s=sapwood

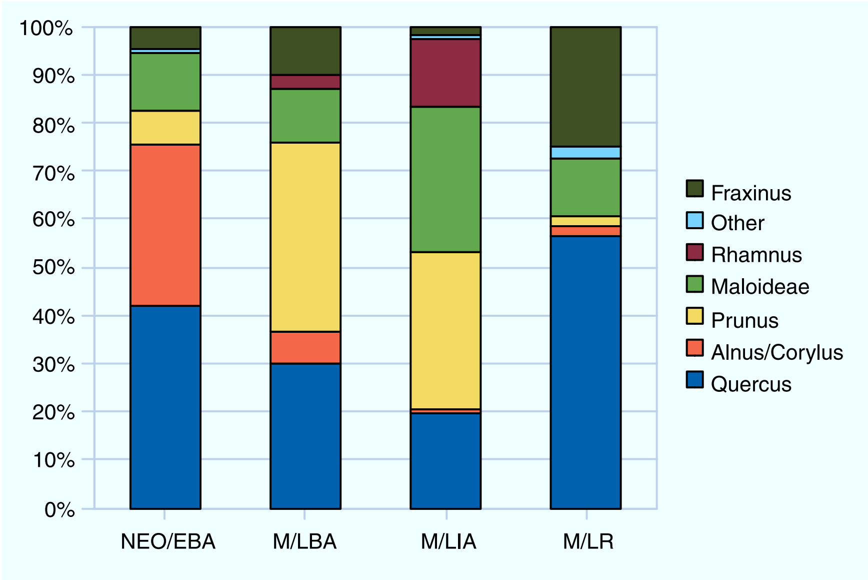

Figure 14.1 Composition of charcoal assemblages by period

to dominate Roman metalworking assemblages (Figueiral 1992; Gale 1999). Coal was not evident in the samples from contemporary domestic contexts at Cotswold Community which, as seen in waterhole 12211, continued to be fuelled by locally gathered branchwood from hedgerow/scrub.

Mid to late Roman

The corn dryers

Samples from two corn dryers excavated in 2003 dating to the mid Roman (14400) and mid-late Roman (11486) periods were examined (Table 14.6). Corn dryer 14400 had been sampled spatially and a range of these samples, with varying amounts of charcoal, were assessed in detail while one was analysed in full. It is immediately apparent that oak was the primary fuelwood used in the corn dryer, and there were no differences in spatial patterning. The single fragment of hawthorn group from context 14999 is likely to have been kindling. The results from 14400 contrast with those from the potentially slightly later corn dryer 11486, which produced only blackthorn charcoal. Unfortunately, there was so little charcoal from this feature, that it was not possible to establish whether this was a general pattern of fuel use. Clearly the feature had been cleaned out to some extent.

Cremation burials

Two cremation deposits were analysed; one from the mid-late Roman pit 1205 (context 1208) and one from within the late Roman recut of ditch 17590 (context 11700), in the vicinity of the late Roman cemetery (see vol. 1, Chapter 3) (Table 14.7). The former deposit was categorised as a cremation-related deposit (Dean and Boston, this volume) and produced abundant charcoal. The assemblage was composed solely of oak, which was clearly used for the main fuelwood and/or pyre structure. In contrast, cremation deposit 11700, identified as that of a probable adult male, produced a mixed assemblage, dominated by hawthorn group (61%), with ash (35%) and a very small quantity of oak (3%). Oak and ash are commonly used in Roman cremations (eg Challinor 2007b) and would have provided both the high heat required and good poles for the pyre structures. The burning properties of the Maloideae family (hawthorn, apple, pear, service) would depend upon which species was selected but they are all moderately dense grained wood which make a reasonable fuel in enough quantity. The burning of apple or pear woods would have had the additional benefit of providing a pleasant aroma (Challinor 2007b). This burial contained a significant quantity of charcoal, indicating that the bones were not well sorted from the pyre debris.Interestingly, cremation burials from Kempsford (Challinor 2007a) and Latton Lands (Challinor 2009) also contained charcoal assemblages dominated by either blackthorn or Maloideae family, in addition to those dominated by oak.

Other domestic and industrial contexts

In the light of the selection of fuelwood for cremation burials, it is interesting to see that the Roman domestic and industrial contexts also produced a reasonably large quantity of oak and ash charcoal. The mid Roman sample from ditch 17590 and early-mid Roman sample from pit 19814 were both associated with domestic debris. The sample from 17590 was dominated by ash roundwood and sapwood, while 19814 produced a range of taxa, (including blackthorn, hawthorn type, alder/hazel), largely dominated by oak. Pit 12704 also contained mostly oak charcoal. This utilisation of oak and ash for domestic contexts contrasts with the preceding periods when scrub species dominated domestic fuel use. Late Roman posthole 18574 (part of building 14291) contained a range of taxa, including a large quantity of ash. Since there was some evidence on site of burning *in situ*, some of the wood in this sample may have been structural, but clearly this was not the remains of a single post. Ash and oak make good structural timbers, but the frequency of these taxa in the Roman domestic contexts makes this evidence inconclusive.Context 11812 from southern enclosure ditch 1758 was associated with metalworking, so it is perhaps surprising that a range of taxa was recovered. Just over 50% of the assemblage was oak roundwood and sapwood, including a few stems with growth ring patterns characteristic of coppicing/pollarding. Almost all of the other taxa identified, hazel, hawthorn type, field maple and willow/poplar, were also dominated by small diameter roundwood fragments. Interestingly, this sample also contained a large quantity of clinker material and coals. In conjunction with the late Iron Age/early Roman sample from context 10481, coal was clearly being used as a major fuel for metalworking and in all probability came from the Forest of Dean coalfields (see above). The fact that 11812 also produced a large quantity of clinker type material and a reasonable quantity of kindling-type wood, suggests that several burning events may be represented. Clearly the burnt residue from the burning of coal and charcoal had been deposited into the enclosure ditch.

CONCLUSIONS

The charcoal at Cotswold Community has provided useful corroborative evidence for the landscape of the Upper Thames Valley from the Neolithic to Romano-British periods (see review by Robinson 2007). The Neolithic/early Bronze Age shows a reasonably cleared landscape, but with easy access to oak-hazel woodland (Figure 14.1). The spike of hazel in this early phase may relate to food gathering practices. The middle Bronze Age through to the late Iron Age shows the consolidation of clearance and exploitation of hedgerow type species. There is evidence for the specific use of taxa for certain activities, such as metalworking and cremations. The later Roman phases show an increase in the use of large trees for fuel - perhaps indicating a brief phase of regeneration, or possibly related to woodland management.

Chapter 15: Land and Freshwater Mollusca

by Carl Champness and Elizabeth Stafford

INTRODUCTION

A total of 75 samples from the 1999-2003 excavations at Cotswold Community were examined. The samples derive from a range of different feature types and cover periods from the middle Neolithic to the Romano-British. The purpose of the work was to ascertain if the molluscan assemblages retrieved could provide data on the local environment for the various phases of activity represented on the site.

METHOD

Analysis was undertaken on a mix of small 2 litre samples, specifically collected for the retrieval of molluscs, and bulk samples that were taken for the retrieval of charred plant remains but were also found to contain molluscs. The sediment was floated in water onto 0.5 mm mesh and the flots dried. The residues were also sieved to 0.5 mm and dried. Both the flots and residues were then scanned under a binocular microscope at magnifications of x10 and x20 and the abundance of taxa recorded. Flotation was generally found to have given adequate shell recovery for assessment purposes. The abundance of taxa was recorded on a sliding scale of + (present, 1-5 individuals), ++ (some 6-10), +++ (many 11-50), and ++++ (abundant 51+). An estimate was also made of the total number of individuals in each flot excluding *Cecilioides acicula*, which was excluded because it burrows deeply and provides no useful information on conditions as a sediment or soil formed. *C. acicula* can be extremely numerous and its inclusion in the total tends to obscure the results from the other species. Detailed results are found within the site archive.Nomenclature follows Kerney (1999) and ecological preferences have been indicated following Boycott (1934; 1936), Evans (1972) and Robinson (1979, 89; 1993).

RESULTS

Preservation and abundance of molluscan remains was highly variable, ranging from moderate to poor in the majority of the samples examined, to entirely absent from contexts such as (5263) and (4017). An early Bronze Age pit sample <368> and Roman ditch samples <151-152>, <596-600> and <592-594> were, however, exceptional in producing well-preserved and rich assemblages suitable for further analysis. Abundance and diversity of species may be a reflection of the nature and diversity of the prevailing local habitat, ie woodland, arable, pasture. However one must equally take into account the differing volumes of sediment processed and the types of features sampled.The results indicate that certain changes in the local environmental can be detected through time, although there appears to be little obvious evidence of spatial variability across the site within each period.

Prehistoric (Phases 1 to 4)

Only one sample was present from a middle Neolithic (Phase 1) pit (8668), that contained a very limited assemblage of only shade loving fauna. This includes *Discus rotundatus*, *Clausilia bidentata* and various catholic species. This is consistent with similar assemblages from late Neolithic to early Bronze Age features (Phase 2/2b) that contained a mixed assemblages of shade loving/woodland species and open country/grassland fauna. For example, in context (5123) from the late Neolithic/early Bronze Age pit deposit and the Beaker inhumation (9550), shade loving species included *Discus rotundatus, Zonitidae, Aegopinella nitidula, Acanthinula aculeata* and *Clausilia bidentata, Vitrea sp.* This assemblage is consistent with either the presence of some form of wooded environment close by from which shade-loving species could colonise the base of the features, or at least shells that derive from a former woodland soil. The open country element of the assemblage consists of *Vallonia excentrica and Hellicella itala,* representing evidence of open conditions within ditch 4944. On the whole the site assemblages consisted of totally open country/grassland fauna by the middle Bronze Age (Phase 3) onwards. This includes *Helicella itala*, *Vallonia excentrica*, *Vertigo pygmaea*, *Pupilla muscorum*, and various initial colonising catholic species. The lack of any shade-demanding species or indeed a diverse catholic assemblage perhaps suggests a well-established open environment with no evidence of nearby stands of trees, hedgelines or ungrazed grassland by this period.

Mid to late Roman (Phases 8-9)

A small range of freshwater slum species of *Lymnaea truncatula* and *Anisus leucostoma,* from the mid to late Roman trackway (1765) and enclosure (1759), may indicate seasonal flooding of parts of the site. The abundance of *Pupilla muscorum* from the enclosure ditch may also indicate evidence of ground disturbance and a lack of vegetation cover around the settlement. The presence of *Vallonia puchella*, that inhabits damper grassland environments, suggests that the enclosure ditch may have been seasonally filled with stagnant water for parts of the year and subject to drying out. This could be associated with

the rise in the water-table and alluviation in the Upper Thames recorded previously at other sites during the late Iron Age and Roman periods (Robinson 1992).
Modern intrusive materials are also present within many of the sample flots, including roots, seeds and the burrowing mollusc *Cecilioides acicula*. Further post-depositional bioturbation is evident from the consistent presence of the land snail *Candidula sp.,* generally believed to be a medieval or later introduction (Kerney 1999). Similar intrusive elements have been identified at other sites within the Middle and Upper Thames, and this has limited more detailed interpretation of individual feature types.

DISCUSSION

The land snail evidence indicates a moderately abundant open country assemblage of low diversity, suggesting a rather extreme environment dominated by a few xerophiles typical of well established short turfed grazed grassland by the middle Bronze Age (Phase 3) onwards. Prior to this, remnants of the former woodland soil assemblages were still preserved in features from the Neolithic to the early Bronze Age (Phases 1, 2 and 2b). The first evidence of woodland clearance, appearing from the late Neolithic to early Bronze Age features (Phase 2), indicates a mosaic of open and shaded environments. The site assemblage also indicates relatively wet conditions during the Roman period, which follows a similar pattern to that seen in other sites in the Upper Thames Valley. The snail evidence may indicate a rise in the water-table and increased flooding adjacent to the river and on low-lying terrace from the late Iron Age to Roman period, potentially associated with an increase in land clearance for agriculture (Robinson and Lambrick 1984).

Chapter 16: Marine Shell

by Kelly Powell and Rebecca Nicholson

INTRODUCTION

In total, 773 fragments (4896 g) of marine or freshwater shell were collected from 57 stratified contexts; all were bivalves. These were counted and weighed and approximately identified to family. Where possible, left (lower) and right (upper) oyster valves were identified and counted, and the ages of the oyster shells estimated in the shell-rich contexts by counting the annual growth bands (after Winder 1980). The information was recorded in an Access database, kept in the site archive.

RESULTS

All the shell was identified as the native oyster *Ostrea edulis* L. with the exception of six fragments. The assemblage comprised a minimum of 168 oysters as well as several fragments of mussel (*Mytilus edulis* L.), a single valve of scallop (*Pecten maximus* (L.) and a possible fragment of freshwater mussel (cf Painter's mussel *Unio pictorum*). Shells were fairly well preserved, although the left hand valves in particular tended to exhibit heavily eroded margins. Possibly because of this, no notches were observed on the margins of the shells and it is therefore not possible to infer the method used for opening.The majority (4799 g or 98%) of the shells came from within the Roman settlement at the north of the site and 3416 g of these were from enclosure ditches and gullies, indicating that these features were used for dumping domestic debris. Pits and waterholes generally produced minimal amounts of shell, all weighing less than 100 g.Quantification of marine shell by phase is shown in Table 16.1. This shows that shellfish were predominantly exploited during the Roman period at Cotswold Community, but the prehistoric occurrences should not be overlooked. The presence of shell in Phase 1 (middle Neolithic) is particularly remarkable. This comprised a fragment of possible clam from pit 8859 and a large proportion of a scallop shell from pit 8799, which might have been intended for used as temper for pottery production. This shell may have been collected from the shore rather than specifically fished as a food item. These fragments were placed in paired pits and may represent structured deposition rather than simple disposal. Additionally the distance of the site from the sea shore suggests these are the product of a trade network during the middle Neolithic.Fragments of a Painter's mussel shell and a further small oyster or bivalve were recovered from middle Iron Age house gully 4180, suggesting that freshwater shellfish were being exploited in the middle Iron Age period. It is unclear whether this is a case of local exploitation or longer distance trade. As outlined above 98% of the assemblage came from late Iron Age-late Roman features. An increase in the importance of oysters in the diet throughout the Roman period is indicated. Only 61 g of shell was recovered from Phase 7 features compared to 455 g from Phase 8 and 4359 g (87% of the total shell) from Phase 9. The majority of the shell was oyster, with the exception of two fragments of mussel shell from ditch 20350 and one fragment from middle Roman ditch 20053. In both cases mussels could have been accidentally transported in mud or seaweed with the oysters. A range of shell sizes and ages was represented in most contexts, with individuals of two to over eight years represented, although most shells appeared to range from three to five years old, an ideal size for eating. In most cases the shape of the oysters was relatively standard, but some oysters clearly grew more quickly than others. This would tend to indicate a native population growing on the lower shore of a sheltered bay or estuary, since oyster colonies growing naturally tend to become over-crowded, and as a result shells develop at different rates, and often to different shapes (Winder 1980, 127). The general regularity of shape may, however, suggest that these colonies were relatively regularly harvested, so avoiding extreme over-crowding. In the more shell-rich deposits, similar numbers of right and left valves were generally present, suggesting discard of the entire shell in one place – itself an indication that oysters were not served on the half shell.The largest deposit of oyster shell from a single context came from layer 12306, below surface 12906 (a minimum of 35 shells, 1218 g or 25% of the total by weight), likely to have been built up through redeposited material from elsewhere. The presence of such a large quantity of shell indicates this was probably midden material. Other relatively large

Table 16.1 Quantification of shell by phase

Phase	Phase 1	Phase 5	Phase 7	Phase 8	Phase 8/9	Phase 9	Unknown	Totals
No. fragments	2	2	2	61	2	703	1	773
Weight (g)	12	3	16	455	36	4359	15	4896

deposits were collected from late Roman ditches 20350 (1195 g), 20052 (a minimum of 32 oysters, 1062 g, 22% of the total by weight), 20151 (338 g) and middle Roman ditch 20150 (301 g). These features are close to the area of domestic settlement in the late Roman period and their fills presumably represent deposits of dumped refuse.

The majority of discrete features which produced shell, including pits 11842 and 11843 which produced 14 g and 50 g of oyster shell respectively, and waterhole 12003 which also produced 50 g, were located around the boundaries of the domestic area. Few features at any distance from this area produced sizeable deposits, although late Roman waterhole 14526 to the north also produced 50 g of shell.

Overall it is clear that oyster became increasingly important in the diet of the inhabitants of Cotswold Community during the Roman period, and particularly so in the late Roman period. Unfortunately marine shell has rarely been reported on, if collected at all during excavation, therefore it is difficult to compare this assemblage and assess its significance.

Of note, however, is the find at Roughground Farm of freshwater mussel from a late Neolithic pit. Although the Neolithic finds in the present assemblage are saltwater species this illustrates that shell deposits are found in Neolithic pits and may have had some significance. Robinson (1993, 15) suggests the shells may indicate diet but may also have been used as scoops or items of personal ornamentation. Whilst the latter is not likely for the Cotswold Community examples the shell may have been used for a variety of functions and appears to have been important enough to have been deposited in a particular way. This may also have significance for the middle Iron Age finds at Cotswold Community, which were of a similar type of species. It is possible that freshwater mussels were always exploited in the prehistoric period in the Upper Thames Valley and that few fragments survive or indeed are collected.

Marine shell was recorded from the recently excavated site at Cleveland Farm (Powell *et al.* 2008) which is broadly comparable to the present site. The site produced a much smaller assemblage of 1025 g of shell from 56 contexts, the largest deposit of which was 125 g in weight. Other finds categories from Cleveland Farm were similar to those from Cotswold Community. This may indicate that the present site had an abnormally large marine shell assemblage, but this assumption requires the collection of comparative data from other sites before it can be substantiated or refuted.

Chapter 17: Animal Bone

by Lena Strid

INTRODUCTION

A total of 20,440 bone, tooth and antler fragments (212,636 g.) were recovered from the Cotswold Community site, dating from the late Neolithic to the post-medieval period.

The Cotswold Water Park area is well represented archaeologically, with many excavated rural sites, mostly of Iron Age and Roman date, often containing considerable faunal assemblages. Roman urban animal bone assemblages are also reasonably well represented from excavations in Cirencester. Compared with Iron Age and Roman assemblages, there is a scarcity of reports on Neolithic, Bronze Age, Anglo-Saxon and medieval animal bone in the area.

METHOD

The bones were identified at Oxford Archaeology by Kris Poole and Lena Strid using a comparative skeletal reference collection, in addition to osteological identification manuals. All the animal remains were counted and weighed, and where possible identified to species, element, side and zone. Sheep and goat were identified to species where possible, using Boessneck *et al.* (1964) and Prummel and Frisch (1986). They were otherwise classified as 'sheep/goat'. An attempt to distinguish donkey/mules from horse was carried out using Johnstone (2004) and Reichstein (1995). Ribs and vertebrae, with the exception of atlas and axis, were classified by size: 'large mammal' representing cattle, horse and deer; 'medium mammal' representing sheep/goat, pig and large dog; and 'small mammal' representing small dog, cat and hare. The condition of the bone was graded on a 6-point system (0-5). Grade 0 equated to very well-preserved bone, and grade 5 indicated that the bone had suffered such structural and attritional damage as to make it unrecognisable.

Modern breaks were disregarded when calculating the total number of fragments. The minimum number of individuals (MNI) was calculated on the most frequently occurring bone for each species, using Serjeantson's (1996) zoning guide, and taking into account left and right sides, as well as epiphyseal fusion. For the calculation of the number of identified fragments per species (NISP) all identifiable fragments were counted, although bones with modern breaks were refitted. The weight of bone fragments has been recorded in order to give an idea of their size and to facilitate an alternative means of quantification.

For ageing, Habermehl's (1975) data on epiphyseal fusion were used. Three fusion stages were recorded: 'unfused', 'in fusion', and 'fused'. 'In fusion' indicates that the epiphyseal line is still visible. Cattle horn cores were aged according to Armitage (1982), using texture and appearance of the horn core surface. Tooth wear was recorded using Grant's tooth wear stages (Grant 1982), and correlated with tooth eruption (Habermehl 1975). In order to estimate an age for the animals, the methods of Halstead (1985), Payne (1973) and O'Connor (1988) were used for cattle, sheep/goat and pig respectively.

Sex estimation was carried out on morphological traits on cattle metapodials and pelves, sheep/goat pelves, sheep and goat horn cores, and pig mandibular canine teeth, using data from Boessneck *et al*. (1964), Hatting (1983), Prummel and Frisch (1986), Schmid (1972) and Vretemark (1997). Metrical sex estimation was carried out on cattle metacarpals, using data from Mennerich (1968). Equid canines and spurs on fowl tarsometatarsi were used to indicate the presence of male individuals in these taxa (Sadler 1991). Identification of medullary bone in birds was used to indicate the presence of egglaying hens.

Measurements were taken according to von den Driesch (1976), using digital callipers with an accuracy of 0.01 mm. Large bones were measured using an osteometric board, with an accuracy of 1 mm. Withers' height of cattle and horse were calculated using Foch (1966), Matolsci (1970) and May (1985) respectively.

GENERAL CHARACTERISTICS OF THE ASSEMBLAGE

The assemblage consisted of 16785 re-fitted bone fragments from securely dated contexts, ranging from early Neolithic to post-medieval (see Table 17.1). The majority of the bones derive from the Roman period. A further 3655 fragments derive from animal burials, discussed separately below. Of the 16785 re-fitted fragments, 3431 (20.5%) could be determined to species. The animals present included cattle (*Bos taurus*), sheep/goat (*Ovis aries*/*Capra hircus*), pig (*Sus domesticus*), horse (*Equus caballus*), dog (*Canis familiaris*), cat (*Felis catus*), red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), bank or field vole (*Clethrionomys glareolus*/*Microtus agrestis*), domestic fowl (*Gallus gallus*), rook (*Corvus frugilegius*), red kite (*Milvus milvus*) and frog (*Rana* sp.). Some indeterminate deer and bird bones were also found.

The presence of donkey (*Equus asinus*) was not confirmed, although this species has been observed in the nearby Roman assemblages Ashton Keynes, Claydon Pike, and Thornhill Farm (Knight 2007; Sykes 2007b; Levine 2004, 115).

Table 17.1 Number of identified animal bones/taxon by phase

SKCC	1 MN	2 LN/EBA	3 MBA	4 LBA/EIA	5 MIA	6 M-LIA	7 LIA/ER	7-8 LIA/ER-MR	8 MR	8-9 MR-LR	9 LR	7-9 Total Roman	10 Saxon	11 Medieval	12 Post-medieval	TOTAL
Cattle	3	6	103	30	10	107	256	50	453	189	498	1446	19	11		1735
Sheep/goat (goat)			28	2	15	122	139	25	262	84	152	662	1		1	864
Sheep							13	1	6	3	3	26				
Goat						3	1				3	4				
Pig			5			39	34	9	57	46	58	204	2	1		251
Horse					1	15	58	8	174	62	151	453	18			487
Dog			2			1	3		11	10	9	33				36
Cat										1	1	2				2
Red deer		1	10		1		1		1	1	1	4				16
Roe deer							1		3			4				4
Deer sp.										1	3	4				4
Fowl							2			1	2	5				5
Rook									1			1				1
Red kite							3					3				3
Bird sp.						1	1	1		2	4	8				9
Bank/field vole											1	1				1
Frog									1		25	26				26
Amphibian										1	64	65				65
Small mammal									1		2	3		1		4
Medium mammal		2	11	3	7	132	146	29	308	111	235	829		1		985
Large mammal	7	8	156	32	28	186	522	35	746	467	949	2719	19			3155
Indeterminate		65	325	16	235	251	769	120	1554	1278	4495	8216	23	1		9132
TOTAL	**10**	**82**	**640**	**83**	**297**	**857**	**1949**	**278**	**3578**	**2257**	**6656**	**14718**	**82**	**15**	**1**	**16785**
Weight (g)	191	217	5741	1405	1129	10594	24503	3452	52115	25056	80121	185247				

While very rare, wildcat (*Felis silvestris*) did occur in southern Britain during the Iron Age and the Roman period (Ingrem 2007, 352; Sykes 2007b). Skeletally, it is very similar to the domestic cat (*Felis catus*), and mostly identified on metric differences. The Cotswold Community cat bone could not be measured, and the possibility of it being a wild cat cannot be ruled out. Cat bones have also been found at Ashton Keynes, where they could not be identified to either species with certainty (Knight 2007), and in Claydon Pike, where both domestic and wildcat were present (Sykes 2007b).

Goat is present in the mid-late Iron Age, late Iron Age/early Roman and late Roman phases, with 3, 1 and 3 bones respectively. Bones identified as sheep are more common, occurring in the mid-late Iron Age, Saxon, and all Roman phases, with a total of 28 bones. Goat is generally rare in Iron Age and Roman assemblages (Maltby 1981, 159-160). It is therefore assumed that the majority of the sheep/goat bones in the assemblage derive from sheep.

The assemblage derived mainly from ditches (37%), pits (26%), layers (16%) and waterholes (16%). The remaining 5% came from several minor feature types. The excavation area comprised settlements and field systems from most periods. The late Bronze Age/early Iron Age phase contained several discrete foci of activity, and there were two areas of middle Iron Age settlement, while late Iron Age and Roman occupation concentrated in one main area. The Saxon phase again saw dispersed activity. The few Neolithic features were difficult to categorise, and the medieval features consisted solely of furrows from fields.

Bone preservation

Bone condition is generally poor on the gravel rich sites in the Thames flood plain (Sykes 2007a), and this is true of the Neolithic and Bronze Age assemblages from Cotswold Community. The Iron Age and Roman assemblages fared better, and the majority of the bones are in fair or good condition (grades 3 and 2) (see Table 17.2). Consequently, these are the assemblages with the greatest number of recorded butchery marks and pathologies.

With the exception of the Iron Age assemblage, very few bones are burnt. Taking the burnt bone assemblage as a whole, sheep/goat and indeterminate medium mammals dominate the Iron Age burned bones, but no clear pattern emerged in the Roman period (although indeterminate large mammal bones were relatively frequent). It has been suggested that the predominance of burnt sheep/goat bones in the Roman assemblage at Claydon Pike relates to a difference in cooking methods, with lamb and mutton roasted and pork and beef boiled (Sykes 2007). It is possible that a similar variation in cooking methods occurred at Cotswold Community during the Iron Age, but there are insufficient burnt bones to draw any definite conclusion.

