The Archaeology of the Cleeve to Fyfield Water Main, South Oxfordshire: Excavations in 2006–7

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SUMMARY

Excavations in advance of the Cleeve to Fyfield Water Main identified multi-period features at sites on the Berkshire Downs, the Greensand step and the Corallian Ridge. The earliest evidence was a Beaker pit at Hagbourne Hill and an early to middle Bronze-Age pit at Cleeve. The most extensive Iron-Age remains along the pipeline were at Milton Hill, where an early to middle Iron-Age settlement with roundhouses, pits and a possible enclosure was discovered. The Milton Hill site was also occupied during the Roman period. Further Iron-Age and Roman remains were identified on the Corallian Ridge near to the Marcham/Frilford Iron-Age and Roman religious complex. Possible Anglo-Saxon sunken-featured buildings were found near Drayton.

Between May 2006 and May 2007 Cotswold Archaeology undertook archaeological recording along the Cleeve to Fyfield Water Main on behalf of Thames Water Utilities (SU 6070 8165–SP 4250 0015; Fig. 1). The pipeline was constructed in two stages: Cleeve to Hagbourne Hill (17 km) and Hagbourne Hill to Fyfield (17 km). The route began in the Chilterns to the east of the Thames at Cleeve, near Goring. After descending to cross the Thames, it rose to run broadly north-westwards along the northern edge of the Berkshire Downs as far as Lollingdon Hill. Here it descended northwards and then westwards across lowlands at the base of the chalk scarp. From Upton the pipeline re-ascended the Downs to Hagbourne Hill reservoir where it descended northwards to Milton Hill on the Greensand step. Beyond Milton Hill the route continued north-westwards across the vale of the River Ock before ascending the slight rise of the Corallian Ridge and terminating to the south of Fyfield.

In the Chilterns and Berkshire Downs the underlying geology comprises Cretaceous Upper Chalk deposits, whilst that of the lowlands to the north of the Downs is Cretaceaus Upper Greensand, Peistocene Head and Younger Coombe deposits. The Ock vale includes superficial Pleistocene alluvial deposits and the Corallian Ridge is formed from beds of Jurassic Corallian limestone and sand.[1]

Four major episodes of previous and ongoing archaeological work have been undertaken in the vicinity of the pipeline. In 1989 excavations were undertaken along the Cleeve to Didcot pipeline, which is closely followed by the eastern part of the present route (Fig. 1).[2] Towards the northern end of the scheme geophysical survey and evaluation trenching took place at

[1] Geological Survey Map of England and Wales, 1:50,000 (solid and drift), sheet 253 (1971 edn).

[2] S. Ford, 'The Archaeology of the Cleeve–Didcot Pipeline, South Oxfordshire, 1989', *Oxoniensia,* 55 (1990), pp. 1–40.

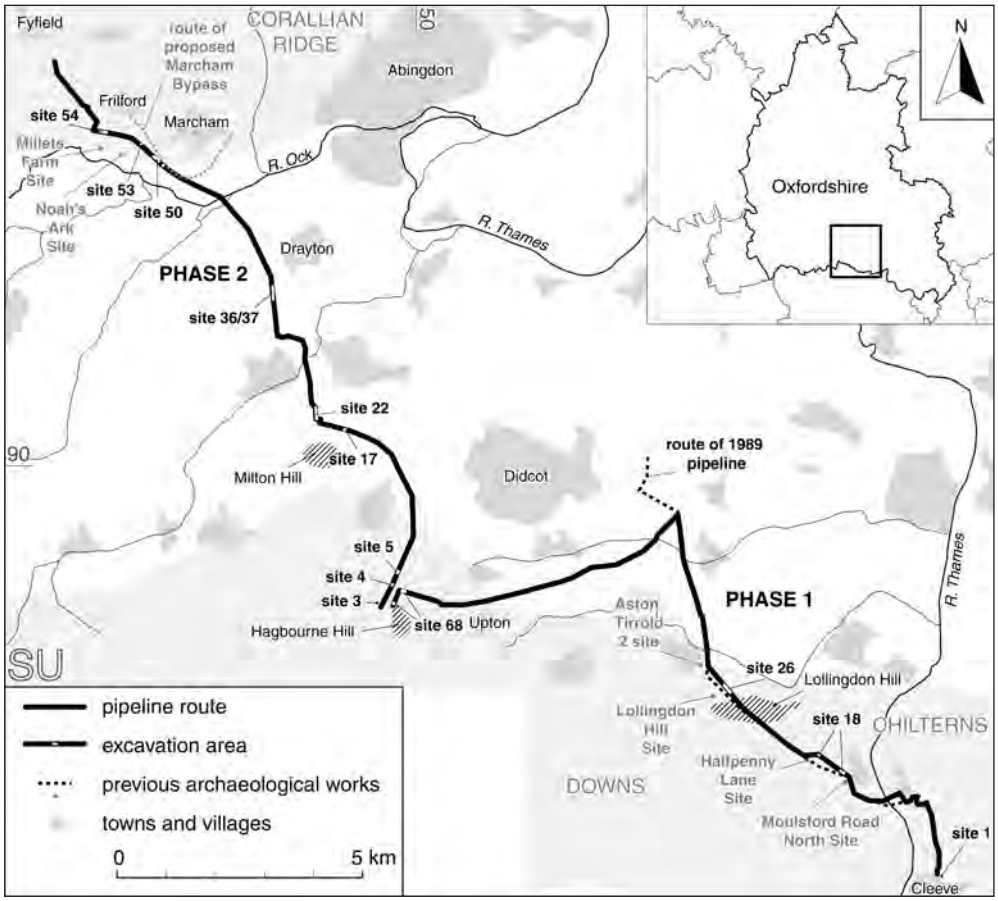

Fig. 1. Pipeline route (1:150,000). Key to sites: 1 Cleeve; 18 Moulsford Downs; 26 Lollingdon Hill; 68 Hagbourne Hill; 3, 4, 5 Harwell Field; 17 Milton Hill; 22 Milton Hill North; 36/7 land south-west of Drayton; 50 land south of Marcham; 53 land south-west of Marcham; 54 Millets Farm, Frilford.

Millets Farm, Frilford and along the proposed route of the Marcham bypass (Fig. 2).[3] Excavations have also been undertaken at the Noah's Ark site at Marcham/Frilford.[4]

FIELDWORK METHODOLOGY

Various archaeological sites were identified by a preliminary desk study and review of existing aerial photographic coverage along the proposed pipeline route.[5] At each of these sites the

[3] W. Wintle, 'Becoming Romano-British: The Landscape of the Late Prehistoric and Romano-British Periods in the Vale of the White Horse', University of Oxford D.Phil. thesis (2012); TVAS, 'Millets Farm, Frilford, Oxfordshire: An Archaeological Desk-Based Assessment', unpublished report (2007); TVAS, 'Millets Farm, Frilford, Oxfordshire: An Archaeological Evaluation', unpublished report (2008).

[4] Z. Kamash et al., 'Continuity and Religious Practices in Roman Britain: The Case of the Rural Religious Complex at Marcham/Frilford, Oxfordshire,' *Britannia*, 41 (2010), pp. 95–125.

[5] Lang Hall Archaeology, 'Cleeve to Hagbourne Hill Water Main, Oxfordshire: A Design and Brief for Archaeological Monitoring', unpublished report (2006); Lang Hall Archaeology, 'Hagbourne Hill to Fyfield

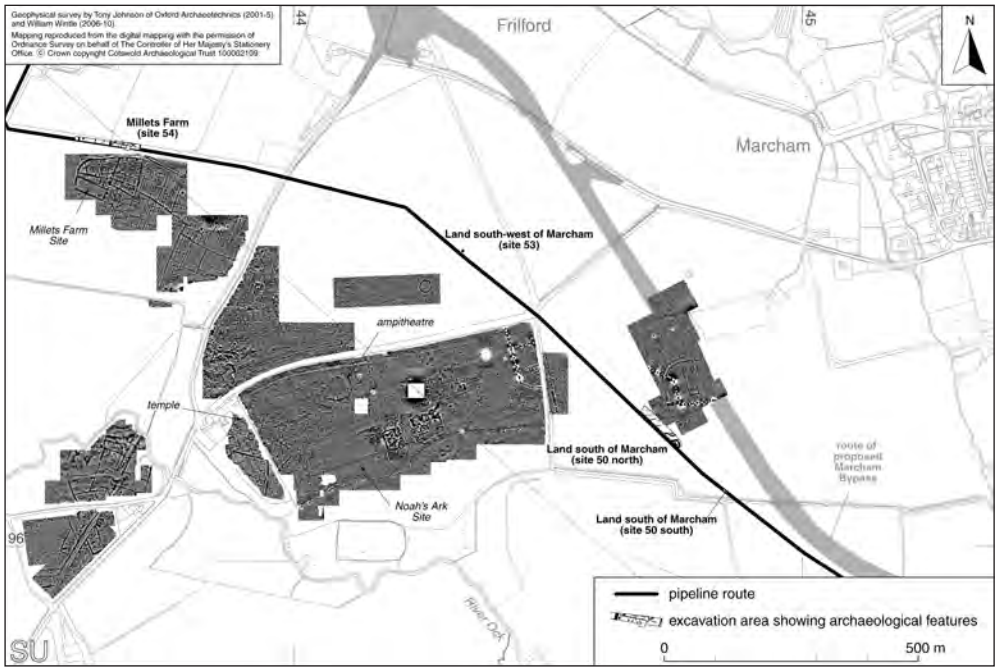

Fig. 2. Previous archaeological recording in the Marcham/Frilford area.

topsoil and subsoil along the centre line of the pipe trench was excavated under archaeological supervision to a width of 1.8 m by a mechanical excavator equipped with a toothless bucket. Where archaeological features were exposed, a site-specific recording strategy was determined at site meetings with the Oxfordshire County Council Archaeological Officer and the archaeological advisor to Thames Water Utilities. This frequently resulted in the archaeological investigation of a wider area than just the pipe trench. A large pennanular/ring ditch was preserved in situ after agreement was reached to move the centre line of the pipe trench. A watching brief was undertaken along the whole of the pipeline route.

DISCUSSION by JONATHAN HART

The recording along the pipeline provides a narrow transect across the archaeology of different landscapes along the northern edge of the Berkshire Downs, Oxfordshire upper Thames valley and Corallian Ridge. The discoveries made provide another example of the potential of linear schemes to amplify the results of more targeted archaeological recording, which in Oxfordshire has had a bias towards the valley gravels. Inevitably the narrow width of the excavations and the restricted number of features excavated hinder interpretation. Attempts have been made to phase many undated or poorly dated features on the basis of their morphological characteristics or spatial relationships with better dated features, but these can only be considered as provisional interpretations.

Water Main, Oxfordshire: A Design and Brief for Archaeological Monitoring', unpublished report (2006); Air Photo Services, '4RVF Hagbourne Hill to Fyfield Main, Oxfordshire: Air Photo Interpretation for Archaeology', unpublished report (2006).

Late Neolithic to Late Bronze Age/Early Iron Age (c.2400–500/400 BC)

Residual worked flint was recovered from several sites but none seems earlier than the later prehistoric period and evidence for Palaeolithic and Mesolithic activity is absent. Sites containing late-Neolithic to late Bronze-Age/early Iron-Age features and finds are restricted to the uplands, but this probably reflects nothing more than the fact that much of the pipeline route traverses higher ground. A Beaker pit at Harwell Field (Site 3), near Hagbourne Hill on the Berkshire Downs, is the earliest feature excavated along the pipeline route. No other features of this date have been reported previously from Hagbourne Hill, although the tumulus on its southern edge is potentially Bronze Age.[6] The pit contained Beaker pottery, flint tools and debitage, burnt animal bone and a possible hand rest for a bow drill, a combination possibly suggestive of structured deposition. The few parallels for the latter object are largely from funerary contexts (Roe, below), suggesting that this class of artefact might have had a ritual significance. At Cleeve (Site 1) a pit with late-Neolithic/early Bronze-Age flint tools and scraps of early to middle Bronze-Age pottery might also be an example of structured deposition. Neolithic or Bronze-Age pottery has previously been found 250 m to the west.[7]

Further Bronze-Age features were found on the Downs at Lollingdon Hill (Site 26) and on the Greensand step at Milton Hill North (Site 22). At Lollingdon Hill there were three middle Bronze-Age pits and a ditch, and the presence of residual middle Neolithic pottery and Neolithic or early Bronze-Age flint flakes suggests further activity in the vicinity. Notable in this respect are fragments of Neolithic stone axes and an early Bronze-Age flint arrowhead found in a ditch within a dump of worked flint and flint pebbles containing middle Bronze-Age pottery. This ditch persisted as an earthwork into the Roman period and may have been a locally significant landmark. At Milton Hill North six small late Bronze-Age pits were found and earlier occupation is suggested by a single Beaker fine ware sherd in a later feature.

Only a few features dating to the period *c*.800–500/400 BC were found. Three ditches near the western foot of Hagbourne Hill at Harwell Field (Site 4) were possibly part of a long-lived boundary, itself potentially part of the late Bronze-Age/early Iron-Age 'Celtic fields' recorded elsewhere on the Berkshire Downs.[8] On the Corallian Ridge south-west of Marcham (Site 53) there was a late Bronze-Age or early Iron-Age spread and two pits. A similar lack of features of this date was reported from the Cleeve to Didcot pipeline, although pottery of this date from Halfpenny Lane suggests that the middle Iron-Age occupation there had earlier origins.[9]

Iron Age (c.500/400 BC–AD 50)

Iron-Age remains were found at Moulsford Downs and Hagbourne Hill on the Berkshire Downs (Sites 18 South and 68 respectively), at Milton Hill and Milton Hill North on the Greensand step (Sites 17 and 22 respectively), and south of Marcham and at Millets Farm, Frilford, on the Corallian Ridge (Sites 50 and 54 respectively).

The most extensive discoveries were at Milton Hill North. Here an early to middle Iron-Age settlement comprised roundhouses, pits and a possible enclosure (Fig. 6). The roundhouses survived only as ring gullies and this posed the usual difficulty in establishing whether the gullies were foundation trenches or eaves drips.[10] Examples of both are recorded in the upper Thames valley and the limited excavation undertaken at Milton Hill North prevents any definitive interpretation, although eaves drips are possibly a feature of poorly drained locations such as this. If eaves drips are represented they would have surrounded houses a little under

6 HER, PRN 7450.
7 Ibid. PRN 2039.
8 D. Miles, 'Conflict and Complexity: The Later Prehistory of the Oxford Region,' *Oxoniensia*, 62 (1997), p. 10.
9 Ford, 'The Archaeology of the Cleeve–Didcot Pipeline', p. 26.
10 For example, D.W. Harding, *The Iron Age Roundhouse: Later Prehistoric Buildings in Britain and Beyond* (Oxford, 2009), p. 75.

10 m in diameter. Roundhouses 1, 3 and 4 had east-facing entrances, an orientation common across the region which has been interpreted as a pragmatic compromise between maximising light and minimising wind exposure, but also as an orientation with mystical significance.[11] That these interpretations are not mutually incompatible is a reminder that the mundane and the mystical were probably not segregated in the Iron-Age mind.

The pipeline only provides a 'keyhole' view of the settlement, although it is likely that its full extent along a north–south axis was exposed, allowing some conclusions to be drawn about its morphology and development. The settlement comprised roundhouses and dense pit clusters. Roundhouse 1 was separated from the remainder of the settlement by Boundary 1, possibly a hedge-topped bank. Stone pads to the north of this boundary may have been associated with an entrance which could have been quite imposing. The pits were largely restricted within dense clusters 100 m north of Boundary 1 and the intervening area contained few features, save a few small pits/post holes including pit burial 22386. The northern pit clusters contained no stored grain and had been deliberately backfilled, a common occurrence. The storage pits suggest that arable farming was a significant part of the site economy, but pastoralism may also have been important. Clear evidence for stock management was absent although Enclosure 1 could have penned livestock. A mixed economy would have been facilitated by the settlement location on the Greensand step which provided ready access to both the Downs and the Vale of White Horse.

A number of the pits contained interesting deposits. One of the storage pits (22316) contained an infant burial; a second infant burial with two burnt stones beneath the pelvis was found within shallow pit 22385; there was a large dump of animal bone in pit 22644; and a half-intact pot had been placed broken side down on the base of pit 2220. Pit 2220 was grave-shaped and although it contained no human remains, it is conceivable that the inverted pot was placed in lieu of a body. The abnormal pathology exhibited by some Iron-Age inhumations has been suggested as a factor determining their treatment by burial as opposed to excarnation, but the periostitis present in both individuals here was slight and it may be that their age (both died between birth and two months) was more of a determinant.[12] Both burials were laid in a flexed position, which is the most common posture for inhumations of this date.[13]

The transect provided by the pipeline suggests one or more dwellings south of a boundary, storage areas towards the northern edge of the hill and a largely open area in between. There was no evidence that the settlement was enclosed, although the possibility of some form of boundary which left no trace cannot be discounted and the Iron-Age ditches found on the south-eastern edge of the hill at Milton Hill (Site 17) may have partially enclosed that part of the hilltop. Broadly comparable settlement morphology has been recorded at Gravelly Guy, Stanton Harcourt and Finmere; at the latter site, Iron-Age pits and roundhouses were aligned along a boundary ditch but were otherwise apparently unenclosed.[14]

The phasing of Milton Hill North is problematic, given the restricted number of features that were excavated, but most of the pottery falls in the period from the fifth to third centuries BC, although some late Iron-Age wares indicate continuing activity. The late Bronze-Age pits and the residual Beaker fine ware sherd show that the hill was occupied even earlier, although

[11] A. Oswald, 'A Doorway on the Past: Practical and Mystical Concerns in the Orientation of Roundhouse Doorways', in A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies: New Approaches to the British Iron Age*, Oxbow Monograph, 71 (1997), p. 87.

[12] T. Moore, *Iron Age Societies in the Severn-Cotswolds: Developing Narratives of Social Landscape Change*, BAR BS, 421 (2006), p. 112.

[13] R. Whimster, *Burial Practices in Iron Age Britain: A Discussion and Gazetteer of the Evidence c.700 BC–AD 43,* BAR BS, 90 (1981), p. 191; Moore, *Iron Age Societies,* p. 111.

[14] J. Hart et al., 'Excavation of Early Bronze-Age Cremations and a Later Iron-Age Settlement at Finmere Quarry, North-East Oxfordshire', *Oxoniensia*, 75 (2010), pp. 101–2; G. Lambrick and T. Allen, *Gravelly Guy Stanton Harcourt: The Development of a Prehistoric and Romano-British Community,* Thames Valley Landscapes Monograph, 21 (2004), fig. 1.4.

whether this occupation was continuous is unclear. Although few late Iron Age features were excavated, at least as many roundhouses were present in that period as during the early to middle Iron Age, and it is conceivable that some features ascribed to the early to middle Iron Age were in fact late Iron-Age features containing residual pottery. The settlement was certainly re-organized during the late Iron Age with the construction of Roundhouses 3 and 4, the former possibly set within its own enclosure. The settlement had been abandoned by the first century AD, by which time a few Iron-Age features survived only as hollows into which small quantities of Roman pottery collected.

An Iron-Age pit at Hagbourne Hill (Site 68) contained large, unabraded sherds from at least five early Iron-Age pottery vessels and a partially burnt red deer antler which yielded a radiocarbon date of 749–404 cal BC (Table 1, R32369/9). Although an isolated feature on the pipeline route, the pit is likely to have been associated with the early Iron-Age settlement previously recorded at Hagbourne Hill Farm, 200 m distant.[15]

The remaining Iron-Age occupation was found on the Corallian Ridge. South of Marcham (Site 50) pits and post holes dated to the period *c*.500/400–200 BC (Fig. 8). Truncation on this site seems to have been significant, and some features may have been lost entirely. Although generally only the basal parts of the pits survived, these may originally have been comparable to the storage pits at Milton Hill North. Pit 5050 contained a young adult ?male (burial 5049) radiocarbon dated to 362–176 cal BC and buried in a flexed position on the pit base (Fig. 9; Table 1, R32369/6). No late Iron-Age pottery was recovered from this site and occupation had ceased by that time, in the near vicinity at least. The south-easternmost extent of occupation is perhaps marked by Ditch 8, which had been re-cut at least once, and would therefore seem to have been an enduring and significant part of the settlement topography. It certainly marked the limit of the storage pits and post holes along the pipeline route, and the absence of Iron-Age features to the north-west of the excavation area suggests that the focus of activity lay 150 m east where geophysical survey and evaluation in advance of the proposed Marcham bypass found steep-sided pits and ditches containing late Bronze-Age or early Iron-Age pottery.[16] The pottery from the bypass evaluation and the pipeline site is comparable and suggests either an extensive settlement extending over a distance of 150 m or else a number of smaller settlements suggestive of shifting occupation.

The penannular/ring ditch to the south-west of Ditch 8 was not excavated, and any interpretation is therefore limited. One possibility is that it was part of an earlier monument, such as a henge or barrow, which was respected by the Iron-Age settlement. In that case Ditches 7 and 8 may have separated the settlement from a liminal area containing the existing monument. Alternatively the monument may date to the early to middle Iron Age. Penannular ditches of this date are known from other sites in the upper Thames valley and beyond, where they take the form of a substantial ditch with a single entrance gap enclosing a small area. Those at Pennylands (Bucks.) lacked internal features and were interpreted as stock corrals, and a similar enclosure at Finmere may have had an external bank which would be consistent with this interpretation.[17] The oval pit within the monument at Marcham was not excavated and might not have been an associated feature. Another possible function for these Iron-Age enclosures is that they contained structures possessing unusual status, such as religious buildings. Either interpretation would accord with the propensity of these features to be located at a slight distance from the remainder of the settlement.

At Millets Farm, Frilford, a slight rise was chosen for the Iron-Age settlement. Its easternmost extent was possibly defined by a hedge and ditch, and a tree-throw pit just inside the entrance

15 HER, PRN 16142.

16 Wintle, 'Becoming Romano-British'.

17 R.J. Williams, *Pennyland and Hartigans: Two Iron Age and Saxon Sites in Milton Keynes*, Buckinghamshire Archaeological Society Monograph Series, 4 (1993), p. 19; Hart et al., 'Excavation of Early Bronze-Age Cremations', p. 103.

may mark a local waymark in an otherwise fairly undramatic landscape (Fig. 10). This boundary survived, at least as an earthwork, into the Roman period but no comparable western boundary to the site was identified, although this could have been entirely removed by the Roman western boundary Ditch 1. Post holes and a possible beam slot near the western site boundary perhaps indicate the location of a structure. The economic basis of the site is difficult to determine on the basis of this limited evidence, but its location would have provided access to land adjoining the Ock and to drier ground on the Corallian Ridge. The full extent of the Iron-Age settlement appears to have been exposed along the east–west axis of the pipeline, although enclosures identified immediately to the south of the pipeline route through geophysical survey and trial trenching seem to be broadly contemporary with the late Iron-Age and Roman occupation at the pipeline site (Fig. 2).

Roman

Roman remains were identified on the Downs at Moulsford Downs and Lollingdon Hill (Sites 18 South and 26), on the Greensand step at Milton Hill and Milton Hill North (Sites 17 and 22), and on the Corallian Ridge at Millets Farm, Frilford. In addition, a Roman pit and possible trackway were found south of Marcham (Site 50) and small quantities of Roman finds were recovered from subsoil and topsoil deposits at the sites south-west of Drayton and south-west of Marcham (Sites 36/37 and 53).

Lollingdon Hill contained a small number of middle Bronze-Age features but seems subsequently to have been abandoned until the late Iron-Age/early Roman period. Only one of the diagnostic Iron-Age pottery sherds from the site was earlier than the late Iron Age. The restricted number of late Iron-Age/early Roman features lay at the northern end of the site, towards the base of the hill, although the majority of occupation dated to the third to fourth centuries AD (Fig. 3). Pottery in the upper fill of middle Bronze-Age Ditch 6 shows that it remained as an earthwork into the Roman period and perhaps influenced the alignment of the Roman features, including Ditches 1 and 2 which may have delineated a boundary augmented by a bank. This boundary would have been suitable for keeping out stock and so may explain the relatively open nature of the southern part of the settlement. The greatest density of late Roman features lay to the north of this boundary and included pits, post holes and a possible enclosure. Despite the limited extent of the excavation, there was evidence for possible structured deposition within three pits. Storage pit 26109 included the disarticulated remains of two infants whilst two pits flanking post hole 2683 contained a human cranium and a late Iron-Age/early Roman brooch. The significance of the latter object is possibly increased by its apparent status as an heirloom item. Perhaps the post hole held a post or pole with ritual significance? The northern limit of the zone occupied by pits is marked by Ditches 3 and 2674 and these may have defined enclosures adjoining the northern end of the settlement. These possible enclosures contained no structural remains, although small quantities of Roman brick and tile were recovered from the site. It is possible that buildings were located within the enclosures, but equally the narrow gap between Ditches 3 and 2674 is comparable to the entrances at field corners suitable for moving livestock between fields.[18] A waterhole further supports the presence of stock, in which case Ditch 3 would have required an additional stock-proof barrier such as a thorn hedge. Pottery from the uppermost fill of the waterhole indicated that it had fallen out of use by the fourth century AD and this seems to mark the end of occupation at Lollingdon Hill.

At Milton Hill North the Iron-Age settlement was abandoned by the first century AD and thereafter this part of the hill was bisected by a series of ditched boundaries of a kind also found on the other side of Milton Hill at Site 17 (Figs. 4 and 7). These boundaries were only recorded

[18] F. Pryor, *Farmers in Prehistoric Britain* (Stroud, 1999), p. 101.

over very small areas but might have defined fields similar to those on the Downs at Streatley Warren, 11 km to the south-east, which survived into the twentieth century as earthwork banks.[19] An enclosure (Enclosure 2) contained no structural remains but might potentially have contained cob-walled buildings, although the small entrance gap is again suggestive of stock management. In either case, the relatively large and unabraded Roman pottery assemblage from this site indicates occupation nearby and contrasts to the abraded sherds collected from the Downs 20 km to the south-west during the Maddle Farm Project which were thought to have been deposited during the manuring of fields.[20] If buildings were present on or near the site, it seems unlikely that these would have had tiled roofs since only three fragments were recovered.

The field boundaries at Milton Hill North were frequently re-cut and this fits with the pottery assemblage which extends into the fourth century with no apparent break from the earlier Roman activity. Although some internal re-organization of the site was undertaken, it retained its essential characteristics throughout the Roman period and when Enclosure 2 was abandoned, it was replaced by a similar enclosure (Enclosure 3) in broadly the same location.

A well (2247) was found within one of the fields and pottery from its lining indicates that it was constructed when these were first laid out, possibly to provide water for livestock, and was backfilled during or after the third century. Although most of the Roman ditches appear to have filled naturally, a few contained notable finds. A slingshot from a ditch and a glass bead from a pit might be incidental inclusions, and disarticulated infant bones from a ditch might have been disturbed from an adjacent Iron-Age burial. Clearer evidence for special deposition comes from a grave-like pit (22464) and a grave (22388), both cut into the upper fill of one of the field boundaries at the northern end of the site. Pit 22464 contained no human bone or special finds and had been backfilled before the overlying grave was cut. How these features related to one another is obscure, but their apparent concomitance is striking and it is possible that they were part of a single ceremony. A possible parallel was recorded at Rudgeway Lane (Glos.), where a grave-like pit lacking a burial had been re-cut by a smaller pit containing a Roman sheep burial.[21] Prone burials such as the adult male in grave 22388 have been interpreted as a special practice with possible negative associations.[22] This prone burial was accompanied by grave goods including two prehistoric hammerstones, one of which had been re-used as a Roman-style polisher. The collection of this prehistoric material during the Roman period and its subsequent selection for burial adds a further dimension to the ritual activity within the settlement. It may be significant that the well backfill and the grave features are amongst the latest deposits present and could therefore relate to the closure of the site. This might also be true of the latest fill of ditch 22325, which was unique on site in possessing a notably dark and finds-rich fill. Although the pottery from this fill dated to the first century AD, it is possible that the fill itself was deposited much later.

Further Roman field boundaries were recorded at Moulsford Downs on the edge of the Berkshire Downs. These fields would have lain 500 m east of middle Iron-Age pits, post holes and possible chalk floors at Halfpenny Lane and 200 m north of a late Iron-Age ring ditch, pits, post holes and ditch at Moulsford Road North.[23]

On the Corallian Ridge at Millets Farm, Frilford, late Iron-Age occupation continued into

[19] M. Henig and P. Booth, *Roman Oxfordshire* (Stroud, 2000), fig. 4.14.

[20] V. Gaffney and M. Tingle, *The Maddle Farm Project: An Integrated Survey of Prehistoric and Roman Landscapes on the Berkshire Downs*, BAR BS, 200 (1989), p. 210.

[21] Hart and McSloy, 'Prehistoric and Early Historic Activity, Settlement and Burial at Walton Cardiff near Tewkesbury', in N. Holbrook (ed.), *Iron Age and Romano-British Agriculture in the North Gloucestershire Seven Vale* (Cirencester, 2008), p. 18.

[22] R. Philpott, *Burial Practices in Roman Britain: A Survey of Grave Treatment and Furnishings AD 43–410*, BAR BS, 219 (1991), pp. 71–4.

[23] Ford, 'The Archaeology of the Cleeve–Didcot Pipeline', pp. 4–5, 27–30.

the Roman period (Fig. 10). Iron-Age Boundary 1 remained as the eastern site boundary and there was no apparent break in the ceramic assemblage between the late Iron-Age and the Roman occupation. This earlier Roman activity included both quarry pits dug to extract limestone and storage type pits. From the second century onwards the site was re-organized. Ditch 3 superseded the former Iron-Age boundary and the western extent of activity was marked by Ditch 1. Between these boundaries, Ditch 2 and a hollow way sub-divided the settlement into three areas. The area between Ditches 1 and 2 included a hearth and two possible foundation trenches, perhaps for light structures such as windbreaks. The area between Ditch 2 and the hollow way lacked features, although it is impossible to be certain whether this was a genuinely open area, while the area between the hollow way and Ditch 3 contained a hearth, pits and post holes. Hearth 2 is of a type commonly found on Roman sites and usually associated with cereal processing, although some examples had industrial uses and others may have had multiple functions.[24] No diagnostic material was recovered from samples taken from the hearth. Although no buildings were present, small quantities of CBM were recovered from feature fills and from the topsoil, and fragments of wall plaster and stone in Ditch 1 suggest a building in the vicinity. Pottery and coins, particularly an unworn issue of AD 322–5 from Ditch 1, indicate that occupation continued into the first half of the fourth century. Ditch 1 had been re-cut following the deposition of the coin.

Instances of possible special deposition included rotary quern fragments and an infant's ulna from Ditch 2 and a worked bone item, as well as a toiletry spoon and a possibly curated or heirloom Iron-Age stone weight and the remains of a new-born lamb from various pits. It may be of note that a sheep was buried within the Roman temple at Marcham/Frilford.[25] Of course some or all of these examples might simply represent casual disposal. The new-born lamb provides limited evidence that the site might have been associated with stock-rearing, and taken with the presence of the storage pits, suggests a mixed arable and pastoral economy.

Geophysical survey and trial trench evaluation have been undertaken immediately to the south of the excavation area.[26] This identified a large enclosure *c*.120 by 100 m, sub-divided by internal ditches. Further enclosures adjoining its eastern edge may have been fields and a probable trackway along its northern side might have linked to the putative Roman road beneath the A338. None of the features in the pipeline site can be directly related to this enclosure, which seems to have lain entirely to the south of the trackway, but it is possible that the hollow way linked with the trackway and the north-east to south-west alignment of the ditches is common across both sites. Pottery recovered from the enclosure during the evaluation suggests that it dates to the later Roman period, but Iron-Age pottery and features were also present and in the light of the pipeline work it is likely that occupation commenced during the Iron Age. The remains on the pipeline site are broadly contemporary with the late Roman cemetery 300 m to the south-east and with the Noah's Ark Roman temple complex 600 m away.[27]

Anglo-Saxon

Although the date and character of the features south-west of Drayton (Site 36/37) remain unclear, they are 1.7 km from the Anglo-Saxon site at Drayton, which includes both post-built and sunken-featured buildings,[28] and which is considered to be comparable to the palace at Yeavering, Northumberland.[29] The seventh-century cemetery at Milton II lies 650 m south of

[24] Henig and Booth, *Roman Oxfordshire*, p. 158.
[25] Kamash et al., 'Continuity and Religious Practices', p. 104.
[26] Wintle, 'Becoming Romano-British'.
[27] Ibid. p. 2.
[28] D. Benson and D. Miles, 'Cropmarks near the Sutton Courtenay Saxon Site', *Antiquity*, 48 (1974), pp. 224–5; J. Blair, *Anglo-Saxon Oxfordshire* (Stroud, 1994), pp. 31–2.
[29] H. Hamerow et al., 'Anglo-Saxon and Earlier Settlement near Drayton Road, Sutton Courtenay, Berkshire', *Archaeological Journal,* 164 (2007), pp. 109–96.

the Drayton site and includes high-status burials.[30] Although the features south-west of Drayton were largely unexcavated and interpretation is therefore difficult, their size and plan form are consistent with sunken-featured buildings, which are typically 2.5–4 m long and 2–3.5 m wide, and can vary in plan between sub-rectangular and oval.[31] If they are sunken-featured buildings, it is possible that they were part of a subsidiary settlement to the Drayton 'palace'. A probably authentic charter of AD 958 relating to a grant of land at Drayton mentions a *maer dic* (boundary dyke or ditch).[32] This is surely the 'Mere Dyke' recorded on OS maps which formed the boundary between the parishes of Drayton and Steventon. The dyke lay to the south of the site but no remains were recorded at this location during the watching brief.

Three sherds of fifth to eighth- or ninth-century pottery were found within a post hole at Lollingdon Hill. No other features on the site contained finds of this date but some of the undated features or those containing earlier pottery could potentially be of this date. In particular 'pit' 2617, adjacent to the post hole, is morphologically similar to some sunken-featured buildings, being a sub-circular, flat-based cut 3.2 m long and 0.55 m deep. The post hole might have held one of the gable-end posts often associated with these buildings. Only Roman pottery was found in the pit but this could be residual or curated.[33] The only other remains of this period discovered along the pipeline were two early to middle Anglo-Saxon pottery sherds from the subsoil to the east of Harwell. Remains of this date, including a possible sunken-featured building, were found 500 m to the north-east during an evaluation in 2004.[34]

Continuity and Discontinuity of Settlement

The pipeline has provided a transect across the landscapes of south Oxfordshire revealing occupation from the Neolithic through to the Anglo-Saxon period. The most frequently encountered remains were those of Iron-Age and Roman occupation on the uplands of the Downs and the Corallian Ridge. The early to middle Iron-Age settlement at Milton Hill North continued into the late Iron Age with only minor changes in character. The first century AD brought real change in the way the site was used: the roundhouses and pits fell out of use and were replaced by fields and enclosures. The finds assemblage indicates that the site continued to be occupied, however, and the apparent break seems to reflect a change in land organization rather than total abandonment of the vicinity.

A contrasting situation was recorded on the Corallian Ridge south of Marcham and Millets Farm, Frilford, and on the Downs at Lollingdon Hill. There is little to suggest that the settlement south of Marcham continued beyond the middle Iron Age, although the Roman trackway to the south of the main excavation area shows that this part of the landscape was still utilized. At Millets Farm, Frilford, there are no indications of occupation earlier than the late Iron Age and, once established, the settlement continued into the fourth century in a form that seems to represent organic development rather than any abrupt change. It is tempting to speculate that the population migrated from south of Marcham to Millets Farm. At Lollingdon Hill there is little to suggest occupation between the abandonment of the site in the middle Bronze Age and its re-occupation in the late Iron-Age/early Roman period.

[30] H. Hamerow, 'Anglo-Saxon Oxfordshire, 400–700', *Oxoniensia*, 64 (1999), p. 30.

[31] For example, H. Hamerow, *Excavations at Mucking. Volume 2: The Anglo-Saxon Settlement* (London, 1993), figs. 57–81.

[32] S.E. Kelly (ed.), *Charters of Abingdon Abbey*, 2 vols. (Oxford, 2000-2001), vol. 2, pp. 320-3.

[33] B. Ford, 'Reused Roman Pottery', in R. Chambers and E. McAdam, *Excavations at Radley Barrow Hills, Radley, Oxfordshire. Volume 2: The Romano-British Cemetery and Anglo-Saxon Settlement,* Thames Valley Landscapes Monograph, 25 (2007), p. 257; P. Booth, 'Iron Age and Roman Pottery from Saxon Features', in G. Hey, *Yarnton: Saxon and Medieval Settlement and Landscape,* Thames Valley Landscapes Monograph, 20 (2004), pp. 274–6.

[34] Cotswold Archaeology, 'Great Western Alternative, Didcot, Oxfordshire: Archaeological Evaluation. Addendum to CA Report 02101', unpublished report, 04035 (2004), p. 3.

EXCAVATION RESULTS

The sites are described starting at Cleeve and heading towards Fyfield (Fig. 1).

Cleeve, Goring (Site 1; SU 6060 8168)

This site lies on the Chiltern chalklands on the northern edge of Cleeve. Neolithic or Bronze-Age pottery was found at Elvendon Road 250 m to the west.[35] The only feature was pit 003, a broad, shallow cut 0.75 m wide and 0.15 m deep. It contained a small flint assemblage, including probable late-Neolithic or early Bronze-Age tools, a scrap of fired clay, and six small sherds of pottery broadly dateable to the early to middle Bronze Age. This assemblage may be a product of structured deposition.

Moulsford Downs (Site 18 South; SU 5860 8370)

This site lies on the western edge of the Moulsford Downs at 55–60 m OD. The Moulsford Road North and Halfpenny Lane Iron-Age and Roman sites are located nearby, along with a number of undated cropmarks (Fig. 1).[36] Middle Iron-Age pits, post holes and possible chalk floors were identified along the 1989 pipeline route at Halfpenny Lane, and a late Iron-Age ring ditch, pits, post holes and a ditch at Moulsford Road North. At both sites occupation continued into the Roman period. An area measuring 30 m by 17 m was stripped to the top of the chalk substrate (Site 18 South) and an additional area was cleaned back during the watching brief (Site 18 North). Three intercutting ditches were identified at the south-eastern end of Site 18 South, two on a north-east to south-west alignment, the third on a north-west to south-east alignment. Although the earliest ditches remained undated, the latest contained mid or later first-century AD pottery and it seems likely that together they represent part of a late Iron-Age/first-century AD field system.

Lollingdon Hill, Cholsey (Site 26; SU 5660 8510 to SU 4570 8520); Fig. 3

The site is located on the northern slope of Lollingdon Hill (Fig. 1). Roman remains, including a chalk floor associated with third to fourth-century pottery, were recorded 300 m to the south-west during the construction of the 1989 pipeline.[37] At Aston Tirrold 2, also discovered in that scheme and *c.*1 km north-west of Site 26, a rectilinear field system with post holes and pits dated to the first to second centuries AD.[38]

An area 150 m long and 15 m wide was examined. In addition to the phased features, a middle Neolithic pottery sherd, Neolithic and late-Neolithic/early Bronze-Age flint flakes and late Iron-Age pottery were recovered as residual finds within later features.

Middle Bronze Age (c.1500–1200 BC). Three small pits lay in a cluster at the northern end of the site. Pit 2651 had vertical edges and a rounded base and was 0.95 m wide and 0.45 m deep. It was filled with grey silty clay (2652) which contained cattle teeth and toe bones and thirty-two sherds of middle Bronze-Age pottery. A mixed assemblage of charcoal included the hawthorn group and blackthorn/cherry. The nature of the assemblage suggests ritual deposition. It was cut by a round-profiled pit (2658) which contained residual Neolithic and late-Neolithic or early Bronze-Age flint flakes and tools. A similar round-profiled pit (26119) 10 m to the south-east, contained middle Bronze-Age pottery.

Ditch 6, which had a 'V'-profiled cut 1.7 m wide and 0.85 m deep, crossed the southern end of the site on an east–west alignment. Its lowest fill (26134) contained a dump of worked flint flakes, two fragments from polished Neolithic stone axes, an early Bronze-Age flint arrowhead and flint pebbles along with middle Bronze-Age pottery. This was sealed by a natural silt infill containing frequent unworked flint. The ditch apparently remained as an earthwork into the Roman period since the latest fill also contained Roman pottery and an Iron-Age style whetstone.

Late Iron Age/early Roman (c.50 BC to second century AD). Pottery which can probably be dated to the later first century AD was recovered from a small number of features at the northern end of the site. The additional residual Iron-Age material suggests that activity originated in the late Iron Age. Ditch terminus or elongated pit 2664 was partially revealed within the excavation area and was a flat-based cut 1 m wide and 0.3 m deep. Pottery dating to the second century AD was recovered from its upper fill. Approximately 4 m to the south was vertical-sided, flat-based pit 2689, 3.8 m in diameter and 1.2 m deep. This contained

[35] HER, PRN 2039.
[36] Ford, 'The Archaeology of the Cleeve–Didcot Pipeline', pp. 4-5, 27–30.
[37] Ibid. pp. 30–7.
[38] Ibid. pp. 37–8.

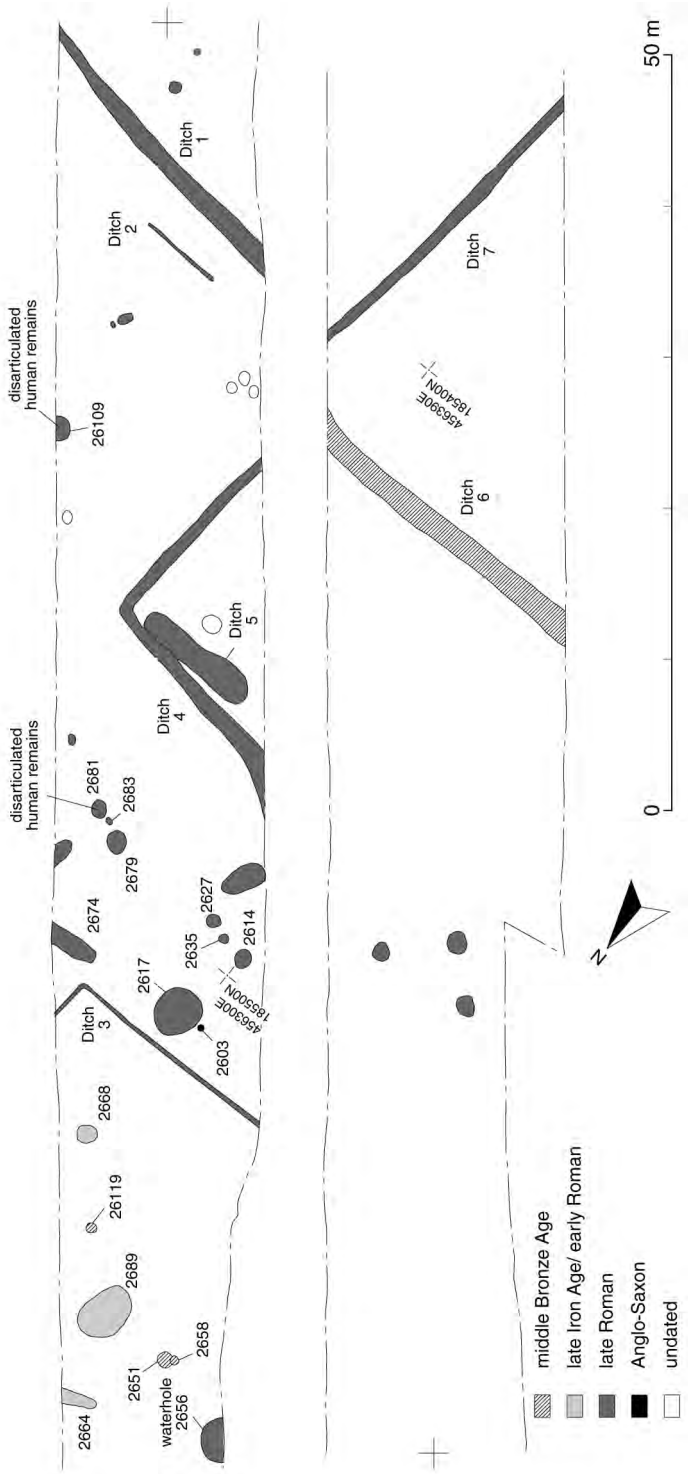

Fig. 3. Lollingdon Hill (1:500).

a sequence of six fills from which first to second-century AD pottery was recovered and a final fill containing second to third-century pottery, indicating that the pit survived as a depression into the later Roman period. A smaller pit (2668), containing early Roman pottery, was found 10 m to the south of pit 2689.

Late Roman (third to fourth centuries). The majority of features containing Roman pottery date to this period. Features containing only broadly dateable Roman pottery have been assigned to this period, although the possibility that they were earlier cannot be excluded.

A series of ditches crossed the excavated area on an alignment parallel to that of the middle Bronze-Age ditch, which thus appears to have remained as an earthwork into the Roman period and to have influenced the alignment of the Roman ditches. Gully 3 at the northern end of the site also followed this alignment, with the addition of a right-angled return, and although undated has been assigned to this period given the density of nearby Roman features. It was only 0.25 m wide and 0.15 m deep and its function remains unclear, although it may have defined part of an enclosure, perhaps augmented by an additional barrier such as a hedge or bank. Feature 2674, just beyond the south-eastern corner of Ditch 3, may have been a pit or a ditch terminus and, if the latter, could have been part of an adjoining enclosure with an entrance next to Gully 3. Pottery dating to the second to fourth centuries was recovered from this feature.

Ditch 4 might also have defined part of an enclosure and, like Gully 3, had a right-angled return. It consisted of a 'U'- to 'V'-profiled cut, 0.55–1.3 m wide and 0.25–0.55 m deep with a single fill containing second- to fourth-century pottery. Ditch 5 lay inside the area defined by Ditch 4 and on a similar alignment. It is undated. Ditch 1 lay in the centre of the site. It was 'U'-profiled and up to 1.15 m wide and 0.5 m deep. Short parallel Gully 2 only 0.2 m wide and 0.05 m deep lay 3 m to its north. Although of a different size, it is possible that this gully formed part of the same boundary, perhaps on the other side of a bank. Pottery dating to the second to fourth centuries was recovered from the fills of Ditch 1. Ditch 7 at the southern end of the site remained undated and its orientation, at right angles to the middle Bronze-Age ditch and the Roman ditches, gave no further indication of date.

Pits and post holes suggest a focus of activity between Ditch 1 and Gully 3, with some outlying features to the north and south. Waterhole 2656 at the northern end of the site possibly lay within the putative enclosure defined by Gully 3. It consisted of a steep-sided cut 2.6 m in diameter, tapering to a 1.8-m wide shaft which subsequent auguring demonstrated to be at least 5.5 m deep. Hand excavation to a depth of 2.8 m exposed a single fill containing a flint flake, animal bone and third to fourth-century pottery.

Two post holes, each flanked by two pits, lay between Gully 3 and Ditch 4. The westernmost post hole (2635) was 0.65 m wide and 0.3 m deep, flanked by pits 2614 and 2627 which were steep-sided, flat-based cuts up to 1 m wide and 0.5 m deep. The upper fill of pit 2614 contained third- to fourth-century pottery. The easternmost group was similar and comprised post hole 2683 flanked by pits 2679 and 2681. The fill of pit 2681 contained third- to fourth-century pottery and part of a human cranium from an individual aged between 15 and 17.5 years. Pit 2679 contained a copper-alloy brooch dateable to the first century AD and is probably either residual or an heirloom item (Fig. 19, no. 1).

A small number of larger pits were also found, the majority steep-sided, flat-based cuts 0.8–3.2 m wide and 0.3–0.65 m deep. Later Roman pottery was recovered from these pits and fill 26111 of pit 26109 contained the disarticulated remains of a human infant and an additional infant's cranium. Other later Roman small pits/post holes did not appear to be related to one another or to other features, with the exception of a few clusters with no apparent significance other than mutual proximity.

Small amounts of CBM were recovered from the concentration of Roman features within the northern part of the site but no further structural remains were identified. Other finds included a Roman-style flesh hook from the subsoil and animal bone from cattle, sheep/goat, goat, pig, dog and horse.

Anglo-Saxon (fifth to eighth/ninth centuries). A single post hole (2603) containing three small early to middle Anglo-Saxon pottery sherds was found, but no further material of this date was recovered from the site.

Hagbourne Hill, West Hagbourne (Sites 68 North; SU 4970 8745 and 68 South; SU 4950 8725) and Harwell Field, Harwell (Sites 3; SU 4920 8720, 4; SU 4930 8730 and 5; SU 4950 8780); Fig. 1

Two areas were excavated along the north-western slope of Hagbourne Hill (Site 68 North and Site 68 South). Three further areas (Sites 3, 4 and 5) were examined 200 m to the west on the Harwell Field plateau near the western foot of the hill. Hagbourne Hill is the site of a possible Bronze-Age tumulus.[39]

[39] HER, PRN 7450.