Gnawed bones are rare in all phases (see Table 17.3). This low rate of gnawing suggests a rapid disposal of waste.

NEOLITHIC AND BRONZE AGE

The Neolithic and Bronze Age assemblages were recovered from the middle Neolithic, late Neolithic/early Bronze Age and middle Bronze Age phases. The middle Neolithic assemblage is very small, comprising bones from adult cattle and unidentified large mammals (see Table 17.4). The late Neolithic/early Bronze Age assemblage is somewhat larger, but consists mainly of bones indeterminable to species (see Table 17.5). Cattle and red deer are present; cattle being the predominant species. Since the red deer bone is an undiagnostic fragment of antler, there is no direct evidence for deer hunting, as the antler may have been collected after shedding.

The nearby Horcott site has features contemporary with these three phases. As at Cotswold Community, the bone preservation is rather poor, which has affected the number of bones identified to species. Most bones were found in the early-middle Neolithic phases, where cattle bones were numerically dominant, followed by those from pig and sheep/goat. Evans (forthcoming) suggests that the poor bone preservation has favoured the more robust bones of cattle and pig at the expense of sheep/goat and smaller mammals. This is supported by the abundance of bones from unidentified medium mammals, and it is consequently difficult to draw any firm conclusions regarding Neolithic animal husbandry in the area.

The Cotswold Community middle Bronze Age assemblage is also firmly dominated by cattle (see Table 17.6). It would therefore seem likely that animal husbandry was focussed on cattle as providers of meat, milk and traction. Ageing by epiphyseal fusion shows a predominance of sub-adult and adult cattle, but poor bone preservation has undoubtedly skewed these figures in favour of older, more robust bone. Using the tooth wear ageing data, it appears that the majority of animals were killed at 18-30 months of age, a prime age for meat production, but as only ten jaws are available, this conclusion is inevitably tentative.

Only one caprine mandible could be aged, indicating an age at death of 0.5-2 years for that animal. Judging by the surface structure of the bones, all sheep/goats and pigs were sub-adults/adults when slaughtered, but again the poor bone condition is likely to have skewed the assemblage in favour of skeletally mature individuals.

IRON AGE

The Iron Age assemblage comprises bones from Phases 4-6 (late Bronze Age/early Iron Age, middle Iron Age and middle-late Iron Age). The assemblages from the two earliest phases are very small, particularly when excluding bones not identifiable to

Table 17.2 Preservation level of animal bones from all phases of the Cotswold Community assemblage

		Preservation grade					
	Number of fragments	**0**	**1**	**2**	**3**	**4**	**5**
Phase 1	10	20.0%				80.0%	
Phase 2	82	6.1%				9.8%	84.1%
Phase 3	640	5.8%	1.7%	19.1%	32.7%	39.4%	1.1%
Total Neolithic/ Bronze Age	**732**	**6.0%**	**1.5%**	**16.7%**	**28.6%**	**36.6%**	**10.4%**
Phase 4	83	14.5%	7.2%	27.7%	42.2%	9.6%	
Phase 5	297	1.7%	1.7%	10.8%		85.9%	
Phase 6	857	1.6%	14.1%	32.9%	39.0%	12.3%	0.1%
Total Iron Age	**1237**	**2.5%**	**10.7%**	**27.2%**	**29.8%**	**29.7%**	**0.1%**
Phase 7	1949	1.8%	11.4%	34.3%	40.1%	12.2%	
Phase 8	3578	1.9%	9.7%	50.1%	34.0%	4.2%	
Phase 9	6656	1.3%	25.4%	70.0%	20.2%	3.2%	0.2%
Phase 7/8	278	1.4%	10.1%	44.6%	24.5%	19.4%	
Phase 8/9	2257	0.9%	6.2%	39.4%	36.7%	15.3%	1.5%
Total Roman	**14718**	**1.1%**	**9.4%**	**55.3%**	**28.8%**	**6.8%**	**0.3%**
Phase 10	82	4.9%	2.4%	28.0%	61.0%	2.4%	
Phase 11	15		20.0%	60.0%	6.7%	13.3%	
Phase 12	1		100%				
Total Post-Roman	**98**	**4.1%**	**6.1%**	**32.7%**	**52.0%**	**4.1%**	

Table 17.3 Gnawed and burnt animal bones from all phases of the Cotswold Community assemblage

	Number	**Gnawed bones**	**% Gnawed bones**	**Burnt bones**	**% Burnt bones**
Phase 1	10	0	0%	0	0%
Phase 2	82	0	0%	0	0%
Phase 3	640	1	0.2%	6	0.9%
Total Neolithic/Bronze Age	**732**	**1**	**0.1%**	**6**	**0.8%**
Phase 4	83	0	0%	0	0%
Phase 5	297	0	0%	12	4.0%
Phase 6	857	20	2.3%	43	5.0%
Total Iron Age	**1237**	**20**	**1.6%**	**55**	**4.4%**
Phase 7	1949	32	1.6%	25	1.3%
Phase 8	3578	52	1.5%	36	1.0%
Phase 9	6656	71	1.1%	7	0.1%
Phase 7/8	278	5	1.8%	3	1.1%
Phase 8/9	2257	25	1.1%	4	0.2%
Total Roman	**14718**	**185**	**1.3%**	**75**	**0.5%**
Phase 10	82	0	0%	0	0%
Phase 11	15	1	6.7%	0	0%
Phase 12	1	0	0%	0	0%
Total Post-Roman	**98**	**1**	**1.0%**	**0**	**0%**

Table 17.4 Middle Neolithic assemblage: anatomical distribution of all species, including NISP, MNI and weight

	Cattle	Large mammal
Loose teeth	2	
Humerus	1	
Long bone		7
Indeterminate		
Total (NISP)	**4**	**7**
MNI	1	
Weight (g)	150	41

species (see Tables 17.7-8). Inter-phase comparisons have therefore not been made.

Sheep/goat is the most common taxon in the assemblage, regardless of quantification method used (see Table 17.9). However, the combined NISP for cattle, sheep/goat and pig falls under 300 fragments, which are considered too few to produce a reliable sample size for inter-species comparisons (Hambleton 1999, 39). The bone assemblages from Latton Lands, Ashton Keynes and Claydon Pike, Warrens Field are consistently dominated by cattle and have a similarly low percentage of pig (see Fig. 17.1). Latton Lands has a far higher proportion of cattle than the other two sites, and it has been suggested that the assemblage was biased because of different disposal of animal remains across the site. Bones from cattle and horse are more often found in boundary ditches, whereas sheep/goat and pig bones tend to be more numerous in features close to settlement (Sykes 2007c, 54; Poole 2009). However, this pattern was not evident at Cotswold Community, where most of the bone was recovered from features close to the settlements. It is possible that spatial patterning biased the assemblage against peripheral areas, and thus against cattle and horse. Also, differences in local environment may favour one species over another.

In all three Iron Age phases, both meat-bearing and non meat-bearing bones of the major domesticates were present in the assemblage, indicating that these species were brought in on the hoof, to be slaughtered, butchered and disposed of in the area. Red deer is only represented by a metatarsal, and it is therefore not certain whether this represent local hunting, or trade of deer hide.

Cattle

Epiphyseal fusion data from Phase 6 suggests that the cattle were mostly slaughtered as sub-adults or adults. With the exception of a few neonatal/juvenile bones all bones in the early and mid-fusion categories are fused. The neonatal/juvenile bones consist of two cattle skull fragments (context 10937), probably from the same individual. While they may represent natural calf mortality, deliberate slaughter for meat or for freeing up milk for dairy production cannot be excluded.

Mandibular age estimation could be carried out in all phases, but insufficient mandibles were available to consider inter-phase differences. When viewing the Iron Age assemblage as a whole, cattle mortality peaks in the 18-36 months age range (see Table 17.10), as it does at Latton Lands and Claydon Pike, Warrens Field. At Ashton Keynes, the mortality curves peak later, at the 2.5 year-'adult' range, although it is unclear in this case how many mandibles were included in the analysis.

The slaughter age patterns suggest that most cattle at Cotswold Community, as at Latton Lands and Claydon Pike Warrens Field, were kept for meat as well as secondary products, such as dairy and traction. Legge posits that the optimal slaughter age for cattle kept for meat is *c* 2 years, since the growth curve evens out afterwards (Legge 1992, 25). While this hypothesis is based on a Bronze Age assemblage, it is likely that cattle growth would be little changed in the Iron Age. An increase in size, suggested to derive from breeding in foreign cattle breeds, has been found to occur first in the Roman period (Maltby 1981, 185).

Table 17.5 Late Neolithic/early Bronze Age assemblage: anatomical distribution of all species, including NISP, MNI and weight

	Cattle	Red deer	Medium mammal	Large mammal	Indeterminate
Antler		1			
Loose teeth	5			1	
Radius	1				
Long bone			2	7	
Indeterminate					65
Total (NISP)	**6**	**1**	**2**	**8**	**65**
MNI	1	1			
Weight (g)	39	11	2	84	81

Table 17.6 Middle Bronze Age assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

	Cattle	Sheep/goat	Pig	Red deer	Dog	Medium mammal	Large mammal	Indeterminate
Antler				8				
Horn core								
Skull							1	
Mandible	16	2			2		3	
Loose teeth	36	23	1					
Atlas								
Axis								
Vertebrae							11	
Ribs							5	
Sternum								
Sacrum								
Scapula	2						1	
Humerus	7		1					
Radius	8*	1						
Ulna	2							
Carpals								
Metacarpal	7							
Pelvis								
Femur	2							
Patella								
Tibia	9	1	1				3	
Fibula								
Calcaneus	1		1					
Astragalus	1	1						
Tarsals								
Metatarsal	5		1	2				
Phalanx 1	5							
Phalanx 2	1							
Phalanx 3	1							
Lateral metapodial								
Indet. metapodial							1	
Long bone						11	131	
Indeterminate								325
Total (NISP)	**103**	**28**	**5**	**10**	**2**	**11**	**156**	**325**
MNI	6	1	1	1	1			
Weight (g)	3556	96	48	781	45	30	909	276

The heavy fragmentation of bones resulted in few measurable bones. Almost all measurements derive from Phase 6, and thus inter-phase comparisons could not be carried out. The cattle bones are mostly of similar size to those from contemporary Iron Age sites in Britain (see Tables 17.12-13). However, with the exception of the distal breadth of the tibia, all comparative measurements were few in number, and far-reaching conclusions cannot be drawn from such small dataset.

Only seven cattle bones from the middle-late Iron Age assemblage displayed butchery marks, mainly knife marks deriving from disarticulation and filleting. Bones portioned by chopping are also

Table 17.7 Late Bronze Age/early Iron Age assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

	Cattle	Sheep/goat	Medium mammal	Large mammal	Indeterminate
Antler					
Horn core					
Skull	1				
Mandible	3				
Loose teeth	12	1			
Atlas					
Axis					
Vertebrae					
Ribs					
Sternum					
Sacrum					
Scapula					
Humerus	2				
Radius	1				
Ulna	2				
Carpals					
Metacarpal					
Pelvis					
Femur	1				
Patella					
Tibia	2*	1			
Fibula					
Calcaneus					
Astragalus	1				
Tarsals					
Metatarsal					
Phalanx 1	2				
Phalanx 2	2				
Phalanx 3	1				
Lateral metapodial					
Indet. metapodial					
Long bone			3	32	
Indeterminate					16
Total (NISP)	**30**	**2**	**3**	**32**	**16**
MNI	2	1			
Weight (g)	1035	9	7	337	17

present. A large mammal vertebra, probably of cattle, was split axially parallel to its midline, and two large mammal ribs showed cut marks indicative of filleting. Disarticulation by knife is the dominant butchery method during the Iron Age (Maltby 1989). Some bones portioned by chopping were found in Ashton Keynes and Latton Lands, although the majority of the butchered remains displayed cut marks (Knight 2007; Poole 2009). Butchery marks were not observed in Warrens Field.

Sheep/goat

Fusion data are available for sheep/goat in Phase 5 and 6. These data suggest that the sheep/goats were mostly slaughtered as sub-adults or adults. With the exception of a few neonatal/juvenile bones in Phase 6, all bones in the early and mid-fusion categories are fused. The neonatal and juvenile sheep/goat remains consist of three sheep/goat long bones (contexts 10412, 10427 and 15385). It is not clear whether

Table 17.8 Middle Iron Age assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

	Cattle	Sheep/goat	Horse	Red deer	Medium mammal	Large mammal	Indeterminate
Antler							
Horn core							
Skull							
Mandible	2*	1					
Loose teeth	4	1					
Atlas							
Axis							
Vertebrae							
Ribs							
Sternum							
Sacrum							
Scapula		1	1				
Humerus	1	3					
Radius		3				1	
Ulna		1					
Carpals							
Metacarpal	1						
Pelvis		1					
Femur		2					
Patella							
Tibia	1	2*				1	
Fibula							
Calcaneus							
Astragalus							
Tarsals							
Metatarsal				1			
Phalanx 1	1						
Phalanx 2							
Phalanx 3							
Lateral metapodial							
Indet. metapodial							
Long bone					7	26	
Indeterminate							235
Total (NISP)	**10**	**15**	**1**	**1**	**7**	**28**	**235**
MNI	2	2	1	1			
Weight (g)	685	71	55	28	6	220	64

these remains represent young animals deliberately slaughtered for meat, or if the remains represent natural lamb mortality.

Judging by mandibular age estimation, the Iron Age caprines seem to have been regularly killed at ages between 6 months and 3-4 years, with only a few animals living past 4-6 years (see Table 17.13). A similar cull pattern is apparent at the other local rural sites, although a greater proportion of young lambs was represented at Latton Lands and Claydon Pike Warrens Field.

While sheep were most certainly used for wool, this seems not to have been the basis of sheep husbandry. The relatively young average age at death suggests

Table 17.9 Middle-late Iron Age assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Bird	Medium mammal	Large mammal	Indeterminate
Antler											
Horn core	2										
Skull	8	3			6					27	1
Mandible	21	12	1	1	7		1			11	
Loose teeth	18	21			6	7					
Atlas		1									
Axis						1					
Vertebrae									10	25	
Ribs									33	43	
Sternum											
Sacrum	1									1	
Scapula	8	5			2						
Humerus	6	17			3	1					
Radius	6	12			2	1					
Ulna	4	2			2	1					
Carpals	1										
Metacarpal	6	9				2*					
Pelvis	7*	6			3*	1			1		
Femur	3	3									
Patella											
Tibia	5	13*								1	
Fibula					2						
Calcaneus	4	1									
Astragalus	1										
Tarsals		1									
Metatarsal	4	11	1		1						
Phalanx 1	1	4			1						
Phalanx 2					1						
Phalanx 3											
Lateral metapodial					2						
Indet. metapodial	1	1			1						
Long bone								1	88	78	
Indeterminate											250
Total (NISP)	**107**	**122**	**2**	**1**	**39**	**15**	**1**	**1**	**132**	**186**	**251**
MNI	4	9			2	2	1				
Weight (g)	5762	783	27	20	448	847	41	0	301	1830	535

that meat was an important product. Before slaughter, a sheep would have yielded at least two clips of wool, and if female, milk for dairy production. Remains specifically identified as goat occur only at Cotswold Community and Ashton Keynes, where they are few in number. Goats may have been used for their meat, milk, coat and leather. One sheep/goat pelvis derived from a male animal. No other bones in the assemblage could be sexed.

Almost all sheep/goat measurements derive from Phase 6, and thus inter-phase comparisons could not be carried out. The sheep/goat bones are mostly of similar size to those from contemporary Iron Age sites in Britain (see Table 17.14) but, as with cattle,

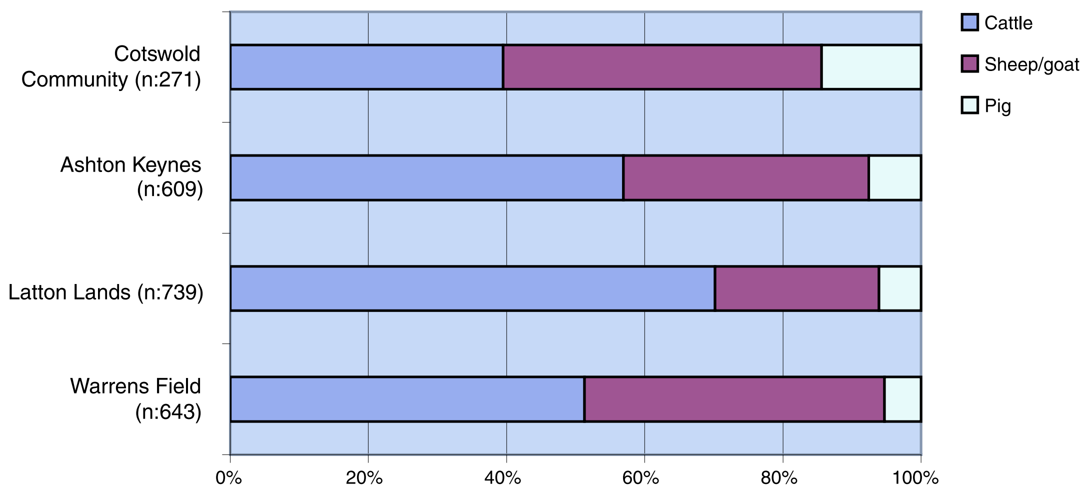

Figure 17.1 Iron Age assemblage: NISP (%) for cattle, sheep/goat and pig at Cotswold Community, Ashton Keynes, Latton Lands and Claydon Pike Warrens Field

the measurements are few in number.

Three sheep/goat bones in Phase 6 contexts had butchery marks. These consist of knife marks from filleting, suggesting kitchen waste. A rib from a medium mammal, likely sheep/goat or pig, had been chopped mid-rib, indicating portioning of the rib cage.

Pig

Fusion data were only available for pig in Phase 6. A large proportion of the bones were unfused but neonatal and juvenile remains were absent. The number of ageable pig mandibles at Cotswold Community, Claydon Pike Warrens Field and Latton Lands (n: 4, 4, and 6 respectively) are too low for a discussion of kill-off patterns. In all cases, juvenile, sub-adult and adult individuals were represented, showing no preferred slaughter age. Pigs are generally slaughtered when reaching their full size as sub-adults, with a few pigs being kept for breeding purposes. The presence of younger pigs in the assemblages suggests that surplus pigs were slaughtered at their first or second winters.

One pig mandibular canine derived from a male animal. No other bones in the assemblage could be sexed.

Horse

There are far fewer horse remains at Cotswold Community than at the four comparative local Iron Age sites, indeed, fewer than in many other sites in the Upper Thames Valley (Gill Jones, pers. comm.). The environment at Cotswold Community may have been less suitable for keeping horses than at other

Table 17.10 Iron Age: cattle mandibular wear stages

		A	B	C	D	E	F	G	H	I
	N	**0-1 months**	**1-8 months**	**8-18 months**	**18-30 months**	**30-36 months**	**Young adult**	**Adult**	**Old adult**	**Senile**
Phase 4	3		1		2					
Phase 5	4				1		1		2	
Phase 6	7				1		4	1	1	
TOTAL	14				4		5	1	3	

Table 17.11 Iron Age: cattle radius Greatest Length measurements (mm) and calculated withers' height

	Phase	N	Mean	Min	Max	Withers' height
Cotswold Community	6	1	244			104.9 cm
ABMAP radius	MIA	4	263.9	256.6	270.3	
	LIA	2	261.5	257	266	

Table 17.12 Iron Age assemblage and ABMAP database: cattle Greatest Breadth of Distal end measurements (mm)

	Phase	N	Mean	Min	Max
Radius	6	1	64.5		
ABMAP radius	MIA	7	64.9	59	71.2
	LIA	7	61.3	55.5	66.9
Tibia	4	1	42.8		
	6	1	53.6		
ABMAP tibia	LBA-EIA	3	55.1	52.8	59.4
	MIA	36	54.2	47.2	60.6
	LIA	20	54	47.2	58.7

local sites. Horses require larger grazing areas and less herd density than many other species (Ingrem 2007, 351-352). If good pasture was at a premium, its use might have been prioritised for cattle and sheep.
Judging by epiphyseal fusion and tooth wear, all the horses represented at Cotswold Community were adult. Juvenile horse remains are generally rare on Iron Age sites, and this has been interpreted as evidence that horses were kept in semi-wild herds, captured and broken in when needed (Harcourt 1979). Since juvenile horse bones have been found at a few Thames Valley sites (Poole 2009; Mulville and Levitan 2004; Powell and Clark 1996), occasional breeding may either have taken place at the settlements, or mares with foals may have been captured from a free-ranging herd.
While horses were occasionally eaten in the Iron Age, no evidence for this has been found at Cotswold Community in this period. The Iron Age horse bones lack butchery marks, and several of the long bones are complete. The same situation is found at Latton Lands and Claydon Pike, Warrens Field, whereas at Ashton Keynes a small proportion of the horse bones displayed butchery marks deriving from disarticulation. It is unknown whether the disarticulation marks, situated on humerus and pelvis, are related to the feeding of horse flesh to dogs, disarticulation to facilitate disposal of the large carcass, or butchery for human consumption.

The two measurable horse metacarpals are within the same size range as metacarpals from other mid-late Iron Age sites in Britain (see Table 17.15). Withers' heights of 117.2 cm and 120.2 cm respectively were calculated from these bones.

Dog

Dog is represented by one mandible in Phase 6, and indirectly by 20 gnawed bones in the same phase. Dogs in general are rather rare on Iron Age sites, comprising 0.1-1.7% of all identified bones in the comparative assemblages.
When compared to measurements from two complete dog skeletons from post-medieval Dublin (Strid unpublished), the metric data suggests that the Cotswold Community mandible derives from a medium-sized to large dog.

Red deer

Red deer is the only wild mammal in the Iron Age assemblage, represented by a metatarsal fragment in Phase 5. Game is rarely found in large quantities on Iron Age sites, the majority of the meat diet being derived from livestock. Deer is absent in Claydon Pike, Warrens Field, whereas it is present in small numbers in Ashton Keynes (n: 8, 1.2% of identified fragments) and Latton Lands (n: 22, 2.6% of identified fragments). Shed and unshed antler fragments occurred at Latton Lands, presumably used for antler working.

ROMAN

The Roman assemblage consisted of 14718 fragments, of which 2874 (19.5%) could be determined to species and 8216 fragments were considered completely unidentifiable (see Table 17.16). The rest of the unidentified fragments consist mainly of long bone shaft fragments, vertebrae and ribs, assigned to small, medium-sized and large mammal categories respectively. The majority of the bones, 12183 fragments, or 82.8%, could be dated to Phase 7, Phase 8 or Phase 9.
Cattle, sheep/goat, pig and horse were the only taxa present to occur in all five sub-phases. Dog and red deer are almost as common, occurring in all phases except the small 7-8 sub-phase. Cat, roe deer, rook

Table 17.13 Iron Age: sheep mandibular wear stages

		A	B	C	D	E	F	G	H	I
	N	0-2 months	2-6 months	6-12 months	1-2 years	2-3 years	3-4 years	4-6 years	6-8 years	8-10 years
Phase 4										
Phase 5	1									1
Phase 6	11			1	5		4	1		
TOTAL	12			1	5		4	1		1

Table 17.14 Iron Age assemblage and ABMAP database: sheep/goat Greatest Breadth of Distal end measurements (mm)

	Phase	N	Mean	Min	Max
Tibia	6	3	23.7	22	27
ABMAP tibia	MIA	26	22.5	20.8	23.8
	LIA	13	23	19.9	25.1

and red kite are much less frequent, only occurring in one or two sub-phases (see Tables 17.17-17.21).

The dominant species in all Roman phases at Cotswold Community is cattle, regardless of quantification method. The usual pattern for Roman and Romanised sites in Britain is a predominance of cattle and pig, whereas sheep tend to be dominant at native sites (see Maltby 1981, 163; Hamshaw-Thomas 2000, passim). However, this is not quite the case in the Cotswold Water Park area. Although cattle are the most numerous species, both by NISP and MNI, sheep/goat are also very common. Pig only constitute a minor part of the livestock. This may be a reflection of the local landscape - the Upper Thames Valley is suited for both cattle and sheep farming (Ingrem 2007, 352) but the dry high ground of the Cotswolds is more suitable for sheep than cattle, and the area was therefore focussed on sheep farming and wool production rather than cattle farming (Hurst 2005, 13).

Contemporary sites in the Upper Thames Valley show a similar distribution of species (see Fig. 17.2). At rural sites, the number of cattle ranges between 45-75%, averaging c 60%. Sheep/goat ranges between 39-46%, and pig between 5-9%. The urban assemblages at Cirencester are very different, with a high percentage of cattle (87%) and equally low percentages of sheep/goat and pig (6.4% and 6.5%). One may assume that a large number of cattle were transported on the hoof from rural settlements to the Cirencester meat markets.

Both meat-bearing and non meat-bearing bones of cattle, sheep and pig were present in the assemblage, indicating that these species were slaughtered, butchered and eaten in the area. This skeletal element representation is common to almost all other species, indicating that most - if not all - animals were brought into the settlement as complete carcasses/ living animals. More intriguingly, there is a over-representation of dog mandibles, which cannot be explained. This is consistent in all three phases (Phase 8, 8-9, 9) in which dog mandibles occur. The mandibles are mainly found in ditch fills, but this is a feature of the great majority of the Roman bone assemblage.

Cattle

Ageing

The cattle at Cotswold Community appear to have been steadily culled throughout the first few years, with a peak in adult cattle. This is seen in all phases, with the exception for the middle Roman phase, when there is a very slight peak of adult and senile cattle (see Table 17.22). A similar mortality pattern is evident from the cattle horn cores, with the majority from animals in the 3-7 year age range (see Table 17.23), and from epiphyseal fusion, which suggests that most cattle were sub-adults or adults when killed. Neonatal and juvenile cattle were found in small numbers throughout the Roman period. Their presence is likely to be due to infant mortality, or possibly deliberate slaughter for meat or to free milk for dairy production.