At Hagbourne Hill Farm early Iron-Age pits, post holes and a gully were identified during an evaluation and nearby cropmarks might represent associated fields and enclosures.[40] The hill is also the location of a possible Iron-Age cemetery and may have been occupied into the Roman period.[41]

Late Neolithic/early Bronze Age (c.2400–1700 BC). An isolated pit (303) was found at Site 3. It was 1.3 m wide and 0.4 m deep with a rounded profile. The lower pit fill was derived from the natural substrate and represents erosion of the cut edges. The upper fill 305 contained Beaker pottery, worked flint of a similar date (including core fragments, shatter, waste flakes and two end scrapers), a partly perforated limestone disk, possibly a hand rest for a bow drill, and a small quantity of cattle teeth and fragmented large mammal bones, some of which was burnt.

Late Bronze Age/early Iron Age (eighth to fifth century BC). A single steep-sided pit (50504) was found at Site 68 North. The two fills (50505 and 50506) included large and joining sherds from as many as seven early Iron-Age pottery vessels (Fig. 16–18, nos. 44–7). Lower fill 50505 also contained a fragmented red deer antler from a large animal over six years old. The base of the antler is consistent with it having been shed naturally by the animal. It does not appear to have been worked but several fragments show some signs of burning at a low temperature. A fragment returned a radiocarbon date of 749–404 cal BC (Table 1, R32369/9). No stored material was found within the pit and it is possible that the fills were structured deposits associated with the closure of the pit.

At Site 4 there were three parallel north-east to south-west aligned ditches, of which ditch 407 contained a single very small sherd (2 g) of possible late Bronze-Age or early Iron-Age pottery and an unabraded flint flake. The ditches were up to 1.2 m wide but shallow and had filled naturally. It is possible that they represent a successively re-established boundary.

Undated. An undated ditch was identified at Site 68 South, and another at 68 North which conformed to the existing north-east to south-west field boundary alignments. They are therefore potentially medieval or later in date. At Site 5 there was a north-west to south-east aligned cut 3.5 m wide and 0.2 m deep with gently sloping edges and a flat base (502). It may have been a hollow way or trackway.

Milton Hill, Milton (Site 17; SU 4850 9070); Fig. 4

The site lay on the south-eastern edge of Milton Hill, part of the Greensand step along the northern edge of the Downs. No archaeological remains have been recorded previously on the hill, but 500 m to the north-west an Iron-Age settlement and a Roman field system were found (Milton Hill North, below). Small quantities of worked flint were recovered as residual material within cut features and from the subsoil.

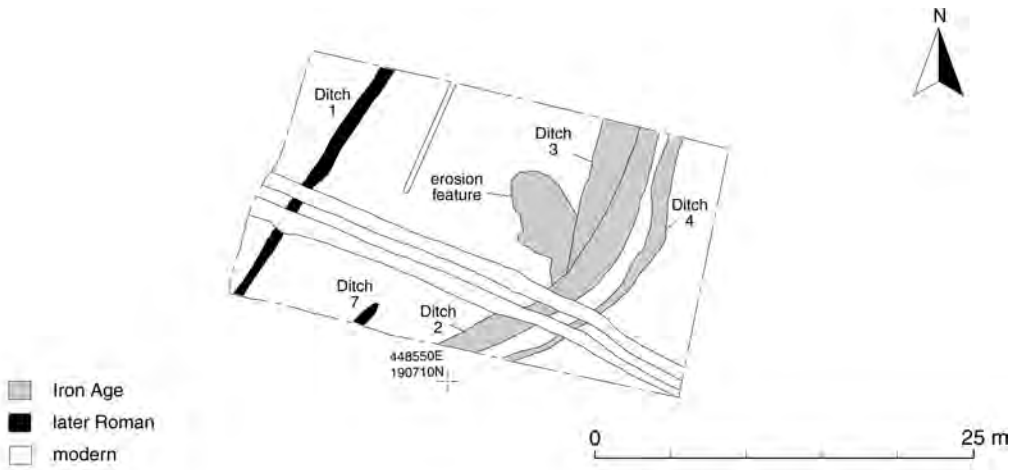

Fig. 4. Milton Hill (1:500).

[40] Ibid. PRNs 16142 and 11061.
[41] PRNs 7901, 7449 and 7890.

Iron Age. Three ditches followed the south-eastern crest of Milton Hill. The earliest, Ditch 3, which terminated within the excavation area, was 2 m wide and 1.2 m deep with a 'V'-shaped profile. One of its upper fills may have been slippage from a bank located along its upslope (western) side. An area of erosion close to the terminus, possibly caused by livestock, may indicate that any former bank also terminated at this point. The large size of this ditch and its alignment along the crest of the hill suggests that it possibly defined a hilltop enclosure, with an entrance within the excavated area.

Ditch 3 had been re-cut by Ditch 2 which extended beyond the earlier terminus, therefore closing off the former entrance. A slump of redeposited topsoil and natural clay provided further evidence for a former bank. Ditch 4 immediately to the east was up to 1.5 m wide and 0.4 m deep. Although undated, Ditch 4 may have been contemporary with Ditch 2, given their close correlation in plan, and perhaps provided additional drainage.

Most of the pottery from these features was only broadly dateable to the Iron Age, but late Iron-Age pottery derived from upper fill (1712) of Ditch 3 and from the area of erosion. The ditches also contained bones from cattle, sheep/goat, pig and dog, and a fragment of a worked bone, possibly a toggle, was recovered from Ditch 3. Two sherds of Iron-Age briquetage were found as residual material within later contexts.

Roman (second to fourth centuries). Roman activity was represented by north-east to south-west aligned Ditch 1 and a parallel ditch terminus (Ditch 7), which was only partially within the excavated area. These were probably field boundaries and Ditch 1 contained small quantities of second- to fourth-century pottery.

Milton Hill North, Milton (Site 22; SU 4800 9090 to SU 4800 9120); Figs. 5–7

This site lies on the northern edge of Milton Hill, 500 m north-west of Site 17. An area 240 m long by 18 m wide was stripped to the top of the silty clay natural. Features within the 1.5-m wide pipe trench were excavated whilst the remainder was recorded in plan. A small number of features outside the pipe trench were excavated to establish their character. Given the restricted sampling, the phasing and interpretation presented below represents a best-fit approach. The shallow depth of some of the post holes and ditches suggests truncation due to ploughing and a series of medieval or later furrows bisected the site on an east–west axis. In addition to the cut features, a single Beaker fine ware sherd was recovered as a residual find.

Late Bronze Age (twelfth to tenth century BC) (Fig. 5). Six small pits contained late Bronze-Age pottery. Four were excavated, whilst pottery was collected from the surface of the other two. Undated pit 22511 was truncated by one of the excavated late Bronze-Age pits and might also date to this period or earlier. A radiocarbon date of 1121–928 cal BC was obtained from burnt food residues on pottery from fill 22490 of pit 22489 and one of 1265–1049 cal BC from burnt food residues on an almost intact late Bronze-Age vessel (fig. 12, no. 7) from fill 22521 of pit 22520 (Table 1, R32369/8 and R32369/7). The pits were sparsely

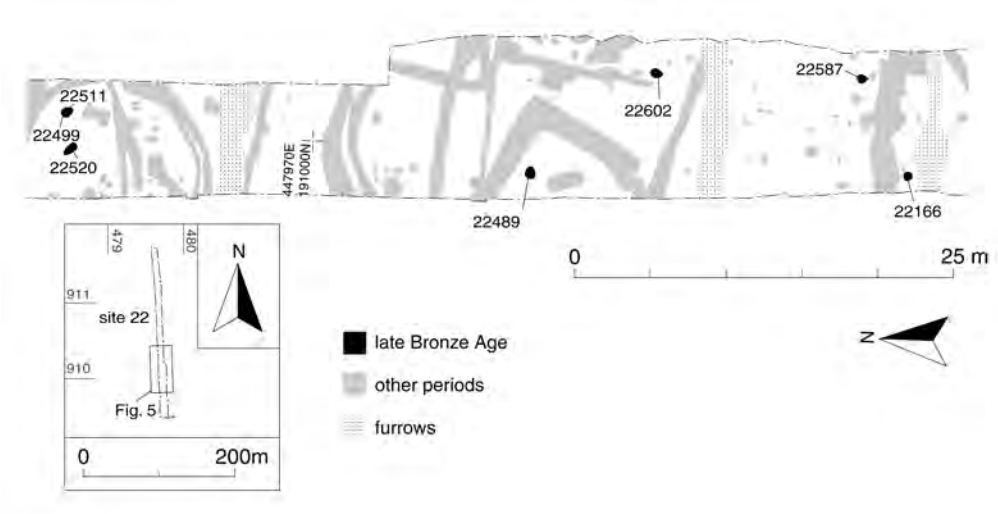

Fig. 5. Milton Hill North, late Bronze-Age features (1:500).

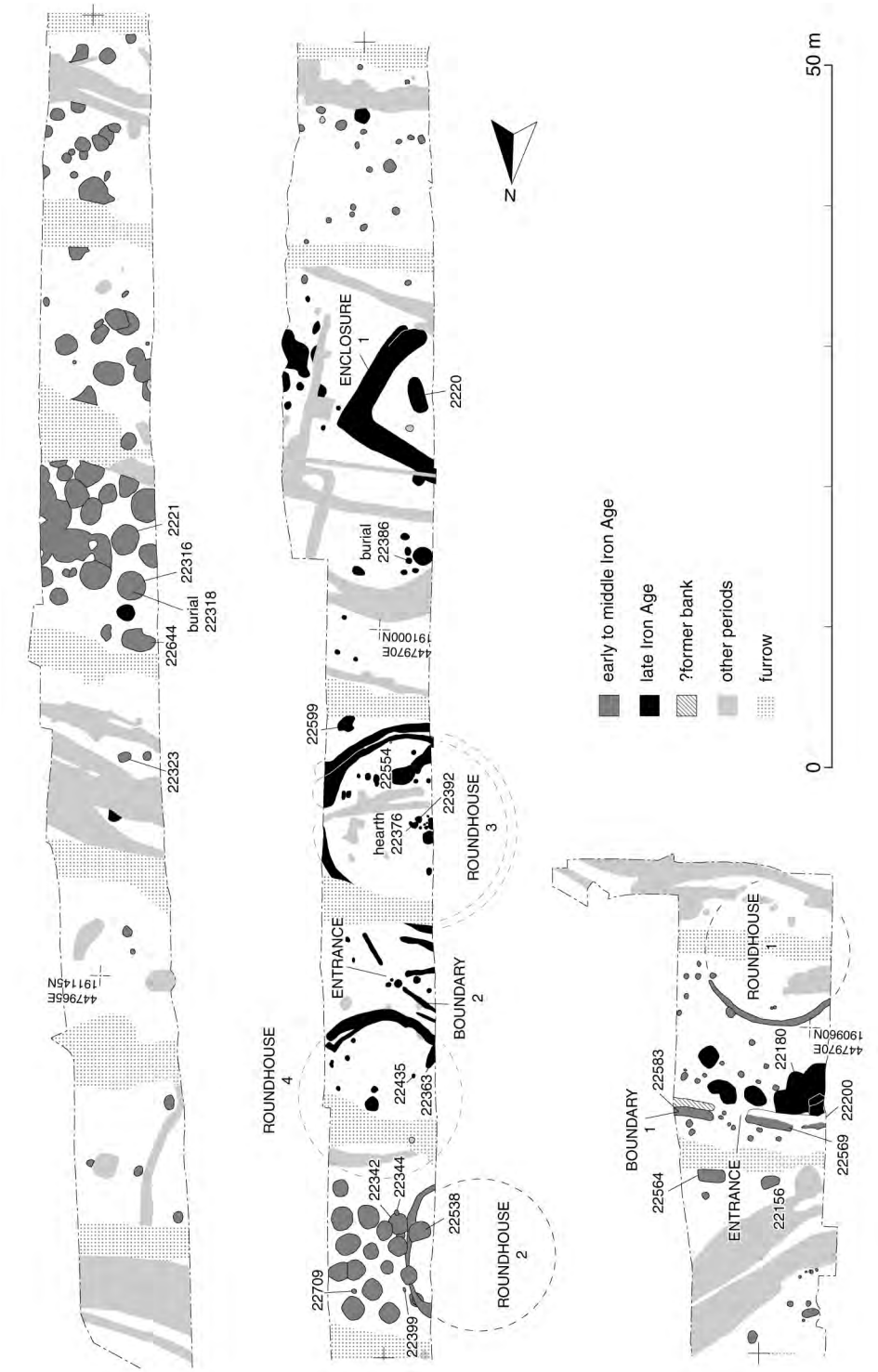

Fig. 6. Milton Hill North, Iron-Age features (1:500).

distributed within the central part of the site. They were mostly steep-sided, flat-based cuts 0.25–0.5 m wide and up to 0.25 m deep. Whilst there was nothing in their morphology to suggest whether they were post holes or pits, the absence of any obvious structural plan perhaps suggests the latter. In addition to the pottery, fill 22500 of pit 22499 included cow-sized animal bones, some of which showed signs of butchery. Late Bronze-Age pottery, a small flint assemblage and two hammerstones were also recovered as residual finds within later features and it is possible that some of the undated pits and post holes assigned to later periods in fact date to this period.

Early to middle Iron Age (fifth to early second century BC) (Fig. 6). The largest number of features on site dated to the early to middle Iron Age, and this site produced the largest late-prehistoric pottery assemblage from the pipeline. The features included two roundhouses, one within a possible enclosure, a large number of pits and two inhumations. Notable finds included an Iron-Age style fired clay sling-shot, recovered as a residual find in a later ditch, and a saddle quern fragment from the topsoil.

Roundhouse 1 lay at the southern end of the site. It was defined by a shallow, partially truncated eaves drip gully, 10 m in diameter, up to 0.4 m wide and 0.2 m deep. A probable east-facing entrance was indicated by a group of four post holes that may have defined part of a porch. The gully had filled naturally but contained small quantities of animal bone and early Iron-Age pottery. Two adjacent post holes were located within the roundhouse and may have been associated with it, although they were undated.

Three shallow ditch segments up to 3.5 m long, 0.5 m wide and 0.05 m deep may represent a boundary (Boundary 1) associated with Roundhouse 1. A series of post holes along the northern edge of this boundary may have been part of a fence line and four post holes located between two of the ditch segments perhaps formed part of a timber gateway. Broadly dated Iron-Age pottery was recovered from all of these features, along with small quantities of animal bone and burnt stone. Two stone-based post-pads (22564 and 22156) and a post hole 3 m to the north of the possible entrance perhaps formed a related structure. The lower fill of post-pad 22156 contained early Iron-Age pottery. The shallow depth of the segmented ditch, even allowing for truncation, suggests that it was probably a quarry excavated to create a boundary bank rather than being a boundary in its own right. Although no traces of any bank remained, a 2 m wide gap between the segmented ditch and an array of post holes to the south perhaps indicates its former location. A post hole (22204) beneath the projected line of the bank contained early Iron-Age pottery and the similar dating from Boundary 1 and Roundhouse 1 allows the possibility that these were contemporaneous, although whether the boundary enclosed an area around the roundhouse was not apparent due to the confines of the excavation. There were 13 post holes between Roundhouse 1 and Boundary 1. Most remained unexcavated, but two contained Iron-Age pottery. No spatial patterning could be established with any confidence.

The presence of a second roundhouse (Roundhouse 2), 110 m to the north of Roundhouse 1, was indicated by a curvilinear gully. Although too little was exposed to confirm definitively that it was part of a roundhouse eaves drip gully, its projected diameter of *c.*10 m is comparable to that of Roundhouse 1. The pottery from Roundhouse 2 was only broadly dateable as Iron Age, but it was truncated by two large pits containing early to middle Iron-Age pottery. Three undated but possibly associated post holes (22344, 22399 and 22709) lay to the east of Roundhouse 2.

There was an area of pits to the north of Roundhouse 2. These pits were typically 1.35–2.4 m wide and 0.4–0.85 m deep. The excavated examples were steep-sided with flat bases, suggesting that they were probably storage pits, although a few very shallow cuts perhaps represent unfinished pits. No stored material was present and all had been backfilled with interbedded layers of redeposited yellow-brown silty clay natural and dark clay silts containing animal bone and early to middle Iron-Age pottery. Evidence for 'special' deposits was present in two instances. The upper fill (22317) of pit 22316 contained infant burial 22318 in a crouched, slightly prone position. Two stones found at either end of the body may have been placed as markers and the same fill also contained middle Iron-Age pottery. The penultimate fill (22647) of pit 22644 contained a large dump of animal bone, mostly from cattle, horse and dog, with the horse and dog bones each coming from single animals.

Intercutting between the pits and, in some cases, between the pits and Roundhouse 2, suggests that the pits and roundhouses were part of an extended phase of activity during which minor changes to the layout of the site occurred. Charred plant remains from fill 2223 of pit 2221 yielded radiocarbon dates of 395–209 and 365–180 cal BC, which are consistent with the date range of the pottery (Table 1, R32369/3, R32369/4).

A second burial was found within a small grave (22385) in the central part of the site. The grave was oval with steep sides and a flat base and was 0.6 m long, 0.25 m wide and 0.05 m deep. It contained infant burial 22386 orientated south-north and lying on the right side with legs flexed at the knees. The arms were flexed outwards to the right of the torso and the skull was absent. Two large burnt stones found beneath the pelvis might have been grave goods or grave furniture. Further infant remains recovered from

a Roman ditch 3 m to the north may have been disturbed bones from this burial. The grave formed part of a distinctive group of five similar and apparently associated pits, two of which contained Iron-Age pottery.

Other small pits/post holes were widely dispersed across the site. Typically these were steep-sided, flat-based cuts 0.3–0.55 m wide and 0.05–0.2 m deep. Many contained Iron-Age pottery, some of which was more closely dateable to the early or middle Iron Age.

Late Iron Age (c.50 BC–AD 50) (Fig. 6). A small number of features, including two roundhouses, produced late Iron-Age pottery or were assigned to this period on the basis of stratigraphic relationships. A third roundhouse (Roundhouse 3), defined by an eaves drip gully, was present towards the centre of the site. The presumed western half of the gully lay beyond the excavation but what was exposed indicated an eaves drip *c*.12 m in diameter, 0.35–0.45 m wide and 0.15–0.3 m deep. A re-cut was present along the ditch circuit and two distinct terminals defined an east-facing entrance. The ring ditch had filled naturally but contained small quantities of animal bone along with late Iron-Age and late Iron-Age/early Roman pottery. There was a central hearth pit (22376); the underlying substrate was scorched and its only fill (22375) contained burnt pebbles and charcoal from mixed oak with hedgerow/scrub type species. Pit 22392 adjacent to the hearth contained a single fill (22391) consisting of burnt stone, ash and charcoal as well as cultivated flax recovered from an environmental sample. Several small post holes immediately west of these features contained dark fills and although undated, the hearth, pit and post holes seem likely to represent domestic activity within the roundhouse. Other post holes/small pits located within the roundhouse were undated or contained early or middle Iron-Age pottery but might also have resulted from contemporary activity, particularly as post hole 22554 contained burnt stones.

To the north of Roundhouse 3 several narrow ditch segments up to 0.4 m wide and 0.1 m deep formed Boundary 2. A gap between two of these segments was marked by three post holes, perhaps part of a gateway, and further post holes around the boundary may indicate fence lines. Although late Iron-Age pottery was absent from these features, their location suggests an association with Roundhouse 3. Further undated pits and post holes to the south of Roundhouse 3 might also have been associated with it. Of these, pit 22599 was a broad, shallow feature containing burnt stones and charcoal, possibly debris from the roundhouse hearth.

Roundhouse 4 lay immediately north of Roundhouse 3 and close to the site of earlier Roundhouse 2 (the latter was truncated by pits containing early to middle Iron-Age pottery and was therefore probably no longer standing by this period). The southern arc of the eaves drip gully of Roundhouse 4 survived, suggesting a diameter of *c*.11.5 m; it was up to 0.55 m wide and 0.1 m deep and showed signs of having been re-cut. Distinct (but unexcavated) terminals defined one side of an east-facing entrance. Although the small pottery assemblage recovered from this ring ditch was only broadly dateable as Iron Age, it is possible that the roundhouse was associated with nine small pits/post holes located within its circuit, of which two (22363 and 22435) contained middle to late Iron-Age pottery. It remains possible, however, that Roundhouse 4 might be associated with the earlier Iron-Age occupation.

To the south of Roundhouse 3 a 'V'-profiled ditch up to 1.4 m wide and 0.7 m deep marked the corner of a possible enclosure extending beyond the limit of excavation (Enclosure 1). The ditch contained a natural infill containing animal bone and middle Iron-Age pottery. A re-cut of the ditch contained late Iron-Age pottery and it is possible that the enclosure was a long-lived feature originating earlier in the Iron Age. Pit 2220 within Enclosure 1 was an oval cut with steep sides and a flat base, 2.95 m long, 1.15 m wide and 0.6 m deep. A half intact middle or late Iron-Age pot (Fig. 15, no. 32) had been placed broken side down on the pit base prior to backfilling. This is suggestive of deliberate deposition and the unusual shape of the pit and location within the enclosure may indicate that it had a distinctive, albeit not readily apparent, function.

Large pits (similar, although far fewer in number to those of the earlier Iron Age) have been ascribed to this period where they contained late Iron-Age pottery. The densest cluster, including a number of intercutting pits such as pit 22180, lay to the north of Roundhouse 1. Although no late Iron-Age pottery was recovered from this pit cluster, the fact that none were cut by post holes associated with Roundhouse 1/Boundary 1 suggests that they are later than them. This impression is enhanced by the presence of later Roman pottery within some of the upper pit fills which indicates that they remained as visible depressions throughout much of the Roman period.

Late Iron Age/early Roman (first to early third centuries AD) (Fig. 7). This site produced the largest assemblage of Roman pottery from the pipeline. It spans the entire Roman period, with an emphasis on the first to early third centuries AD. No structural features were identified within the excavation area and only three fragments of CBM were retrieved.

There was a probable sub-rectangular enclosure (Enclosure 2) in the southern half of the site in the same location as late Iron-Age Enclosure 1. Whether this was coincidental or represents continuity of

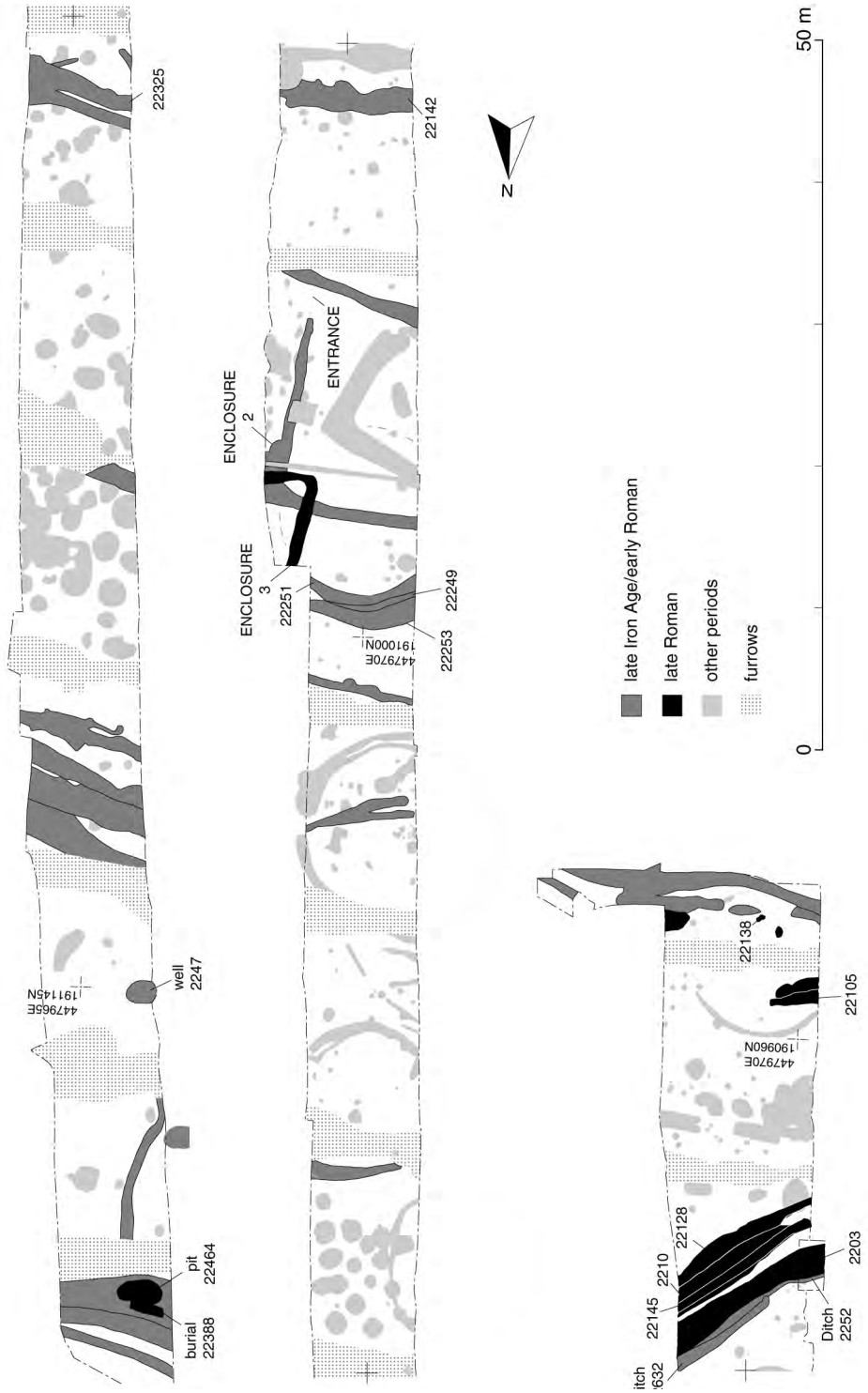

Fig. 7. Milton Hill North, Roman features (1:500).

activity is unclear. Enclosure 2 conformed to the broad alignment of most of the other field boundaries and had an east-facing entrance. Ditch 2252 to the south of the enclosure was on a north-east to south-west alignment. It was steep-sided with a flat base and was 0.5 m wide and 0.3 m deep. Its only fill contained first to second-century AD pottery and it had been re-cut for part of its length by ditch 22632. The unusual orientation of this boundary is notable, and it was maintained into the later Roman period by a succession of re-cuts. Ditch 22249, another unusually aligned boundary, was slightly curvilinear in plan and had been successively re-cut by ditches 22251 and 22253, the latter containing a human infant scapula and rib fragment, possibly re-deposited from adjacent Iron-Age burial 22386.

The most numerous features were field boundary ditches, all of which followed broadly east–west alignments. Although they varied slightly in form, the ditches typically had moderately sloping edges and rounded bases and were 0.5–1.6 m wide and 0.1–0.6 m deep. Some had been continually maintained by re-cutting alongside the earlier cuts, thus creating boundaries which shifted slightly over time. This was particularly notable towards the northern end of the site and it is possible that these shifting boundaries represent the most important and persistent site divisions. Most of the ditches had filled naturally and contained small quantities of animal bone and pottery. Ditch 22142 also contained a fired clay slingshot (McSloy, below). The only exception to this was an upper fill of ditch 22325 which seemed to be a deliberate backfill consisting of a dark, finds-rich deposit containing animal bone and first-century AD pottery.

Towards the northern end of the site was a well (2247) with a vertical-sided shaft 1.15 m in diameter, which was excavated to a depth of 1.9 m without the base being encountered. The shaft had been lined with clay, from which late Iron-Age or early Roman pottery was recovered. The backfill contained first- to third-century AD pottery, animal bone and a smithing hearth base.

Late Roman (mid third to fourth centuries) (Fig. 7). There was much less activity in the later Roman period. It was represented by a small number of field boundaries, an enclosure, a few pits and a burial. Most of the earlier Roman ditches were no longer maintained and most of the later activity was confined to the southern end of the site. There is no apparent break in the pottery assemblage, suggesting continued use of the site into the fourth century.

An 'L'-shaped ditch truncated Enclosure 2 and possibly defined a later enclosure (Enclosure 3) extending beyond the limit of excavation. No dating evidence was recovered from this feature. Ditch 2252 was re-cut successively by ditches 2203, 2210, 22128 and 22145. These were up to 1.5 m wide and 0.8 m deep and filled with pale silt containing pottery and animal bone. Further south there was a small number of pits and a ditch terminal. The ditch was undated but had been re-cut by ditch terminal 22105, which contained mid third- to fourth-century AD pottery. Another pit (22138) contained a blue glass bead (Fig. 20, no. 5).

Oval pit 22464 was cut into the upper fill of one of the early Roman boundary ditches at the northern end of the site. It was 1.4 m long, 0.9 m wide and 0.6 m deep with steep sides and a concave base. Its fill contained second- to third-century AD pottery and an iron nail. It had been backfilled and the fill cut into by grave 22388, a rectangular cut 2.5 m long, 0.9 m wide and 0.35 m deep with vertical sides and a flat base. The grave contained an adult male buried in a prone position on a north-west to south-east alignment with the head to the north-west (22389). The legs were slightly flexed, with the arms flexed and resting under the chest. The feet were elevated on a baulk of soil. A radiocarbon date of 82–248 cal AD was obtained from the right fibula (Table 1, R32369/5). The grave fill contained animal bone and two prehistoric hammerstones, one showing re-use as a Roman-style polisher, which may have been placed as grave goods. The relationship between the burial and underlying pit 22464 is unclear, but their similar location may be significant.

Land South-West of Drayton (Site 36/37; centred on SU 4706 9343); Fig. 1

This site comprised two fields (numbered 36 and 37) 1 km south-west of Drayton, located within a low-lying area bisected by dykes and brooks. Cropmarks 1.7 km to the north-east of the site are thought to represent a high-status, possibly royal, Anglo-Saxon settlement, including both post-built and sunken-featured buildings (SFBs). Anglo-Saxon remains, including over 30 SFBs and at least two post-built structures, were excavated *c.*300 m north of the Drayton 'palace' site between 1921 and 1937.[42] Excavations

[42] Blair, *Anglo-Saxon Oxfordshire*, pp. 31–2; Benson and Miles, 'Cropmarks near the Sutton Courtenay Saxon Site', pp. 224–5; E.T. Leeds, 'A Saxon Village near Sutton Courtenay, Berkshire', *Archaeologia*, 73 (1923), pp. 147–92; idem, 'A Saxon Village at Sutton Courtenay, Berkshire (Second Report)', *Archaeologia*, 76 (1927), pp. 59–80; idem, 'A Saxon Village at Sutton Courtenay, Berkshire (Third Report)', *Archaeologia*, 92 (1947), pp. 79–93.

at Manor Farm, Drayton (1.1 km north-east of Site 36/37) in 2000 identified a restricted number of early to middle Anglo-Saxon ditches and more widespread late Anglo-Saxon occupation.[43] The projected continuation of Mere Dyke, a straight earthwork 2 km in length, forms the southernmost field boundary of the site. The dyke was recorded in a charter of AD 958 and forms part of the parish boundary between Drayton and Steventon.[44]

The site was stripped along the centre line of the pipeline to a width of 1.8–10 m. The projected continuation of Mere Dyke lay outside the excavated area but was monitored during the watching brief. No evidence for it was identified. Features were excavated only where they lay within the pipe trench, and consequently several were only investigated by small cuttings and their morphology remains unclear. Interpretation is further hampered by the lack of dateable material from any of the features, although small quantities of Roman CBM were recovered from the subsoil within Field 36.

Within Field 37 a 'pit' and two ditches were identified. 'Pit' 3703 was 3.5 m long, 2.75 m wide and at least 0.6 m deep; its morphology suggests it may have been an SFB. It was filled with silty clay containing animal bone. Ditch 3705 16 m to the north consisted of two north-east to south-west aligned segments with a 2-m wide entrance between them. The ditch was slight (up to 0.9 m wide and 0.25 m deep) and contained small quantities of animal bone. Its alignment was similar to a trackway forming the current boundary between Fields 36 and 37.

Within Field 36 another two 'pits' were found. 'Pit' 3605 was only partially exposed but seemed similar to pit/SFB 3703, being an oval or sub-rectangular cut at least 3.5 m long, 0.9 m wide and 0.3 m deep. It was filled with silty clay containing frequent charcoal lenses and may be another SFB. Pit 3617 lay on the edge of the excavated area and therefore could equally have been a ditch terminus.

Land South of Marcham (Site 50; SU 4450 9620 to SU 4470 9620); Fig. 8

This site is located on the Corallian Ridge, 600 m to the east of the Noah's Ark Iron-Age and Roman site where activity including a settlement, cemetery, temple complex and amphitheatre extends over 30 ha (Fig. 2).[45] The route of the proposed Marcham bypass passes 150 m east of Site 50 and geophysical survey along the road corridor identified both linear and discrete anomalies.[46] Subsequent evaluation confirmed the presence of post holes, gullies/ditches and steep-sided pits containing late Bronze-Age/early Iron-Age pottery, and two ditches associated with middle Anglo-Saxon pottery.[47]

An area 450 m long and 17 m wide was stripped exposing a penannular ditch with possible entrance to the north-east. Thereafter it was agreed that the centre line of the pipeline would be moved in order to preserve the penannular/ring ditch in situ. Archaeological features were excavated along the length of a 5-m wide track established for vehicle access. Beyond this, features, including the penannular/ring ditch, were recorded in plan but were not excavated. A small area of the centre line of the pipeline was also investigated to the south-east of the main excavation area.

Late Neolithic/early Bronze Age (c.2400–1700 BC). Three sherds of possible Beaker pottery were recovered from small pit/post hole 5029. Attribution of this material to the Beaker period is not certain, but the three sherds all appear to have come from a single vessel, and one included impressed decoration characteristic of Beaker coarse wares.

Early to middle Iron Age (fifth to third century BC). Pits and post holes were found throughout much of the north-western part of the site although no spatial patterning or structures could be identified. The shallow depth of many of the features suggests truncation has occurred and shallower features had been entirely removed. Ditch 8 to the north of the penannular/ring ditch was a steep-sided, flat-based cut 0.8 m wide and 0.35 m deep. Following a period of natural infilling, it had been re-cut and early to middle Iron-Age pottery was recovered from the fills of both the original ditch and the re-cut. A group of vertical-sided post holes to the immediate north of Ditch 8 included three with post slots in their bases and three containing early to middle Iron-Age pottery. The remaining Iron-Age pits and post holes lay to the north-west of these features and it is possible that Ditch 8 formed a south-eastern boundary to this activity.

[43] D. Challinor et al., 'Excavations at Manor Farm, Drayton, Oxfordshire', *Oxoniensia*, 68 (2003), p. 285.
[44] Kelly (ed.), *Charters of Abingdon Abbey*, vol. 2, pp. 320–3.
[45] Henig and Booth, *Roman Oxfordshire*, pp. 68–71; Kamash et al., 'Continuity and Religious Practices', pp. 95–7.
[46] Pre-Construct Geophysics, 'Fluxgate Gradiometer Survey: Proposed Route of the A415 Marcham Bypass, Oxfordshire, Volume 1', unpublished report (2004).
[47] OA, 'A415 Marcham Bypass, Marcham, Oxfordshire: Archaeological Evaluation Report', unpublished report (2005).

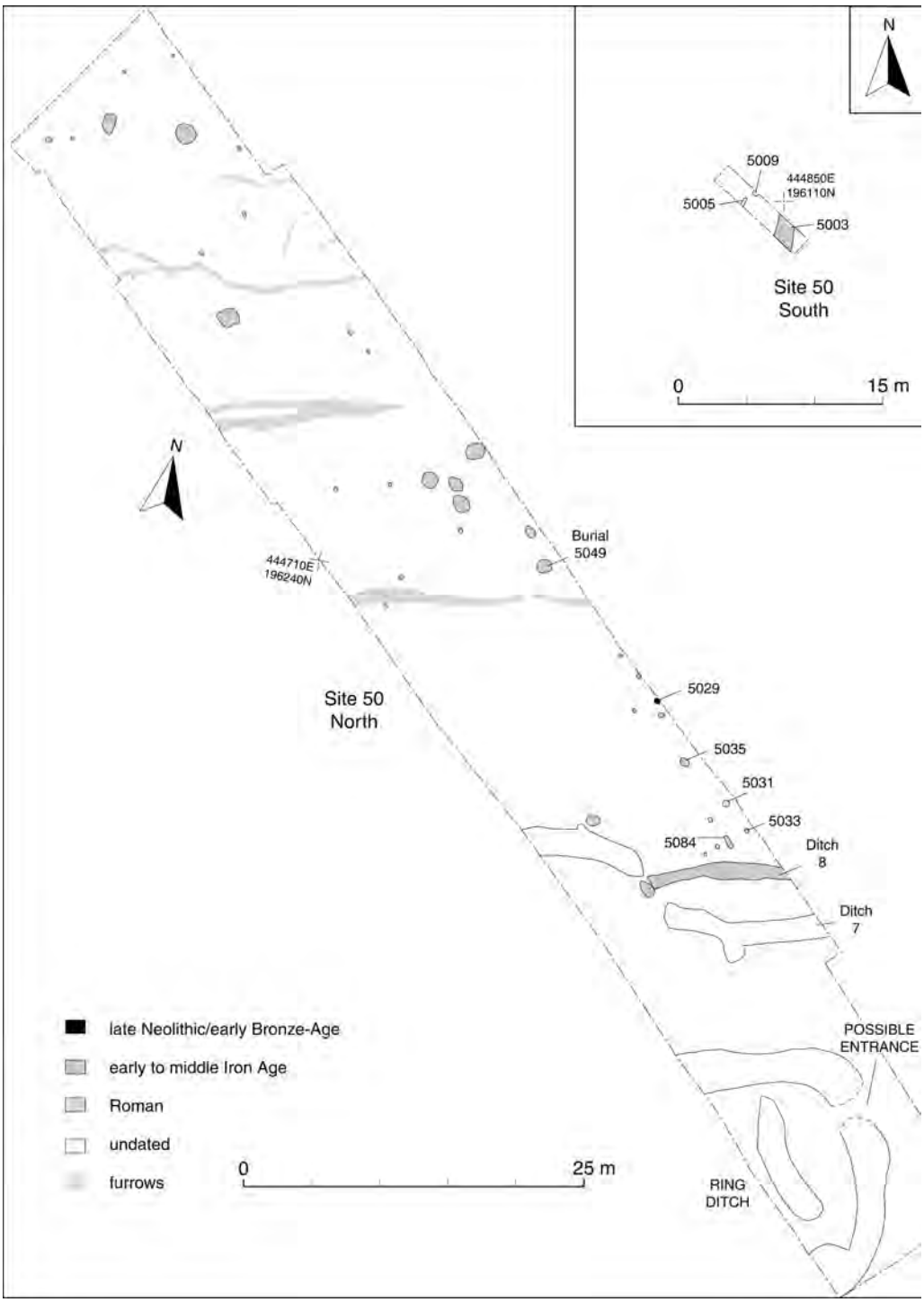

Fig. 8. Land south of Marcham (1:500).

Fig. 9. Land south of Marcham, middle Iron-Age burial 5049, looking north-east.

Many of the post holes were very truncated, some surviving to a depth of only 0.05 m. The majority of the pits were broad, shallow, flat-based cuts 0.9–1.65 m wide and 0.05–0.25 m deep. Of the seven excavated examples, all contained clay silt fills with few artefacts and no indication of stored material. Early to middle Iron-Age pottery was recovered from five of the features. Smaller, steep-sided pits (5084 and 5035) to the north of Ditch 8 were 0.45–0.75 m wide, 0.1–0.45 m deep, and filled with a homogenous silty clay containing pottery broadly dateable to the Iron Age.

The crouched body of a young adult ?male (Burial 5049; Fig. 9) had been placed on the base of pit 5050. He was orientated north–south and lay on his right side with the head facing north-west. The left arm was resting on the pelvis and the right arm flexed near to the head, with both legs drawn up to shoulder height, resting on the individual's right arm. A radiocarbon date of 362–176 cal BC was obtained from the left tibia and the burial was sealed by a fill containing Iron-Age pottery (Table 1, R32369/6). In other respects, the pit was comparable to the broad, shallow pits described above. A charcoal sample from the pit was predominately composed of one taxon, which appeared to be oak, but the identification could not be confirmed.

Roman. One pit and a linear feature dated to this period. Pit 5031 was 0.6 m in diameter but survived to a depth of only 0.03 m. North-east to south-west aligned linear feature 5003 lay to the south-east of the main excavation area. It was 3.8 m wide and 0.2 m deep and may have been a trackway.

Undated. The penannular ditch was not excavated and is thus undated. The ditch was 2.25 m wide and up to 21 m across with a possible north-east facing entrance, although this was poorly defined. It is unclear whether an internal elongated pit or ditch is contemporary. Ditch 7 lay 10 m to the north-west of these features and included a gap suggestive of an entrance. Although the penannular ditch and Ditch 7 are undated, no other features lay to the south of Ditch 7. Whether the early to middle Iron-Age occupation was contemporary with the undated features, or whether it respected an existing earthwork, is impossible to determine in the absence of further evidence. Beyond the main excavation area there were two undated pits or ditch terminals (5005 and 5009) to the immediate north-west of possible trackway 5003.

Land South-West of Marcham (Site 53; SU 4430 9660)

This site lies 500 m north-west of Noah's Ark (Fig. 2). In addition to the features described below, a small assemblage of Roman pottery was recovered from the topsoil and subsoil.

Late Bronze Age or Iron Age. A spread approximately 8 m in diameter (5304) containing animal bone, pottery and a small number of residual flint flakes overlay the natural substrate. Two pits (5307 and 5305) lay 15 m north-west of it. Both were round-profiled cuts up to 0.9 m wide and 0.2 m deep, filled with reddish brown silts. The fill of pit 5307 contained pottery, animal bone, unworked burnt flint, as well as residual worked flints, including denticulate tools, probably dating to the early Neolithic period. The similarity of pit 5305 to 5307 suggests that they were contemporary, although the only material from 5305 was an assemblage of unworked burnt flints and worked flints, including denticulate tools, probably dating to the early Neolithic period, similar to the residual flint from 5307.

Millets Farm, Frilford (Site 54; SU 4360 9680 to SU 4390 9670) (Fig. 10)

Site 54 lies 500 m to the south of Frilford and 550 m north of the River Ock. The A338 follows the projected line of a Roman road, east of the site, although physical evidence for its Roman origin is slight.[48] Late Roman and early Anglo-Saxon cemeteries were identified during quarrying in the mid nineteenth century 300 m south-east of this site, and the Iron-Age and Roman remains at Noah's Ark are a further 100m to the south-east (Fig. 2).[49] The fields to the immediate north and south of Site 54 contain cropmarks of probable Roman date.[50] A geophysical survey immediately to the south in 2008 confirmed the presence of an enclosure complex, with further more regular enclosures to the south-east.[51] In 2008 trial trenching showed these enclosures dated to the later Roman period, with Iron-Age features also present.[52] The evaluation also found a limestone wall 250 m south-east of Site 54; although undated the wall lay close to a midden layer containing a large Roman pottery assemblage and this perhaps suggests the presence of a Roman building.[53] The evaluation also demonstrated that burials associated with the Roman and/or Anglo-Saxon cemeteries extended northwards from the nineteenth-century quarry and that further early to middle Anglo-Saxon remains, including ditches and pits, overlay the Roman enclosure complex.[54]

The centre line of the pipeline was stripped and widened to 10 m where archaeological features were identified. The resulting excavation area was 130 m long and situated on a slight rise on thin beds of Corallian limestone overlying sand, part of the same raised area of Corallian limestone as Site 53.

Iron Age. Iron-Age activity clustered towards the eastern end of the slight rise and comprised a small number of dated features and a few undated features assigned to this period on the basis of spatial relationships. Although the pottery assemblage was only broadly dateable to the Iron Age, there appears to be a continuity of activity into the early Roman period, thus suggesting a later rather than earlier Iron-Age date.

The eastern limit of Iron-Age activity was defined by a segmented linear feature, Boundary 1. The north-easternmost segment was irregular and might have been a former hedge line. The south-westernmost segment was a narrow ditch, potentially a quarry excavated to create a hedge bank. A gap between these segments might mark an entrance and just inside was a tree-throw pit which contained Iron-Age pottery. Although Roman pottery was recovered from Boundary 1, the alignment differed from that of the Roman ditches and its proximity to the Iron-Age pits suggests that it formed an eastern boundary to the Iron-Age site but remained partially visible into the Roman period. A possible fence line lay parallel to and 15 m west of Boundary 1. This consisted of three undated post holes (54098, 54155 and 54157) and post hole 54100, which contained a post pipe surrounded by packing material from which Iron-Age pottery was recovered. These post holes were regularly spaced at 1.5 m intervals but a further post hole to the south-west (post hole 54131) might mark a continuation of this possible fence line. The remaining features containing Iron-Age pottery lay within 25 m of Boundary 1. Feature 54151 extended from the limit of excavation towards post hole 54100 and might have been either another post hole or the terminus of a ditch or beam-slot. Pit 54091 was a vertical-sided, flat-based cut 0.35 m wide and 0.33 m deep which had been backfilled with a single deposit containing animal bone and pottery. Pits 54144 and 54172 were broad, shallow cuts into the limestone which contained Iron-Age pottery. As both terminated at the level of the underlying sand, they were probably stone quarries. Further Iron-Age pottery and an Iron-Age style stone cylindrical weight and quern fragment were recovered as residual material in later features (Roe, below).

[48] Wintle, 'Becoming Romano-British'; G. Lambrick, 'Some Old Roads of North Berkshire' *Oxoniensia*, 34 (1969), p. 86.
[49] Wintle, 'Becoming Romano-British'.
[50] HER, PRN 7603.
[51] Wintle, 'Becoming Romano-British'.
[52] TVAS, 'Millets Farm, Frilford' (2008).
[53] Wintle, 'Becoming Romano-British'.
[54] TVAS, 'Millets Farm, Frilford' (2008), p. 17.

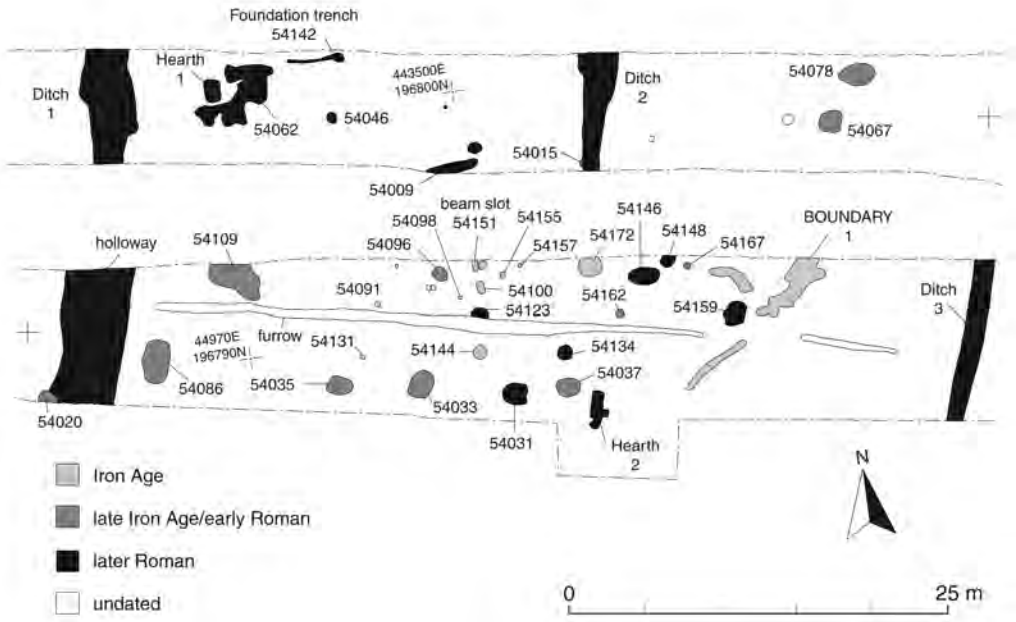

Fig. 10. Millets Farm, Frilford (1:500).

Early Roman (first to second century AD). Roman activity on the low rise was more extensive than Iron-Age activity. The presence of Roman pottery in Boundary 1 indicates that it remained visible into the Roman period, possibly continuing to demarcate the eastern end of the site. Post hole 54162, to the west of Boundary 1, contained first- to second-century pottery and with undated post hole 54167 possibly formed part of a fence line parallel to Boundary 1.