This is a pattern in keeping with most of the local rural assemblages, but contrasts with the evidence from Cirencester, where almost all cattle remains were from animals over 3 years of age. At both Ashton Keynes and Claydon Pike there is a peak of slaughter at 18-36 months, an age which has been argued by Legge (1992, 25) as the optimal slaughter age for beef, since the first intense growth has finished, and the animal will now grow at a relatively slow pace until it has reached its adult size. It would thus seem that these two sites were mostly self sufficient, killing the young cattle for meat and keeping some adults for secondary products. However, since urban sites are usually provisioned from rural sites, cattle slaughter ages and inter-settlement relationships are more complicated than is at first apparent. Maltby posits that on rural sites male cattle were more valuable than female cattle since oxen were better draught

Table 17.15 Iron Age: horse metacarpal Greatest Length and Greatest Lateral Length measurements (mm) and calculated withers' height

		Phase	N	Mean	Min	Max	Withers' height
Cotswold Community	GL / GLl	6	1	197.0 / --			120.2 cm
		6	1	-- / 183.0			117.2 cm
ABMAP	GL	MIA	5	183.9	126.5	223.7	
		LIA	9	191.7	130.9	211	
	GLl	LIA	3	197.4	194	203	

Table 17.16 Total Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Cat	Red deer	Roe deer	Deer	Vole	Fowl	Rook	Red kite	Bird	Frog	Amphibian	Small mam	Med mam	Large mam	Indet	
Antler									2	1	7												Antler
Horn core	45		2	3																		1	Horn core
Skull	76	10	1	1	21	11	2	1												8	261	1	Skull
Mandible	237	102	16		34	25	11			3										5	59		Mandible
Loose teeth	246	197	2		48	119	5																Loose teeth
Hyoid	3																						Hyoid
Atlas	6	3			1	5																	Atlas
Axis	9	1				2															1		Axis
Vertebrae		1																1		41	311		Vertebrae
Ribs																1				140	689		Ribs
Sternum																							Sternum
Sacrum	3	1				5															2		Sacrum
Furcula													1										Furcula
Coracoid															1								Coracoid
Scapula	70	10			13	11														1	24	1	Scapula
Humerus	70	38	2		19	25	3									1	1	3			11		Humerus
Radius	89	73			2	42	1		1												4		Radius
Ulna	38	5			11	14	2				1		2		1						2		Ulna
Radioulna																		2					
Carpals	25	2				3															1		Carpals
Metacarpal	56	22	1		5	18																	Metacarpal
Carpometacarpus															1								Carpometacarpus
Pelvis	56	20			4	34											4				18		Pelvis
Femur	69	4			6	27	2					1	1					7		1	2		Femur
Patella	1				1	1																	Patella
Tibia	75	71			11	29	4	1												2	5		Tibia
Fibula					3																		Fibula
Tibiotarsus																1							
Tibiofibula																	21						
Calcaneus	34	9			4	8															1		Calcaneus
Astragalus	37	4			1	11																	Astragalus
Tarsals	21				2	4																	Tarsals
Metatarsal	93	69	2		5	26	1		1														Metatarsal

Table 17.16 Total Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk (continued)

	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Cat	Red deer	Roe deer	Deer	Vole	Fowl	Rook	Red kite	Bird	Frog	Amphibian	Small mam	Med mam	Large mam	Indet	
Tarsometatarsus														1									Tarsometatarsus
Phalanx 1	42	17			5	12	1																Phalanx 1
Phalanx 2	18	2			5	4																	Phalanx 2
Phalanx 3	15				1	1																	Phalanx 3
Lateral metapodial					2	7																	Lateral metapodial
Indet. metapodial	12	1				7	1																Indet. metapodial
Long bone						1										5			3	625	1267		Long bone
Indeterminate													1							6	61	8213	Indeterminate
Total (NISP)	**1446**	**662**	**26**	**4**	**204**	**452**	**33**	**2**	**4**	**4**	**8**	**1**	**5**	**1**	**3**	**8**	**26**	**65**	**3**	**829**	**2719**	**8213**	**Total (NISP)**
MNI																							MNI
Weight (g)	87062	4689	355	271	2326	42168	311	12	541	75	133	0	2	0	1	3	0	1	3	2155	28908	16232	Weight (g)

Table 17.17 Late Iron Age/early Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

Phase 7	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Red deer	Roe deer	Fowl	Red kite	Bird	Medium mammal	Large mammal	Indeterminate
Antler															
Horn core	7		1												
Skull	10	5	1	1	4	4	1						3	147	
Mandible	33	26	10		8	4			1				1	22	
Loose teeth	39	34			4	16									
Hyoid	1														
Atlas		1													
Axis	2														
Vertebrae													9	43	
Ribs													29	108	
Sternum															
Sacrum		1													
Coracoid											1				
Scapula	16	5			1	1							1	4	
Humerus	21*	10	1		2	2								2	

Table 17.17 Late Iron Age/early Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk (continued)

Phase 7	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Red deer	Roe deer	Fowl	Red kite	Bird	Medium mammal	Large mammal	Indeterminate
Radius	12	23*				6*		1							
Ulna	10				5*	1				1	1				
Carpals	3	1													
Metacarpal	14	3			1	1									
Carpometacarpus											1				
Pelvis	14	3				2								2	
Femur	12	1			1	3							1		
Patella															
Tibia	15	10			5	5							1		
Fibula					1										
Calcaneus	8	1			1	2									
Astragalus	8					3									
Tarsals	3														
Metatarsal	14	11			1	2	1								
Phalanx 1	7	4				2									
Phalanx 2	3														
Phalanx 3	2														
Lateral metapodial						3									
Indet. metapodial	2					1	1								
Long bone												1	101	179	
Indeterminate										1				15	769
Total (NISP)	**256**	**139**	**13**	**1**	**34**	**58**	**3**	**1**	**1**	**2**	**3**	**1**	**146**	**522**	**769**
MNI	9	8			5	4	1	1	1	1	1				
Weight (g)	12582	959	181	238	474	4235	8	56	5	1	1	1	426	3934	1402

Table 17.18 Late Iron Age/early-mid Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

Phase 7/8	**Cattle**	**Sheep/ goat**	**Sheep**	**Pig**	**Horse**	**Bird**	**Medium mammal**	**Large mammal**	**Indeterminate**
Antler									
Horn core									
Skull	1	2						5	
Mandible	17	4		3					
Loose teeth	6	2	1		3				
Hyoid									
Atlas	1								
Axis									
Vertebrae							3	3	
Ribs						1	2	2	
Sternum									
Sacrum									
Coracoid									
Scapula	4			3					
Humerus	1			1					
Radius	3	4		1	1				
Ulna	1				1				
Carpals									
Metacarpal	1	1			1				
Carpometacarpus									
Pelvis	1	1							
Femur	3				2				
Patella									
Tibia	4*	2							
Fibula									
Calcaneus	1	1							
Astragalus	1								
Tarsals									
Metatarsal	3	5*							
Phalanx 1	1	3							
Phalanx 2	1			1					
Phalanx 3									
Lateral metapodial									
Indet. metapodial									
Long bone							24	25	
Indeterminate									120
Total (NISP)	**50**	**25**	**1**	**9**	**8**	**1**	**29**	**35**	**120**
MNI	3	2		1	1				
Weight (g)	2127	106	1	126	582	0	80	290	140

animals. Female cattle were used for dairy and breeding during their first few years, and were then sold on the hoof to towns for meat. While many urban Roman sites show a larger percentage of female cattle, there are few rural sites with sufficient numbers of cattle bones suitable for sexing and ageing. If this hypothesis is correct, perhaps the lack of adult cattle at Ashton Keynes and Claydon Pike could be a result of their sale to urban markets. This might then mean that the Cotswold Community was a relatively more

Table 17.19 Middle Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

Phase 8	Cattle	Sheep/ goat	Sheep	Pig	Horse	Dog	Red deer	Roe deer	Rook	Frog	Small mammal	Medium mammal	Large mammal	Indeterminate
Antler								1						
Horn core	13													1
Skull	36	1		3	3							3	14	1
Mandible	68	46	5	12	9	2		2				3	14	
Loose teeth	102	80		18	41	4								
Hyoid	1													
Atlas	1			1	2									
Axis	1	1											1	
Vertebrae		1										20	68	
Ribs												47	223	
Sternum														
Sacrum	1				2								2	
Scapula	16	4		3	3								14	1
Humerus	16	16		6*	11	2*							4	
Radius	22	19			17	1							1	
Ulna	8	3			3								1	
Carpals	11				1								1	
Metacarpal	19	7	1	1	5									
Pelvis	9	9		1	15*								9	
Femur	20	1			14									
Patella				1	1									
Tibia	19*	29		1	13	1							4	
Tibiofibula										1				
Fibula				2										
Calcaneus	9	5		2	2								1	
Astragalus	10	2		1	5									
Tarsals	6				3									
Metatarsal	35	31*			7		1							
Tarsometatarsus									1					
Phalanx 1	12	6		2	6	1								

Table 17.19 Middle Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk (continued)

Phase 8	**Cattle**	**Sheep/ goat**	**Sheep**	**Pig**	**Horse**	**Dog**	**Red deer**	**Roe deer**	**Rook**	**Frog**	**Small mammal**	**Medium mammal**	**Large mammal**	**Indeterminate**
Phalanx 2	8			1	3									
Phalanx 3	5			1	1									
Lateral metapodial				1	3									
Indet. metapodial	5	1			4									
Long bone											1	229	353	
Indeterminate												6	36	1551
Total (NISP)	**453**	**262**	**6**	**57**	**174**	**11**	**1**	**3**	**1**	**1**	**1**	**308**	**746**	**1554**
MNI	15	11		3	7	2	1	1	1	1				
Weight (g)	23008	1978	93	682	13813	67	16	70	0	0	0	710	7660	4018

Table 17.20 Middle-late Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

Phase 8-9	**Cattle**	**Sheep/ goat**	**Sheep**	**Pig**	**Horse**	**Dog**	**Cat**	**Red deer**	**Deer**	**Fowl**	**Bird**	**Amphibian**	**Medium mammal**	**Large mammal**	**Indeterminate**
Antler								1	1						
Horn core	6														
Skull	5			8*			1							85	
Mandible	47	10		2	5	5*							1	19	
Loose teeth	41	23	1	17	13										
Hyoid															
Atlas	1	1			2										
Axis					1										
Vertebrae													4	69	
Ribs													12	113	
Sternum															
Sacrum															
Coracoid															
Scapula	8			1	4									2	
Humerus	7*	5		2	3	1						1			
Radius	17	10*		1	3									1	

Table 17.20 Middle-late Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk (continued)

Phase 8-9	**Cattle**	**Sheep/ goat**	**Sheep**	**Pig**	**Horse**	**Dog**	**Cat**	**Red deer**	**Deer**	**Fowl**	**Bird**	**Amphibian**	**Medium mammal**	**Large mammal**	**Indeterminate**
Ulna	5			1	2	1									
Carpals	3	1			1										
Metacarpal	7	3		2	5										
Carpometacarpus															
Pelvis	4	1		3	7*									2	
Femur	7	1		2	2	2				1					
Patella															
Tibia	4	14		2	3	1									
Fibula															
Tibiotarsus											1				
Calcaneus		1			1										
Astragalus	4														
Tarsals	4			2	1										
Metatarsal	8	12	2	1	5										
Phalanx 1	8	2		1	1										
Phalanx 2				1											
Phalanx 3	1														
Lateral metapodial					1										
Indet. metapodial	2				2										
Long bone											1		94	176	
Indeterminate															1278
Total (NISP)	**189**	**84**	**3**	**46**	**62**	**10**	**1**	**1**	**1**	**1**	**2**	**1**	**111**	**467**	**1278**
MNI	6	5		2	4	3	1	1		1					
Weight (g)	10479	549	18	362	5675	128	7	360	8	1	1	1	328	3799	3340

Table 17.21 Late Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk

Phase 9	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Cat	Red deer	Deer	Vole	Fowl	Bird	Frog	Amphibian	Small mammal	Medium mammal	Large mammal	Indeterminate
Antler									1	2									
Horn core	19		1	3															
Skull	24	2			6	4	1										2	10	
Mandible	72	16	1		9	7	4											4	
Loose teeth	58	58			9	46	1												
Hyoid	1																		
Atlas	3	1				1													
Axis	6					1													
Vertebrae															1		5	128	
Ribs																	50	243	
Sternum																			
Sacrum	2					3													
Furcula												1							
Scapula	26	1			5	3												4	
Humerus	25	7	1		8*	9							1	1	2			5	
Radius	35*	17				15*												2	
Ulna	14	2			5	7				1		1						1	
Radioulna															2				
Carpals	8					1													
Metacarpal	15	8			1	6	1												
Pelvis	28	6				10								4				5	
Femur	27	1			3	6					1				7			2	
Patella	1																		
Tibia	33	16*			3	8	2	1									1	1	
Fibula																			
Tibiofibula														20					
Calcaneus	16	1			1	3													
Astragalus	14	2				3													
Tarsals	8																		
Metatarsal	33	10			3	12													
Phalanx 1	14	2			2	3													

Table 17.21 Late Roman assemblage: anatomical distribution of all species, including NISP, MNI and weight. Skeletal element used for MNI is marked with an asterisk (continued)

Phase 9	Cattle	Sheep/ goat	Sheep	Goat	Pig	Horse	Dog	Cat	Red deer	Deer	Vole	Fowl	Bird	Frog	Amphibian	Small mammal	Medium mammal	Large mammal	Indeterminate
Phalanx 2	6	2			2	1													
Phalanx 3	7																		
Lateral metapodial					1														
Phalanx 2	6	2			2	1													
Phalanx 3	7																		
Lateral metapodial					1														
Indet. metapodial	3					1													
Long bone						1							3		52	2	177	534	
Indeterminate																		10	4495
Total (NISP)	**498**	**152**	**3**	**3**	**58**	**151**	**9**	**1**	**1**	**3**	**1**	**2**	**4**	**25**	**64**	**2**	**235**	**949**	**4495**
MNI	15	7			4	7	2	1	1		1								
Weight (g)	38866	1097	62	33	682	17863	108	5	109	125	0	0	1	0	0	2	611	13225	7332

self-sufficient settlement, depending less upon urban trade. Cattle husbandry in Cotswold Community may therefore have been focussed on traction, rather than meat.

Sexing

All sex-estimated cattle pelves in the early and middle Roman phases are female, whereas there is a slight majority of male cattle in the late Roman period (see Table 17.24). On the basis of Mennerich's index for metacarpals, Phase 7 had two cows, Phase 8 had one bull/ox, and Phase 9 had one cow. At Claydon Pike, too, the cattle pelves indicate a predominance of cows. Bulls/oxen were only found in the mid-late Roman phases. This picture was confirmed by metric analysis of metapodials - the early Roman phase is highly dominated by cows, whereas the number of male cattle increase in the middle and late Roman phases (Sykes 2007b).

Size

Maltby's (1998) analysis of material from Cirencester included the examination of a single group of cattle metatarsals, whose proximal width ranged from 38-51 mm. Due to their small size range, they were interpreted as cows (Maltby 1998, 362-363). The corresponding measurements in the Cotswold Community assemblage range from 35.8-51 mm in Phase 8-9 (n:10), these measurements being absent in Phase 7, which suggests that. cows form a majority of the Cotswold Community cattle assemblage. This is further indicated by Mennerich's SD/GL index, where two metacarpals in Phase 7 and one in Phase 9 fall in the female range and one metacarpal in Phase 8 falls in the male range. The sample size is, however, small, and any interpretation about sex must therefore be tentative.

Despite the small number of complete bones, there is a suggestion of an increase in withers' height throughout the Roman period, evidenced by a trend towards greater length and distal breadth of the long bones (see Tables 17.25-26). As the numbers are low, it is not clear whether this is related to improvements in breeding or food quality, or whether it is rather due to an increased proportion of male cattle. Overall in Britain, there is a general increase in cattle size between the early and late Roman periods which has been interpreted as evidence for the introduction of a large cattle breed from continental Europe, which then interbred with the smaller indigenous breeds (Dobney 2001, 38-39).

Butchery

Judging by the butchery marks observed on the Cotswold Community cattle bones, the Roman assemblage consisted of table and kitchen waste, as well as waste from primary butchery. Cattle displayed somewhat more butchery marks than the other meat-producing animals, although this could be related to better preservation of these larger bones. Since cattle bones displayed butchery marks to a greater extent than horse bones, it is assumed that the majority of the vertebrae and ribs with butchery marks derive from cattle.

Cut marks deriving from skinning were found on phalanges and on the distal half of the metapodials, but were absent on skull fragments and mandibles. Some

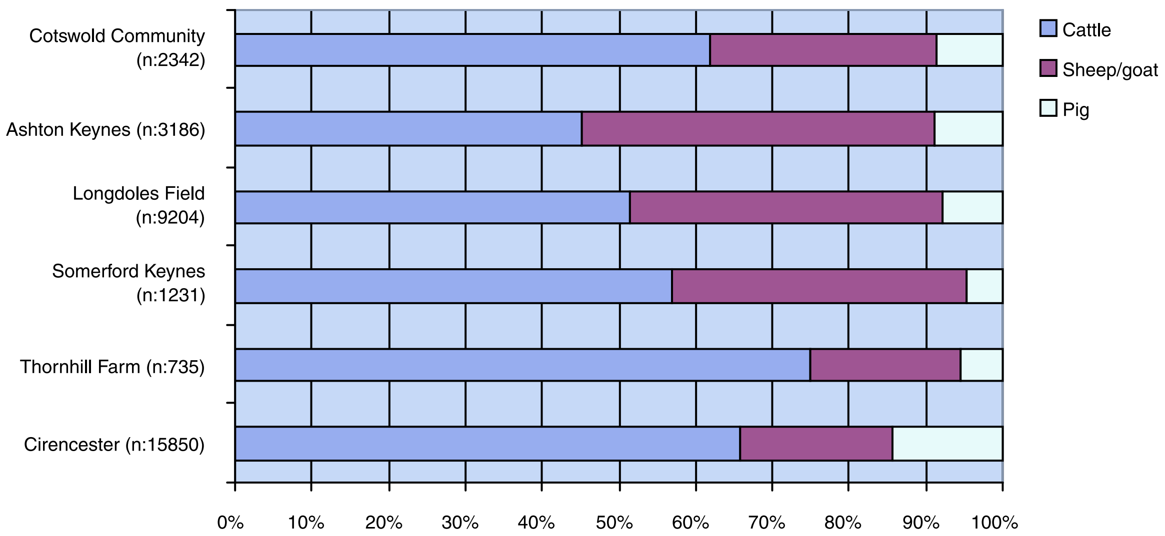

Figure 17.2 Total Roman assemblage: NISP (%) for cattle, sheep/goat and pig at Cotswold Community, Ashton Keynes, Claydon Pike, Somerford Keynes, Thornhill Farm and Cirencester

Table 17.22 Roman assemblage: Mandibular wear stages of cattle, with estimated age according to Halstead (1985)

	N	0-1 months	1-8 months	8-18 months	18-30 months	30-36 months	Young adult	Adult	Old adult	Senile
Phase 7	7					1	2	2	1	1
Phase 7-8	1								1	
Phase 8	19		2	3	3	1	1	4	1	4
Phase 8-9	15			1	2			5	3	4
Phase 9	26		1	2	1	1	3	13	3	2
TOTAL	68	0	3	6	6	3	6	24	9	11

Table 17.23 Roman cattle horn core ageing

	N	0-1 years	1-2 years	2-3 years	3-7 years	7-10 years
Phase 8	5			1	3	1
Phase 8-9	1					1
Phase 9	5			1	3	1

Table 17.24 Sexed cattle pelves in the Roman assemblage

Phase	Female	Male
7	2	
7-8		
8	2	
8-9	1	
9	2	3

Table 17.25 Roman assemblage: cattle Greatest Length measurements (mm) and calculated withers' height

	Phase	N	Mean	Min	Max	Withers' height
Metacarpal	7	2	176.0	172.0	180.0	105.3 cm, 110.2 cm
	8	1	174.0			106.5 cm
	9	2	184.5	183.0	186.0	112.0 cm, 113.8 cm
Metatarsal	8	3	210.3	196.0	222.0	106.8 cm, 116.1 cm, 121.0 cm
	9	2	218.5	216.0	221.0	117.7 cm, 120.4 cm
Radius	7	1	245.0			105.4 cm
	9	1	290.0			124.7 cm
Tibia	9	1	386.0			133.2 cm

patterns of primary butchery could be distinguished - mandibles were usually detached from the skull by chopping or cutting at the articulate process, possibly to facilitate removal of the tongue. The mid-line axial split of the carcass, which is common in medieval contexts, is considered rare on rural sites during the Roman period (Maltby 1989, 88), and was absent in the assemblage. It is therefore not certain whether the cattle carcasses were butchered lying on the ground or while semi-hoisted (Seetah 2006, 111-112). A pelvis showed signs of being split in two at the pubic bone, but it is not clear whether this should be seen as part of the primary butchery stage or as part of portioning of the carcass.

The vertebral column and the ribs were chopped off transversally into smaller portions. The long bones were disarticulated at the joints with cleavers or knives, and then filleted, either split longitudinally or chopped off across the shaft. Longitudinal splitting of long bones is known from several sites (cf Maltby 1989; 1998, 358-361). This procedure would facilitate extraction of marrow, which is an important source of fat and oil (Dobney 2001, 40).

Generally, the disarticulation of long bones on urban Roman sites was carried out with heavy cleavers, resulting in chop marks, as opposed to the knife marks found in Iron Age assemblages. It has been suggested that this differences derives from the need for rapid butchery processes in Roman military and urban sites (Maltby 1989; Seetah 2006). Several Roman long bones from Cotswold Community displayed cut marks at long bone epiphyses, rather than chop marks. This suggests that the Cotswold Community assemblage was not to a large extent subjected to urban influences regarding butchery practices.

At Claydon Pike and Ashton Keynes the majority of the butchery marks on long bones consisted of shavings and nicks. These would have been caused by running a cleaver or knife along the bone to remove meat and other soft tissue (Sykes 2007b; Knight 2007). Such butchery marks have also been observed in urban assemblages in Cirencester, Winchester and Silchester, but appear to be rare or non-existent in rural assemblages (Maltby 1989, 83; 1998, 353). Few bones in the Cotswold Community assemblage displayed shavings and filleting cut marks. This may reflect a difference of meat processing, perhaps not strictly between urban and rural assemblages *per se*, but possibly relating to connections to urban or military butchery practices.

Table 17.26 Roman assemblage and ABMAP database: cattle Greatest Breadth of Distal end measurements (mm)

	Phase	N	Mean	Min	Max
Radius	7	2	68.0	60.8	76.0
	7-8	1	67.3		
	8	1	65.0		
	9	4	66.8	62.0	74.0
ABMAP radius	ER	24	66.8	56.8	78.0
	LR	10	69.4	57.2	82.1
Tibia	7	3	56.2	51.7	62.0
	8	5	63.1	55.8	70.0
	9	7	62.9	56.0	70.9
ABMAP tibia	ER	59	56.3	48.1	76.0
	LR	88	58.8	43.3	71.8

Pathology

Indication of the use of cattle for traction was visible on the distal part of a metatarsal and the proximal and distal part of a phalanx 1, where the joint surfaces were asymmetrically extended. Additionally, three pelves displayed eburnation in the acetabulum (Groot 2005). Other cattle pathologies include fusion of radius/ulna and of tarsals, as well as enthesopathies on the mandibular ramus. Four large mammal ribs, possibly deriving from cattle, had healed fractures.

Sheep/goat

Ageing

The epiphyseal fusion data for the Roman assemblage indicate that most sheep/goats were sub-adult or adult when slaughtered. A small number of neonatal and juvenile occurred in most phases, suggesting

Table 17.27 Roman assemblage: mandibular wear stages of sheep/goat, with estimated age according to Payne (1973)

	N	0-2 months	2-6 months	6-12 months	1-2 years	2-3 years	3-4 years	4-6 years	6-8 years	8-10 years
Phase 7	14	1	1	3	5	1	2	1		
Phase 7-8										
Phase 8	31			3	5	5	5	10	2	1
Phase 8-9	4			1		2			1	
Phase 9	9				2	3	2	1	1	
TOTAL	58	1	1	7	12	11	9	12	4	1

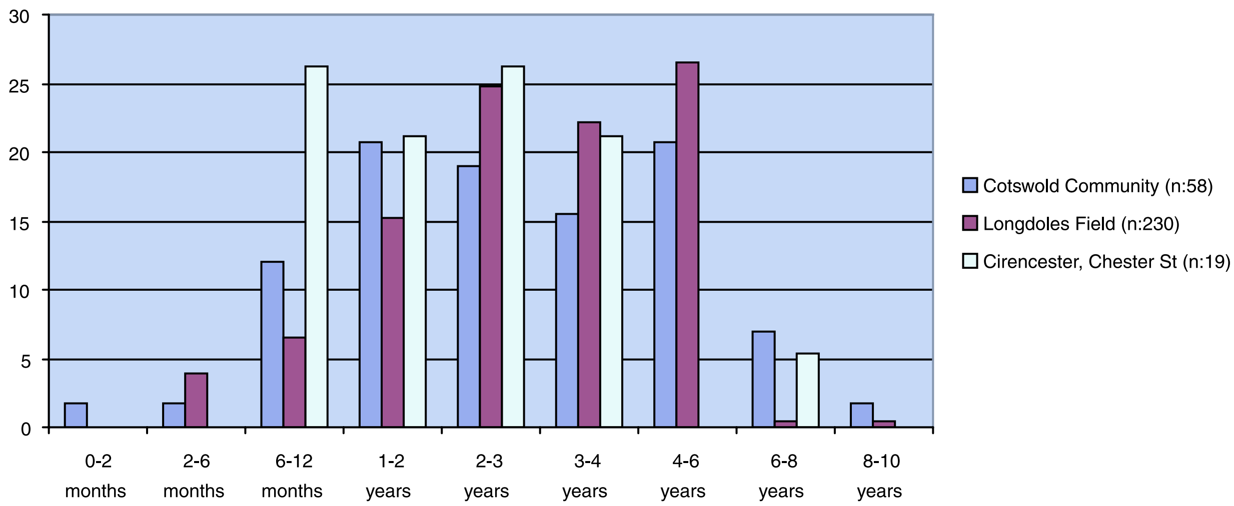

Figure 17.3 Percentage of sheep/goat dental age groups in the Roman assemblages of Cotswold Community, Claydon Pike and Cirencester

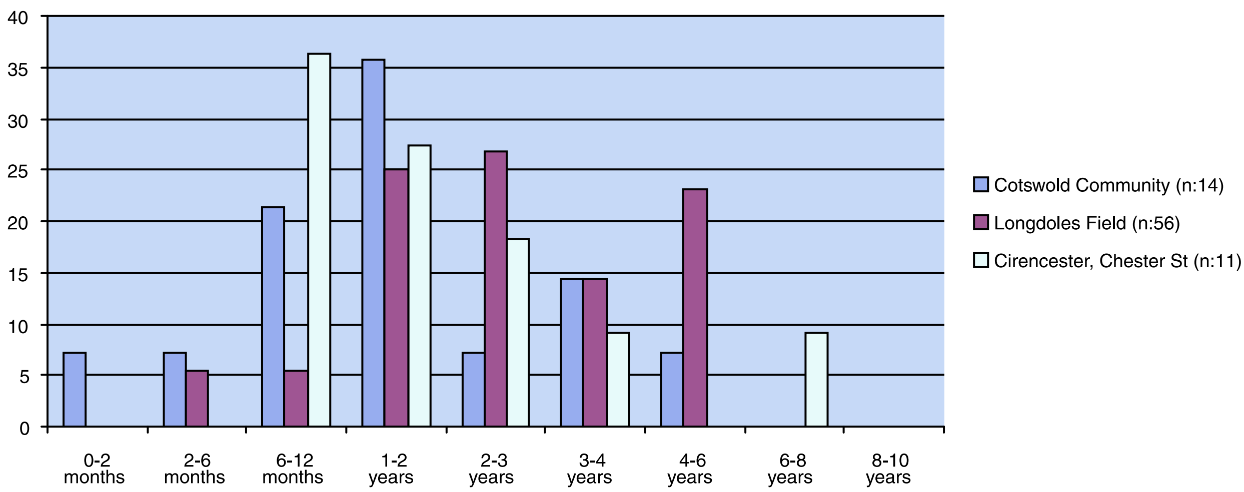

Figure 17.4 Percentage of sheep/goat dental age groups in the early Roman assemblages of Cotswold Community, Claydon Pike and Cirencester

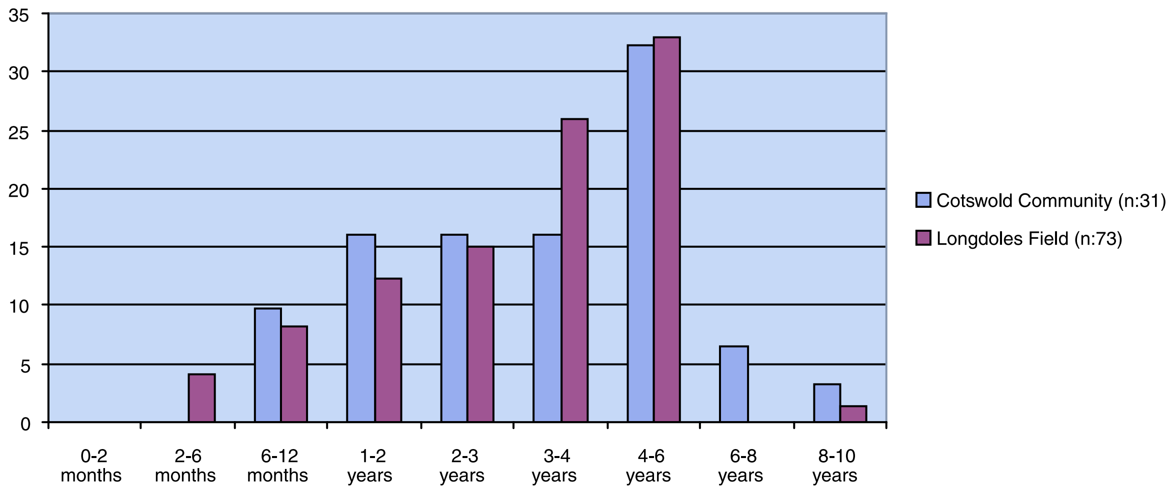

Figure 17.5 Percentage of sheep/goat dental age groups in the middle Roman assemblages of Cotswold Community and Claydon Pike

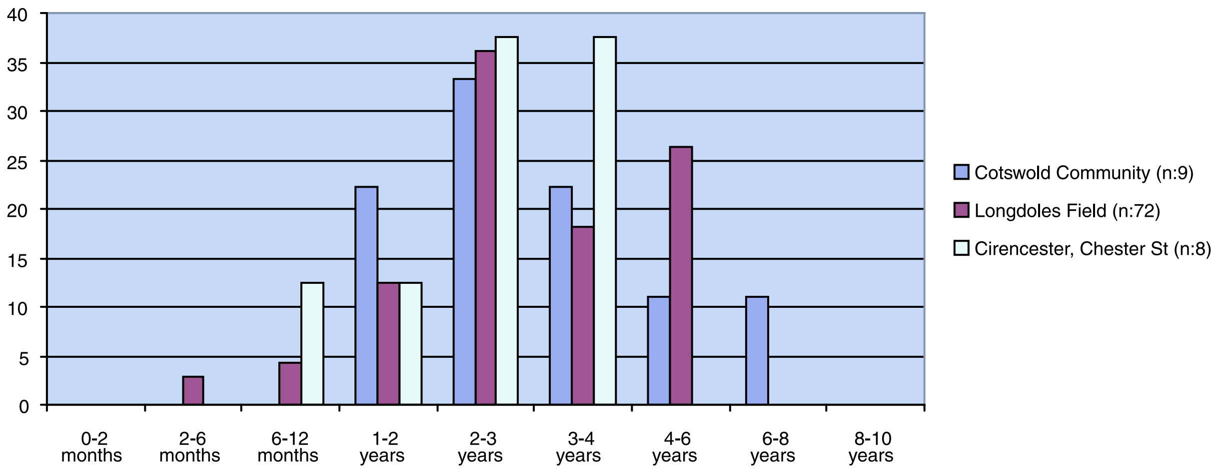

Figure 17.6 Percentage of sheep/goat dental age groups in the late Roman assemblages of Cotswold Community, Claydon Pike and Cirencester

infant mortality or deliberate slaughter.

The tooth wear data show no peak in slaughter ages when viewing the assemblage as a whole. Differences are, however, discernible between the sub-phases (see Table 17.27). In the early Roman period, more young sheep are slaughtered than old ones, whereas the opposite holds for the middle and late Roman periods. The Cirencester assemblage shows the same pattern, whereas Claydon Pike shows a less marked slide from young to older sheep (see Figs 17.3-6). It has been argued that the focus on older sheep in the later period is related to an increase in the importance of wool production (Ingrem 2007, 354). Since so many young sheep were still slaughtered, however, it is likely that the urban demand for meat could not be ignored. The predominance of 2-4 year old sheep in the assemblages seems to be a compromise between the wool and the meat market.

Sexing

With the exception of a male goat horn core, no sheep/goat remains could be sexed.

Size

An apparent increase in withers' height is evident between the early and mid-Roman periods (see Table 17.28). However, since the bones could theoretically come from only two individuals, this might be an illusion caused by small sample size and the animals being of different sex. The sheep bones are on average smaller than the ones in the ABMAP database. Whether this is due to differences in sex proportions or breed, or a consequence of lower food quality, is unknown (see Table 17.29).

Table 17.28 Roman assemblage: sheep/goat Greatest Length measurements (mm) and calculated withers' height

	Phase	N	Mean	Min	Max	Withers' height
Radius	8	1	125.0			50.0 cm
Metacarpal	7	1	132.0			63.9 cm
	8	1	108.0			52.3 cm
Metatarsal	7	1	139.0			62.7 cm

Table 17.29 Roman assemblage and ABMAP database: sheep/goat Greatest Breadth of Distal end measurements (mm)

	Phase	N	Mean	Min	Max
Radius	8	3	23.2	21.3	24.7
ABMAP radius	ER	11	24.7	22.5	28.7
	LR	9	26.3	24.6	28.8
Metatarsal	7	1	23.8		
	7-8	1	20.7		
	8-9	2	19.8	19.0	20.6
ABMAP metatarsal	ER	7	21.8	20.2	24.1
	LR	23	22.6	21.3	26.6
Tibia	7	3	23.0	22.0	23.9
	8	3	22.9	20.0	25.0
	8-9	1	22.0		
	9	1	23.2		
ABMAP tibia	ER	59	23.1	20.0	29.8
	LR	99	25.2	20.1	29.8

Butchery

Although fewer sheep/goat bones displayed butchery marks than cattle bones, sheep/goat seems to follow the same butchery pattern as cattle. Two atlas vertebrae showed transverse cut marks on the ventral side, indicating removal of the head. This practice was not found in the cattle assemblage. Indications of disarticulation were found at the hip joint and the calcaneus. Two metatarsals and a radius had been split longitudinally, presumably for marrow extraction. Portioning had taken place on a radius, which had been chopped off at mid-shaft.

Pathology

The three affected sheep/goat bones show more variation in their pathologies than the cattle. A sheep horncore displayed "thumb print" depressions, a condition that has been linked to malnutrition (Albarella 1995). Peri-mortem tooth loss and alveolar widening on a mandible indicate periodontal disease. A radius had a swelling mid-shaft, but because of the fragmented nature of the bone it is difficult to discern whether the swelling is a haematoma or a healed fracture.

Pig

The pig epiphyseal fusion data show that in all Roman phases, most bones in the middle and later fusion groups were unfused. This indicates that the majority of the pigs were slaughtered before reaching their full skeletal growth at *c* 3.5 years of age. Neonatal and juvenile pig remains were found in almost all phases.

The available toothwear data for pig are limited, comprising only 10 jaws, spread evenly over the immature, sub-adult and adult age stages (see Table 17.30). At Claydon Pike, Ashton Keynes and Cirencester, the majority of the pigs were slaughtered at 1-2 years of age (Maltby 1998, 367). In contrast, most pigs in Thornhill Farm were slaughtered somewhat later, at 1.5-3 years of age. Whether this difference is due to small data sets, or whether variations in, for example, access to suitable pannage made the Thornhill Farm pigs gain weight more slowly, is impossible to ascertain. All the settlements probably carried out household pig rearing, with one or possibly two breeding sows having an annual litter. The fecundity of pigs made it possible to have a rather rapid turnover on the breeding animals, and presumably most breeding sows were replaced by the time they were three or four years of age.

The data for the Cotswold Community pigs show a similar shift between the early-mid and late Roman periods as those for cattle, with females dominating the earlier phases and males the later phase (see Table 17.31). A domination of male pigs is common in most Roman sites in Britain and North-western continental Europe (Luff 1982, 263) and has been interpreted as indicating the slaughter of surplus young males (Johnstone and Albarella 2002, 31), or as the early slaughter of surplus females - before the eruption of the permanent canines at 6-9 months - which would yield less meat than the males (Wigh 2001, 80). It is also possible that this shift between female and male predominance may be tied in to increased trade in livestock to Cirencester. However, this hypothesis relies on the Cirencester assemblages containing a majority of female pigs.

The generally early slaughter of pigs usually leads to a shortage of measurable pig bones. In order to prevent immature individuals from skewing the data, early fusing elements may be excluded from the analysis. Of the three bones measured in the Cotswold Community assemblage, only one bone, a metatarsal III, fits this criterion.

Table 17.30 Roman assemblage: mandibular wear stages of pig, with estimated age according to O'Connor (1988)

	Juvenile	Immature	Sub-adult	Adult	Elderly
Phase 7		1	1	2	
Phase 7-8		1			
Phase 8		3	1	1	
Phase 8-9					
Phase 9					
TOTAL	0	5	5	3	0

Butchery marks were found on two bones, a humerus and a phalanx, both of which had been split longitudinally. While this practice on long bones suggests marrow extraction, phalanges contain very small amounts of marrow, and the split may rather have derived from preparation of pig trotters for consumption.

Periodontal disease occurred on a pig mandible. The other recorded pathology comprises fusion of tarsal bones, possibly due to infection.

Horse

The horse bones in Cotswold Community, as well as in the other local assemblages from this period, are mainly from adult individuals. Nine bones are unfused, deriving from horses under 3.5 years of age, and four bones are in fusion, indicating an age at death of *c* 3.5 years. Two bones are from juveniles. Since horses seem to have been predominantly used as work animals rather than as providers of meat, killing horses young would not be efficient animal husbandry. The relatively early slaughter could be due to aggressiveness or trauma, such as leg fractures, or the horses might have succumbed to disease. However, butchery marks on two bones indicate that horse flesh was occasionally utilised.

Table 17.31 Sexed pig canines in the Roman assemblage

	Mandibular canines		Maxillary canines	
Phase	Female	Male	Female	Male
7		1		
7-8		1		
8	4	1	1	
9	1	4		2

Horse withers' height calculations on metapodials show an increase in size between the middle and late Roman periods (see Table 17.32). One tibia in Phase 9 is very small compared to the other bones (GL: 296.0, Bd: 60.3, SD: 32.4 mm), and may belong to a donkey or a mule (cf Johnstone 2004, 488-9).

Horse is not usually seen as a meat-yielding animal in Roman assemblages (Grant 1989, 145), but evidence points to horses being occasionally eaten, or at least, their flesh utilised, perhaps as food for dogs. Two horse bones in the Cotswold Community assemblage show evidence of marrow extraction and filleting. Butchery marks have also been found on horse bones from Cirencester, Claydon Pike, Somerford Keynes and Thornhill Farm. On all sites, the numbers of butchered horse bones are few, indicating that horse flesh was of little importance to local subsistence.

The eight horse bones with pathologies were mainly affected by bone fusion and exostoses on the lower limbs. One tarsal joint showed typical signs of spavin.

Dog

As noted above, most body parts are represented in

Table 17.32 Roman assemblage: horse Greatest Length measurements (mm) and calculated withers' height

	Phase	N	Mean	Min	Max	Withers' height
Metacarpal	8	3	195.9	190.8	201.0	116.4 cm, 119.6 cm, 122.7 cm
	8-9	1	202.0			123.3 cm
	9	4	223.0	220.0	228.0	134.2 cm, 134.9 cm, 136.1 cm, 139.1 cm
Metatarsal	8	2	213.0	206.0	220.0	107.9 cm, 115.3 cm
	9	4	265.8	239.0	285.0	125.2 cm, 139.4 cm, 143.0 cm, 149.3 cm
Radius	7	1	332.0			136.5 cm
	8	2	336.0	330.0	342.0	135.7cm, 140.6 cm
	8-9	1	325.0			133.6 cm
	9	2	328.5	322.0	335.0	132.4 cm, 137.7 cm

the Cotswold Community dog assemblage. Juvenile individuals are absent, probably because of the fragility of neonatal and juvenile bones. While dog is present at a number of local sites dated to the Roman period, only at Ashton Keynes are there relatively large number of dog bones, and even there dog only comprises 1.1% of the identified fragments.

Withers' height could not be calculated. In general, Roman dogs vary greatly in size, from small to large (Clark 1995), which probably reflects their uses as farm dogs, herders, hunting dogs and guard dogs.

Cut marks were found on the basal side of a dog horizontal mandibular ramus. This placement of cut mark is typical for skinning (Noe-Nygaard 1995, 181). Similar cut marks have been found on polecat in Claydon Pike. Butchery marks on dog bones were observed at Claydon Pike, where cut marks suggesting filleting or skinning were found on a tibia (Sykes 2007b).

Cat

Cat is represented by a skull fragment and a tibia from an adult individual or individuals. Neither of the bones could be measured, and it is therefore not possible to distinguish between wild and domestic cat. Both species have been found in the comparative assemblages, albeit in small numbers.

Cats are usually rare in Roman assemblages. They are present in small numbers in Ashton Keynes, Claydon Pike and Cirencester. In both Cirencester and Cotswold Community, cat bones only feature in the mid to late Roman periods. This is consistent with the belief that domestic cats were introduced to Britain with the Romans (Matheson 1944, 130).

The cat was an important animal on rural settlements for the elimination of vermin. After death, the fur could be processed for garments and blankets. Cut marks indicating skinning have been found on an ulna in Claydon Pike (Sykes 2007b), but were not observed on the cat bones in Cotswold Community.

Cervids

Red deer and roe deer, as well as unidentified red deer/fallow deer are the only wild mammal taxa in the Roman assemblage. The scarcity of wild mammal bones is consistent with other British sites from the Roman period (Ingrem 2007, 353; King 1991). This indicates that venison was a minor contribution to the diet.

The cervid bones comprise antler fragments, cranial and post-cranial skeletal elements. Two red deer antlers were shed, indicating the collection of deer antlers in the early spring for antler working. No chop marks or saw marks were observed on any antler fragments in the assemblage. The presence of bones with little or no meat on them, such as metatarsal and mandible, indicates that the cervids were hunted in the area, and brought to the settlement as whole carcasses, rather than that venison was bought or traded from elsewhere. In contrast to red deer, roe deer is only represented by bones from the head. However, many roe deer bones can be difficult to distinguish from slender sheep bones, and there is a risk of misidentification.

With the exception of Thornhill Farm, which lacks wild mammals, bone assemblages from most contemporary local sites contain small number of cervid bone and antler fragments. Ashton Keynes contains a relatively large number of fragments, many from meat-rich parts of the body. Marks from meat preparation were evident on many post-cranial fragments, indicating consumption of venison (Knight 2007).

Birds

The Roman bird assemblage is dominated by domestic fowl, other species present being rook and red kite. Domestic fowl are usually rare on Roman rural sites apart from villas. This may be related to a native British dietary habit, in which fowl were rarely included (Maltby 1997, 411-412). However, bird bones are very fragile, and thus subjected to a high degree of taphonomic destruction, which further reduces their number, particularly on sites with poor bone preservation. Urban assemblages are often better preserved as a result of the presence of thick cultural layers, which can seal bones and thus protect them. Wing bones from a red kite were found in one single context and may derive from a complete individual, the above-mentioned taphonomic loss accounting for the absence of the other bones. While the rook remains may be kitchen waste, the red kite likely represent a natural death or a deliberate killing in order to protect the domestic chickens.

Commensal fauna

The commensal fauna consist of bank or field vole, frog and unidentified frog/toad. The presence of amphibians and voles indicate a landscape with damp areas as well as open fields and meadows. Elsewhere in the region, medium and small mammal bones from contemporary assemblages also suggest a landscape with open fields, possibly interspersed with small woodlands (Ingrem 2007; Maltby 1998).

SAXON AND MEDIEVAL

The density of settlement was much reduced in the Saxon period compared to the Roman (see Vol. 1, Chapter 4). The assemblage contains 82 bones (see Table 17.33), found in pits and a waterhole. Cattle and horse dominate the assemblage. Most bones derive from the skull and lower legs, suggesting a separation of butchery waste/kitchen waste disposal on the site.

During the medieval period there is no evidence for settlement, with the land being used as fields and meadows. The few bones in the medieval assemblage

Table 17.33 Saxon assemblage: anatomical distribution of all species, including NISP, MNI and weight

	Cattle	Sheep	Pig	Horse	Large mammal	Indeterminate
Horn core	3	1				
Skull	3			4	16	
Mandible	1		2	1		
Loose teeth	3			2		
Radius	1			2		
Ulna				1		
Metacarpal	1			1		
Femur	1			1		
Tibia				1		
Astragalus	1					
Metatarsal	2			1		
Long bone					3	
Indeterminate						23
Total (NISP)	**19**	**1**	**2**	**14**	**19**	**23**
MNI	2	1	1	1		
Weight (g)	1467	72	51	3051	122	59

Table 17.34 Medieval assemblage: anatomical distribution of all species, including NISP, MNI and weight

	Cattle	Pig	Small mammal	Medium mammal	Indeterminate
Mandible	5	1			
Loose teeth	1				
Scapula	1				
Radius	2				
Calcaneus	1				
Tarsals	1				
Indet. metapodial			1		
Long bone				1	
Indeterminate					1
Total (NISP)	**11**	**1**	**1**	**1**	**1**
MNI	1	1			
Weight (g)	568	7	0	1	0

(see Table 17.34) were all found in the fills of furrows. The bones were likely taken from dung heaps at the settlements and deposited on the fields as fertiliser.

ANIMAL BURIALS

Special animal deposits, sometimes called Articulated/Associated Animal Bone Groups (ABG) occur on many Iron Age sites. They commonly fall into three categories - articulated skeletons, complete skulls and articulated limbs - all with little or no signs of butchery (Hill 1995, 27-28). Special animal deposits are usually typified by unusual placement, for example at the base of pits and wells, and by the presence of body parts which differ from normal food waste by species and age group composition (Hill 1995; Wilson 1992, 342-345). However, these definitions will not guarantee exclusion of non-ritual deposits. Young animals may represent natural mortality. Some animals such as horse, dog and cat, may not have been eaten and would therefore be buried in an articulated state. Articulated corpses may also have been those of diseased animals, whose flesh was considered not fit for consumption.

The Cotswold Community assemblage contained five articulated skeletons of cattle and sheep, as well as two articulated hind limbs of cattle and horse (see Table 17.35). The articulated cattle skeletons derived from late Bronze Age/early Iron Age contexts, or contexts tentatively dated to the late Bronze Age/ early Iron Age, whereas the sheep skeleton and cattle and horse hind limbs were Roman.

Table 17.35 Articulated animal remains. + = Unknown number of fragments present

	Pit 2048	Pit 8587	Pit 18570	Pit 18686	Pit 12781	Waterhole 10495	Pit 14538
Species	Cattle	Cattle	Cattle	Cattle	Sheep	Cattle	Horse
Sex					Female		
MWS	29	36-38		34-36	25		
Age (after Halstead 1985)	18-30 months	Young adult		30-36 months	1-2 years		
Phase	4?	4?	4?	4	8-9?	7	8
Condition	4	4	4	3	2	2	3
Skull	1	1		1	1		
Mandible	2	2		1	2		
Atlas					1		
Axis					1		
Vertebrae	7		23	+	25		
Ribs	300		11	+	71		
Sternum							
Sacrum					1		
Scapula	2		2	2	2		
Humerus	2	2	2	2	2		
Radius	2	2	1		1		
Ulna	2	2	1	2	1		
Carpals	4	1			1		
Metacarpal	2	2			1		
Pelvis	2			1	2		
Femur	2	2	1	1	2		
Patella							
Tibia	2	2			1	1	1
Calcaneus	2	1				1	1
Astragalus	2					1	1
Tarsals						1	2
Metatarsal	2	2				1	1
Lateral metatarsal							1
Phalanx 1		1			2		
Phalanx 2					1		
Phalanx 3					1		
Unid. Fragments	147	419	700	+	89		
TOTAL FRAGMENTS	**483**	**439**	**741**	**1772**	**208**	**5**	**7**
Weight (g)	2463	2218	988	1636	391	255	351

Iron Age

The cattle skeletons were found at the base of pits, although all were poorly preserved because the features were shallow (0.12-0.35 m deep). The cattle were mostly complete, but lack parts of their peripheral bodies. The poor condition of the bones made it impossible to discern any butchery marks or pathological conditions. Pits 18570 and 18686 were situated in settlement areas, whereas pit 8587 lay near a settlement and pit 2048 lay far from the settlements.

The cattle were between 1.5 and 3 years old at death, which is similar to the age range of the disarticulated cattle remains in the assemblage. In contrast, the cattle and horse burials at Latton Lands contained animals of a very young age (Poole 2009). It has been argued that ritually deposited animals often vary in species and/or age when compared to the disarticulated remains from settlement refuse (Hill 1995, 56; Wilson 1992, 344-345). However, the special animal deposits at Danebury include some adult sheep, the most numerous species overall at the site (Grant 1984, 221-223). Here, as at Cotswold Community, it is likely that the burial of apparently complete, valuable, animals indicates a special, or ritual, purpose.

Roman

Ritual animal sacrifice outside temple contexts in Britain appears to have been relatively uncommon, although examples of 'special' deposits of articulated animals remains are increasingly found in a number of rural and urban sites, such as Baldock, Neatham, Silchester and Kings Weston (Fulford 2001, 117; Scott 1991, 201-209).

The Roman remains were in a better condition than the Iron Age ones, and consequently butchery marks and pathological conditions could be observed. The articulated remains all lay within a large ditch system, away from any settlement area.

The sheep skeleton lay in a wide but shallow pit. It was mostly complete, only lacking parts of the lower legs. Whether these elements were missing due to post-depositional damage, or whether they had not been included at the time of the deposition is unknown. There are no signs of disarticulation on the limbs, which suggests that the missing bones were lost post deposition. The sheep were sexed as female on the basis of pelvic and horn core morphology. A mandibular age estimation indicated an animal of 1-2 years of age, which is within the normal age range of sheep/goat slaughter in the assemblage (see above). The sheep skeleton displayed transverse cut marks on the ventral side of the atlas. Such cut marks can derive from removal of the skull or from the slaughter process itself. As the bones lay in an anatomical position, it is plausible that these cut marks derive from the killing of the sheep.

The Roman assemblage also contained two articulated hind limbs, one of cattle and one of horse. It has been argued that parts of animal carcasses could have been used as a way of minimizing the loss of meat involved in a complete animal sacrifice/burial (Grant 1984, 225). The horse limb lay in the upper fill of a 1.2 m deep pit (cut 14538), dated to Phase 8. Since the limb had been partially gnawed by dogs and was located in the upper fill of the pit, it seems unlikely that this deposit was ritual in nature. Horses were generally not eaten during the Roman period, and their flesh was usually either given to dogs or disposed of all together (Lauwerier 1999; Stallibrass 2000). The calcaneus showed large enthesopathies laterally, suggesting muscle strains, possibly deriving from traction or from the animal favouring a healthy right hind leg. The cattle limb lay in one of the lower fills of a large waterhole and displayed neither butchery marks nor gnaw marks. This deposit is thus theoretically more likely to represent a 'special' deposit than is the horse limb.