Six broad shallow pits (54067, 54078, 54086, 54037, 54096 and 54015) were up to 1.8 m in diameter and were cut to the base of the limestone (a depth of 0.1–0.4 m). Pits 54067, 54078, 54086 and 54037 contained small quantities of animal bone and first- to second-century pottery. Pits 54096 and 54015 contained pottery only broadly dateable as Roman but probably belong to this period as the latter was truncated by later Roman Ditch 2. Pit 54086 contained a Roman-style toiletry spoon (Fig. 19, no. 2) and an Iron-Age-style stone weight (Fig. 21, no. 2) whilst pit 54037 included a new-born lamb, possibly indicative of stock rearing. Pits 54020, 53035, 54109 and 54033 were vertical-sided, flat-based cuts up to 1.6 m in diameter and 0.95 m deep. Pit 54020 had been truncated by a later Roman hollow way. All the pits had been backfilled with single deposits containing small quantities of animal bone and first- to second-century AD pottery. Pit 54109 also contained a copper-alloy pin shaft.

Later Roman (second to fourth centuries). During this period the limits of occupation appear to be marked by two ditches. Ditch 3 lay 15 m east of former Boundary 1 and consisted of a 'U'-profiled cut up to 1.65 m wide and 0.45 m deep. Its fill contained small quantities of animal bone and second- to fourth-century pottery. The westernmost limit was marked by Ditch 1. The earliest cut of this boundary had been largely truncated but there was a suggestion that it terminated within the site, possibly at an entrance. Its fill (54053) contained small quantities of animal bone, first- to second-century pottery and a coin of AD 322–5 (McSloy, below). A re-cut of this ditch, 1.85 m wide and 0.85 m deep, obliterated the possible entrance and contained two joining, partially burnt, pieces of painted wall plaster as well as limestone fragments.

The area between Ditches 1 and 3 was sub-divided by Ditch 2 and a hollow way to create three adjoining land plots. Ditch 2 truncated earlier Roman pit 54015 and finds from its fills included second- to fourth-century pottery, an oyster shell, rotary quern fragments and an infant's ulna. The hollow way

was a broad, flat-based cut 3.5 m wide and 0.3 m deep with a drainage ditch along its eastern side. The underlying bedrock formed a base for the hollow way and was overlain by a silt layer cut by wheel ruts. The drainage ditch and the silt remained undated but second- to fourth-century pottery was recovered from the upper fill.

Despite the limited extent of the excavation, there were indications of different activities occurring within different parts of the site. The area between Ditches 1 and 2 contained structural remains, two pits and a hearth pit 1.5 m long, 1.15 m wide and 0.2 m deep. Although there was no evidence for in situ burning, it lay within a crescent-shaped spread of scorched limestone fragments (54062), probably demolition material from a former hearth. In this case the surviving pit was presumably a robber cut which was filled with un-burnt silty clay, scorched clay, burnt stones and small quantities of pottery.

To the north-east of the robbed hearth there was a narrow foundation trench (54142), 3.7 m long and 0.1 m deep with a stone post-pad and a post hole with a post pipe at its western and eastern terminals respectively. 'Ditch' 54009 to the south was slightly curvilinear with a post hole at its terminus and might have been a further beam slot. The ditch and the post hole had a common fill containing animal bone, a fired clay lump and second- to fourth-century pottery. Also within this area were two wide, shallow pits (54046 and 54050) up to 0.8 m wide and 0.1 m deep cut to the base of the limestone; they were probably stone quarries. Pit 54050 contained mid third-century pottery and pit 54046 animal bone, oyster shell and second- to fourth-century pottery.

No features were found between Ditch 2 and the hollow way, but the area between the hollow way and Ditch 3 contained a hearth, pits and a post hole. Hearth 2 consisted of a rectangular cut with a circular pit at its southern end, together 2.5 m long and 1.2 m wide. Scorching of the natural substrate indicated that this was a fire pit, whilst the rest of the feature acted as a flue. The remains of a partially scorched stone base and lining were present and included a small quantity of second- to fourth-century pottery. Following disuse, the hearth had been backfilled with silty clay containing fired clay, charcoal flecks and burnt stone fragments.

Post hole 54148, 10 m north of Hearth 2, was 0.8 m wide and 0.75 m deep with limestone post-packing, and pits 54123 and 54134 were vertical-sided, flat-based cuts 1.1–1.8 m wide and 0.6 m deep. The lowest fill of 54123 represented weathering of the cut edges and slumping of upcast material. Most of the pit fills appeared to be deliberate backfills containing pottery and animal bone. Pit 54134 also contained a worked bone item, possibly an inlay (Fig. 20, no. 4). A further three broad, shallow pits (54031, 54146 and 54159) had been excavated to the base of the limestone and may have been quarry pits.

Small amounts of CBM were recovered from feature fills, and two coins dating to AD 270–90 and AD 330–5 were found in the topsoil (McSloy, below).

Undated. A small number of undated post holes found within the site are likely to have been associated with the Iron-Age or Roman activity.

RADIOCARBON DATING

Six samples were processed during 2010 at the Rafter Radiocarbon Dating Laboratory, New Zealand. The results presented in Table 1 are conventional radiocarbon ages.[55] The calibrated dates have been calculated using the calibration curve of Reimer et al. and the computer program OXCal 4.1. Date ranges cited in the text are those at 95% confidence level.

THE WORKED FLINT by K.M. PRICE

A total of 676 pieces (6,887 g) of worked flint and 78 pieces (780 g) of heat-affected flint was recovered. The majority is grey flint most likely procured from the chalk deposits of the North Downs and Chilterns. Gravel deposits from the floodplain of the Thames catchment area and the terrace and gravel deposits of the Ock may have been exploited to a lesser extent. The character of much of the debitage is consistent with later Neolithic and early Bronze-Age flintwork.[56] Around half of the flint has been affected by post-

[55] M. Stuiver and H.A. Polach, 'Discussion: Reporting of 14C Data', *Radiocarbon*, 19 (1977), pp. 355–63; P.J. Reimer et al., 'IntCal 09 and Marine 09 Radiocarbon Age Calibration Curves, 0–50,000 Years Cal BP', *Radiocarbon*, 51(4) (2009), pp. 1111–50; C. Bronk Ramsey, 'Bayesian Analysis of Radiocarbon Dates', *Radiocarbon*, 51(1) (2009), pp. 337–60.

[56] C. Butler, *Prehistoric Flintwork* (Stroud, 2005), p. 155.

Table 1. Radiocarbon dates

Site	Feature	Context	Lab. No.	Material	Method	Uncalibrated date years BP	Calibrated at 95% confidence
Hagbourne Hill	Pit 50504	50505	R32369/9	red deer antler	AMS	2435 ± 30	749-404 cal BC
Milton Hill North	Post hole 22489	22490	R32369/8	burnt food residue on pot sherd	AMS	2858 ± 30	1121-928 cal BC
Milton Hill North	Post hole 22520	22521	R32369/7	burnt food residue on pot sherd	AMS	2950 ± 30	1265-1049 cal BC
Milton Hill North	Burial 22388	22389	R32369/5	human bone right fibula	AMS	1838 ± 35	82-248 cal AD
Milton Hill North Site	Pit 2221	2223	R32369/3	prunus charcoal	AMS	2267 ± 25	395-209 cal BC
Milton Hill North	Pit 2221	2223	R32369/4	Avena oat grain charred	AMS	2195 ± 30	365-180 cal BC
South of Marcham	Burial 5050	5049	R32369/6	human bone left tibia	AMS	2190 ± 30	362-176 cal BC

depositional processes including plough-damage, surface rolling and patination. Where the flint is patinated, this appears as a bluish to milky white surface discolouration. Of the heat affected flint, 31 of the 113 pieces have been worked and cover the entire range of debitage in almost equal proportions.

Cleeve

The small group from pit 003 consists mainly of flakes and flake fragments (23). Core reduction was carried out by the use of the hard hammer technique. Prevalence of broken flakes and hinge terminations may be in part a result of low quality raw material. Two scrapers are short and broad flakes with continuous abrupt retouch on the distal end and both lateral edges. The third is a thumbnail scraper. Technological characteristics are suggestive of a later Neolithic/early Bronze-Age date.[57]

Lollingdon Hill

Three pits and a ditch are dated by pottery to the middle Bronze Age. Pit 2651 contained a small flint assemblage including 39 flakes/broken flakes and a core fragment. All is sharp and exhibits evidence of hard hammer manufacture. Pit 2658 contained mainly hard hammer struck flakes/broken flakes, together with a retouched flake and a flake denticulate with fine saw-like serrations to one edge (Fig. 11, no. 1). Denticulates are frequently found in early Neolithic assemblages and so this item may be residual.[58]

The group from the primary fill 26134 of Ditch 6 is mostly composed of flakes and cores/core fragments. Of note are an early Bronze Age barbed-and-tanged arrowhead (Fig. 11, no. 5) and two Neolithic polished axe flakes. The upper ditch fills of Ditch 6 (26132 and 26133) contained flakes, flake fragments and debitage.

Harwell Field (Site 3)

Pit 303 contained an assemblage of flakes and core fragments. Three flakes exhibited scraper-like retouch. The scrapers and debitage are consistent with late-Neolithic/early Bronze-Age flintworking.

[57] Ibid. p. 166.
[58] Ibid. p. 130.

Land South-West of Marcham

The flint from two pits containing late Bronze-Age/early Iron-Age pottery is probably re-deposited. Two broken flakes and a denticulate were found in pit 5305. Six flakes, a small chunk and a denticulate were recovered from pit 5307. The saw-like edge of the denticulate from pit 5305 occurs on a blade, whereas the secondary working to the denticulate from pit 5307 is to both edges of the flake (Fig. 11, no. 2). These saw-like serrated blades are frequently found in early Neolithic assemblages.[59]

Millets Farm, Frilford

The assemblage consists mainly of undiagnostic flakes and small chunks occurring as residual material. Most pieces exhibit wear through surface rolling.

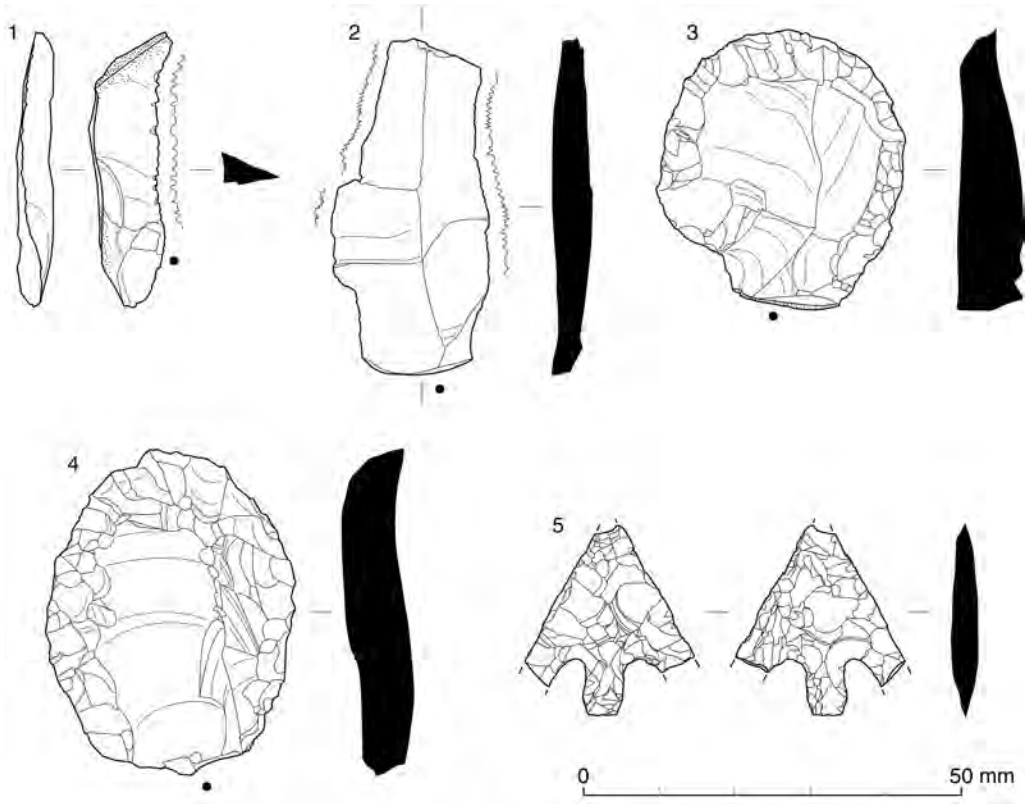

Fig. 11. Selected flints (1:1).

Illustrated Worked Flint (Fig. 11)

1. Denticulate. Lollingdon Hill; fill 2659 of pit 2658.
2. Denticulate. Land South-West of Marcham; fill 5308 of pit 5307.
3. Scraper. Cleeve; fill 002 of pit 003.
4. Scraper. Cleeve; fill 002 of pit 003.
5. Barbed and tanged arrowhead. Lollingdon Hill; fill 26134 of Ditch 6.

[59] Ibid. p. 130.

THE POTTERY by E.R. McSLOY

A total of 5,587 sherds (76.8 kg) of pottery ranging in date between the Neolithic and post-medieval periods was recovered from 13 defined sites, with further finds from various locations along the length of the pipeline. A fuller version of this report is available in the site archive.

Quantification was by sherd count and weight and Rim EVEs (Estimated Vessel Equivalents) for each fabric type by context. Vessel form (profile and rim morphology), cross-context joins and evidence for vessel use were also recorded. In addition, for the prehistoric components, decoration or surface treatment type/location was recorded (quantified by number of featured sherds), and for selected larger Iron-Age context groups sherd wall thickness was measured.

A system of fabric classification was devised which is primarily based on the dominant and any secondary inclusion type. A selective programme of thin-section analysis was undertaken for the largest late-prehistoric assemblage from Milton Hill North (Morris, below). A concordance is provided between the Roman types as defined and fabric type series in use by Oxford Archaeology (Table 4).[60] For those widely known, mainly 'traded wares', concordance is made with the National Roman Fabric Collection.[61]

In terms of the physical survival of mineral inclusions and surface preservation as affected by conditions of burial, the condition of the pottery from all periods was good. Indicators of pottery condition relating to depositional processes (levels of fragmentation and 'dispersal'), measured in average sherd weight, are described relative to each site and period below.

Cleeve

Early to middle Bronze Age. The following fabric was found:
EPGR. Light brown external surface with dark grey core and interior. Soft with soapy feel and fine fracture. Contains common, well-sorted, medium grog (1–2 mm). Six small and unfeatured bodysherds weighing 8 g were recovered from pit 003. Sherd thickness ranges between 5–9 mm. Broad early to middle Bronze-Age dating is favoured based upon the fabric.

Moulsford Downs

Roman. Four sherds (37 g) in a 'Belgic' quartz-tempered type fabric (BEL BS) were recovered, suggesting a date in the mid or later first century AD. A single necked jar or bowl is identifiable.

Lollingdon Hill

Neolithic and Bronze Age. The following fabric types were found:
NEOFL: Light brown exterior surface with black core and interior. Soft with irregular fracture and rough feel. Contains common angular calcined flint which is poorly sorted, in the range 1–4 mm.
BAGRFL: Light brown exterior surface and outer margin with black inner margin and interior. Soft with irregular fracture and rough feel. Contains common and well-sorted (1–2 mm) sub-angular grog and sparse angular calcined flint which is moderately sorted, in range 2–4 mm.
BASH: Patchy brown/grey exterior surface with dark grey core and interior. Soft with laminated fracture and smooth feel. Contains abundant and well-sorted (2–3 mm) shell.
BAQZ: Buff throughout. Soft with finely irregular fracture and sandy feel. Contains abundant and well-sorted (0.2–0.3 mm) colourless quartz.

Neolithic. A sherd weighing 4 g in a coarse flint-tempered fabric (NEOFL) with indistinct (whipped cord?) impressions is identified as middle Neolithic Impressed ware (Fig. 12, no. 1). Residual within a Roman pit.

Middle Bronze Age. Some 38 sherds (197 g/0.04 EVEs) from three features (pits 2658, 26119 and ditch 26135) were of probable middle Bronze-Age date. The majority occur as thick-walled sherds (10–12 mm) in a grog and flint-tempered fabric with distinctive bipartite firing (BAGRFL). The largest group of 32 sherds from pit 2651 also includes body sherds in coarse fossil-shell (6 sherds) and a sandy fabric (1 sherd). A rim sherd (Fig. 12, no. 5) is seemingly from a globular-bodied vessel.

Iron Age. A total of 20 sherds of late-prehistoric pottery weighing 73 g (0.02 EVEs) was retrieved from Roman deposits. All material comprises bodysherds in handmade quartz-tempered fabric comparable to type QZ at Milton Hill North. The dominance of sandy fabrics and exclusion of shelly types suggests most

[60] P. Booth, 'Roman Pottery', in J. Moore, 'Excavations at Oxford Science Park, Littlemore, Oxford', *Oxoniensia*, 66 (2001), pp. 185–9.
[61] R. Tomber and J. Dore, *The National Roman Fabric Reference Collection: A Handbook* (London, 1998).

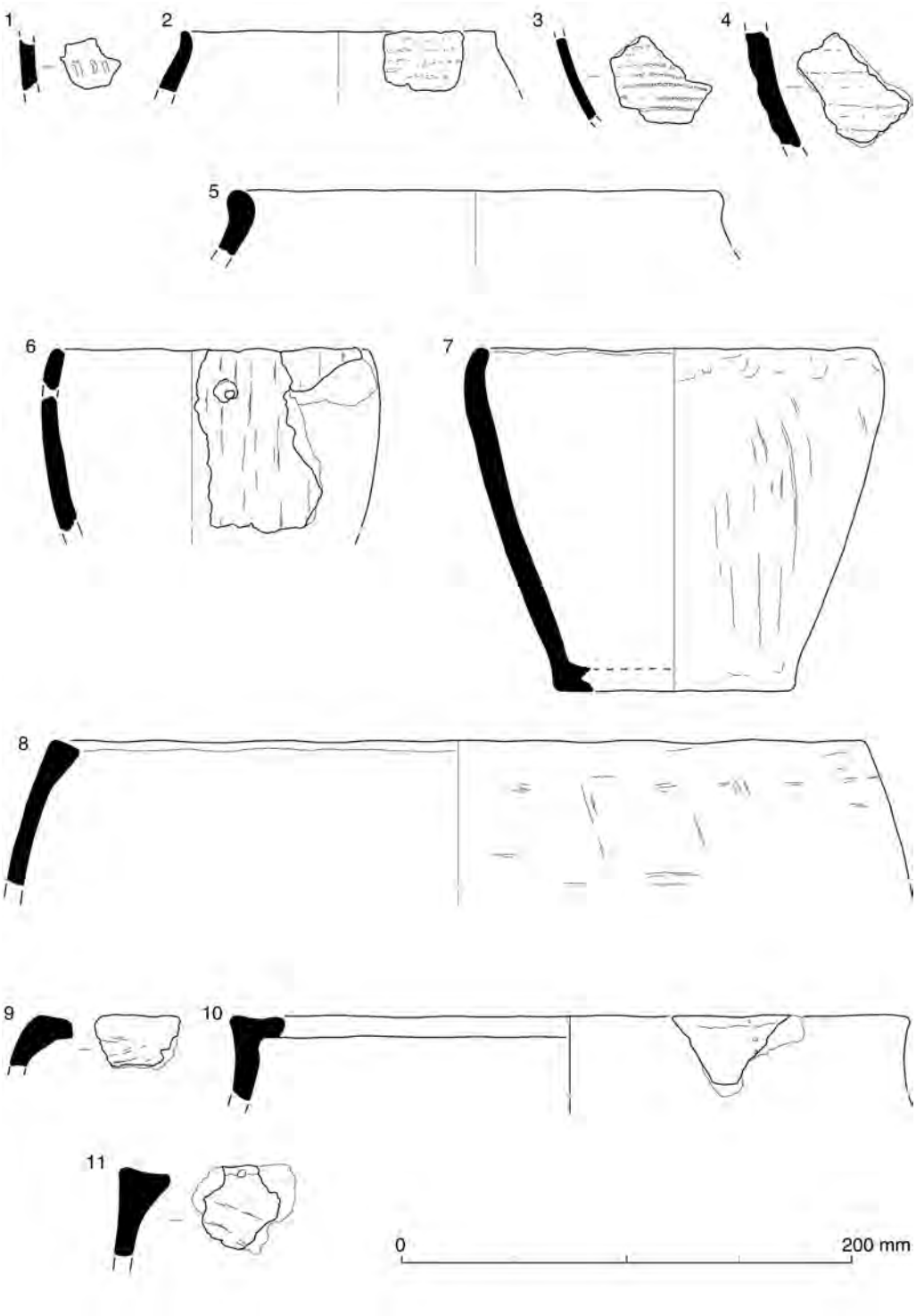

Fig. 12. Early and late prehistoric pottery (1:3).

may date to the later Iron Age. However, a bowl sherd with incised geometric decoration is more reminiscent of earlier Iron-Age styles.

Roman. A total of 811 sherds of Roman pottery (12,793 g/10.37 EVEs) was recovered. Mean sherd weight is 14.5 g, a moderately high figure for the Roman group which does not suggest high levels of disturbance. The bulk of the Roman group is sourced from the major local Oxford area industry (Table 4). Fine wares (OXF RS; OXF CC and OX PA) and mortaria types (OXF RSm, OXF WHm, OXF RSm) occur to the exclusion of all non-local fine and 'specialist' types. Among the more significant differences compared to the group from Milton Hill North are the presence of handmade flint-tempered fabric (FLINT, although this is mainly present as a single vessel; Fig. 18, no. 52), and the much higher incidence (12% by count) of Dorset Black-Burnished wares. The significance of the latter is probably chronological and reflects the later emphasis apparent at this site.

A small samian assemblage (22 sherds/172 g/0.38 EVEs) comprises mainly Central Gaulish plainware forms with two East Gaulish sherds. All must date to the second century or in the case of the East Gaulish sherds (from waterhole 2656) perhaps into the early third. All of the samian appears to be residual in late Roman groups. Identifiable forms are restricted to Drag 18/31 dishes (ditch 2610 and pit 2617), which are most likely Hadrianic to early Antonine, and a Drag 31 bowl (subsoil) and Drag 33 cup ('hollow' 2660), which are probably Antonine.

The range of forms corresponds in most respects with those found at Milton Hill North and Millets Farm, Frilford, though early classes including platter and butt-beaker forms are absent here. The vessel classes reflect a utilitarian assemblage which is typical of many lower-status rural sites. Jars dominate, though to a less marked degree compared to the other two sites (5.20 EVEs; 50.4%); the remainder comprising dishes/bowls (2.13 EVEs; 20.5%), mortaria (0.73 EVEs; 7%), beakers/cups (0.70 EVEs; 6.8%) and lids (0.51 EVEs; 4.9%). A single complete flagon neck was also present, its complete surviving circumference (1 EVE; 9.6%) skewing the overall representation.

Material from pit 2689, ditches 2664 and 2611 and pit 2668 contained grog-tempered and other types suggestive of an early Roman, probably later first-century, date. A total of 129 sherds (3,127 g/1.97 EVEs) was recovered from pit 2689, and included in this group is a substantially complete flint-tempered jar (Fig. 18, no. 52). A mid/later first-century date is probable for the latter vessel and for a large storage jar in fabric OXF GR and necked jars in types OXF RE2 and OXF RE6 which are associated.

The larger part of the assemblage is later in date. Dorset Black-Burnished ware is well represented and indicates a date after the mid/later second century. Third- or fourth-century Black-Burnished ware forms include conical flanged bowls; jars with obtuse-angled lattice and a plain-rimmed dish. The presence of Oxford red-slipped ware and mortarium forms including Young forms M22, WC4.1 and C100 indicate a date *c*.AD 240 (and probably after *c*.AD 270). There are no clear indications from the Oxford red-slipped wares or other types for activity continuing into the later fourth century. The ubiquity of Dorset Black-Burnished wares may indeed be an indication that most activity dates to the mid/later third or the early part of the fourth century.