CONCLUSIONS

Animal husbandry practices at Cotswold Community seem to have remained fairly constant throughout much of the prehistoric period, although there were variations. In the Neolithic and Bronze Age, cattle were the most common taxon, followed by sheep/goat. In the Iron Age, sheep/goat were more common. This may be related to an increased use of sheep for wool, or, possibly, a reduction in the amount of wetland pasture more suitable for cattle. In all pre-Roman periods, cattle were mostly slaughtered for meat at 1.5-3 years of age, with a few individuals being kept for breeding and traction. Likewise, sheep were slaughtered at a fairly young age, indicating a double economy of meat and wool.

The species frequency changed in the Roman period, when cattle again became the most common taxon. The slaughter age pattern changed as well. While surplus young cattle were still slaughtered, a larger number were kept until adulthood. This may be connected to an increased demand for beef in the urban and military meat markets, and to an increased demand for traction when a rise in population necessitated agricultural expansion (Ingrem 2007, 354). Sheep/goat husbandry was still focussed on meat and wool, although at the end of the early Roman period, wool became increasingly important, and fewer sheep were slaughtered at a young age.

Other chronological changes seen in the assemblage concern animal size. It is widely believed that during the Roman period, import of breeding stock from the continent led to an increase in size among the livestock. While the number of measurable bones are low, a size increase can be observed for cattle and horse. Sheep/goat, on the other hand, show no changes in size.

FAUNAL REMAINS FROM TVAS EXCAVATIONS

by Claire Ingrem and Ceri Falys

The middle Iron Age settlement

by Claire Ingrem

A significant quantity of animal bone was recovered from the Iron Age component of the Phase 3 excavations in 2005. Much of the animal bone was burnt and came from ditches and gullies, although a few postholes and a pit produced a small amount of material.

All anatomical elements were identified to species where possible with the exception of ribs and vertebrae which were assigned to animal size categories. Mandibles and limb bones were recorded using the zonal method developed by Serjeantson (1996) to allow the calculation of the minimum number of individuals (MNI); this is based on the most numerous zone of a single element taking into account side. In addition, all bone fragments over

Table 17.36 Animal bone from the TVAS middle Iron Age settlement. Representation of taxa (NISP)

a) in hand collection material

	Iron Age		*Modern*	*Undated*	*Total*
	n	%	*n*	*n*	
Horse	10	9			10
Cattle	26	23			26
S/g	17	15	1	1	19
Pig	5	4			5
Deer	1	1			1
Large mammal	45	39	1	7	53
Medium mammal	11	10	1		12
Unidentifiable	603		20	23	646
Total	718		23	31	772
Total identifiable	115				
% identifiable	16				

b) in sieved samples (NISP)

	Iron Age		*Undated*	*Total*
	n	%	*n*	
Cattle	17	14		17
Sheep	1	1		1
Sheep/goat	57	48		57
Pig	5	4		5
Large mammal	25	21		25
Medium mammal	13	11		13
Unidentifiable	2852		250	3102
Total	2970		250	3220
Total identifiable	118			
% identifiable	4			

10 mm were recorded to species or size category to produce a basic fragment count of the Number of Identified Specimens (NISP). Fragments categorised as large mammal are likely to belong to horse or cattle, those in the medium mammal category to sheep/goat or pig; for the purposes of this report these are included in the count of identifiable fragments.

The presence of burning was recorded. The wear stages of the lower cheek teeth of cattle, sheep and pig were recorded using the method proposed by Grant (1982) and age attributed according to the methods devised by Payne (1973), Legge (1982) and O'Connor (1988). The fusion stage of post-cranial bones was recorded.

A selected suite of elements was used to differentiate between sheep and goat during recording according to the methods of Boessneck (1969) and Payne (1985). These were the distal humerus, proximal radius, distal tibia, distal metapodials, astragalus, calcaneus and deciduous fourth premolar. No elements belonging to goat were positively identified, but as some of the bones which could not be positively identified as sheep may be from goat, for the purposes of this report these are referred to as sheep/goat.

Data

The hand collected assemblage comprises 718 fragments of which 16% are identifiable to taxa or animal size category. In addition, the sieved samples produced 2,970 specimens including 118 identifiable pieces. The majority of the material was recovered from Iron Age features and is the subject of this report; a small proportion came from undated or modern features and is therefore not considered further (Table 17.36a and b).

The identifiable assemblage is relatively small, but horse, cattle, sheep/goat, pig and deer are all represented (Table 17.36). The majority of the bones belong to caprines with a smaller number belonging to cattle, but large mammal are better represented than medium mammal in the material assigned to animal size categories. Horse and pig are both represented by ten specimens. A piece of antler

Table 17.37 Animal bone from the TVAS middle Iron Age settlement. Anatomical representation (NISP)

	Horse	**Cattle**	**Sheep/ goat**	**Pig**	**Deer**	**Large mammal**	**Medium mammal**	**Total**	**%**
Antler					1			1	<1
Incisor		1	2					3	*1*
Canine				2				2	1
Upper premolar	1	2	2	1				6	*3*
Upper molar		5	7	1				13	6
Lower premolar	4	5	7	2				18	*8*
Lower molar	4	6	11	4				25	11
Mandible		1						1	*<1*
Humerus		1				2		3	1
Radius			2					2	*1*
Pelvis			1					1	<1
Tibia			1			1	2	4	*2*
Astragalus		2						2	1
Calcaneum		1						1	*<1*
Metatarsal			1					1	<1
Metapodial			1			1		2	*1*
1st phalanx	1	3	1					5	2
2nd phalanx			1					1	*<1*
Skull frag.						2		2	1
Tooth frag		16	38					54	*23*
Limb bone frag						34	21	55	24
Rib frag.						2	1	3	*1*
Total	10	43	74	10	1	70	24	232	

Table 17.38 Animal bone from the TVAS middle Iron Age settlement: age estimates based on dental data (NISP)

Taxa	*P2*	*P3*	*P4*	*M1*	*M2*	*M3*	*Estimated age*
Horse	34.5	53.5	65.4	57	60.9		6-9.5 years
Horse		58.6					7-9 years
Cattle			(d)				1-3 months
Cattle						j	6-8 years
Sheep			(g)				6 -12 months
Sheep/goat						e	3-4 years
Sheep/goat						g	> 4 years
Sheep/goat						g	> 4 years

belonging probably to roe deer *(Capreolus capreolus)* is also present.

The assemblage is dominated by loose teeth belonging to domestic animals (horse, cattle, sheep/goat and pig) with the identifiable sample of bones too small to withstand detailed analysis of body part representation (Table 17.37). All of the horse remains, apart from a 1st phalanx, are loose teeth, and six (three premolars and three molars) of these belong to the same mandible. The cattle bones include a humerus as well as several foot bones. Similarly, apart from loose teeth caprines are represented mainly by foot bones with major limb bones scarce. Pig is represented solely by teeth.

A few teeth are able to provide an indication of age (Table 17.38) and indicate that at least one horse was 6-9.5 years old when it died. In respect of cattle, tooth wear provides evidence for at least one very young and one old animal and similarly both immature and adult caprines are represented. A humerus with an unfused distal epiphysis that belongs to a large mammal is the bone that provides evidence for

Table 17.39 Animal bone from the TVAS middle Iron Age settlement: incidence of burning (NISP)

	Burnt		Total burnt	
	Charred	*Calcined*	*n*	*%*
Cattle		1	1	*2*
Sheep/goat		13	13	18
Pig		2	2	*20*
Large mammal	3		3	*4*
Medium mammal		2	2	*8*
Unidentifiable	161	1421	1582	*46*
Total	164	1439	1603	*44*

Table 17.40 Animal bone from the TVAS middle Iron Age settlement: spatial distribution of bone by feature group (NISP)

	Feature group											
	1000	**1001**	**1002**	**1003**	**1004**	**1005**	**1006**	**1007**	**1008**	**1021**	**Pit 109**	**Total**
Horse	7	1					2					10
Cattle	15	5	14	2		1	6					43
Sheep/goat	18	10	45			1	1					75
Pig	2	2	5				1					10
Deer							1					1
Large mammal	17	20	26	1	1	1	2		1		1	70
Medium mammal	5	2	12	1	1	1	2					24
Unidentifiable	476	229	2426	72	11	36	152	6		46	1	3455
Total	540	269	2528	76	13	40	167	6	1	46	2	3688
Total identifiable	64	40	102	4	2	4	15	0	1	0	1	233

immature animals. A single pig canine belongs to a female.

A large proportion (44%) of the assemblage has been burnt and most of this is calcined (Table 17.39), indicating that it has been subjected either to temperatures in excess of 450º C, heating for more than 3 to 4 minutes, or a combination of the two (David 1990, 69).

Spatial distribution of the animal bone according to feature group is shown in Table 17.40. Most of the material came from the ring gully complex located in the southern area of the site, with over two-thirds (68%) derived from the eastern ring gully (1002). Significant amounts also came from the western (1000) and central (1001) ring gullies.

Discussion

Much of the assemblage is in poor condition as indicated by the low percentage of identifiable specimens and the predominance of loose teeth. As a result the assemblage is too small to withstand detailed analysis of taxa and body part representation and it is only possible to be certain that horse, cattle, caprines and pig were originally present. The presence of head and foot bones belonging to cattle and sheep/goat suggests that livestock probably arrived at the site on the hoof, which is unsurprising for a site of this period. Young cattle and caprines are represented and may provide an indication that animals were bred in the vicinity.

The fact that a high proportion of the bone is burnt is interesting, but there is nothing in the small identifiable component to suggest that it results from ideological practices, nor is there any evidence to suggest that articulated remains or partial skeletons are represented. It is possible that bone refuse was simply thrown onto a fire before being disposed of in a convenient ditch or gully.

The eastern Roman field system

by Ceri Falys

A moderate quantity of animal bone was recovered from 44 separate contexts across the area of the eastern Roman field system excavated in 2006/7. A total of 1237 fragments were present for analysis, weighing 5261 g (Table 17.41). The bone was all exceedingly poorly preserved, with all pieces chalky, fragile, and highly fragmented. The surface preservation

Table 17.41 Animal bone from the eastern Roman field system

Cut	*Deposit*	*No. frags*	*Wt (g)*	*'Large'*	*'Medium'*
5		3	58	Cattle	-
6	57	1	7	-	-
7	58	7	71	Cattle	-
12	69	51	51	-	-
15	73	1	2	-	-
18	78	72	61	Cattle	-
28	92	7	7	-	-
35	154	41	254	?	-
2000	2050	18	21	-	-
2006	2066	54	143	?	-
2007	2069	13	22	-	-
2011	2076	6	14	-	Sheep/goat
2011	2077	11	68	?	-
2014	2087	2	3	-	-
2014	2090	2	17	-	-
2017	2096	1	5	-	Sheep/goat
2017	2098	43	99	Y	Sheep/goat
2020	2161	2	8	-	-
2035	2264	17	116	Y	-
2048	2356	39	102	Y	-
2112	2381	42	66	Y	-
2131	2453	21	61	Cattle	-
2133	2477	15	10	-	-
2214	2497	2	5	Cattle	-
2223	2558	1	37	Cattle	-
2414	2696	60	321	Y	-
2140	2767	1	2	-	Y
2500	2850	4	21	Y	-
2505	2858	8	18	-	-
2506	2862	1	27	Cattle	-
2508	2863	16	29	-	-
2514	2877	35	184	Y	-
2514	2878	7	17	Cattle	-
2522	2889	1	2	-	-
2525	2895	66	156	Cattle	-
2530	2953	28	72	-	Sheep/goat
2530	2954	2	1	-	-
2540	2967	383	2164	Cattle, Horse	Pig
2546	2974	12	14	-	-
2547	2976	5	21	-	-
2549	2980	4	28	Cattle	-
2549	2984	35	36	-	-
2705	3054	2	51	Cattle	-
2706	3055	40	455	Horse	-
2710	3051	55	334	-	Sheep/goat

Table 17.42 Animal Bone from TVAS excavations 2008

Cut	Context Deposit	Type	Number of Fragments	Weight (g)	Identified Fragments (size categories) Large	Medium	Small
4010	4067	Pit align	1	1	-	-	1
4021	4089	Pit align	1	1	-	-	-
4034	4165	Pit align	3	2	-	-	2
4046	4188	Pit align	1	1	-	-	1
4145	4367	Roundhouse	40	2	-	-	42
4212	4386	Pit	5	62	2	1	-
4242	4467	?	12	4	-	-	12
		Total	63	73	2	1	68
		MNI	-	-	1 Cattle	1 Sheep/goat	2 species

was also poor, with frequent cortical exfoliation, and demonstrated many grooves produced by root activity. No complete skeletal elements were present. Teeth were the only elements sufficiently preserved to allow for identification. All fragments were subjected to osteological analysis, although it was immediately apparent that very little information would be retrievable from these remains.

Each fragment was initially separated into one of two size categories: 'large mammal' and 'medium mammal': no smaller size bones (dog, cat, etc) were identified. Horse and cow are represented by the large size category, sheep/goat and pigs are represented in the medium size category. Where possible, each fragment was subsequently given a more specific identification to species.

It was exceedingly difficult to assign fragments even to broad animal size category. A very limited number of long bone shafts and mandibular fragments were identifiable; the most confident identifications were made using the teeth present. Twelve contexts contained cattle (teeth, mandible, long bones) remains, two contained horse (teeth), five contained sheep/goat (teeth and long bones), and a single context contained the dental remains of a pig. A determination of the minimum number of individuals was not appropriate, given the poor preservation of the post-cranial remains. The surface preservation did not allow for assessment of any modifications made to the bones (ie butchery cut/ chop marks etc). No further information could be determined from these remains.

Burnt bone

A total of 28 fragments of burnt bone, weighing 12 g, was recovered from four contexts across the excavation area. The bone was notably chalky and brittle. The poor preservation and small fragment size was not conducive to identification of either skeletal element or species (or even determination of whether it was human or animal). All the bone was white, and fragment size ranged from 15-27 mm. No further information could be retrieved from these remains.

The pit alignment area

by Ceri Falys

A small assemblage of animal bone was retrieved from seven separate contexts across the area excavated in 2008, in the vicinity of the pit alignment and Bronze Age settlement, amounting to 63 fragments weighing just 73 g (Table 17.42). Of these, just six fragments (5 g) came from the pits of the pit alignment. The overall preservation of the bone was poor, with frequent surface erosion and fragmentation.

On the basis of the lack of skeletal element duplication, the minimum number of individuals present in this assemblage was determined to be four: a single cattle species, a sheep/goat, and two 'small animals', of unknown species, most likely a rodent and a rabbit, although these identifications are tentative.

Surface preservation did not allow for observation of any form of modification to the bone (ie butchery marks). No further information could be retrieved from the remains.

Chapter 18: Human Skeletal Remains

by Brian Dean and Ceridwen Boston

INTRODUCTION

Excavations at Cotswold Community revealed 35 inhumations and six cremation burials. In addition, two deposits of disarticulated human remains were recovered, representing a further two individuals.

These remains dated from the late Neolithic (one cremation burial), early Bronze Age (three inhumations and disarticulated fragments), middle Bronze Age (two inhumations), late Bronze Age/early Iron Age (one cremation burial), mid Iron Age (one cremation deposit), Romano-British (28 inhumations, three cremation deposits and two deposits of disarticulated remains) and early Anglo-Saxon period (two inhumations). Most of the burials were recovered from a small late Roman cemetery located on the periphery of the settlement. The remainder were isolated interments within other features.

OSTEOLOGICAL METHODOLOGY

Unburnt human bone

The skeletons were recorded in accordance with the standards set out by McKinley and Roberts (1993). The age-at-death of adults was analysed using a combination of methods: degenerative changes to the pubic symphysis (Brooks and Suchey 1990) and auricular surface (Lovejoy *et al.* 1985), dental attrition (Miles 1962), and ectocranial suture closure (Meindl and Lovejoy 1985). Where possible, subadults were aged from dental development (Moorrees *et al.* 1963a and b) and epiphyseal fusion (Bass 1995; Schwarz 1995; Scheuer and Black 2000).

The age categories used in the following analysis are as follows: late foetus/neonate (38 weeks gestation-1 month); infant (2 months-2 years); young child (3-5 years); older child (6-12 years); adolescent (13-17 years); young adult (18-25 years); prime adult (26-35 years); mature adult (36-45 years); and older adult (46+ years).

Sex was determined from sexually dimorphic features on the skeleton (Ferembach *et al.* 1980; Buikstra and Ubelaker 1994), particularly pertaining to the skull and pelvis. The gracile nature of both male and female skeletons meant that the use of metrics in determining sex was not helpful in this assemblage.

Where possible, stature was assessed through the use of formulae developed by Trotter and Gleser, and refined by Trotter (1970), using long bones of both the upper and lower limb, with a preference for the latter. Where both a complete tibia and femur were present, the equation for the combined lengths was used.

The analysis of non-metric traits employed the standards set out by Buikstra and Ubelaker (1994).

Cremated human bone

Cremated human bone was bulk sampled on site, taking a 100% sample. The bone was wet sieved, and residues were retained, sorted and the retrieved human bone included in the final osteological analysis. The bone from each cremation burial was assessed for colour, weight and maximum fragment size. The bone was then sorted by passage through 10 mm, 5 mm and 2 mm sieves. The weight of each of these deposits was measured, and examined for identifiable bone elements, and for diagnostic features indicating age and sex.

RESULTS

Preservation and completeness

The skeletons were assessed for completeness (Table 18.1) and for bone preservation (Table 18.2). Skeletal completeness was assessed on a four-point scale: (1) 0-25% complete; (2) 26-50%; (3) 51-75% and (4) 76-100% complete.

In terms of completeness, 41% were below 25% complete; 17% between 26-50%; 15% between 51-75%, and the remaining 26% were over 75% complete. There was no obvious correlation between preservation and completeness in the assemblage. These figures indicate a high degree of absence of elements and were also associated with considerable fragmentation. Destruction of trabecular bone was particularly marked, resulting in damage to or absence of long bone epiphyses, ribs, vertebral bodies and pelves.

The two main issues in bone preservation were the condition of the cortical bone and the survival of trabecular bone. These greatly affect the data available from the skeletal material, particularly in terms of age and stature estimation and the observation of pathological markers. Damage to the cortical bone, in the form of erosion or abrasion, was graded according to IFA standards (McKinley 2004, 16) (Table18.2). The seven grade system ranges from Grade 0, where the surface morphology is clearly visible and the bone has a fresh appearance with no modification, through to Grade 5+, where there is heavy erosion across whole surface completely masking the normal

Table 18.1 Completeness of human skeletons (including disarticulated remains)

Skeleton	Grave/feature	Date	Completeness
2215	2217	Mid Roman	1
2476	2477	Saxon	4
2511	2508	MBA	1
3175	3173	MBA	3
3222	3221	Mid Roman	2
6682	6683	Early-mid Roman	2
8965	8933	EBA	1
9553	9551	EBA	1
7612	7611	EBA	1
10439	10438	Late Roman	3
10442	10441	Late Roman	2
10445	10444	Late Roman	4
10447	10449	Late Roman	4
10451	10450	Late Roman	2
10461	10460	Late Roman	1
10464	10463	Late Roman	1
10467	10466	Late Roman	4
10470	10469	Late Roman	4
10492	10494	Late Roman	1
10498	10497	Late Roman	1
10504	10505	Late Roman	3
10511	10509	Late Roman	4
10514	10512	Late Roman	3
10516	10517	Late Roman	2
10520	10521	Late Roman	1
10562	10561	Late Roman	4
10623	10621	Late Roman	1
10626	10624	Late Roman	1
10635	20016	Late Roman	3
10711	10710	Late Roman	4
10725	10724	Late Roman	1
10744	10743	Mid Roman (disarticulated)	1
10766	10764	Saxon	2
10814	10813	Late Roman	1
10922	10921	Late Roman	4
10949	10951	Late Roman	1
11814	17590	Mid Roman (disarticulated)	1

Table 18.2 Human skeletal preservation with reference to the level of cortical bone erosion (including disarticulated remains)

Skeleton	Grave/feature	Date	Erosion grade
2215	2217	Mid Roman	4 or 5
2476	2477	Saxon	5
2511	2508	MBA	4
3175	3173	MBA	4 or 5
3222	3221	Mid Roman	5
6682	6683	Early-mid Roman	4 to 5
8965	8933	EBA	4 to 5
9553	9551	EBA	3
7612	7611	EBA	5
10439	10438	Late Roman	4
10442	10441	Late Roman	4
10445	10444	Late Roman	3
10447	10449	Late Roman	4 or 5
10451	10450	Late Roman	4 or 5
10461	10460	Late Roman	4
10464	10463	Late Roman	2
10467	10466	Late Roman	4
10470	10469	Late Roman	4
10492	10494	Late Roman	3
10498	10497	Late Roman	5
10504	10505	Late Roman	4 or 5
10511	10509	Late Roman	3
10514	10512	Late Roman	4
10516	10517	Late Roman	4
10520	10521	Late Roman	4
10562	10561	Late Roman	5
10623	10621	Late Roman	5
10626	10624	Late Roman	4
10635	20016	Late Roman	4
10711	10710	Late Roman	4
10725	10724	Late Roman	5
10744	10743	Mid Roman (disarticulated)	3
10766	10764	Saxon	5
10814	10813	Late Roman	4
10922	10921	Late Roman	4
10949	10951	Late Roman	2
11814	17590	Mid Roman (disarticulated)	2

surface morphology with extensive, penetrating erosion and modification of the profile).

In this assemblage, 18% of the skeletons were classed as Grade 5; 41% as Grade 4; 12% as Grade 3, and 9% as Grade 2. In addition, 20% were classed as between Grades 4 and 5. The marked bias towards the highest grading indicates that the cortical bone of the entire assemblage showed marked erosion. This poor preservation was not unexpected, given the local geology of gravel terraces (creating soil conditions hostile to bone preservation) and the shallowness of most of the burials, rendering them vulnerable to mechanical damage from ploughing and machine stripping of the site. The poor preservation greatly reduced the osteological potential of this assemblage.

Age distribution

All age groups were represented within the assemblage (Table 18.3). The early Bronze Age individuals were one probable adult (7612), a mature to older adult (9553) and a probable adolescent (8965). Bone fragments 7971 appeared adult in size. The two middle Bronze Age skeletons (3175 and 2511) were both adults, the former aged between 18 years and 35 years (thereby falling in the young adult or prime adult age group), and the latter a mature to older adult of 46 years or more. One of the isolated Anglo-Saxon skeletons (2476) was a prime adult (26-35 years at death), while the other (10766) was a prime/mature adult. The small sample sizes precluded demographic analysis of age distribution.

The majority of skeletons dated to the Romano-British period. Within this population, almost every age category was represented, with the exception of children and adolescents. The only subadults present were a neonate (10949) and two infants (10464 and 10498). The majority of individuals fell into the adult age groups with the largest group (29%) being prime adults. A further individual spanned the young/prime adult age range. Mature adults were represented by a single individual only, but two individuals spanned the prime adult and the mature adult age groups. Young and older adults were both well represented (18% and 11% respectively). The adult age group comprised those individuals who could not be more accurately aged but who were over the age of 18 years. These formed a relatively large group (18%) and probably included a spectrum of ages.

The two infant graves in Group 1 were very shallow and only the bases of these graves had survived ploughing and mechanical stripping of the site. The practice of burying the young in shallower graves than older individuals has been noted in a number of late Roman burial grounds in nearby Oxfordshire (Booth 2001). More fragile subadult bones tend to be more vulnerable to damage or complete destruction by chemical leaching. Thus, infant skeletons 10464 and 10498 comprised only one premolar crown, two femoral shaft fragments and several more fragments of very degraded and unidentifiable bone in the former, and eroded petrous bone, cranial vault and long bone shaft fragments and two molar crowns in the latter. Neonate skeleton 10949 was very incomplete and poorly preserved, although cortical erosion was less severe. It is quite probable that other infant graves were completely destroyed and lost to the archaeological record.

When the discrete groups of the Romano-British sub-sample were assessed individually, the results were as follows: Group 1 (centred on the ring ditch) comprised two infants (10464 and 10498), three young adults (10451, 10467 and 10470), two prime adults (10439 and 10447) and two older adults (10516 and 10520). A single skeleton (10445) was aged as young adult/prime adult, and two skeletons (10504 and 10562) were aged as prime/mature adult. Three individuals (10442, 10461 and 10492) could only be aged as adults. Thus, the assemblage was remarkable for the dearth of infants and the complete absence of children and adolescents.

Within Group 2 (to the south of the ring ditch), all skeletons were adult, with only one skeleton (10626) estimated to be a young adult. Three skeletons (10511, 10514 and 10711) were of prime adults, and skeleton 10725 was an older adult (45+ years). The remaining two adult skeletons (10623 and 10814) could not be aged more precisely.

Group 3 (comprising the isolated burials) consisted of a single neonate (10949), a single young adult (2215) three prime adults (3222, 6682 and 10922) and a mature adult (10635). Two individuals that could not be assigned to a specific group were disarticulated skeletons 10744 and 11814. Skeleton 10744 was of an adult, whilst skeleton 11814 was of unknown age.

Sex distribution

The fragmentary nature of the assemblage and the poor preservation of trabecular bone (particularly pelves) made the assessment of biological sex problematic (Table 18.3). This also limited the use of discriminant function analysis on measurements of the femoral and humeral heads. As a result, analysis of sex was heavily, although not exclusively, reliant upon skull morphology, including the mandible.

The sex of adult skeletons was assigned to the following categories, depending on the degree of confidence of the observer:

- male (strong male traits)
- possible male (male traits)
- probable male (slight male traits)
- unknown (where there is no discernible evidence)
- probable female (slight female traits)
- possible female (female traits)
- female (strong female traits)

Of the 32 adults in the total assemblage, eight skeletons could not be sexed (3222, 7612, 9553, 10461, 10492, 10623, 10744 and 10814). Of the remaining 24 adults, five skeletons were female (19%); 10 were male (38%); one was a probable female (4%), six were probable males (23%), and two were possible females (8%). Taking into account all degrees of uncertainty, the male sex outnumbered the female by 2:1.

The adolescent early Bronze Age skeleton (8965) was not sexed, in accordance with accepted practice. The other two skeletons of this period could not be sexed. The middle Bronze Age skeletons (2511 and 3175) were a female and a probable male, respectively. One Saxon skeleton (2476) was male. The other (10766) was female.

In the total adult Romano-British assemblage of

Table 18.3 Age and sex distribution of unburnt human bone by phase

Context	*Age Group*	*Age Range*	*Sex*
Early Bronze Age			*N = 3*
8965	Adolescent	13-17yrs	Subadult
9553	Adult		Unknown
7612	Adult		Unknown
Mid Bronze Age			*N = 2*
2511	Mature adult	36-45yrs	Male?
3175	Young/prime adult	18-35yrs	Female
Roman			
Group 1			*N = 15*
10439	Prime adult	26-35yrs	Male
10442	Adult	18+yrs	Male
10445	Young/prime adult	18-35yrs	Female
10447	Prime adult	26-35yrs	Male
10451	Young adult	18-25yrs	Female??
10461	Adult	18+yrs	Unknown
10464	Infant	1m-2yrs	Subadult
10467	Young adult	18-25yrs	Male
10470	Young adult	18-25yrs	Male
10492	Adult	18+yrs	Unknown
10498	Infant	1m-2yrs	Subadult
10504	Prime/mature adult	26-45yrs	Male?
10516	Older adult	45+yrs	Female
10520	Older adult	45+yrs	Female?
10562	Prime/mature adult	26-45yrs	Male
Group 2			*N = 7*
10511	Prime adult	26-35yrs	Male
10514	Prime adult	26-35yrs	Male ?
10623	Adult	18+yrs	Unknown
10626	Young adult	18-25yrs	Female??
10711	Prime adult	26-35yrs	Male
10725	Older adult	45+yrs	Male?
10814	Adult	18+yrs	Unknown
Group 3			*N = 6*
2215	Young adult	18-25yrs	Female
3222	Prime adult	26-35yrs	Unknown
6682	Prime adult	26-35yrs	Male?
10635	Mature adult	36-45yrs	Male?
10922	Prime adult	26-35yrs	Male
10949	Neonate	<1m	Subadult
Disarticulated bone			*N = 2*
10744	Adult	18+yrs	Unknown
11814	Unknown	Unknown	Unknown
Anglo-Saxon			*N = 2*
2476	Prime adult	26-35yrs	Male
10766	Prime/mature adult	26-45yrs	Female

Table 18.4 Estimated Romano-British adult stature

Context	*Sex*	*Stature (cm)*	±
10442*	Male	166.13	3.27
10445*	Female	162.45	3.66
10447*	Male	165.19	4.32
10451*	Female??	160.13	3.66
10461*	Unknown	151.43/156.74	3.66/3.37
10470*	Male	155.33	2.99
10511	Male	172.4	4.05
10562*	Male	164.69	2.99
10623	Unknown	175.5/177.66	3.66/3.37
10635	Male?	164.94	3.27
10922	Male	170.93	2.99

*skeletons measured in the field

known sex (N = 20), nine skeletons (45%) were classified as male, and four (20%) were female. The remainder was four probable males (20%), one probable female (5%), and two possible females (10%).

When divided into Groups 1 to 3, the following demographics were found in the adult Romano-British assemblage of known sex: within Group 1 (N = 11), the male bias was marked with six males compared to two females. There was one each of probable male, probable female and possible female. Two adults could not be sexed. Group 2 (N = 7) comprised two males, two probable males, one possible female and two adults whose sex could not be determined. Group 3 comprised one female, one male and two probable males. The sex of one adult skeleton could not be determined.

Stature estimation

Stature is determined by a complex interplay of inherited and environmental factors. Whilst we all have a maximum genetic potential to attain a certain adult stature, physical and emotional stressors during childhood and adolescence may prevent achievement of this potential. If such stressors (eg malnutrition, infection or chronic illness) are too severe or prolonged for the growing body to 'catch-up' growth later, the individual will become permanently stunted (Lewis 2007, 66). When analysed in conjunction with other indicators of childhood stress (such as dental enamel hypoplasia and cribra orbitalia), adult stature may be a useful indicator of childhood stress in individuals and in assemblages as a whole, commonly reflecting the general health of a population. A comparison of mean stature between time periods may suggest temporal changes in the health of populations.

In the Cotswold Community assemblage, opportunities for stature estimation were extremely limited since so few long bones that survived intact. Only four skeletons could be measured in the laboratory (10511, 10623, 10635 and 10922). Measurements taken by osteologists in the field allowed for stature estimation of a further seven individuals. It should be noted, however, that *in situ* measurements were taken without the use of an osteometric board, and hence were probably less accurate than those taken in the laboratory.

The mean stature estimation for Romano-British males collated by Roberts and Cox (2003, 396) was 169 cm. The seven males and probable males from Cotswolds Community fell below this mean, with the exception of skeletons 10511 and 10922. The mean stature in these seven males was 165.7 cm (5′5″). When compared to stature estimates of late Roman males in the region, the Cotswold Community males were considerably shorter. Two males from Gravelly Guy were 167 cm and 173 cm tall (Harman 2004, 459), and the 21 males from Barrow Hills, Radley, had a mean stature of 167 cm (Harman 2007, 41).

The mean stature of the female and possible female from Cotswold Community was 161.3 cm (5′3″) (Table 18.4). This figure was markedly greater than the mean national Romano-British female stature of 159 cm calculated by Roberts and Cox (2003, 396), and the mean stature of 157 cm of 17 females from Barrow Hills, Radley, Oxon. (Harman 2007, 41). It is interesting to note that males at Cotswold Community appeared to have been short, whilst the two females exceeded the average. Unfortunately, the female sample was too small for it ot be possible to compare the general health of men and women and, hence, their relative social status within their community.

Pathology

Identification and subsequent diagnosis of pathologies within the human skeleton are dependent upon a number of diagnostic traits. Many traits are located upon the cortical or surface bone of the skeleton. Given the degree of erosion and abrasion witnessed upon the remains from the Cotswolds Community, many pathological markers may have been destroyed. Thus, true prevalence may be skewed as a result of preservation biases and, therefore, any extrapolation or comparison with other populations must be viewed with some caution.

Dental pathology

Caries, calculus, periodontal disease and ante-mortem tooth loss

Dental pathologies such as periodontal disease, caries and ante-mortem tooth loss (AMTL), are frequently caused by the consumption of carbohydrates (particularly simple sugars such as sucrose) and by poor oral hygiene practices (Table 18.5). Food residues left on the teeth following consumption of carbohydrates rapidly become colonised by bacteria, and are broken down to form a corrosive plaque

Table 18.5 Summary of dental pathology

Context	*Teeth Present (n)*	*Caries*	*Calculus*	*DEH*	*Abscess*	*Periodontal disease*	*AMTL*
2215	19	-	16	12	-	-	1
2476	27	3	15	-	-	Slight	2
2511	3	-	3	-	-	-	-
3175	29	1	4	10	-	-	1
3222	4	1	-	-	-	-	-
6682	7	1	3	-	-	-	-
8965	2	-	-	-	-	-	-
9553	0	-	-	-	-	-	-
7612	0	-	-	-	-	-	-
10439	24	4	15	14	-	-	-
10442	6	5	-	-	-	-	1
10445	3	-	3	-	-	-	-
10447	24	3	4	-	-	-	1
10451	13	1	4	-	-	-	-
10461	0	-	-	-	-	-	-
10464	2	-	-	-	-	-	-
10467	31	13	29	-	-	-	-
10470	13	3	8	6	-	-	-
10492	0	-	-	-	-	-	-
10498	1	-	-	-	-	-	-
10504	19	7	14	12	-	-	2
10511	30	3	23	19	-	-	-
10514	3	1	2	1	-	-	-
10516	3	1	2	3	-	-	8
10520	0	-	-	-	1	-	-
10562	8	-	8	3	-	-	1
10623	0	-	-	-	-	-	-
10626	0	-	-	-	-	-	-
10635	10	-	10	-	-	-	-
10711	26	2	15	11	-	-	2
10725	0	-	-	-	-	-	-
10744	0	-	-	-	-	-	-
10766	11	-	11	9	-	Slight	-
10814	0	-	-	-	-	-	-
10922	19	6	15	1	-	-	4
10949	0	-	-	-	-	-	-
11814	0	-	-	-	-	-	-

(Hillson 1996), that is responsible for the development of carious lesions on the teeth. Plaque may also mineralise, forming a hard unmoveable coating of calculus on the tooth surface, colloquially known as tartar. Periodontal disease is the inflammation of the soft tissues of the mouth, namely the gums, and/or the periodontal ligament and alveolar bone (Levin 2003, 245). Retraction of the gums exposes the vulnerable root of the tooth to attack by acidic plaques, commonly resulting in caries, abscesses and ante-mortem tooth loss. Periodontal disease may be localised to two or three teeth or may be more diffused.

The most common pathologies observed within the Cotswolds Community assemblage were dental. A total of 337 permanent teeth were present in the population. Caries was present in 55 teeth (16.3%) and in 16 individuals. Calculus was more prevalent with 204 teeth (60.5%) in 24 skeletons affected. Dental enamel hypoplasia was present on 101 tooth crowns (30%) in 12 (37.5%) skeletons. Only a single abscess was observed in the mandible of skeleton 10520. This was an external draining abscess measuring 5 mm by 6 mm located directly above the right mental foramen. Periodontal disease was observed in two individuals (skeletons 2476 and 10766), although in both cases this was slight. In skeleton 10766 (of Saxon date), this was limited to left mandibular molar region, whilst in skeleton 2476 the disease affected the complete mandibular dentition. Ante-mortem tooth loss (AMTL) was identified for 23 alveoli from 10 individuals (CPR 28.5%).

Dental disease in the Romano-British population

Due to small sample size, very little could be meaningfully interpreted from the dentition of the pre- and post-Roman skeletons from Cotswolds Community. It was only in the Romano-British population (N = 28) that prevalences could be meaningfully calculated. Caries were present in 18.4% of permanent teeth present. This rate was far greater than the mean of 7.5% cited for over 5,000 Romano-British skeletons by Roberts and Cox (2003, 132). The prevalence in the Cotswold Community population compared more closely to the rate of 18.6% found in the Radley Barrow Hills assemblage (Harman 2007, 41), but was considerably higher than the 10.4% seen in the Claydon Pike assemblage of ten individuals (Witkin 2007, 202).

The prevalence of dental calculus per tooth in the Cotswold Community Romano-British assemblage was 66.9%, although in most cases this was slight. The mean cited for 25 contemporary assemblages in Britain was 43.4%- considerably lower than this figure (Roberts and Cox 2003, 132). Protein-rich diets may promote the development of calculus, although considerable differences in deposition rates have been observed in modern humans (Lieverse 1999). Ante-mortem tooth loss was recorded in 7.4% of skeletons. This crude figure was lower than in many Romano-British assemblages listed by Roberts and Cox (2003, 135).

Skeleton 10520 was the only skeleton to display a dental abscess. Only two skeletons (7.1%) were affected by periodontal disease. This was a lower prevalence than most Romano-British populations cited by Roberts and Cox (ibid., 137), the crude prevalence rate being 29.3%.

Group 1 burials showed a much higher percentage of caries than Groups 2 and 3, the true prevalence rates being 25.2%, 10.2% and 11.1%, respectively. Groups 2 and 3 were close to the average for Romano-British populations (TPR 10.5%). Group 3 had the highest incidence of calculus at 82.5%, which was well above any percentage recorded by Roberts and Cox (2003), the overall mean being 39.8%. Groups 1 and 2 also had higher than recorded incidences of calculus with 59.9% and 67.8%, respectively (ibid.). The only abscess observed among the Romano-British population was identified in Group 1. This 0.7% rate equated closely with other contemporaneous sites (ibid.). The periodontal disease prevalence of 1.6% in Group 3 also compared closely to figures published by Roberts and Cox (ibid.). The level of ante-mortem tooth loss (AMTL) varied between the groups. Group 1 had a rate of 8.8%, whilst Group 2 had a rate of 3.4%, and Group 3 had 7.9%. All were well within the range published by Roberts and Cox (ibid., 135-6), which had an overall mean of 15.3%.

Dental enamel hypoplasia

Dental enamel hypoplasia (DEH) was found on 2.9% of tooth crowns in the entire Cotswold Community assemblage, and on 2.7% of crowns in the Romano-British population. DEH is the interruption or slowing of normal enamel formation during tooth crown development in the first six or seven years of life, which causes permanent thinning of the enamel (Goodman and Rose 1990). DEH manifests on the buccal or cheek surface of the crowns of teeth as pits, horizontal lines or lines of pits. Each line forms as a result of a prolonged episode of illness or malnutrition during childhood, lasting several weeks (ibid.). Unlike bone, enamel does not remodel throughout life and so DEH acts as a permanent indicator of such a stress episode in the early years of life.

Within Group 1, the DEH rate was 2.5%, in Group 2 it was 4.3%, and in Group 3 it was 3.7%. The mean for Romano-British populations recorded by Roberts and Cox (2003) was 13.5%, considerably higher than in the Cotswold Community assemblage. Inter-observer differences and destruction of dental enamel through taphonomic processes were undoubtedly factors affecting the recording of DEH in this assemblage, nevertheless the low rates of DEH may suggest that the Cotswold Community population suffered less childhood stress than their contemporaries elsewhere. This contrasts, however, with the evidence for male stature (a mean of 3 cm below the national average) and cribra orbitalia rates (discussed below), which suggest greater childhood stress in this population than that experienced in contemporary groups.

Skeletal pathology

The number of observable pathological markers was significantly reduced by poor cortical bone preservation, and it is quite probable that the true figures were originally much higher.

Cribra orbitalia

Cribra orbitalia is widely thought to occur in response to a deficiency of iron in childhood, most commonly the result of inadequate dietary intake of iron, and/or as a result of severe intestinal parasite infestation (Stuart-Macadam 1991). Other less common causes include blood loss (from trauma or chronic disease) and deficiencies of some vitamins, such as folic acid. *Cribra orbitalia* is often used as a generic indicator of physical stress in childhood. The physical symptoms of anaemia are shortness of breath, fatigue, pallor and palpitations (Roberts and Manchester 1995, 167).

Cribra orbitalia was identified in five skeletons (10467, 10470, 10511, 10766 and 10922)- a prevalence of 14.3% per capita overall, and 16.7% of the Romano-British population. The mean frequency recorded for contemporary sites was 15.9%. In Groups 1 to 3, the rates were 13.3%, 14.3% and 33.3%, respectively. All affected individuals were adult, and four out of five were male. Four skeletons (10467, 10470, 10766 and 10922) displayed marked lesions (Type 3 in Stuart-Macadam's (1991) scale), whilst skeleton 10511 displayed less severe Type 2 lesions, affecting the antero-lateral aspect of the eye orbits. The cortical bone of the cranial vault was generally too destroyed to observe the pitting and thickening characteristic of porotic hyperostosis.

Group 3 (the isolated burials found outside the two main groups) showed higher level of deficiency diseases, reflected in higher frequencies of both DEH and *cribra orbitalia*. This tentatively suggested that these people were of lower status than those interred in the burial ground. The small sample size and the dispersed nature of this 'group' makes interpretation problematic, however.

King (1991) described the typical Romano-British diet as being high in meat, and this possibly may be reflected in the high calculus rate (discussed above). If a meat-rich diet was regularly given to children, then dietary deficiency of iron is less likely to be the underlying cause of *Cribra orbitalia*. Cultural perceptions of the correct feeding of infants and children may have been as influential as the availability of meat in that society. Other causes, such as intestinal parasitism, must also be considered.

Degenerative joint disease

Spinal degenerative joint disease (SDJD) was observed in three Romano-British skeletons (10562, 10623, 10635) and one of Anglo-Saxon date (10766). It was absent from skeletons of other periods. This SDJD manifested as osteophytosis (moderate to marked lipping of the vertebral bodies). In two of these skeletons (10635 and 10766), porosity also identified, although this was slight.

Crude prevalence rates for SDJD collated from contemporary assemblages (N = 3111) by Roberts and Cox (2003, 145- 146) was 13%. The CPR observed in the Cotswolds Community assemblage is thus only slightly higher than this rate.

Schmorl's nodes (herniated nodules of cartilage leaving lytic-like lesions on the vertebral body), were only found in a single skeleton (10922). This low prevalence (CPR 3.6%) may in part be due to the poor preservation of trabecular bone throughout the sample. In skeleton 10922, both superior and inferior surfaces of the vertebral bodies of the thoracic vertebrae 5 and 7-11 were affected. The crude prevalence for the Cotswold Community Romano-British assemblage was thus 3.6%, lower than the 8.9%. of contemporary sites collated by Roberts and Cox (2003, 147).

Extra-spinal degenerative joint disease (DJD) was observed in four skeletons (10447, 10470, 10635 and 10766). The crude prevalence of this disease was 13.3% in the Romano-British population, compared to a mean of 20.62% observed in other contemporary assemblages (Roberts and Cox 2003, 146-147). In skeleton 10447, DJD manifested on the sacro-iliac joint as slight pitting. No eburnation or osteophytic activity was present, however. In Saxon skeleton 10766, the acetabulae of the hip joints displayed lipping of the joint margin and slight pitting.

Skeleton 10470, a young adult male, was unusual in having DJD present in multiple elements, including the hip joints, elbow and wrist joints. The left acetabulum displayed marked porosity and sclerosis of the joint surface, and marked lipping, which had resulted in enlarging of the socket. This had probably developed in response to bilateral malformation of the femoral heads (discussed below), the aetiology of which is uncertain. DJD was observed in the upper limbs, involving both humeri and radii. Osteophytosis of the right distal humerus proximal to the olecranon fossa was noted, and possible ankylosis of the right humerus and ulna. Damage to the epiphyseal areas of both bones made diagnosis uncertain, however. The right radius also showed new bone growth and slight porosity of the distal articular surface suggestive of DJD of the wrist.

The distal femora and the proximal tibiae of skeleton 10635 (a prime adult possible male) displayed slight porosity. Further joint disease was evident in the left shoulder joint, but this DJD was secondary to trauma (discussed below).

Trauma

Evidence for trauma in the Cotswold Community population was limited, with only four skeletons (10470, 10511, 10635 and 10711) affected. All dated to the Romano-British period: skeleton 10470 in Group 1, and the remainder of Group 2.

Trauma to the third right rib was observed in skeleton 10511. This was a healed transverse fracture located on the region of the mid-shaft. No other ribs bore any semblance of trauma, suggesting that this was an isolated incident. Rib fractures usually occur as a result of blunt force trauma to the chest, most commonly through interpersonal violence, falls and work-related accidents (Brickley 2006).

Skeleton 10711 displayed healed trauma to the left femoral midshaft. The fracture had healed but marked angulation of the shaft remained. There was evidence of secondary infection prior to healing. Localised thickening of the shaft circumference and the presence of a sinus on the posterior aspect indicated osteomyelitis. This secondary infection suggested either a compound fracture (where the broken bone penetrates the skin, thereby allowing direct infection of the bony tissue) or that significant damage and infection of the overlying soft tissue had penetrated into the bone beneath.

The most extensive trauma was observed on skeleton 10635. This probable male suffered a depression fracture of the left frontal bone, and trauma to the left shoulder. The injury to the frontal bone was located superior and lateral to the supra-orbital margin. The lesion measured 23.2 mm in diameter and was only partly healed at the time of death. New bone growth was present at the medial limit of the lesion. Although healing was advanced, a small aperture 2.6 mm in diameter remained at the superior limit. Whether this represented incomplete healing or was an artefact of taphonomy was uncertain, however.

Trauma to the left shoulder involved the scapula, clavicle and gleno-humeral joint. A type four fracture (Galloway 1999, 118) of the scapula was present, as well as the possible dislocation of the shoulder. This is suggested from modification of the scapular morphology and altered organisation of muscle attachments. There is evidence of possible osteomyelitis on the anterior and posterior axillary borders (including thickening of the area and sinus formation), indicating infection secondary to this trauma. Secondary osteoarthritis was also evident from eburnation, porosity and new bone growth around acromium and superior margin of the glenoid fossa. The shoulder joint was more widely affected, including osteoarthritic changes to the acromo-clavicular joint of the left clavicle, which also displayed eburnation, porosity and new bone growth.

Given that both the cranial and shoulder injuries were on the left side of the individual, it is possible that both injuries were sustained during a single event. For example, the cranial injury may have induced unconsciousness or syncope, that in turn may have resulted in a fall during which the shoulder was damaged.

Possible dislocation of the hip joint

Bilateral malformation of the femoral heads was noted in young adult male skeleton 10470. The heads were flattened and had altered neck angles. The acetabula were enlarged and shallow but the joint surfaces were unaffected. In contrast, marked porosity, sclerosis and eburnation were present on the femoral heads. The aetiology of this disorder was unclear and a number of alternative diagnoses must be considered. Congenital dislocation of the hip (more common in females) is possible, but the absence of a characteristic triangular acetabulum (Aufderheide and Rodriguez-Martin 1998, 26) makes this aetiology less plausible. A more likely cause was bilateral traumatic dislocation of the hips. This injury required considerable force, and in modern populations most commonly occurs during head-on collisions when the force of the knees hitting the dashboard of a car transmits backwards to the hips forcing the femoral head out of the acetabulum (P Hacking pers. comm.). A severe fall onto outstretched legs may also be a possible traumatic scenario. Less severe, incomplete dislocation or subluxation of the joint has been recognised in archaeological populations, which manifested as a notched, enlarged but shallow acetabulum and femoral head remodelling (Aufderheide and Rodriguez-Martin 1998, 26).

Alternative explanations may include the bilateral dislocation of the femoral head epiphyses during adolescence, and Perthes disease (retardation of normal growth and development of the femoral head and neck due to interference with local blood circulation to the bone (ibid.). The former might account for the malformation, but is less likely as the femoral necks were not markedly foreshortened. The absence of these changes to the femoral necks also made a diagnosis of Perthes disease less probable (ibid., 84). Indeed, the heads lacked the mushroom-shaped appearance characteristic of this disease, and although the acetabula showed characteristic shallowing of the joint, this was not concomitant with the marked irregularity of the acetabular surface associated with Perthes) (ibid.). The most plausible diagnosis for this disorder was traumatic bilateral dislocation of the hips, despite the rarity of such trauma in the archaeological record. The osteoarthritis observed in the hip joints was secondary to this injury.

Non-specific pathological markers

Two skeletons (10467 and 10562) showed evidence of non-specific bone changes. Skeleton 10467 showed a small area of ectocranial pitting and of endocranial new bone growth on a fragment of cranial vault. The ectocranial pitting may be associated with the *cribra orbitalia* observed in both orbits. The aetiology of endocranial new bone growth is problematic but may develop in response to bleeding around the brain (such as a subdural haemorrhage) or in response to chronic diseases, such as meningitis or encephalitis, or tumours (Lewis 2004).

In skeleton 10562, a small lytic lesion was identified in the anterior endocranial surface of the frontal bone. The lesion was very slight and may have been taphonomic in nature, but the slight porosity associated with it is suggestive of a pathological condition. Unfortunately, bone preservation in this skeleton was too poor to diagnose this lesion with any confidence. Apart from spinal degenerative changes, no other pathology was observed on this skeleton.

Cremated human bone

Six deposits of cremated human bone ranging in date from the late Neolithic to Roman periods were osteologically analysed (Table 18.6). The characteristics of cremated bone give valuable insights into stages of the funerary process, including display of the corpse before burning, the act of cremation, the collection of bone from the burnt-out

Table 18.6 Summary of cremated human bone deposits by phase

Context No.	*MNI*	*Weight (g)*	*Colour*	*Fragment size*	*Identified elements*
Late Neolithic					
8377	1	1865	white	small to medium	skull, long bones, teeth
Late Bronze Age/ early Iron Age					
18536	1	276	white	small	long bone, cranial vault
Mid Iron Age					
4366	1	69	brown, black and white	Very small	
'Prehistoric'					
1225-7	1	307	white, grey & black	small to medium	long bone, cranial vault
Romano-British					
11700	1	392	buff white & black	small	long bone, cranial vault
1208	1	61	white, grey & black	very small	none

pyre, and finally, burial within a pit or other feature. The colour and fragmentation of the bone, the age and sex of the deceased, the number of individuals interred together, body parts selected for burial, and the presence of pyre and/or grave goods within the grave were all analysed.

With the exception of late Neolithic burial 8377, all deposits were small. In most cases, it was unclear to what extent the low bone weights reflected the size of the original deposits, or how much had been lost to mechanical truncation and chemical leaching (as occurred in the unburnt bone). Although the cremated remains were osteologically examined using the same methodology described above for unburnt human bone, cracking and distorting of the bone during burning and subsequent fragmentation precluded the certain identification of the age or sex of any individuals. The only identifiable elements were cranial vault and long bone shaft fragments and tooth roots. There was no evidence to suggest that any of the deposits contained the remains of more than one individual.

Late Neolithic

Late Neolithic cremation burial 8377 was the largest deposit, weighing 1,865 g, and thus is likely to represent the complete cremated skeleton of the individual, which on the basis of modern comparanda weighs from 1,000-2,400 g, with an average of 1,650 g (McKinley 2000). Although fragmentation was marked (cf McKinley 1994), the deposit contained larger fragments than were observed in the other cremation deposits. The element dimensions suggested an adult, but the lack of diagnostic landmarks precluded analysis of sex. Bone colour was very uniform and was fully calcined (white), indicating efficient and complete combustion of the corpse (McKinley 2000).

Late Bronze Age/early Iron Age

Cremation deposit 18536 dated to the late Bronze Age or early Iron Age. The bone was totally calcined (white), indicating sustained pyre temperatures of approximately 700° C (McKinley 2000) and effective burning of the corpse. The bone displayed considerable fragmentation, which suggested deliberate breaking and crushing of the cremated bone before interment, and/or destruction by taphonomic processes (such as mechanical disturbance, chemical degradation, archaeological excavation and processing). The deposit was very clean (ie not sooty), suggesting that the bone had been carefully sorted from the ash and charcoal debris of the pyre site prior to burial. No pyre or grave goods were recovered during analysis.

Middle Iron Age

Cremation deposit (4366) came from a linear feature (7096) near to a middle Iron Age roundhouse. The deposit was small, weighing only 55 g, and the remains were very fragmentary with bone colour variable, ranging from dark brown/black through to light grey and white, indicating incomplete cremation. It was not possible to estimate the age or sex of the individual/s. This deposit was classed as a cremation-related deposit, according to McKinley's (2000) criteria.