Hagbourne Hill

Late prehistoric. The following fabrics were present:
QZ1rs: fine sandy type with red-firing slip (27 sherds/97 g/0.10 EVEs).
QZ6: Coarse glauconitic sandy type with sparse to common argillaceous inclusions (117 sherds/1011 g/0.20 EVEs)

The pottery was recovered from pit 50504 and amounts to 144 sherds (1,108 g/0.50 EVEs). It may represent as few as seven vessels (Figs. 16–17, nos. 44–7). A radiocarbon determination from a fragment of antler deposited with the group produced a date of 749–404 cal BC (Table 1, R32369/9). This date is entirely consistent with the late Bronze-Age to early Iron-Age dating applied to the pottery on stylistic grounds. Two fine ware vessels are present in the group, both re-constructible to full profile and consisting of tripartite carinated bowls/cups. A decorated and red-slipped vessel has an *omphalos* base and features incised decoration at the shoulder in a simple geometric design bordered by horizontal grooves (Fig. 16, no. 45). Jars 46 and 47 feature fingernail or fingertip slashed decoration either to the rim or the shoulder. The manner of deposition and presence of an apparently small number of vessels of varying size and function recalls 'vessel sets' from the Midlands and elsewhere and suggests that the pit may represent a structured deposit.[62]

[62] A. Woodward, 'When did Pots become Domestic? Special Pots and Everyday Pots in British Prehistory', *Medieval Ceramics*, 22–3 (1999), pp. 3–10; idem, 'Late Bronze Age Pottery' in S.C. Palmer, 'Archaeological Excavations in the Arrow Valley, Warwickshire', *Transactions of the Birmingham and Warwickshire Archaeological Society*, 103 (2000), pp. 38–42.

Harwell Field (Site 3)

Beaker. The following fabrics were identified:
BKGRQZ: Grog with quartz. Common, fine, well-sorted grog (1–1.5 mm); common, fine, quartz (0.2–0.3 mm); and sparse, coarse calcined flint 3–4 mm.
BKGRf: Fine grog. Common, well-sorted grog (1–1.5 mm); and sparse calcined flint 3–4 mm.
BKGRc: Coarser grog. Common medium, well-sorted grog (2–3 mm); sparse red iron oxide (2–3 mm) and sparse calcined flint 3–4 mm.

Pit 303 produced 25 sherds (164 g/0.10 EVEs) of Beaker pottery. At least six vessels are represented in three fabrics differing in the coarseness of the grog inclusions and inclusion or not of quartz. Two thin-walled (5–6 mm) sherds (Fig. 12, nos. 2–3) feature a band of impressed rectangular-toothed comb decoration. A thicker-walled sherd (10 mm) is badly weathered but apparently derives from a vessel with a ridged/'rippled' profile (Fig. 12, no. 4). The remaining material appears to be undecorated.

Milton Hill (Site 17)

Iron Age. A total of 74 sherds of late-prehistoric pottery weighing 462 g (0.04 EVEs) was recovered from 17 separate deposits. A description of the fabrics is included in the archive. These reflect types defined for Milton Hill North and are mainly quartz-tempered (55 sherds; 74%) with fewer shelly (13 sherds; 18%), flint-tempered (3 sherds; 4%) and quartzite-tempered (1 sherd). Of note are two sherds of Droitwich briquetage, containers in a distinctive fabric used to transport salt throughout the Iron Age. The prevalence of the quartz-tempered types may suggest a predominantly later Iron-Age date and a globular jar form would be appropriate in such a context. The occurrence of Droitwich briquetage would also accord with a later Iron-Age date (second and first centuries BC).[63]

Roman. A small group of 23 sherds (377 g) in local/Oxfordshire reduced wares and grog-tempered types (GROG; OXF GR), Oxford whiteware mortaria fabric (OXF WHm) and Dorset Black-Burnished ware (DOR BB1). An unstratified indented beaker occurs in local/Oxfordshire colour-coated fabric (OXF CC). The range of fabrics suggests a primarily earlier Roman date though the presence of types DOR BB1 and OXF WHm indicates that activity continued after *c*.AD 150.

Milton Hill North (Site 22)

Beaker. A single Beaker fine ware sherd weighing 4 g was recovered as a residual find from an Iron-Age ditch. The fabric is indistinguishable from the fine grogged type from Harwell Fields. The sherd is thin walled (5 mm) and features bands of rectangular-tooth comb impressions.

Late prehistoric. A total of 1,949 sherds of late-prehistoric pottery weighing 29.5 kg (9.14 EVEs) was recovered from 229 deposits (Table 2). A small proportion (120 sherds/1,670 g/0.87 EVEs) dates to the late Bronze Age; the remainder is Iron Age with a distinction possible between material of early to middle and late Iron-Age date. Mean sherd weight is 15 g, a high figure for a later prehistoric assemblage reflecting the overall robustness of the commonly thick-walled quartz-tempered fabrics and also the presence of some substantially complete vessels (Fig. 15, nos. 30–1). The number of sherds in each context tends to be low with 187 contexts producing 10 sherds or fewer and only 21 deposits yielding 25 or more sherds (to a maximum of 116 sherds).

Pottery fabrics are described below. Morris, below, provides thin-section analysis for selected types. Unless stated otherwise this material is handmade. Colouring for most material is variable as the result of bonfire firing; the majority tends towards darker grey browns, with some lighter and patchy brown and buff. For fine sandy, burnished types QZ1/QZ1rs more consistent dark grey or red-surfaced firing has been achieved.

Quartz:
QZ: 'Standard' type. Common, medium/fine, quartz sand inclusions. Sparse to common glauconite (856sh; 16,441 g; 4.50 EVEs).
QZ1: Fine sandy type. Common, fine, quartz sand inclusions (71 sh; 765 g 0.48 EVEs).
QZ1rs: Fine sandy type with red-firing surfaces. Common, fine, quartz sand inclusions (13 sh; 54 g; 0.08 EVEs).
QZ2: Sandy with flint type. Common, medium/fine, quartz sand and sparse, medium, calcined flint inclusions (15 sh; 176 g; 0 EVEs).

[63] J.R. Timby, 'The Pottery', in D. Jennings et al., *Thornhill Farm, Fairford, Gloucestershire: An Iron Age and Roman Pastoral Site in the Upper Thames Valley,* Thames Valley Landscapes Monograph, 23 (2004), p. 107.

Table 2. Quantification of late prehistoric pottery from Milton Hill North by sherd count/weight and rim EVEs

Fabric Group	Count	%count	Weight	%weight	EVEs	%EVEs
Quartz	1154	59.2	19852	67.2	6.07	66.4
Shell	597	30.6	6899	23.4	1.26	13.8
Flint	103	5.3	1160	3.9	0.83	9.1
Quartzite	49	2.5	747	2.5	.76	8.3
Organic	13	0.7	420	1.4	.04	0.4
Malverns limestone	13	0.7	108	0.4	0	-
(local) Calcareous	7	0.4	48	0.2	.11	1.2
Grog	7	0.4	228	0.8	.07	0.8
Silty (inclusionless)	6	0.3	67	0.2	0	-
Totals	**1949**		**29529**		**9.14**	

QZ3: Common, medium/fine, quartz sand and sparse limestone inclusions (14 sh; 142 g; 0.07 EVEs).
QZ4: Common, medium/fine, quartz sand and sparse shell inclusions (117 sh; 1201 g; 0.30 EVEs).
QZ5: Coarse sandy type. Common, coarse quartz sand (9 sh; 138 g; 0 EVEs).
QZ6: Sandy with argillaceous. Common, medium/fine quartz sand and sparse medium or coarse argillaceous (clay pellet?) inclusions (46sh; 718 g; 0.44 EVEs).
QZ7: Sandy with organic. Common, medium fine quartz sand and sparse voids from organic inclusions (12 sh; 206 g; 0.20 EVEs).

Shell:
SH1: 'Standard' shell-tempered. Common, medium (2–4 mm), fossil-shell inclusions (355 sh; 3037 g; 0.80 EVEs).
SH2: Finer shelly. Common to sparse finer (1–3 mm) shell (10 sh; 122 g; 0.08 EVEs).
SH3: Shell with quartz. Common to sparse medium shell and common or sparse fine/medium quartz sand (33 sh; 442 g; 0.03 EVEs).
SH4: Shell with iron oxide. Common to sparse medium shell and sparse iron oxide (18 sh; 680 g; 0 EVEs).
SH5: Coarser shell. Common fossil shell inclusions (up to 7 mm) (181 sh; 2618 g; 0.35 EVEs). Thin-section analysis suggests that SH5 is not significantly different to the 'standard' SH1.

Flint:
FLc: Coarse flint. Abundant or common medium/coarse (2–4 mm) calcined flint (74 sh; 970 g; 0.46 EVEs).
FLf: Finer flint. Common, medium/fine (1–2 mm) calcined flint (29 sh; 190 g; 0.37 EVEs).

Local Calcareous:
LS: Limestone-tempered. Common Oolitic or shelly limestone and sparse shell (7 sh; 48 g; 0.11 EVEs).

Malverns Limestone:
LSMAL: Common Palaeozoic limestone and calcite. Peacock's type B1(13 sh; 108 g; 0 EVEs).[64]

Quartzite:
QT: Common, medium (2–4 mm) coarse quartzite (49 sh; 747 g; 0.76 EVEs).

Grog/argillaceous:
G1: Common, medium/coarse (2–3 mm) grog or argillaceous inclusions and sparse calcined flint (1–2 mm) (3 sh; 195 g; 0.07 EVEs).
G2: Common buff-coloured, medium (2–3 mm) clay pellet inclusions (4 sh; 33 g; 0 EVEs).

[64] D.P.S. Peacock, 'A Petrological Study of Certain Iron Age Pottery from Western England', *Proceedings of the Prehistoric Society,* 34 (1968), pp. 414–26.

Organic:
ORG: Dense fabric with sparse or common voids from burnt-out organics (13 sh; 420 g; 0.04 EVEs).

Inclusionless:
SI: 'Silty' fabric. Dense, inclusionless fabric. May be micaceous (6 sh; 67g; 0 EVEs).

Twenty-four fabrics were defined, which were subsequently grouped according to dominant inclusion (Tables 2–3). The range of fabrics corresponds to established late-prehistoric traditions in the upper Thames valley. Quartzite, flint, shell and grog-tempered fabrics among the small late Bronze-Age plainware group can be paralleled from the comparably dated assemblage from Eynsham.[65] Iron-Age fabrics correspond to those from Gravelly Guy, Stanton Harcourt, Farmoor and Ashville Trading Estate, Abingdon.[66]

Table 3. Quantification of late prehistoric pottery from selected feature groups at Milton Hill North by sherd count and EVEs

Date	Feature	Quartz	Shell	Flint	Quartzite	Grog	Malv. Ls.	Calc.	Org.	Silty	Total
LBA	22490	-	17/-		13/.15	3/-	-	-	-	-	**33/.15**
LBA	22520	-	101/.26	5/.06	10/.55	-	-	-	-	-	**116/.87**
EMIA	22538	1/-	41/.16	1/-	-	-	-	-	-	-	**43/.16**
EMIA	2221	93/.30	38/.27	-	1/-	-	-	-	-	-	**132/.57**
EMIA	22206	19/.14	16/-	6/-	-	-	-	-	-	-	**41/.14**
EMIA	22366	4/.12	11/.09	1/-	-	-	-	-	-	-	**16/.21**
LIA	22234	37/.10	24/-	-	-	-	-	1/-	-	1/-	**63/.10**
LIA	22276	48/.23	5/-	1/-	-	-	12/-	-	1/-	-	**67/.23**
LIA	22292	32/.10	7/-	1/.05	-	-	-	-	-	-	**40/.15**
LIA	2213	101/1.25	3/-	-	-	-	-	-	1/-	-	**105/1.25**
EMC1	22253	47/.70	14/-	1/.10							**62/.80**

Iron-Age assemblages in the upper Thames region are characterized by a decline in the incidence of shelly fabrics, with sandy wares dominant by the later Iron Age.[67] A similar pattern is observable in this assemblage. The overall dominance of sandy fabrics here might also relate to its location close to the Upper Greensand plateau at Milton Hill and the availability of glauconitic sands. Red-coated fabric QZ1rs is representative of early Iron-Age types, known primarily from south central England. Historically referred to as 'hematite-coated wares', analysis has shown that various means of producing the surface finish were employed.[68] For the most part the pottery utilized locally obtainable materials (Morris, below). An exception is Palaeozoic limestone-tempered type LSMAL for which the most likely source is in the Malverns, approximately 60 km north-west.[69] The type is increasingly recognized in upper Thames valley

[65] A. Barclay, 'Later Prehistoric Pottery', in A. Barclay et al., 'A Prehistoric Enclosure at Eynsham Abbey, Oxfordshire', *Oxoniensia,* 66 (2001), pp. 127–39.

[66] D. Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', in Lambrick and Allen, *Gravelly Guy*; G. Lambrick and M. Robinson, *Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire,* CBA Research Report, 32 (1979); C.D. DeRoche, 'The Iron Age Pottery', in M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring-Ditches and Roman Features at Ashville Trading Estate, Abingdon, Oxfordshire 1974–76,* CBA Research Report, 28 (1978), pp. 40–74.

[67] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', p. 279.

[68] A.P. Middleton, 'Technological Investigation of the Coatings on Some Hematite-Coated Pottery from Southern England', *Archaeometry*, 29 (1987), pp. 250-61.

[69] E.L. Morris, 'Iron Age Pottery and Briquetage', in J. Vallender, 'Iron Age Occupation at Guiting Power, Gloucestershire: Excavations at Guiting Manor Farm 1997', *Transactions of the Bristol and Gloucestershire Archaeological Society,* 123 (2005), p. 28.

sites in late Iron-Age or late Iron-Age/early Roman contexts, although this find spot may be the furthest east yet recognized.[70]

Late-prehistoric pottery forms. Ten vessel forms were defined, the majority of jar proportions with fewer bowls. It should be noted that the identification of Late Bronze-Age vessels of Type 1 was in conjunction with consideration of fabric and surface treatment.

Type 1: Late Bronze-Age ovoid or barrel-shaped jars (neck-less/undifferentiated rim zone). Rims are simple or squared, or internally thickened. 5 vessels/1.05 EVEs (Fig. 12, nos. 6–9).
Type 2: Iron-Age barrel-shaped jars (neck-less/undifferentiated rim zone). Rims are rounded, squared or internally expanded. 16 vessels/1.01 EVEs (Fig. 13, no. 14). Equivalent to Form 57 at Gravelly Guy.[71]
Type 3: Barrel-shaped jars with loop handles. 1 vessel/0.08 EVEs (Fig. 13, no. 12).
Type 4: Slack-shouldered vessels (mainly jars) with poorly defined neck/rim zone. Rims are rounded or squared. 13 vessels/2.59 EVEs (Fig. 13, no. 13; Fig. 15, nos. 30–1). Equivalent to Form 55 at Gravelly Guy.[72]
Type 5: Rounded/globular vessels (mainly jars), typically with short, upright or slightly everted neck/rim zone. Rims are rounded, tapered or bead-like ('proto-bead'). 15 vessels/1.55 EVEs (Fig. 15, nos. 32–4; Fig. 16, nos. 35 and 38). Equivalent to Form 56 at Gravelly Guy.[73]
Type 6: Straight-sided jars (saucepan pot). Rims are rounded, rounded with groove below. 3 vessels/0.31 EVEs (Fig. 16; no. 37) or squared. Equivalent to Form 58 at Gravelly Guy.[74]
Type 7: Coarse ware vessels (probably bowls) with heavy, expanded rims including 'cauldron pot' forms. Rims are internally flanged, 'T'-shaped/expanded sometimes with fingertipping or internally expanded. 5 vessels/0.24 EVEs (Fig. 12; nos. 10–11; Fig. 13, no. 16; Fig. 14, nos. 21–2). Equivalent to Form 62 at Gravelly Guy.[75]
Type 8: Tripartite (carinated) fine ware bowls. 16 vessels/0.30 EVEs (Fig. 13, nos. 17–18; Fig. 14, no. 23). Rims are rounded or simple. Equivalent to Form 51 at Gravelly Guy.[76]
Type 9: Bipartite (carinated) fine ware bowls. 7 vessels/0.43 EVEs (Fig. 13, no. 19 and Fig. 14, no. 24). Equivalent to Form 51 at Gravelly Guy.[77]
Type 10: Miniature 'pinch pots'. 1 vessel/0.13 EVEs (not illustrated).

Late Bronze-Age forms. Type 1 ovoid/barrel-shaped jars occur in a distinctive range of fabrics (QT and SH5). In essence this form closely resembles Type 3 barrel-shaped vessels, the main differences being in the squared or internally thickened rims. Equivalent forms appear among Post-Deverel Rimbury plainware assemblages from Eynsham, Shorncote Quarry (Glos.) and Upper Bucklebury (Berks.).[78] The shouldered forms which are a common feature in the lower Thames valley are not represented and these were also rare at Eynsham.[79] Vessel Fig. 12, no. 6 exhibits a post-firing perforation below the rim probably for suspension and for which there are a number of late Bronze-Age and earlier parallels.[80] A base sherd with coarse crushed flint grits impressed into the base underside is a further late Bronze-Age trait known for example at Upper Bucklebury and Reading Business Park.[81]

[70] J.R. Timby, 'The Pottery', in Jennings et al., *Thornhill Farm*, p. 107.
[71] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', pp. 273 and pp. 290–2.
[72] Ibid.
[73] Ibid.
[74] Ibid.
[75] Ibid. pp. 290–1.
[76] Ibid. pp. 273, 290–1.
[77] Ibid.
[78] A. Barclay, 'Early Prehistoric Pottery', in Barclay et al., 'A Prehistoric Enclosure at Eynsham Abbey', p. 131; E.L. Morris 'Pottery', in C.M. Hearne and M.J. Heaton, 'Excavations at a Late Bronze Age Settlement in the Upper Thames Valley at Shorncote Quarry near Cirencester 1992', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 112 (1994), pp. 34–43; E.L. Morris, 'Late Bronze Age and Early Iron Age Pottery', in M. Collard and M. Watts, *Late Bronze Age and Early Iron Age Occupation at Hartshill Copse, Upper Bucklebury, Berkshire* (forthcoming).
[79] Barclay, 'Early Prehistoric Pottery', p. 131.
[80] M. Hall, 'The Prehistoric Pottery', in J. Moore and D. Jennings, *Reading Business Park: A Bronze Age Landscape* (Oxford, 1992), fig. 50, no. 195; J.R. Timby, 'Prehistoric Pottery', in G. Walker et al., 'Bronze Age and Romano-British Sites South-East of Tewkesbury: Evaluations and Excavations 1991–7', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 122 (2004), fig. 16, no. 20.
[81] Morris, 'Late Bronze Age and Early Iron Age Pottery'; Hall, 'The Prehistoric Pottery', p. 69.

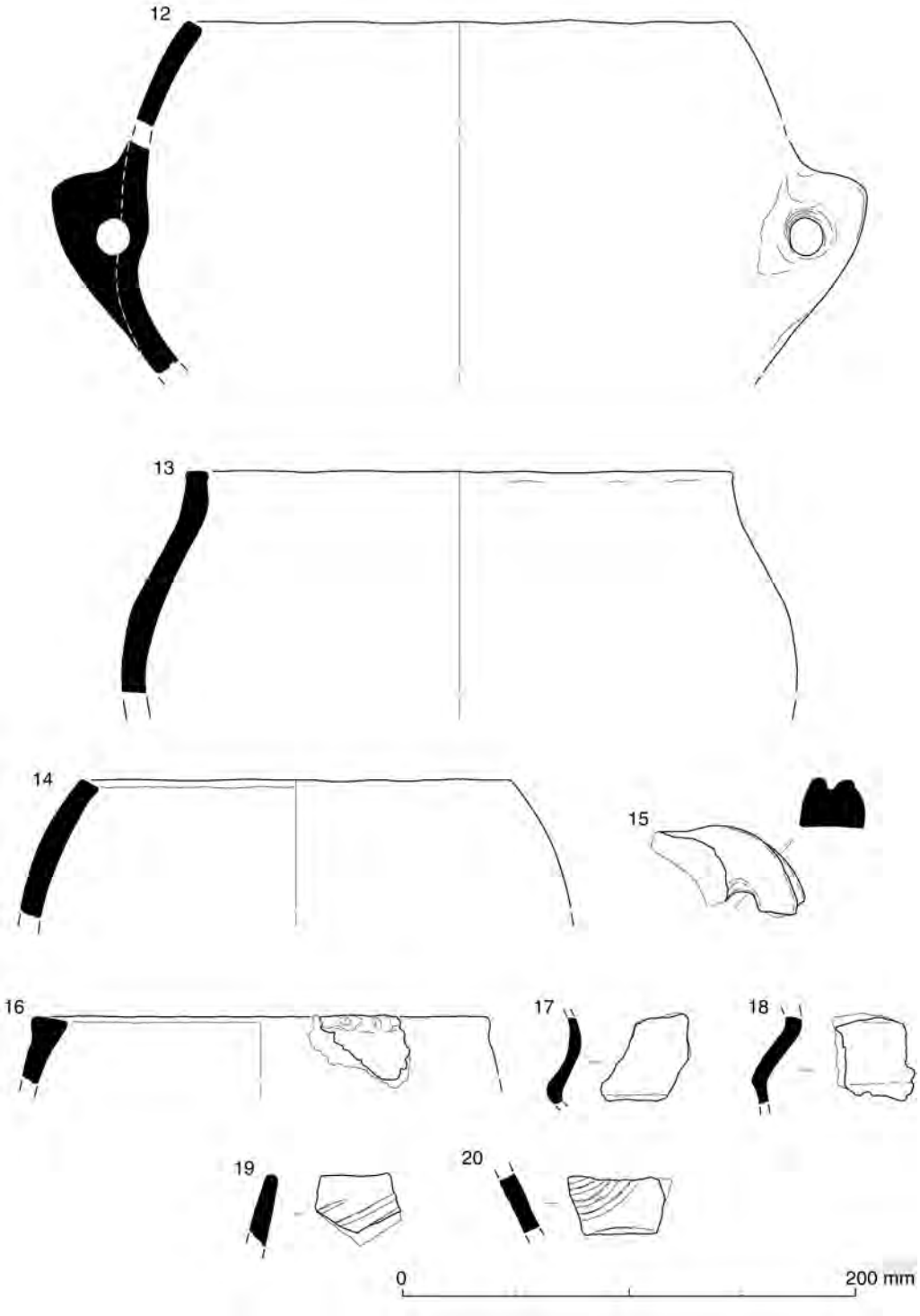

Fig. 13. Late prehistoric pottery (1:3).

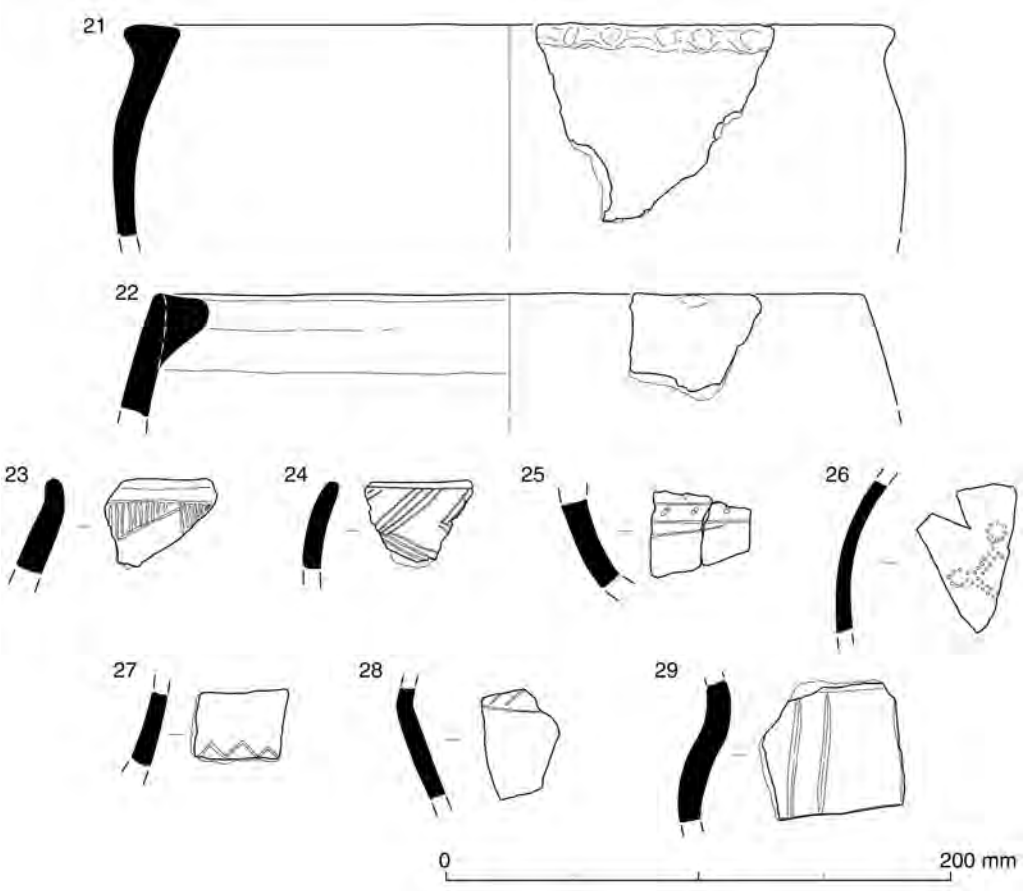

Fig. 14. Late prehistoric pottery (1:3).