Romano-British period

Cremation burial 11700 was found within a recut of enclosure 17590, approximately 7 m from the southern group of inhumation burials (Group 2 – see above). The cremation burial was a relatively large deposit of cremated bone weighing 392 g and was very fragmented. The dimensions of identified femoral fragments tentatively suggested an adult male. The bone colour of grey to light blue indicated that pyre temperatures were below 700° C, but the uniformity of colour suggested that a constant temperature was sustained throughout (McKinley 2000). No pyre material was associated with this burial, with the exception of charred wheat seed remains (radiocarbon dated to the 3rd to 4th centuries AD), which may either have been included with chaff as burning material, or constituted a food offering placed on the pyre.

Deposit 1208 came from within a pit (1205) to the north of the settlement, accompanied by an unburnt cattle scapula and pottery fragments dated 2nd to 4th century AD. It was very much smaller than the above burial, weighing only 61 g, and was heavily fragmented. Associated burnt soil and charcoal flecks suggested that this deposit may not be a formal burial but may be a cremation-related deposit or a small collection of pyre material redeposited within this feature (McKinley 2000). Cremated human bone from contexts 1225 to 1227within pit 1224 (68 m east of the southern end of the pit alignment (3333)) was less certainly attributed to the Roman period. The material weighed 307 g, and hence does not represent the remains of an entire skeleton. The only identifiable elements were cranial vault and long bone shaft fragments. The bone was very fragmentary, the maximum fragment size being 26 mm. Bone colour ranged from a light blue grey to a yellowish white, indicating incomplete burning of the corpse. This was probably due either to inadequate fuel, ineffectual pyre building and/or adverse weather conditions (such as rain) during combustion. It is also possible that complete combustion of the corpse was not culturally as important as it appears to have been in earlier time periods. A small quantity of burnt material also recovered within the pit (1224) tentatively suggested redeposited pyre material.

DISCUSSION

Osteology

Poor bone preservation and completeness, and the small sample size, greatly limited the interpretation of palaeodemographical and pathological aspects of this assemblage. The late Romano-British assemblage was large enough, however, to provide some interesting insights into the composition and health of the people of this rural community. The predominance of males in the late Romano-British assemblage at Cotswold Community was marked, and in keeping with the demography of some other late Romano-British skeletal assemblages. Significant disparity in sex representation was also present locally at Cassington and Frilford, Oxon., where the female: male ratio was 1:1.9 and 1:1.26, respectively (Booth 2001). Weiss (1992) describes a systematic osteological bias in ascribing skeletal sex, calculating that the general bias in favour of males was approximately 20%. Even taking this bias into account, the predominance of males in the Cotswold Community assemblage was still marked. Cultural factors must play a role (Watts 2001). Male migration (in terms of soldiers, traders and administrators) might explain this demographic in towns, forts and cities, but seems unlikely to have been a significant factor in a small rural settlement. Female infanticide has been hypothesised but has not been tested biochemically (ibid.), and as a systematic practice has been doubted on *a priori* grounds (eg Scott 2001). Segregation of males and female burials does not explain this disparity, as there are no significant female-dominated assemblages reported for this period.

The dearth of infants and children is another common feature of Romano-British rural burial assemblages in the region (Booth 2001). Two infants in purpose-cut graves were present in Group 1, but lay peripheral to the main group in shallow graves. This may argue for their lower status, relative to adults, and also for greater truncation by ploughing and machining. The shallowness of infant graves suggests that under-representation of sub-adults must in part be a result of taphonomic processes.

Lower mean stature and higher rates of cribra orbitalia suggested that this late Roman community was less healthy in the first two decades of life than their contemporaries. This is not borne out by DEH, which was considerably lower, however. Pathological conditions included degenerative joint disease, several examples of trauma, two cases of which may well have been sustained through interpersonal violence. Healing of the fractures or dislocated elements of skeletons 10511, 10635, and 10711 revealed that all injuries had been sustained well before death. Severe and long-standing infection was associated with trauma in the last two skeletons, and probably had considerable repercussions on their general health and economic contribution to their small community. There appeared to be no other evidence of chronic disease.

Funerary practices

The burials at Cotswold Community ranged in date from the Neolithic to the Anglo-Saxon periods. They displayed a range of funerary practices seen elsewhere on the gravel traces of the Upper Thames Valley and Cotswold regions, but also showed a number of unique features. Seen in the context of these other assemblages, they are a valuable contribution to our understanding of the treatment of the dead in this region.

Late Neolithic

The single cremation burial (8377) was recovered as a discrete deposit within late Neolithic pit 8376, probably originally placed within an organic container. The cremated bone was radiocarbon dated to 4095± 30 BP). The deposit weighed 1,865 g, and thus may represent the complete cremated skeleton of the individual (McKinley 2000). Although fragmentation was marked, the deposit contained larger fragments than were observed in the other cremation deposits. The element dimensions suggested an adult, but the lack of diagnostic landmarks precluded analysis of sex. Bone colour was very uniform and was fully calcined (white), indicated efficient and complete combustion of the corpse (McKinley 2000). Late Neolithic cremation burials are rare in the Upper Thames Valley, although a small cremation cemetery associated with the Dorchester-on-Thames henge complex is believed to be contemporary with the monuments (Atkinson 1951).

Early Bronze Age

Three Beaker inhumation burials were found, in addition to a single pit burial. Crouched skeleton 8965 was orientated south-north within shallow oval grave 8933, accompanied by flint flakes and Beaker pottery fragments. The bone was very eroded, with only 25% extant, making it impossible to confidently age or sex the skeleton. General dimensions suggested an adolescent that was not sexed. Sex could not be ascertained osteologically.Adult skeleton (9553) lay in a partly filled oval pit (9551). Bone preservation was very poor (comprising only skull and long bone fragments), but it was possible to ascertain that the skeleton was orientated west-east and was crouched. A complete Beaker pot was located in the foot region, and an incomplete wrist guard lay alongside the knees. Skeleton 7612 within grave 7611 was accompanied by a near-complete Beaker pot. Bone survival was extremely poor, comprising only long bone shaft fragments of an adult of unknown sex. Further human remains (7971) from early Bronze Age pit 7972 comprised two lower leg bone fragments of a probable adult of unknown sex.Two of the three Beaker inhumations (adolescent skeleton 8965 and adult skeleton 9553) lay in the crouched, lateral body position and north-south orientation characteristic of this burial tradition (Taylor 2001). The other burial (7611) was too incomplete to be sure of body position. Other examples known from the region include a mature female burial from South Parks Road, Oxford (Boston *et al.* 2003), and burials from Barrow Hills, Radley (Barclay and Halpin 1999). Grave goods were also typical of the period: flint flakes and fragmented Beaker pottery accompanying skeleton 8965, a Beaker and a backed flint knife with burial 7611 and a complete Beaker and a fragment of archer's wrist guard accompanying 9553.

Middle Bronze Age

Skeleton 3175 was radiocarbon dated to the middle Bronze Age (3175±30 BP), whilst skeleton 2511 was tentatively assigned to Phase 3. Female skeleton 3175 (aged 18-35 years) was buried within a grave cut inside enclosure 3239. The burial was oriented NE-SW, with the body tightly crouched on its right side. Skeleton 2511 was a mature adult male (45 years or more) interred within partly filled pit 2508. The body position was unclear due to poor bone preservation, but appeared to be crouched. The skull lay towards the north, suggesting the north-south orientation. The normative burial rite in the middle Bronze Age is cremation burial (Taylor 2001), so the presence of inhumations of this date is particularly interesting.

Late Bronze Age/ early Iron Age

An isolated unurned and unaccompanied cremation burial (18536) containing the remains of a single individual had been placed within the central fill of a small circular pit (18534). This suggested that the deposit had not suffered significant truncation. The deposit was small (276 g) and the bone was white and highly fragmented, suggesting effective cremation. The absence of pyre debris indicated careful sorting of the bone after cremation.Although not regarded as the predominant funerary rite of this period, recent development of radiocarbon techniques in dating cremated bone has revealed an increasing number of Late Bronze Age cremation burials, not previously acknowledged in the literature. Local late Bronze Age cremation burials are known from Cassington, (Hey *et al*. forthcoming), whilst six small deposits of cremated human bone within late Bronze Age to early Iron Age pits are known from Butler's Field, Lechlade (Boyle *et al.* 1998), and one Iron Age example is known from Segsbury Camp (Boyle 2005).

Middle Iron Age

Cremation deposit (4366) weighed only 55 g. The remains were very fragmentary and bone colour was variable, ranging from dark brown/black through to light grey and white, indicating incomplete cremation. This deposit was classed as a cremation-related deposit, according to McKinley's (2000) criteria.In the Upper Thames Valley, cremated human bone is fairly rare in this period and probably represents a continuation of late Bronze Age practices. The low bone weight of deposit 4366, and the association with burnt material, tentatively suggested that it did not comprise a formal cremation burial, but rather a cremation-related deposit, not uncommon in later prehistory (McKinley 1997). Similarly, most cremated human bone deposits at Butler's Field, Lechlade, were very small (weighing from 2 g to 120 g). Incomplete cremation (as seen from the range of bone colour) was a feature of both the Cotswold Community and Butler's Field deposits. This may signify changing attitudes to the act of cremation (eg that less importance attached to complete combustion of the corpse), reduced availability of fuel and/or changes in pyre technology from the preceding period, when complete burning of the skeleton was ubiquitous.

Romano-British period

In this analysis, Groups 1 and 2 were assigned to the late Romano-British period, but limited radiocarbon dating suggested that the north-south orientated group centred on the Bronze Age ring ditch (Group 1) was slightly earlier than the predominantly west-east orientated burials to the south (Group 2). Radiocarbon dates for skeleton 10467 (AD 214-355, 93.7% probability) and skeleton 10492 (AD 244-382; 95.4% probability) of Group 1 displayed only a short temporal overlap with skeleton 10511 (AD 332-436, 90.9% probability) of Group 2.

Group 3 comprised disparate isolated burials loosely clustered in the vicinity of the settlement, but probably dating more widely across the Roman period. Radiocarbon dates for the coffined and accompanied burial of skeleton 10635 (AD 218-355; 95.4% probability) revealed that it was broadly contemporary with the Group 1 burials. It is assumed that the neonatal pit burial (skeleton 10949) was contemporary with the settlement, and appeared to predate the middle Roman enclosure ditch 20016, which cut the pit in which it lay. The decapitated, prone skeleton 10635 lay within the largely silted ditch, suggesting a date long after it was cut. The rite of decapitation is more typical of the later Roman period (Taylor 2001; Philpott 1991, 79).

Location of the burials

Two clusters of burials (Groups 1 and 2) were located close to but beyond the Roman farmstead complex, and probably constituted the burial ground of the farming family and their retainers (Booth 2001). Small inhumation cemeteries associated with farmsteads are a common feature of the late Roman period in this region, comprising groups of less than ten individuals, as seen at Claydon Pike (Witkin 2007), or as many as 78 individuals as seen at Horcott Pit villa site (Clough 2007), and more than 110 at Cassington, Oxon. (Booth 2001). Numbers of burials in other rural cemeteries in the Upper Thames Valley include approximately 21 at Crowmarsh Gifford, 30 at Bloxham and 35 at Stanton Harcourt Cricket Ground (ibid.).

Group 1 burials were clearly referencing the Bronze Age ring ditch, and five graves had been dug into the ditch fill of the earlier monument. This indicates that the ring ditch had largely or completely silted up by the time the Roman burials were inserted. There was no significant difference in the grave depth from the centre to the periphery of the monument, which suggests that the burial mound was either absent or insignificant. Judging from grave 10438, one of the deepest graves, it would appear that an external bank would also not have been significant. Clearly, the monument was visible in the late Roman period, however, and served as a powerful focus for burial. Such re-use of earlier monuments is well recognised in the Romano-British period, and association with the long dead may have forged a symbolic link with a distant past, possibly in order to underline the legitimacy of the living to the land (Esmonde Cleary 2000). One local example of this practice is White Horse Hill, Uffington, Oxon., where 48 Roman burials were inserted into a Neolithic long barrow (Miles *et al.* 2003). Like the Group 1 burials, there appeared to be no imperative for these burials to be confined within the mound of the monument itself, but they were scattered around it, some being dug into the surrounding ditch.

At Cotswold Community, both male and female burials were clustered within the ring ditch, although female burials do appear to be more central than males. Group 1 burials peripheral to the ring ditch were either of infants, adults of unknown sex, or males (although, admittedly numbers were small). Both infant burials lay to the north-east of the ring ditch, and both were very shallow. Booth (2001) comments that shallow graves were commonly associated with infant burials, and denote the low status of this age group, although the purely practical point that a small body only requires a small, shallow grave may also be relevant. Interestingly, peripheral burials 10504 and 10562 were likewise very shallow.

Grave orientation

The north-south orientation of the Group 1 burials was consistent with the most common burial orientation in the Cotswolds region, which comprised 80% of burials (Pearce 1999). This contrasted with Hampshire, where 35% of burials were similarly aligned (ibid.). More locally in Oxfordshire, the majority of burials (76.5%) at Stanton Harcourt were oriented north-south (McGavin 1980), whilst all of the Radley I burials were thus aligned (Booth 2001). South-north orientation (head to the south) was noted in 13.3% of Cotswolds burials, compared to 4.2% in the Hampshire examples, and 23.5% in the Stanton Harcourt sample (Pearce 1999; McGavin 1980). No east-west oriented burials were recorded at Stanton Harcourt (McGavin 1980), but the Cotswolds and Hampshire burials comprised 6.6% and 6.3% east-west aligned burials, respectively. North-south alignment appears more typical of rural Roman burials in the region (Booth 2001) and contrasts with the common west-east orientation of urban burial grounds, such as Lankhills (Clarke 1979) and Poundbury (Farwell and Molleson 1993).

Mixed orientations have been observed in many rural burial sites, however, often as they were aligned upon settlement or field boundaries, as was the case at Cotswold Community. At Cotswold Community, Group 2 was distinctive from Group 1 in being predominantly west-east aligned. The later date for Group 2 may indicate that this change in orientation represented a temporal shift in burial practice. This interpretation does not hold true throughout the region, however. At Claydon Pike, roughly north-south orientated graves cut those aligned approximately west-east, clearly post-dating them (Miles *et al*. 2007, 184-5).

The pattern of a small group of west-east burials spatially separated but close to a group of north-south burials was observed in Group D at Radley Barrow Hills, Oxon (Chambers and McAdam 2007) and at Horcott Pit (Clough 2007). In the former site the west-east burials were a mixture of adults and children, whilst in the latter, most burials were of infants or children. All the Group 2 skeletons of Cotswold Community were adults. Thus, there appears no consistent relationship between orientation and age-at-death in these groups.

Body position

Although there was variation in body position, the majority of burials from Groups 1 and 2 lay supine and extended, the most common position in late Roman burials (Booth 2001). Exceptions were skeletons 10442, 10464, 10562 and 10711 who lay on their left sides (in varying degrees of contraction), skeleton 10492 who was crouched on the right side, and decapitated burial 10635 who lay prone. There is no distinction by sex in relation to body position.

Coffins

Coffin stains were poorly preserved in the Cotwold Community burials and the shape of coffins was therefore uncertain, but the location of iron fixing nails within the graves suggested the rectangular shape ubiquitous in coffins of this period. Interestingly, there were no coffined burials in Group 2, but seven in Group 1 (58%) and three Group 3 burials (50%) contained nails and/or a coffin stain, including the grave of skeleton 10922, a contemporary of Group 1. The use of coffins may thus have a temporal dimension, becoming less common towards the end of the Roman period.

Decapitation burial

Skeleton 10635 had been deposited within ditch 20016 in a prone position, with his elbows flexed and hands in front of his abdomen or chest. The head had been decapitated and placed between the thighs, facing downwards (prone). Bone preservation was too poor to identify cut marks on the vertebrae. Although a minority rite, decapitation burial was relatively common in rural late Roman burial assemblages. For example, in Oxfordshire it typically involved between 6% and 10% of burials, although higher percentages are known in a few cases (Booth 2001, 24). Local examples are known from Claydon Pike (Miles *et al.* 2007), Horcott Pit (Clough 2007) and Roughground Farm (Allen *et al*. 1993), and from Tubney Wood near Oxford (A Norton pers. comm.).

Earlier interpretations of decapitation as the punishment of social deviants (criminals, witches or the spiritually or socially undesirable), whose graves were consigned to the peripheries of the cemetery or isolated location, are being revised. The sheer proportion of these burials makes this interpretation unlikely. In addition, osteological examination of cut marks on the vertebrae and jaws of decapitated skeletons indicates that decapitation generally took place from the front rather than behind, the latter being most common in the execution of live individuals (Harman *et al.* 1981; Boylston *et al*. 2000). This suggests a post-mortem rite rather than a live execution. Another aspect of burial ritual to confute the social deviants theory is the location relative to other burials. Rather than liminal to the group, many decapitation burials lie within the main body of the cemetery, and some appear to be of high status (judging from grave depth, grave goods and provision of a coffin), for example at Horcott Pit (Clough 2007) and Site 4 of the Great Barford Bypass, Bedfordshire (Timby *et al*. 2007). Others, like skeleton 3065 of Cotswold Community, were peripheral burials.

Grave goods

As in many other late Roman burials, grave goods were scarce, and restricted to hobnailed shoes, possible pots, a knife and simple copper alloy jewellery. In Group 1 clusters of iron hobnails were recovered from seven of the fifteen graves, four female and three male. Seven graves contained no grave goods (three of unknown sex and four male). All adult females were buried with hobnailed shoes. Only two burials (skeletons 10445 and 10464) had other grave goods. The grave fill of young to prime adult female skeleton contained pottery fragments as well as hobnails, whilst infant skeleton 10464 had a copper alloy bracelet.

In Group 2 hobnailed shoes were found in both male and female graves (one possible female, one probable male and one male), and a copper alloy object from male burial 10725. Hobnails and pottery accompanied male skeleton 10922.The association of grave goods with female and infant burials has been linked to the Roman concept of *mors immatura*, in which the spirits of those who had died prematurely were believed to be angry and restless, and would exact bad luck on the living, unless appeased by grave goods and rituals (Martin-Kilcher 2000, 63). Girl children and women who had died childless were regarded as particularly dangerous. Although Group 1 burials appeared to confirm this trend, overall grave good distributions in the Cotswold Community assemblage did not. Analysis was limited by the small sample size, however.

Cremation burial

Aside from a small cremation deposit (1208) in pit 1205, tentatively dated to the mid Roman period, unurned cremation deposit 11700 was the only other cremation deposit assigned to the Roman phase, and represents the partial remains of one adult (392 g) placed within a ditch. Charred wheat within the deposit was radiocarbon dated to AD 243-384 (95.4% probability), making it broadly contemporary with Group 1 burial, and indicating a dual burial rite at Cotswold Community in the late Roman period. The charred wheat may have been either an accidental inclusion with wheat chaff used as kindling, detritus of the funerary feast (conducted at the pyre-side) or may have represented an offering on the pyre (Pearce 1998).

Disarticulated remains

The fills of two Roman features contained unburnt disarticulated human remains (10744 and 11814), the former comprising left and right femoral shaft fragments, and the latter a fragment of distal left humerus. These fragments may well have been residual, although curation of human remains is not unknown in the Roman period, a practice that may have originated from the Iron Age pit burial tradition (Whimster 1991).

Anglo-Saxon period

Crouched adult female skeleton 10766 lay east-west within a shallow grave (10764), facing the north, the grave apparently referencing the east-west middle Roman ditch 12339 or its late Roman recut (20151). An iron knife lay beneath her left femur. Radiocarbon dating indicated a date of 580-665 cal AD (95.4% probablility). Isolated prime adult male skeleton 2476 was buried in an extended supine position, aligned south-north, within waterhole 2477, to the west of a Roman north-south trackway. The bone was radiocarbon dated to AD 635-690 (94.8% probability).

Isolated Saxon burials are occasionally found within or referencing boundaries, one example from the region being a male inhumation from Aves Ditch (Sauer 2005).

SKELETAL INVENTORY (EXCLUDING DISARTICULATED REMAINS)

Skeleton number: 2215

Completeness: <25%

Preservation: Poor

Age: 18-25

Sex: Female

Stature: Could not be assessed

Dental inventory: Maxilla absent

	K		K	K	K	K	K	K	K						
-	P	-	P	P	P	P	P	P	P	P	P	P	-	-	-
P	P	P	P	X	P	P	P	-	P	-	-	-	-	-	-
K	K	K	K		K	K	K		K						

Dental Pathology: Slight calculus 16/19. DEH 12/19, AMTL 1

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits

Skeleton number: 2476

Completeness: 75-100%

Preservation: Poor

Age: 26-35

Sex: Male?

Stature: Could not be assessed

Dental inventory: Maxilla absent

K	K	K		K							K		K	K	
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-
-	P	P	X	P	P	P	P	P	P	P	P	P	X	P	-
				K	K	K	K	K	K	K	K	K	K	K	

Dental Pathology: Slight calculus 15/27, medium caries 3/27, medium periodontal disease in all mandibular teeth and sockets.

Skeletal pathology: No pathology present

Skeleton number: 2511 (2512)
Completeness: <25% **Preservation:** Poor
Age: 36-45 **Sex:** Male? **Stature:** Could not be assessed
Dental inventory:

-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	-
P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology: Flecks of calculus were observed upon right maxillary M1, right mandibular M3 and left maxillary M2
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits present

Skeleton number: 3175
Completeness: 50-75% **Preservation:** Poor
Age: 18-35 **Sex:** Female **Stature:** Could not be assessed
Dental inventory: Maxilla absent

			K						K			K			
P	P	-	P	P	P	P	P	P	P	P	P	P	P	P	-
P	P	P	P	P	P	P	P	P	P	P	P	P	X	P	P
	C								K						

Dental Pathology: Slight calculus 4/29, small caries lesion 1/29, DEH 10/29, AMTL1
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits present

Skeleton number: 3222
Completeness: 25-50% **Preservation:** Poor
Age: 26-35 **Sex:** Unidentified **Stature:** Could not be assessed
Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	P	-	P	P	-	-	-	-	P	-	-	-	-	-	-
									C						

Dental Pathology: Caries 1/4
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits present

Skeleton number: 6682

Completeness: 25-50% **Preservation:** Poor

Age: 26-35 **Sex:** Male ? **Stature:** Could not be assessed

Dental inventory:

								K							
-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
P	-	-	-	P	-	-	-	-	-	-	P	-	P	P	P
															C
													K		K

Dental Pathology: Slight calculus in left maxillary I1, left mandibular M1 and M3. Caries in left mandibular M3

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 7612

Completeness: <25% **Preservation:** Poor

Age: Adult **Sex:** Unidentified **Stature:** Could not be assessed

Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology: No pathology present

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 8965

Completeness: <25% **Preservation:** Poor

Age: Subadult ***Sex:*** Unidentified **Stature:** Could not be assessed

Dental inventory:

-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-
-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-

Dental Pathology: No pathology present

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 9553
Completeness: <25% **Preservation:** Poor
Age: Adult **Sex:** Unidentified **Stature:** Could not be assessed
Dental inventory:

-	-	-	-	-	-	-	-	-	-	-P	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology: No pathology present
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits present

Skeleton number: 10439
Completeness: 50-75% **Preservation:** Fair
Age: 26-35 **Sex:** Male **Stature:** Could not be assessed
Dental inventory:

	C				K	K	C	K	K	K					
-	P	-	-	P	P	P	P	P	P	P	P	P	-	-	-
P	P	P	P	P	P	P	P	P	P	-	P	P	/	P	P
K	K	C			K	K	K	K			C				
											K	K		K	K

Dental Pathology: Slight calculus 15/24, caries 4/24 (3 small lesions/1 medium lesion), DEH 14/24
Skeletal pathology: No pathology present
Non-metric traits present:
Accessory infraorbital foramen (R), supraorbital foramen (L), mastoid foramen (R), single facet form in tibii

Skeleton number: 10442
Completeness: 25-50% **Preservation:** Poor
Age: Adult **Sex:** Male **Stature:** Could not be assessed
Dental inventory: Maxilla absent

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NP	/	X	P	P	P	/	/	/	/	P	P	P	P	/	NP
			C	C	C					C		C			

Dental Pathology: Caries 5/7 (3 small lesions/2 medium lesions), DEH 3/7
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits present

Skeleton number: 10445

Completeness: 75-100% **Preservation:** Fair

Age: 18-35 **Sex:** Female **Stature:** 166.3 cm

Dental inventory: Maxilla absent

							K	K							
-	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-
/	/	/	/	/	/	/	/	-	-	-	-	-	P	-	-
													K		

Dental Pathology: Slight calculus 3/3

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 10447

Completeness: 76-100% **Preservation:** Fair

Age: 26-35 **Sex:** Male **Stature:** Could not be assessed

Dental inventory:

							C				C				
/	/	/	P	P	P	P	P	X	P	P	P	/	/	/	/
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	C	C	C												
	K	K	K			K									

Dental Pathology: Slight calculus 4/24, caries 3/24, AMTL 1

Skeletal pathology: DJD at left sacro-iliac joint

Non-metric traits present: No non-metric traits present.

Skeleton number: 10451

Completeness: 25-50% **Preservation:** Poor

Age: 18-25 **Sex:** Female?? **Stature:** 164.3 cm

Dental inventory: Maxilla not present

									K						
-	-	-	-	-	P	-	-	-	P	-	-	-	-	-	-
-	-	P	P	P	/	P	P	P	/	P	/	P	P	P	P
		C				K								K	
		K													

Dental Pathology: Slight calculus 3/13, medium calculus 1/13, medium carious lesion 1/13

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 10461
Completeness: <25% **Preservation:** Fair
Age: Adult? **Sex:** Unidentified **Stature:** 156 cm
Dental inventory: No dentition preserved

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology:
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits preserved

Skeleton number: 10464
Completeness: <25% **Preservation:** Good
Age: 1 month-2 years **Sex:** Unidentified **Stature:** Could not be assessed
Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P

Dental Pathology: No pathology present
Skeletal pathology: No pathology present
Non-metric traits present: Accessory cusp on M1s.