Iron-Age forms. The range of vessel forms for the larger portion of the assemblage corresponds broadly with those from published assemblages from the wider region, more particularly the early to late middle Iron-Age and middle to late Iron-Age groups from Gravelly Guy, Ashville and, for late Iron-Age groups, Watkins Farm, Northmoor.[82] Most common are coarse ware jars of barrel-shaped, slack-shouldered or globular/rounded profiles. 'Type 7' expanded-rim vessels (Form 62 at Gravelly Guy and Form A at Ashville) encompasses forms sometimes referred to as 'cauldron pots' and representing a local tradition, confined largely to the upper Thames valley.[83] A number of jar forms are equipped with lug handles (Fig. 13, nos. 12 and 15). 'Pointed' handles such as no. 12 are unusual and seemingly reproduce the carinated profile of some earlier Iron-Age forms.

Fine ware bowls consisting of carinated tripartite and bipartite vessels (Types 8 and 9) similarly can be paralleled from among upper Thames assemblages, although the tradition is more widespread and

[82] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', pp. 259–303; DeRoche, 'The Iron Age Pottery', pp. 40–74; T.G. Allen, *An Iron Age and Romano-British Enclosed Settlement at Watkins Farm Northmoor* (Oxford, 1990), pp. 32–46.

[83] D.W. Harding, *The Iron Age of the Upper Thames Basin* (Oxford, 1972), pp. 139–40.

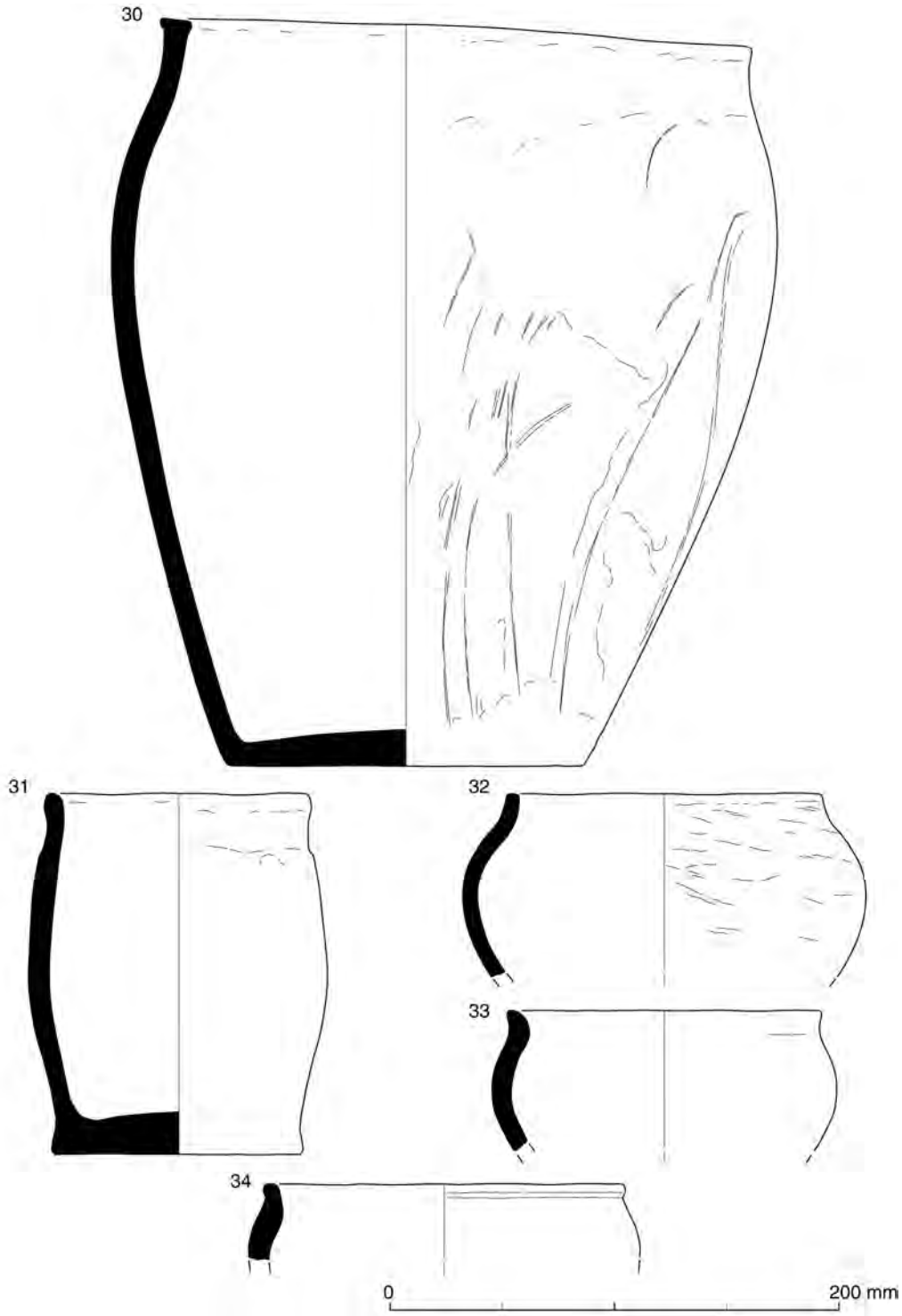

Fig. 15. Late prehistoric pottery (1:3).

with similarities with continental styles.[84] Base forms for all vessels are flat and simple, or less commonly expanded/pushed-out, and there is a single fine ware vessel with an omphalos (internally convex base).

Surface treatments and decoration. Sherds from 89 vessels exhibited decoration or surface treatment. Among the late Bronze-Age group this consisted of three vessels with finger-wiping (Fig. 12, no. 6), resulting in the uneven surfaces which is a feature of late Bronze-Age coarse wares.[85] There are relatively few vessels at this site which exhibit the 'extensive' fingertip/fingernail ornament common to pottery of the late Bronze-Age to early Iron-Age transition. The few sherds of this type occur in flint-tempered or sandy fabrics and appear to be residual. Fingertip ornament restricted to the outer part of the rim is a feature of coarse ware bowls in the early to middle Iron-Age 'cauldron pot' series, examples of which are recorded (Fig. 13, no. 16; Fig. 14, no. 21).

Burnish was most commonly recorded among the early to middle Iron-Age assemblage and occurs most often with sandy fabrics (42 instances from a total of 47 in all fabrics). In some instances burnish could be seen to have been executed in linear strokes (Fig. 15, no. 32). For fine ware vessels in fabric QZ1, burnishing typically results in a high surface polish with burnishing facets not distinguishable.

Fifteen vessels feature linear incised decoration, in some instances defining zones of stabbed 'infill' (Fig. 14, no. 25). Most examples are small sherds where vessel form is indeterminate, although most are probably Type 8/9 bowls. Most (36 sherds) occur in fine sandy fabric QZ1. Decorative schemes are geometric (Fig. 14, nos. 23–4, 27) or probably curvilinear (Fig. 13, nos. 19–20). Geometric decoration and vessels with incised zones/stabbed infill (Fig. 14, nos. 23–8) compare to examples from Gravelly Guy.[86] The apparent use of a white paste infill for no. 23 can be paralleled among early Iron-Age material from Crickley Hill (Glos.).[87] The zig-zag motif on no. 27 compares to material from decorated early/middle Iron-Age groups in the region to the east and centred on the Chilterns (Cunliffe's Chinnor-Wandlebury group).[88] The motif also occurs at Blewburton Hill (Berks.) only 5 km to the south-east.[89]

Other classes of decoration are present as possible applied strip and impressed lozenge/circle designs (Fig. 14, no. 26). All can be paralleled among early to middle Iron-Age groups from the region. There is a close match for vessel no. 25 from Blewburton Hill.[90]

Evidence of use and re-use. Evidence for vessel use in the form of carbonized or other residues was recorded on 121 sherds or 6% of the late-prehistoric group. There were 14 occurrences of a whitish residue to be expected from the storage or heating of water, with the remainder being carbonized residues including internal 'burnt-food type' deposits. There is a slight imbalance apparent in proportions of sandy and shell-tempered groups with carbonized residues more common on the shelly types (6% compared to 4.4%), but this is insufficient to suggest a functional distinction.

Chronology. This assemblage has only limited potential for the ceramic phasing undertaken on some larger groups from the region and elsewhere. The larger and more discrete groups are illustrated and quantified data presented (Table 3). Radiocarbon dating for the late Bronze-Age assemblage obtained from burnt food residues on sherds from post holes 22520 (1265–1049 cal BC) and 22490 (1121–928 cal BC) are consistent with the dating suggested on stylistic grounds (Table 1, R32369/7; R32369/8).

The larger part of the assemblage dates to the early to middle Iron Age, which is usually dated between the fifth to third centuries BC. Dating is largely based on the technological and stylistic affinities established with published assemblages. The limited absolute dating available is consistent with this (Table 1, R32369/3; R32369/4).

Large discrete groups from Enclosure 1 and selected pits are defined by a reduced incidence of shell-tempered wares and higher representation of sandy fabrics indicative of late Iron-Age dating. Malvern fabric LSMAL is a rare presence and its incidence is consistent with a late Iron-Age date. Vessel forms from these groups are the globular jars (Type 5) with short everted or bead-like rims, or slackly shouldered jars (Type 4), which includes complete vessel no. 30. There are in addition a small number of straight-sided vessels of the saucepan pot tradition (Type 6). Fine ware forms are restricted to a few round-bodied forms, some with burnished/scored decoration (Fig. 15, nos. 30 and 32; Fig. 16, no. 38).

[84] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', pp. 290–1: form 51; B.W. Cunliffe, *Iron Age Communities in Britain,* 4th edn (London, 2005), p. 98.

[85] Morris 'Pottery', in Hearne and Heaton, 'Excavations at a Late Bronze Age Settlement in the Upper Thames Valley', fig. 11.

[86] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', fig. 7.3.

[87] S.M. Elsdon, 'The Iron Age Pottery', in P. Dixon, *Crickley Hill Volume 1: The Hillfort Defences* (Nottingham 1994), pp. 203–241.

[88] Cunliffe, *Iron Age Communities in Britain*, pp. 101–3.

[89] A.E.P. Collins, 'Excavations on Blewburton Hill, 1947', *Berkshire Archaeological Journal,* 50 (1953), fig. 11.

[90] Ibid. fig. 11, nos. 6–7.

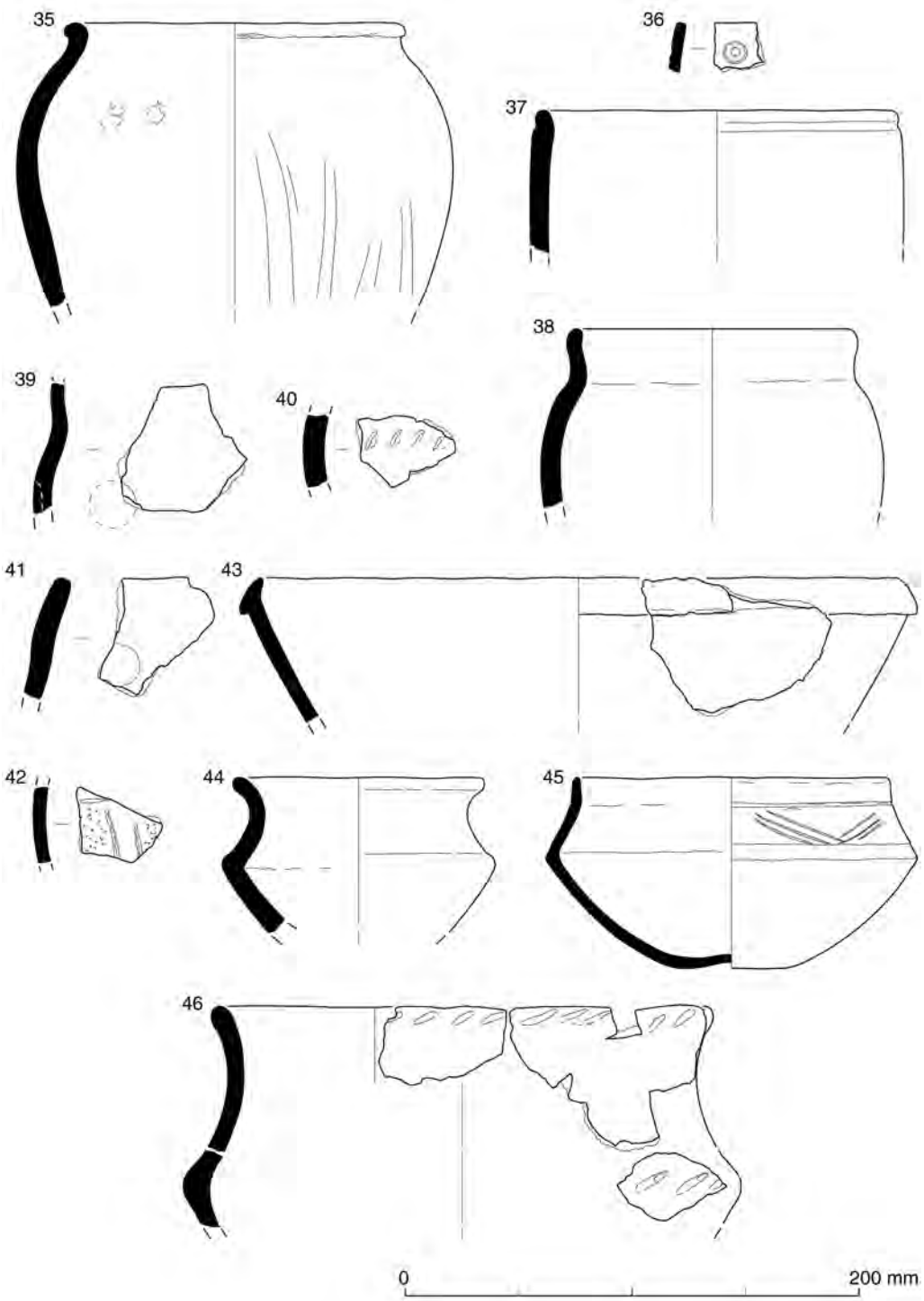

Fig. 16. Late prehistoric pottery (1:3).

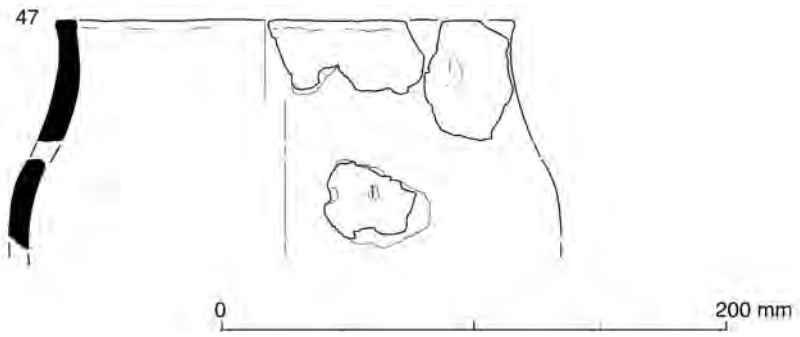

Fig. 17. Late prehistoric pottery (1:3).

Roman. Roman pottery amounts to 1,046 sherds, weighing 16.5 kg (16.74 EVEs). The mean sherd weight is 16 g, a moderately high figure for a Roman group. Pottery fabrics are presented in Table 4. A significant component (30% by count) comprises wheel-thrown grog-tempered and quartz-tempered fabrics, types known to span the late Iron-Age to early Roman transition. Local grogged grey wares (OXF GR) resemble (East Wiltshire) Savernake ware and may share similar dating from the mid first to early second centuries AD.

The larger part of the 'fully Romanized' pottery is of local origin and largely from kilns in the area of modern Oxford.[91] The largest element consists of reduced coarse wares (43% by count), mainly the type OXF RE2 with a smaller amount of finer type OXF RE6. Local white (OXF WH) and oxidized wares (OXF OX) are also well represented. Among the fine grey wares is at least one (Gallo-Belgic) platter copy (Fig. 18, no. 49). Other fine wares are mostly late Oxfordshire types, primarily red-slipped ware (OXF RS) and one sherd of Parchment ware (OX PA). The range and quantity of the regional imports reflects what is primarily an early Roman assemblage and includes Verulamium region mortaria and Savernake ware. Dorset Black-Burnished ware is uncommon compared to the assemblages from Lollingdon Hill and Millets Farm, Frilford and is restricted to a small number of late features. An unusual occurrence in an area dominated by Oxford fine wares is a New Forest (metallic) colour-coated beaker (Fig. 18, no. 51).

Continental imports are restricted to 15 sherds of samian and one sherd of Baetican amphora. The majority of the samian consists of very small sherds under 1 gram in weight. All is second-century Central Gaulish material; a Drag 18/31 dish is Hadrianic/earlier Antonine and a Drag 33 cup is probably Antonine.

The range of forms among the coarse pottery is heavily jar-dominated (72%; 12.02 EVEs); the remainder comprise open vessel forms (18%; 3.02 EVEs), flagons (3.5%; 0.59 EVEs), beakers (2.9%; 0.48 EVEs), mortaria (2.8%; 0.46 EVEs) and amphorae (1%; 0.17 EVEs).

C*hronology*. The two-fold division in the Roman site sequence is based in part upon stratigraphical relationships, but primarily upon the date of the pottery. The larger part of the earlier Roman group occurs as fabrics GROG and BEL BS, types locally representative of the 'Belgic' tradition and unlikely to date before the late first century BC (Table 5).[92] That the grogged tradition remained current in the AD 60s or later is indicated by material from ditch 2203 and its association with a mortarium of the Verulamium potter Albinus. Local reduced, white or oxidized and other coarse wares make up much of the remainder of the group. There is no evidence in the Oxford region for the production of reduced wares before the early Flavian period or for whitewares before *c*.AD 100.[93]

[91] C.J. Young, *The Roman Pottery Industry of the Oxford Region*, BAR, 43 (1977).
[92] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', pp. 330–1.
[93] P.M. Booth, *Asthall, Oxfordshire: Excavations in a Roman 'Small Town',* Thames Valley Landscapes Monograph, 9 (1997); Young, *Oxfordshire Roman Pottery*, p. 94.

Table 4. Quantification and concordances of Roman pottery from Milton Hill North, Lolllingdon Hill and Millets Farm, Frilford.

Fab. Group	Fabric	OA Code	Ref.	Milton Hill North			Lollingdon Hill			Millets Farm		
				Ct.	*Wt.*	*EVEs*	*Ct.*	*Wt.*	*EVEs*	*Ct.*	*Wt.*	*EVEs*
Continental												
	BAT AM: Baetican amphora	A11	T&D 1998, 84	1	113	.17						
	SA CG: Central Gaulish (Lezoux) samian	S30	T&D 1998, 32	15	51	-	20	166	.38	14	88	.13
	SA EG: East Gaulish (Trier or Rheinzabern)	S40	T&D 1998, 39-41				2	6	-	1	5	-
Regional												
	DOR BB1: South-east Dorset Black-Burnished ware	B10	T&D 1998, 127	14	94	.07	100	1479	1.90	74	723	.77
	LNV CC: Lower Nene Valley colour-coated ware	F52	T&D 1998, 118							5	31	-
	NFO CC: New Forest metallic colour-coated ware	F54	T&D 1998, 141	14	52	-						
	PNK GT: Pink grog-tempered ware	O81	T&D 1998, 210							5	240	-
	SAV GT: Savernake ware	E81	T&D 1998, 191	4	88	-	1	9	-	2	56	-
	VER WHm: Verulamium region white ware mortaria	M21	T&D 1998, 56	6	392	.17						
Regional?	ROB SH: Roman shell-tempered (including Midlands type)	C11	T&D 1998, 212	31	625	.55	4	16	-	31	357	.39
	OXF OX2: ?North Wilts. oxid	O30	-	2	33	-						
	MICA D: ?North Wilts. mica-dusted ware	F34-7	-				1	2	-			
	FLINT: Reduced fabrics with sparse or common flint	E60	-	2	11	-	56	1854	.62			
Local/Oxon C1 'Belgic'	GROG: Late Iron Age/early Roman, wheel-thrown, grog-tempered	E		209	4783	3.16	45	1109	.22	58	1138	.16
	GROGq: Late Iron Age/early Roman, wheel-thrown, grog-tempered with quartz	-		58	861	.68	1	20	.03			
	GROGsh: Late Iron Age/early Roman, wheel-thrown, grog-tempered with shell	-		1	5	-						
	BEL BS: Local 'Belgic' style black sandy wares with brown core	-	-	38	679	.63	1	54	.15	2	58	.08
	BEL BSfl: as BEL BS with sparse flint	-	-	4	47	-						

Table 4. Continued

Fab. Group	Fabric	OA Code	Ref.	Milton Hill North			Lollingdon Hill			Millets Farm		
				Ct.	*Wt.*	*EVEs*	*Ct.*	*Wt.*	*EVEs*	*Ct.*	*Wt.*	*EVEs*
Reduced	OXF GR: Local/Oxford grog-tempered grey ware	R38	Booth 1997, 118	27	614	.67	31	1019	.16	43	934	.73
	OXF RE FL: as OXF RE1 with sparse flint	-	-	1	69	-						
	OXF RE1: Fine, light-coloured grey ware	-	-	19	525	.59	1	4	-	15	130	.14
	OXF RE2: Sandy textured grey ware	R30	-	157	1757	1.22	273	3538	3.90	115	1241	1.67
	OXF RE3: Dark-grey or black-firing sandy coarse ware	-	-	91	958	1.07	40	458	-	41	286	.19
	OXF RE6: 'Standard' medium-sandy grey ware	R11	Young 2000, 202	134	1984	3.05	45	586	.48	375	4199	6.33
	OXF FR: Oxon fine reduced	R11	Young 2000, 202	52	654	.90	14	43	.24	28	361	.73
	GAL BELIM: Fine grey (Gallo-Belgic) imitation	-		1	7	-						
White	OXF BWH: Oxon 'blackened' white ware	W23	Young 2000, 93	25	420	.23	4	30	-			
	OXF WH: Oxon white ware	W12	T&D 1998, 174	6	42	.06	17	77	1.13	2	16	-
	OXF WH1: Oxon fine white ware	W12	Young 2000, 93	7	29	.14	4	27	-	13	91	.31
	OXF WH2: Oxon sandy white ware	W22	Young 2000, 93	18	390	.62	45	720	-	18	196	.16
	OXF WHf: Oxon fine white ware	W12/13	Young 2000, 93	4	58	.10				1	10	-
	OXF PA: Oxford Parchment ware		T&D 1998, 174	1	1	-				1	24	-
	OX WHm: Oxford white ware (mortaria)	M22	T&D 1998, 174	2	45	.07	10	352	.32	4	176	.23
Oxidized	OXF OX1: Oxon fine sandy	O10	Young 2000, 185	25	188	.74	22	200	.05	16	91	-
	OXF OX2: Oxon sandy oxidized wares	O37	Young 2000, 185	12	104	-	11	230	.07	4	26	-
Colour-coated/	OXF WS: Oxford white-slipped	Q21	T&D 1998, 176	17	190	.43	28	364	.28	8	120	-
slipped	OXF CC: Local/Oxford colour-coated (2nd to 3rd C)	F65	Booth 1997, 113	8	40	.10	13	59	.23	14	79	.28
	OXF RS: Oxford red-slipped ware	F51	T&D 1998, 176	29	463	1.10	20	349	.14	97	911	.99
	OXF RSm: Oxford red-slipped ware (mortaria)	M41	T&D 1998, 176	11	113	.22	2	22	.07	13	151	-

Fig. 18. Roman pottery (1:4).