Skeleton number: 10467
Completeness: 75-100% **Preservation:** Fair
Age: 18-25 **Sex:** Male **Stature:** Could not be assessed
Dental inventory*:*

K	K	K	K	K	K	K		K	K	K	K	K	K	K	
C		C					C			C	C	C	C		
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
K	C	C				C	C	C	C						
	K		K	K	K	K	K	K	K	K	K	K	K	K	K

Dental Pathology: Slight calculus 16/31, medium calculus 5/31, 8/31, caries 13/31 (7 slight lesions/5 medium lesions/1 large lesion)
Skeletal pathology: DJD in spine, cribra orbitalia (type 3) (L andR), ectocranial pitting and endocranial new bone formation
Non-metric traits present: No non-metric traits present.

Skeleton number: 10470

Completeness: 75-100% **Preservation:** Fair

Age: 18-25 **Sex:** Male **Stature:** 167.7 cm

Dental inventory:

					K		K	K	K						
								C							
-	-	-	-	-	P	-	P	P	P	P	P	-	-	-	-
/	P	P	/	/	P	P	/	P	/	P	/	/	/	P	/
										C				C	
	K	K				K									

Dental Pathology: Slight calculus 6/13, medium calculus 1/13, heavy calculus 1/13, caries 3/13 (2 medium lesions/1 large lesion), DEH 6/13

Skeletal pathology: Bilateral hip displasia with secondary osteoarthritis, DJD in right humerus, left humerus, ankylosis of humerus and radius (R), cribra orbitalia (type 3) (R)

Non-metric traits present: Highest nuchal line, auditory torus (L)

Skeleton number: 10492

Completeness: <25% **Preservation:** Poor

Age: Adult? **Sex:** Unidentified **Stature:** Could not be assessed

Dental inventory: No dentition preserved

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology:

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 10498

Completeness: <25% **Preservation:** Poor

Age: Infant **Sex:** Unidentified **Stature:** Could not be assessed

Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			K	K	K		K	K	K		K	K			

Dental Pathology: No pathology present.

Skeletal pathology: No pathology present.

Non-metric traits present: No metric traits present.

Skeleton number: 10504

Completeness: 50-75% **Preservation:** Poor

Age: 26-45 **Sex:** Male? **Stature:**

Dental inventory:

K					K		K	K			K			K	
						C									C
P	-	-	-	-	P	P	P	P	P	-	P	-	-	P	P
-	-	-	P	P	P	P	P	P	P	/	P	P	R	X	X
				C		C			C		C				
			K	K	K		K	K	K		K	K			

Dental Pathology: Slight calculus 10/19, medium calculus 2/19, heavy calculus 2/19, caries 6/19 (2 small lesions/ 2 medium lesions/ 2 large lesions), DEH 12/19

Skeletal pathology: No pathology present

Non-metric traits present:

Skeleton number: 10511

Completeness: 75-100% **Preservation:** Good

Age: 26-35 **Sex:** Male **Stature:** 168.9 cm

Dental inventory:

					K	K	K	K	K	K		K		K	K
			K		C									C	
P	P	R	P	R	P	P	P	P	P	P	/	P	/	P	P
P	P	R	P	P	P	P	P	P	P	P	P	P	R	P	P
												C			
K	K		K	K	K	K	K	K	K	K	K			K	K

Dental Pathology: Slight calculus 10/30, medium calculus 7/30, heavy calculus 6/30, caries 3/30 (all small lesions), DEH 19/30

Skeletal pathology: Trauma to 3rd rib (R), cribra orbitalia (type 2) (L and R)

Non-metric traits present: Partial septal aperture (L and R), single facet form in atlas

Skeleton number: 10514

Completeness: 50-75% **Preservation:** Poor

Age: 26-35 **Sex:** Male? **Stature:** Could not be assessed

Dental inventory: No maxilla present

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	P	-	/	/	/	/	/	/	/	/	/	/	P	P	-
	K												K	C	

Dental Pathology: Slight calculus 2/3, caries 1/3, DEH 1/3

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 10516
Completeness: 25-50% **Preservation:** Poor
Age: >45 **Sex:** Female **Stature:** Could not be assessed
Dental inventory:

							K								
-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
X	X	X	X	-	P	-	-	-	-	-	P	X	X	X	X
					K						C				

Dental Pathology: Slight calculus 2/11, caries 1/11 (small lesion), DEH 3/11, AMTL 8/11
Skeletal pathology: No pathology present
Non-metric traits present: Parietal foramen (L), zygomatic facial foramen x2 (R)

Skeleton number: 10520
Completeness: <25% **Preservation:** Poor
Age: >45 **Sex:** Female **Stature:** Could not be assessed
Dental inventory: No dentition present

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology: Dental abcess
Skeletal pathology: No pathology preserved
Non-metric traits present: No non-metric traits present

Skeleton number: 10562
Completeness: 75-100% **Preservation:** Poor
Age: 26-45 **Sex:** Male **Stature:** 167.1 cm
Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	X	P	-	-	P	P	-	-	R	-	P	P	-	P	P
		K			K	K			K		K	K		K	K

Dental Pathology: Slight calculus 1/8, medium calculus 3/8, heavy calculus 4/8, AMTL 1, DEH 3/8
Skeletal pathology: Small lytic lesion on endocranial surface of supraorbital region, DJD in spine
Non-metric traits present: Palatine taurus, zygomatic facial foramena, mastoid foramen

Skeleton number: 10623

Completeness: <25% **Preservation:** Poor

Age: Adult **Sex:** Unidentified **Stature:** 177.6 cm

Dental inventory: No dentition preserved

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology:

Skeletal pathology: DJD in lower thoracic region of spine

Non-metric traits present: No non-metric traits present

Skeleton number: 10626

Completeness: <25% **Preservation:** Poor

Age: 18-25 **Sex:** Female?? **Stature:** Could not be assessed

Dental inventory: No dentition preserved

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology:

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Skeleton number: 10635

Completeness: 50-75% **Preservation:** Fair

Age: 36-45 **Sex:** Male? **Stature:** 167.2 cm

Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	P	-	P	P	P	P	P	P	P	-	P	-	-	-	-
K	K		K	K	K	K	K	K	K		K				

Dental Pathology: Medium calculus 8/10, heavy calculus 2/10

Skeletal pathology: Healed depression fracture to left supraorbital region, dislocation trauma to left scapula, trauma to axillary margin of left scapula, DJD in spine, exostosis on anterior patella

Non-metric traits present: Single facet form on tibiae

Skeleton number: 10711
Completeness: 75-100% **Preservation:** Fair
Age: 26-35 **Sex:** Male **Stature:** Could not be assessed
Dental inventory:

			K		K	K			K		K	K	K		
C			C												
P	P	X	P	/	P	P	P	/	P	P	B	P	P	X	P
-	P	P	P	P	P	P	P	/	P	P	P	P	P	P	P
	C	C													
	K	K	K	K					K	K			K	K	

Dental Pathology: Slight calculus 15/26, medium caries 2/26, AMTL2, DEH 11/26
Skeletal pathology: Healed angulated fracture of femoral midshaft (L) with possible osteomylitus.
Non-metric traits present: Auditory torus (L), supraorbital foramen (L) single facet form in tibii

Skeleton number: 10725
Completeness: <25% **Preservation:** Poor
Age: >45 **Sex:** Male? **Stature:** Could not be assessed
Dental inventory: No dentition preserved

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology:
Skeletal pathology: No pathology present
Non-metric traits present: No non-metric traits present

Skeleton number: 10766
Completeness: 25-50% **Preservation:** Fair
Age: 26-45 **Sex:** Female **Stature:** Could not be assessed
Dental inventory:

						K									
-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-
-	P	P	-	-	P	P	P	/	/	P	/	P	P	P	P
	K	K			K	C	K			K		K	K	K	K
						K									

Dental Pathology: Slight calculus 7/11, heavy calculus 4/11 DEH 9/11, slight periodontal disease in left molar region
Skeletal pathology: DJD in both hips, cribra orbitalia (type 3) (L)
Non-metric traits present: Supraorbital foramen (L), single facet form in tibia

Skeleton number: 10814

Completeness: <25% **Preservation:** Poor

Age: Adult **Sex:** Unidentified **Stature:** Could not be assessed

Dental inventory:

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology: No dentition present

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present.

Skeleton number: 10922

Completeness: 75-100% **Preservation:** Fair

Age: 26-35 **Sex:** Male **Stature:** 170.7 cm

Dental inventory:

	K	K	K	K	K				K		K	K			K
		C										C			C
/	P	P	P	P	P	/	/	/	P	R	P	P	X	X	P
/	X	X	P	P	P	/	/	P	/	P	P	P	P	P	U
				C								C		C	
				K	K			K		K	K	K			

Dental Pathology: Slight calculus 15/19, caries 6/19 (2 small lesions/5 medium lesions), AMTL 4, DEH 1/19

Skeletal pathology: Schmorl's nodes in thoracic spine, cribra orbitalia (type 3) (L and R)

Non-metric traits present: Zygomatic facial foramen (L), auditory torus (L and R), double facet on atlas

Skeleton number: 10949

Completeness: <25% **Preservation:** Good

Age: Perinatal **Sex:** Unidentified **Stature:** Not known

Dental inventory: No dentition present.

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental Pathology: No dentition present

Skeletal pathology: No pathology present

Non-metric traits present: No non-metric traits present

Chapter 19: Radiocarbon Results

A total of 17 radiocarbon dates were initially obtained on samples from the Cotswold Community excavations. These dates were obtained by the University of Oxford Radiocarbon Accelerator Unit, and the results are presented below, by phase. Six further dates were obtained by the Scottish Universities Environmental Research Centre AMS Facility (SUERC) and these are presented after those from Oxford.

The uncalibrated dates are in radiocarbon years BP (Before Present - AD 1950) using the half life of 5568 years. Isotopic fractionation has been corrected for using the measured $\delta^{13}C$ values quoted (to ± 0.3 per mil relative to VPDB). For details of the chemical pretreatment, target preparation and AMS measurement see *Radiocarbon* **46** (1) 17-24, 155-63, and *Archaeometry* **44** (3 Supplement 1), 1-149.

Calibration has been done using OxCal v4.0.5 (Bronk Ramsey 2007); r:5 IntCal04 atmospheric curve (Reimer *et al.* 2004).

PHASE 1-2A (MIDDLE TO LATE NEOLITHIC)
(FIG. 19.1)

OxA-17612 SKCC02<355> (8698), charred nutshell, *Corylus avellana* d13C=-24.08 4383 ± 29

68.2% probability
3022 BC (68.2%) 2926 BC
95.4% probability
3090 BC (16.8%) 3043 BC
3036 BC (78.6%) 2914 BC

OxA-17619 SKCC03<740> (17024), charred nutshell, *Corylus avellana* d13C=-28.40 3999 ± 29

68.2% probability
2566 BC (46.4%) 2524 BC
2496 BC (21.8%) 2476 BC
95.4% probability
2575 BC (95.4%) 2469 BC

PHASE 3-3/4 (MIDDLE TO MIDDLE/LATE BRONZE AGE)
(FIG. 19.2)

OxA-17608 SKCC99<23> (2047), charred seeds, *Triticum* sp. d13C=-23.65 3193 ± 28

68.2% probability
1494 BC (68.2%) 1436 BC
95.4% probability
1512 BC (95.4%) 1416 BC

OxA-17609 SKCC99<42> (3240), charcoal, *Rhamnus* d13C=-26.57 3004 ± 27

68.2% probability
1311 BC (68.2%) 1210 BC
95.4% probability
1376 BC (9.7%) 1338 BC
1320 BC (81.5%) 1154 BC
1146 BC (4.3%) 1129 BC

OxA-17611 SKCC00<225> (4900), charcoal, *Maloideae* d13C=-25.09 3060 ± 29

68.2% probability
1390 BC (68.2%) 1303 BC
95.4% probability
1412 BC (95.4%) 1262 BC

OxA-17617 SKCC03<675> (18077), charcoal, *Alnus glutinosa* d13C=-25.17 3053 ± 27

68.2% probability
1386 BC (68.2%) 1296 BC
95.4% probability

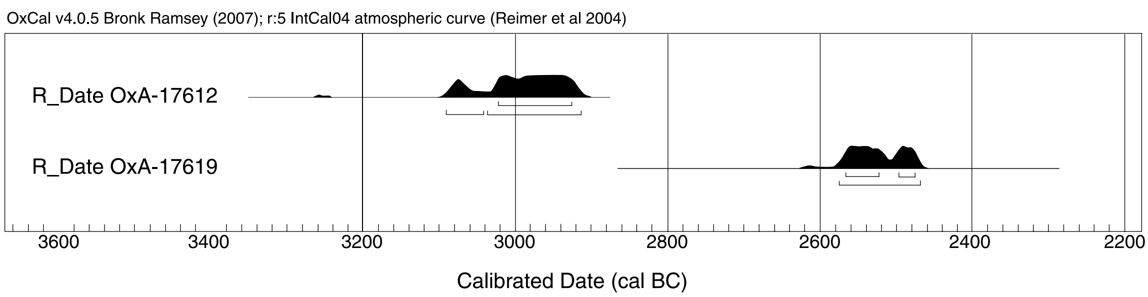

Figure 19.1 Calibrated radiocarbon dates for Phase 1-2a

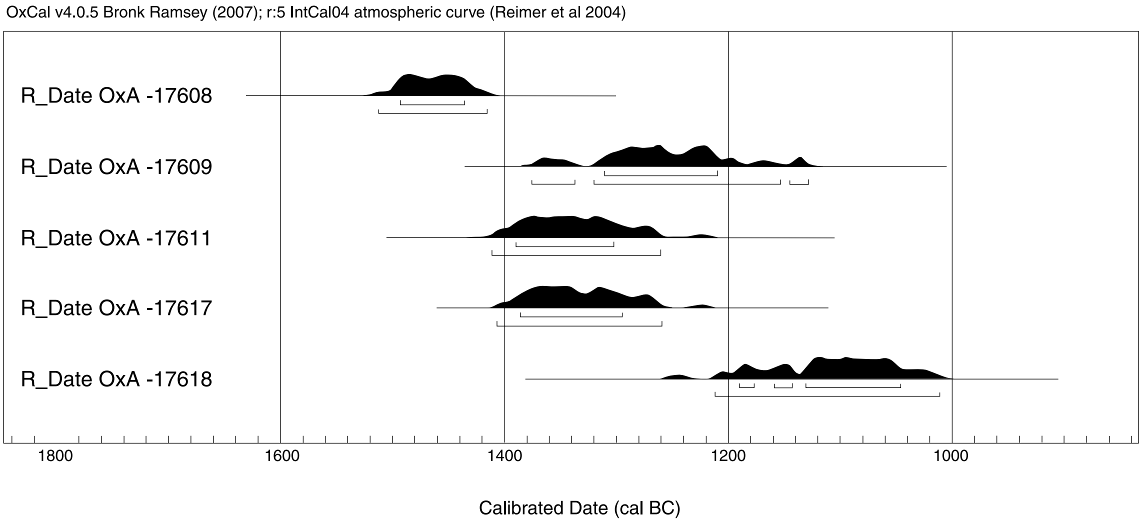

Figure 19.2 Calibrated radiocarbon dates for Phase 3 and 3/4

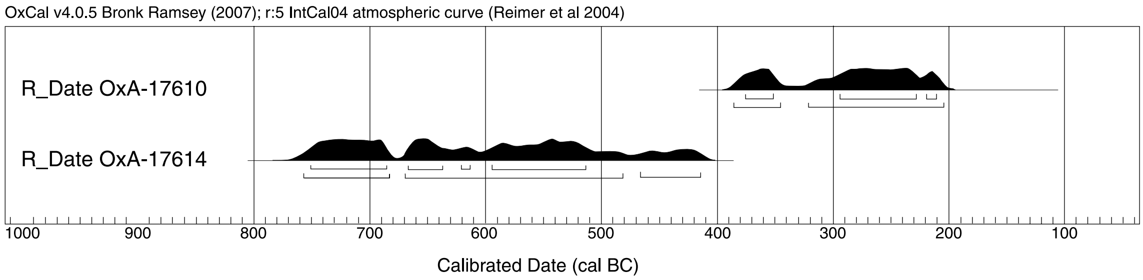

Figure 19.3 Calibrated radiocarbon dates for Phase 4 and 5

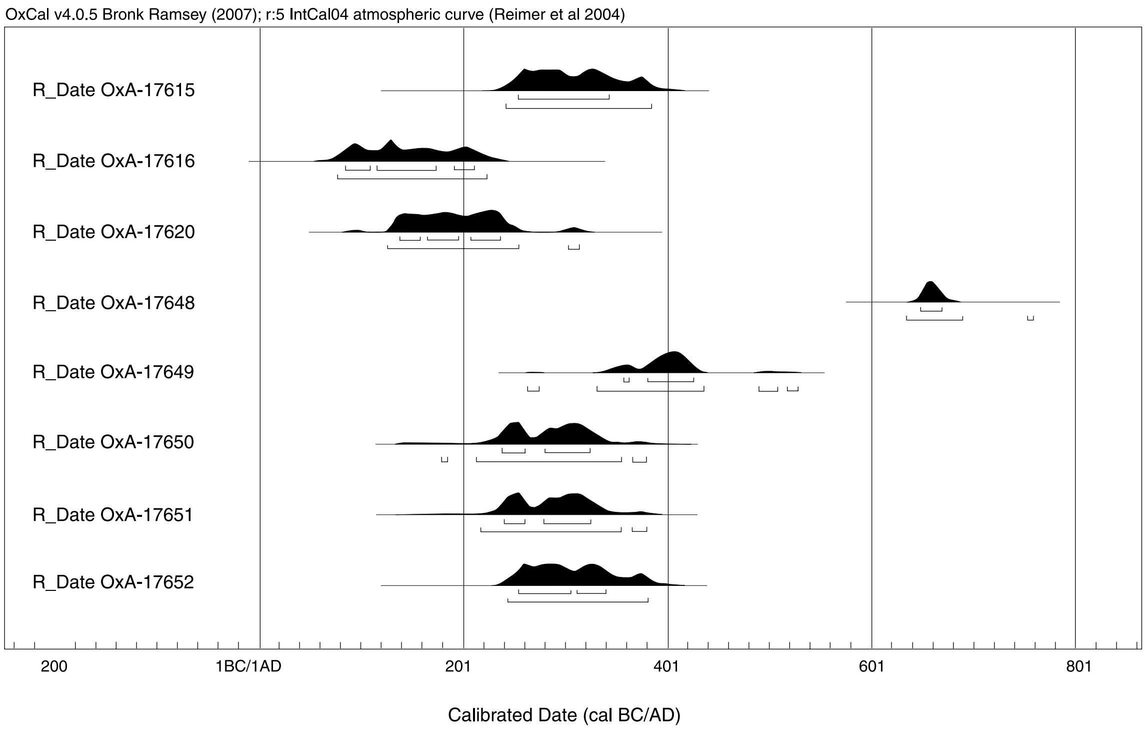

Figure 19.4 Calibrated radiocarbon dates for Phases 7, 8, 9 and 10

1408 BC (95.4%) 1260 BC

OxA-17618 SKCC03<696> (18299), charred seeds, *Triticum* cf. *Dicoccum* d13C=-23.53 2913 ± 27

68.2% probability
1190 BC (5.9%) 1178 BC
1160 BC (7.2%) 1144 BC
1131 BC (55.2%) 1047 BC
95.4% probability
1212 BC (95.4%) 1012 BC

PHASE 4 TO 5 (EARLY TO MIDDLE IRON AGE)
(FIG. 19.3)

OxA-17610 SKCC00<107> (4269), charred seeds, *Triticum* d13C=-21.68 2233 ± 26

68.2% probability
376 BC (15.8%) 352 BC
294 BC (47.5%) 229 BC
220 BC (4.9%) 212 BC
95.4% probability
386 BC (23.2%) 346 BC
322 BC (72.2%) 206 BC

OxA-17614 SKCC02<391> (9974), charcoal, *Alnus* d13C=-27.30 2464 ± 27

68.2% probability
751 BC (26.6%) 686 BC
667 BC (11.4%) 638 BC
621 BC (1.8%) 614 BC
594 BC (28.5%) 514 BC
95.4% probability
757 BC (28.7%) 683 BC
670 BC (56.7%) 482 BC
466 BC (10.1%) 415 BC

PHASE 7 TO 10 (LATE IRON AGE/EARLY ROMAN TO SAXON)
(FIG. 19.4)

OxA-17615 SKCC03<604> (11700), charred seeds, *Triticum* d13C=-22.96 1731 ± 26

68.2% probability
255 AD (68.2%) 343 AD
95.4% probability
243 AD (95.4%) 384 AD

OxA-17616 SKCC03<638> (14999), charred seeds, *Triticum* d13C=-22.90 1866 ± 26

68.2% probability
86 AD (17.1%) 109 AD
116 AD (38.7%) 174 AD
192 AD (12.4%) 211 AD
95.4% probability
78 AD (95.4%) 224 AD

OxA-17620 SKCC03<774> (19812), charred seeds, *Triticum* sp. d13C=-21.89 1815 ± 26

68.2% probability
139 AD (15.8%) 158 AD
166 AD (25.5%) 196 AD
208 AD (26.9%) 237 AD
95.4% probability
127 AD (93.8%) 255 AD
304 AD (1.6%) 314 AD

OxA-17648 SKCC99 (2476), bone, *Homo sapiens* d13C=-19.27 1361 ± 24

68.2% probability
649 AD (68.2%) 669 AD
95.4% probability
635 AD (94.8%) 690 AD
754 AD (0.6%) 759 AD

OxA-17649 SKCC03 10511, bone, *Homo sapiens* d13C=-19.73 1651 ± 24

68.2% probability
358 AD (3.5%) 363 AD
382 AD (64.7%) 426 AD
95.4% probability
264 AD (1.1%) 274 AD
332 AD (90.9%) 436 AD
490 AD (2.3%) 508 AD
518 AD (1.1%) 528 AD

OxA-17650 SKCC03 10467, bone, *Homo sapiens* d13C=-18.76 1761 ± 24

68.2% probability
239 AD (23.8%) 261 AD
281 AD (44.4%) 325 AD
95.4% probability
180 AD (0.4%) 185 AD
214 AD (93.7%) 355 AD
366 AD (1.3%) 380 AD

OxA-17651 SKCC03 10635, bone, *Homo sapiens* d13C=-18.24 1758 ± 24

68.2% probability
240 AD (21.7%) 261 AD
280 AD (46.5%) 326 AD
95.4% probability
218 AD (93.8%) 355 AD
366 AD (1.6%) 380 AD

OxA-17652 SKCC03 (10492), bone, *Homo sapiens* d13C=-19.34 1733 ± 24

68.2% probability
255 AD (44.7%) 306 AD
312 AD (23.5%) 340 AD
95.4% probability

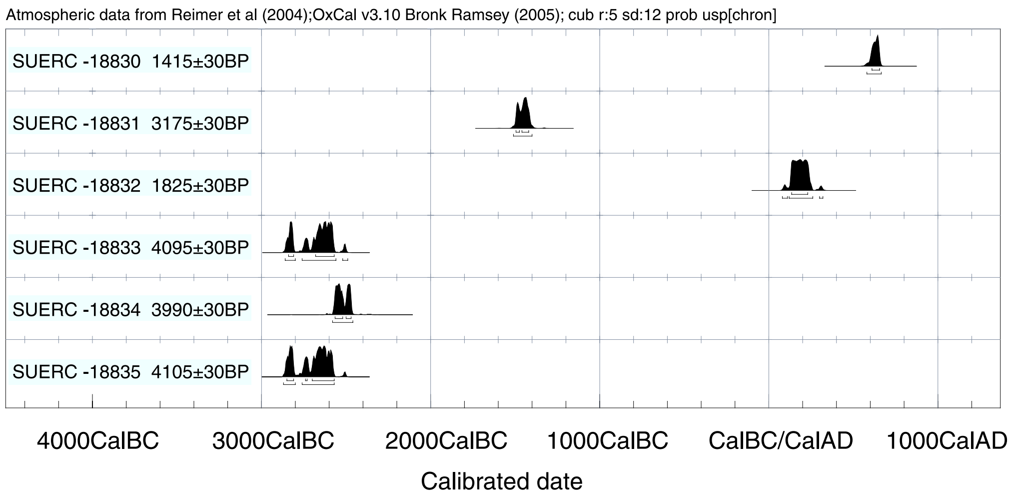

Figure 19.5 Calibrated radiocarbon dates for six SUERC samples

244 AD (95.4%) 382 AD

DATES OBTAINED FROM SCOTTISH UNIVERSITIES ENVIRONMENTAL RESEARCH CENTRE AMS FACILITY
(FIG. 19.5)

SUERC-18830 (GU-16628) SKCC02 Skeleton 10766

68.2% probability
610 AD (68.2%) 655 AD
95.4% probability
580 AD (95.4%) 665 AD

SUERC-18831 (GU-16629) SKCC99 Skeleton 3175

68.2% probability
1495 BC (18.9%) 1475 BC
1460 BC (49.3%) 1420 BC
95.4% probability
1510 BC (95.4%) 1400 BC

SUERC-18832 (GU-16630) SKCC99 Skeleton 2215

68.2% probability
135 AD (68.2%) 230 AD
95.4% probability
80 AD (2.1%) 110 AD
120 AD (92.2%) 260 AD
300 AD (1.1%) 320 AD

SUERC-18833 (GU-16631) SKCC02 Sample (cremated human bone) 647, Context 8377

68.2% probability
2840 BC (13.4%) 2810 BC
2680 BC (54.8%) 2570 BC
95.4% probability
2680 BC (20.6%) 2800 BC
2760 BC (72.5%) 2560 BC
2520 BC (2.3%) 2490 BC

SUERC-18834 (GU-16632) SKCC00 Sample 113 (Charcoal: *Corylus avellana* (hazel)), Context 4050

68.2% probability
2565 BC (42.8%) 2520 BC
2500 BC (25.4%) 2470 BC
95.4% probability
2580 BC (95.4%) 2460 BC

SUERC-18835 (GU-16633) SKCC00 Sample 226 9 Charred Nutshell: *Corylus avellana* (hazel)), Context 5795

68.2% probability
2850 BC (16.2%) 2810 BC
2740 BC (2.3%) 2730 BC
2700 BC (49.7%) 2570 BC
95.4% probability
2870 BC (23.1%) 2800 BC
2760 BC (72.3%) 2570 BC

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