Table 5. Quantification of Roman pottery by period from Milton Hill North

		LIA / ER			Later Roman		
Source	**Fabric**	*Ct.*	*Wt.*	*EVEs*	*Ct.*	*Wt.*	*EVEs*
Continental	SA CG	10	45		2	3	0
Regional	DOR BB1	1	2		13	92	.07
	FLINT	1	9				
	SAV GT	4	88				
	VER WHm	6	392	.17			
?Regional	ROB SH				31	625	.55
Local/Oxon	GROG	164	3428	2.44	6	60	-
	GROGq	53	802	.63			
	GROGsh	1	5				
	BEL BS	15	213	.36	6	62	.02
	BEL BSfl	4	47				
	OXF GR	12	342	.51	1	7	
	OXF RE FL	1	69				
	OXF RE1	5	79	.34	14	446	.25
	OXF RE2	79	833	.49	30	419	.24
	OXF RE3	47	697	.53	6	79	
	OXF RE6	24	372	.33	22	470	1.10
	OXF FR	18	138	.08	18	313	.56
	OXF BWH	23	352	.23	1	16	
	OXF WH	2	18	.06	2	5	
	OXF WH1	5	22	.07			
	OXF WH2	6	244	.37	3	20	.12
	OXF WHf	2	8				
	OXF PA				1	1	
	OXF WHm				1	31	.07
	OXF OX1	16	148	.74	1	26	
	OXF OX2	7	82				
	OXF WS	7	92		10	98	.43
	OXF CC				2	16	0
	OXF RS	1	5		19	410	1.08
	OXF RSm				5	66	.22
Total		**514**	**8532**	**7.35**	**194**	**3265**	**4.71**

Late Roman dating is prompted in most instances by sherds of Oxford red-slipped ware (OXF RS), a type produced from *c.*AD 240 and probably not widespread until after *c.*AD 270. Groups of this date also include late Dorset Black-Burnished ware forms and Roman shell-tempered ware. The latter includes locally made material, but also 'Midlands type' shell-tempered of the kind known to be made at Harrold (Beds.) and dating probably to the mid or later fourth century.[94]

[94] A. Brown, 'A Romano-British Shell-Tempered Pottery and Tile Manufacturing Site at Harrold, Bedfordshire', *Bedfordshire Archaeological Journal,* 21 (1994), pp. 19–107.

Land South of Marcham

Beaker? The following fabric was identified:
EPGR: Light reddish-brown exterior surface and margin with dark grey inner margin and interior. Soft, with sandy feel and finely irregular fracture. Common fine, well-sorted grog (1–1.5 mm); common fine quartz (0.2–0.3 mm); sparse red-brown iron oxide (1–2 mm) and sparse shell (1–2 mm).

Three sherds (32 g), probably from a single vessel, were recovered from a small pit/post hole 5029. Possible Beaker attribution is based primarily on the fabric which is similar to material certainly of this type from Harwell Field (Site 3). One small and weathered sherd displays possible irregular impressed decoration resembling that sometimes found on Beaker coarse wares. The three sherds all preserve internal carbonized residues.

Late prehistoric. A total of 91 sherds of late-prehistoric pottery weighing 702 g (0.04 EVEs) was recovered from 26 separate deposits. Full description of fabrics is included in the archive. Fabrics are mainly quartz-tempered (60 sherds; 64%) and shell-tempered types (27 sherds; 29%); the remainder are quartzite (2 sherds), limestone (1 sherd), flint (1 sherd) and grog-tempered (3 sherds) types.

The range of fabrics broadly reflects that found at Milton Hill North and hints at an early to middle Iron-Age date. This is supported by a radiocarbon date of 362–176 cal BC obtained for burial 5050 (Table 1, R32369/6), a feature which contained five bodysherds in a coarse fossil-shell and a quartz-tempered fabric. A sherd with incised and 'dimpled' decoration (Fig. 16, no. 42) is stylistically of the fifth to third centuries BC.[95] Earlier (late Bronze Age to early Iron-Age) dating is possible for sherds with impressed fingernail decoration (Fig. 16, nos. 39–41).

Land South-West of Marcham

Late prehistoric. The 43 sherds (262 g/0.06 EVEs) from spread 5304 occur in sandy fabrics, the most common single type (20 sherds) has sparse fossil shell inclusions and resembles type Q4 from Milton Hill North. A further 10 sherds (88 g/0.05 EVEs) from pit 3507 are a mix of shell-tempered and fine quartzite-tempered fabrics (9 sherds and 1 sherd respectively). The contrasting range of fabrics may suggest the two groups are not closely contemporary. A bodysherd from the spread in fabric Q4 exhibits a row of fingertip impressions which may support a date in the late Bronze Age or early Iron Age. A bowl in the pit 5307 (Fig. 16, no. 43) is probably related of the 'cauldron pot' series (see Milton Hill North Type 7 vessels), though quartzite-tempered fabric may suggest a late Bronze-Age date. A globular jar with bead-like rim, which was an unstratified find, in a quartz sand-tempered fabric could suggest some middle to late Iron-Age activity in the vicinity.

Millets Farm, Frilford

Late prehistoric. A total of 48 sherds (394 g) of pottery of late-prehistoric type was recovered from 20 deposits. Only 29 sherds (270 g) were stratified, the remainder residual within Roman deposits. The fabrics (described in the archive) are handmade and a mix of shell-tempered types (39 sherds/276 g) with fewer quartz sand (7 sherds/106 g) and flint-tempered types (2 sherds/12 g). The abundance of the shell-tempered group is suggestive of a date in the earlier Iron Age, although the stratigraphic evidence favours a late Iron-Age date given the apparent continuity of activity into the Roman period.

Roman. A total of 1,000 sherds of Roman pottery (11,738 g/13.29 EVEs) was recovered from 52 deposits, with a further 377 unstratified sherds. Mean sherd weight (12.4 g) was smaller than the Roman groups from Milton Hill North and Lollingdon Hill, though not so much as to suggest a very broken-up assemblage. Pottery fabrics represented are shown in Table 4. In common with Milton Hill North and Lollingdon Hill, local grey-firing sandy coarse wares are abundant (574 sherds; 57%) with the 'standard' grey ware type OXF RE6 notably more dominant over sandy type OXF RE2 compared to the other two sites. The grogged (GROG, OXF GR and SAV GT) and sandy type BEL BS represent an early Roman component. Otherwise late fine ware types, mainly red-slipped/colour-coated types OXF RS/OXF CC, are unusually common (124 sherds in total; 12%). The mortaria (17 sherds; 1.7%) comprise Oxfordshire types (OXF WHm/OXF RSm).

Dorset Black-Burnished wares are reasonably well represented (7.5% by count), though less so than at Lollingdon Hill. This may be a facet of the chronology of Millets Farm, which appears to extend later in date than Milton Hill North and Lollingdon Hill. Other regional imports include five sherds of Lower Nene Valley colour-coated ware (LNV CC); five sherds of pink grog-tempered ware (PNK GT) from the

[95] Collins, 'Excavations on Blewburton Hill', fig. 11.

Towcester/north Buckinghamshire area and at least a proportion of the 30 sherds of Roman shell-tempered wares (ROB SH). The latter two fabrics were widely distributed in the mid/later fourth century.[96]

The range of forms is similar to that represented at Milton Hill North and Lollingdon Hill. Jars predominate (9.48 EVEs; 71%), followed by dishes/bowls/platters (2.13 EVEs; 21.8%), beakers/cups (0.50 EVEs; 3.8%), mortaria (0.23 EVEs; 1.7%) and flagons (0.18 EVEs; 1.4%). The small samian assemblage (15 sherds/93 g/0.13 EVEs) is, with the exception of two East Gaulish sherds, made up of Central Gaulish vessels: a single small and otherwise unidentifiable fragment from a Drag 37 bowl, Drag 33 cups and a Drag 18/31 dish. All material is probably second century in date with the Drag 18/31 Hadrianic or early Antonine and the cup forms more likely Antonine.

Chronology. Six pits produced 184 sherds (2,123 g/1.81 EVEs). The relative abundance of earlier grog-tempered fabrics (45 sherds) including types GROG, OXF GR and SAV GT, the occasional presence of samian and an absence of Oxford red-slipped wares (OXF RS) suggests a date within the late first to late second/early third century AD for these features. A group of 20 sherds from pit 54086 includes a sherd from a ring-necked flagon and poppy-head beaker with barbotine dot panel decoration, both of which probably date to the first half of the second century AD. The largest group (2123 g/1.81 EVEs) from pit 54109 dates to after *c*.AD 140 on the basis of an East Gaulish samian vessel, the presence of an Oxford whiteware mortarium and a bag-shaped/cornice-rim beaker in a 'local' colour-coated type. A dish with a vestigial groove below its rim and burnished lattice decoration is the only Black-Burnished ware vessel in the pits and is probably Antonine.[97] Black-Burnished ware influence is also apparent with bowl forms with flat rims.

Larger pottery groups were recovered from the late Roman features. Reduced coarse wares (49% of the total count from Ditches 1–4) are the most abundant fabrics, predominantly the finer OXF RE6. Forms are mainly generic necked jars, though conical flanged bowls and plain-rimmed dishes of third-/fourth-century type are also present. A date after *c*.240 is indicated by Oxford red-slipped ware (OXF RS/OXF RSm). Identifiable forms include a beaker with applied scales (Young form C28), bowls of several differing forms (C45; C51; C52 and C83) and mortarium C98. In certain instances specific forms in this fabric suggest a date after *c*.350: C52, C85 and C98 from Ditch 2 and C83 from Ditch 1. Oxford whiteware mortaria occur mainly as body/base sherds not ascribable to particular forms; an exception is Young form M17 from the hollow way which is dated *c*.240–300.[98] Dorset Black-Burnished ware includes jar forms with obtuse-angled lattice and the small Lower Nene Valley component includes a castor box lid and a funnel necked beaker rim which might date to the third or fourth centuries.[99]

Only 16 sherds of Roman shell-tempered wares were recovered. No forms were identifiable which would aid identification as Midlands type shell-tempered ware, but this would seem likely given the late dating of Ditches 1–3, the hollow way and pit 54035. Type PNK GT is recorded only as bodysherds, although thick-walled sherds doubtless derive from a large storage jar.

Discussion

The sole evidence for middle Neolithic activity (other than flintwork) from the route of the pipeline is a residual sherd from Lollingdon Hill. Beaker material is better represented and includes the apparently stratified groups from Harwell Field and south of Marcham as well as a re-deposited fine ware sherd from Milton Hill North. None of the Beaker finds occurred in funerary contexts, and the mix of fine wares and coarser types from Harwell Field suggests domestic activity. The high incidence of Beaker finds from both funerary and domestic contexts in Oxfordshire has been commented upon previously.[100] Pottery of probable middle Bronze-Age date was noted only at Lollingdon Hill. This was difficult to characterize due to the scarcity of featured sherds.

Late-prehistoric pottery was found at six sites including the sizeable group from Milton Hill North. Late Bronze-Age material is confined to small, scattered groups from Milton Hill North, probably of the eleventh- or tenth-century BC date. The small late Bronze-Age group is similar in character to other upper Thames valley assemblages, particularly that from Eynsham.[101] Continuity at Milton Hill North between the late Bronze Age and Iron Age could not be demonstrated from the pottery, there being an absence of

[96] P.M. Booth and S. Green, 'The Nature of Certain Pink, Grog-Tempered Vessels', *Journal Roman Pottery Studies,* 2 (1989), pp. 77–84; Brown, 'A Romano-British Shell-Tempered Pottery', pp. 19–107.

[97] N. Holbrook and P.T. Bidwell, *Roman Finds from Exeter*, Exeter Archaeological Report, 4 (1991), p. 99.

[98] Young, *Oxfordshire Roman Pottery*, p. 72.

[99] M.D. Howe et al., *Roman Pottery from the Nene Valley: A Guide*, Peterborough City Museum Occasional Paper, 2 (1980), p. 9.

[100] Barclay, 'Early Prehistoric Pottery', pp. 126–7.

[101] Barclay, 'Later Prehistoric Pottery', in Barclay et al., 'A Prehistoric Enclosure at Eynsham Abbey', pp. 127–39.

stratified groups clearly of the late Bronze Age to early Iron-Age transition. Some material attributable to this period (*c.* eighth to fifth centuries BC) is present at south of Marcham and, most significantly, Hagbourne Hill. The latter group, from isolated pit 5056, included large joining sherds deposited with an antler and might represent a structured deposit.

By far the largest component of the late-prehistoric pottery recovered from the pipeline dates to the early to middle Iron Age. For this material there are stylistic and technological affinities with upper Thames assemblages, particularly Gravelly Guy and Ashville Trading Estate.[102] Some influence is also apparent from decorated earlier Iron-Age groups from east Oxfordshire and the Chilterns, as evidenced by a small number of decorated vessels drawing comparison with Cunliffe's Chinnor/Wandlebury group.[103] On the basis of these affinities, and supported by radiocarbon determinations, it appears that the main phase of activity for Milton Hill North dates to the fifth/fourth to early second centuries BC, with some evidence for later Iron-Age activity. The range of forms and carbonized or other residues suggests that the pottery performed a typical range of utilitarian functions including food preparation and storage. Possible structured deposition was seen in middle/late Iron-Age pit 2220 at Milton Hill North, which contained a complete or substantially complete pottery vessel (Fig. 15, no. 30). Vessel 30 would seem to have been dropped upright into the feature with the result that the base and lower portion are shattered and the upper portion remains largely intact.

The Roman groups from Milton Hill North, Lollingdon Hill and Millets Farm, Frilford differ in detail and this may in part relate to site chronologies. Unsurprisingly, all groups are characterized by a preponderance of locally made coarse wares almost certainly originating from an area close to modern Oxford. None of the sites exhibited clear indications of elevated status or special functionality. The slightly wider range of regional imports and high representation of Oxford red-slipped wares at Millets Farm may be an indication of higher status, although factors such as the proximity to a major routeway may also be at play.

Illustrated Vessels (Figs. 12–18)

Neolithic and Bronze Age

1. Sherd with impressed ?whipped cord. Fabric NEOFL. Lollingdon Hill, Pit 26111.
2 and 3. Beaker fine ware sherds including simple upright/slightly everted rim. Decorated with repeated bands of rectangular-toothed comb impressions. Fabric BKGRf. Harwell Field (Site 3), Pit 303.
4. Beaker coarse ware sherd with rippled profile. Fabric BKGRc. Harwell Field (Site 3), Pit 303.
5. Globular urn? Fabric BAGRF. Lollingdon Hill, Pit 2651.

Late Bronze Age

6. Type 1 jar. Fabric QT. Post-firing perforation below rim. Milton Hill North, Pit 22489.
7. Type 1 jar. Fabric QT. Milton Hill North, Pit 22521.
8. Type 1 jar (rim thickened internally). Fabric SH5. Milton Hill North, Pit 22521.
9. Type 1 jar. Fabric SH5. Milton Hill North, Pit 22602.

Iron Age

10. Type 7 vessel. Fabric SH5. Milton Hill North, Pit 22366.
11. Type 7 vessel. Fabric SH5. Milton Hill North, Pit 22366.
12. Type 3 jar. Fabric SH5. Milton Hill North, Pit 22538.
13. Type 4 jar. Fabric SH5. Milton Hill North, Pit 22538.
14. Type 2 jar. Fabric QZ. Milton Hill North, Pit 2221.
15. Handle (Type 3). Fabric QZ. Milton Hill North, Pit 2221.
16. Type 7 vessel. Fabric SH5. Milton Hill North, Pit 2221.
17. Type 8 carinated vessel. Fabric QZ1. Milton Hill North, Pit 2221.
18. Type 8 carinated vessel. Fabric QZ1. Milton Hill North, Pit 2221.
19. Type 9? bipartite bowl; burnished/incised decoration. Fabric QZ1. Milton Hill North, Pit 2221.
20. Sherd with burnished/incised curvilinear decoration. Fabric QZ1. Milton Hill North, Pit 2221.
21. Type 7 vessel with fingertip decorated rim outer. Fabric SH2. Milton Hill North, Ditch 22145.
22. Type 7 vessel (with applied internal flange). Fabric QZ. Milton Hill North, Pit 22644.
23. Type 9? tripartite bowl; incised geometrical decoration with white infill. Milton Hill North, Ditch 22441.
24. Type 8 bipartite bowl; incised chevron decoration. Fabric QZ6. Milton Hill North, Ditch 22206.

[102] Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery'; DeRoche, 'The Iron Age Pottery', pp. 40–74.
[103] Cunliffe, *Iron Age Communities in Britain*.

25. Sherd (Type 8 or 9?) with incised and impressed decoration. Fabric QZ. Milton Hill North, Ditch 22206.
26. Sherd with impressed decoration. Fabric QZ. Milton Hill North, Pit 22566.
27. Sherd with incised zig-zag. Fabric QZ1. Milton Hill North, Ditch 22115.
28. Type 8/9 carinated vessel with incised decoration. Milton Hill North, Pit 22175.
29. Type 9/9 carinated vessel with incised decoration. Milton Hill North, Ditch 22140.
30. Type 4 jar with light vertical scoring. Fabric QZ. Milton Hill North, Pit 2220.
31. Type 4 jar. Fabric QZ. Milton Hill North, Pit 2213.
32. Type 5 bowl with burnishing. Fabric QZ. Milton Hill North, Pit 2219.
33. Type 5 vessel with short everted rim. Fabric QZ6. Milton Hill North, Ditch 22276.
34. Type 5 vessel with short everted rim. Fabric QZ. Milton Hill North, Ditch 22276.
35. Type 5 vessel with bead-like rim. Fabric QZ. Milton Hill North, Ditch 22276.
36. Sherd with stamped roundel decoration. Fabric QZ4. Milton Hill North, Ditch 22105.
37. Type 6 vessel with groove below rim. Fabric LS. Milton Hill North, Pit 22243.
38. Type 5 jar with upright/in-curved rim. Fabric QZ7. Milton Hill North, Post hole 22308.
39. Shouldered jar with fingertip impression. Fabric QZ. Land south of Marcham, Pit 5078.
40. Shouldered vessel with fingernail impressions to shoulder. Fabric QZ4. Land south of Marcham, Ditch 50111.
41. Sherd with fingertip decoration. Fabric SH1. Land south of Marcham, Furrow 50107.
42. Sherd with incised and impressed/dimpled decoration. Fabric QZ4. Land south of Marcham, Ditch 5092

Late Bronze Age to Early Iron Age

43. Conical bowl with in-turned rim. Fabric QT. Land south-west of Marcham, Pit 5307.
44. Tripartite small bowl/cup. Fabric QZ6. Hagbourne Hill, Pit 50504.
45. Tripartite small bowl/cup with *omphalos* base. Fabric QZ1rs. Hagbourne Hill, Pit 50504.
46. High-necked shouldered jar with fingernail slashing to rim. Fabric QZ6. Hagbourne Hill, Pit 50504.
47. High-necked shouldered jar with fingertip impressions to shoulder slashing to rim. Fabric QZ6. Hagbourne Hill, Pit 50504.

Roman

48. Carinated necked bowl. Fabric GROG. Milton Hill North, Ditch 22328.
49. Platter with elaborate burnished decoration to interior. Fabric GROG. Milton Hill North, Ditch 2203.
50. Mortarium. Curved flange with groove. Stamped ALBI[NUS]. Fabric VRW WHm. Milton Hill North, Ditch 2203.
51. New Forest metallic colour-coated ware beaker. Fabric NFO CC. Milton Hill North, Subsoil 2201.
52. Handmade large jar with everted rim. The form corresponds to vessels illustrated from Silchester.[104] Fabric FLINT. Lollingdon Hill, Pit 2689.
53. Wheel-thrown large necked jar. Fabric GROG. Lollingdon Hill, Pit 2689.
54. Large beaker, possibly Young form C32 but perhaps unusually large. Fabric OXF RS. Millets Farm, Frilford, Ditch 54069.

PETROLOGICAL REPORT ON LATER PREHISTORIC POTTERY FABRICS FROM MILTON HILL NORTH by ELAINE L. MORRIS

Twenty samples of later prehistoric pottery from Milton Hill North were submitted for thin sectioning and petrological analysis. These represent ten general fabric groups (QZ, SH1, SH5, QZ6, QZ1, QZ1rs, QT, FL, ORG, LS). Fabric descriptions are presented here in abbreviated form. The archive contains full descriptions using Prehistoric Ceramics Research Group guidelines.[105]

Fabric Group QZ: 'Standard' Quartz-Gritted. Early/Middle Iron Age

The quartz present in this fabric group is naturally occurring, rather than added as temper, as evidenced by the uniform shape of all the inclusions.

[104] J.R. Timby, 'The Pottery', in M. Fulford and J. Timby, *Late Iron Age and Roman Silchester: Excavations on the Site of the Forum-Basilica 1977, 1980–86*, Britannia Monograph Series, 15 (2000), fig. 127 and pp. 496–506.

[105] *The Study of Later Prehistoric Pottery: General Policy and Guidelines for Analysis and Publication*, Prehistoric Ceramics Research Group Occasional Papers, 1 and 2 (1997).

Samples 1–3: medium to fine-grained, very sandy fabric. Abundant, moderately to well-sorted, sub-rounded to rounded quartz, ≤0.6 mm with the majority ≤0.4 mm, and rare to sparse, rounded, well-sorted, limonite altered to glauconite, naturally occurring in the clay matrix with very rare pieces of limestone; ferruginous, glauconitic, very fine sandstone, rounded iron oxides, and sub-rounded quartzite (not present in some samples).

Sample 4: medium to fine, very sandy fabric (variant). Abundant, very well-sorted, sub-rounded to rounded quartz, the majority measuring 0.1–0.3 mm across with rare to sparse concentrations of quartz greater than 0.3 mm up to 0.8 mm and less than 0.1 mm; very rare, rounded, ferruginous, glauconitic fine sandstone, and rounded, iron oxide.

Fabric Group SH1: 'standard' shell-tempered. Early/middle Iron Age. Samples 5–6: *coarse, fossil shell-rich fabric*. Common, poorly sorted, angular, fossil shell, ≤ 10 mm with the majority ≤ 7 mm, in a clay matrix containing very rare, poorly sorted, rounded quartz, and rare, rounded iron oxides.

Fabric Group SH5: coarser shell-tempered. Early/middle Iron Age and earlier. Fabric SH5 was defined macroscopically on the basis of coarser shell inclusions. Analysis indicated that only sample 8 appeared different than the 'standard' SH1 and that the differences noted in 'texture' were insufficient to justify separation.

Sample 7 (22368). This is identical to Samples 5–6 described above.

Sample 8 (22548). This appears in thin section to be very slightly different from Fabric Group SH1. This sample displays a roughly manufactured texture with distinctive gaps or spaces between folds of clay which may be interpreted as a poorly or incompletely wedged texture.

Fabric Group QZ6: Quartz-Gritted with Non-Acid-Reactive Inclusion. Early/Middle Iron Age.
Samples 9–10. A glauconitic sandy fabric with very infrequent, large, malmstone inclusions. Sparse to moderate, rounded, very well-sorted, limonite altered to glauconite, ≤0.3 mm, and moderate sub-rounded to sub-angular, well-sorted quartz, ≤0.5 mm with the majority ≤0.3 mm, in a clay matrix also containing rare, rounded, very well-sorted iron oxides, and large but infrequent (less than 5% overall), sub-rounded to rounded, micaceous, malmstone. This rock appears naturally occurring in the clay matrix selected to make this fabric rather than added as temper based on the shape and infrequency of the fragments. Small pieces of the same rock type were visible in Sample 10 under x10 power magnification, although not in the prepared thin section. Sample 10 was in other respects identical to Sample 9.

Fabric Group QZ1: Fine Sandy and Burnished. Early/Middle Iron Age
The two samples are not the same fabric type despite the visual similarities of burnished surface treatment and very thin walls of the two bowls (open form vessels burnished on both surfaces).

Sample 11 (22317). A very fine-grained, slightly glauconitic, very sandy fabric. Abundant, very well-sorted, sub-rounded to rounded quartz, ≤0.1 mm with sparse (5%) greater than 0.1 mm and up to 0.7 mm, and rare rounded, very well-sorted limonite altered to glauconite, naturally occurring in the clay matrix.

Sample 12 (2224). Medium to fine-grained, very sandy fabric with very rare flint. Abundant angular to sub-angular, well-sorted quartz, ≤0.3 mm with the majority ≤0.1 mm in a clay matrix with numerous flecks of mica and rare, angular, calcined flint, 0.3–0.8 mm across; the absence of glauconite pellets and the presence of both significant flecks of mica and rare chips of flint indicate that the clay used to make this vessel was not the same as that used to make Sample 11 vessel; the size and infrequency of the calcined flint suggests that it may have become incorporated into the clay unintentionally.

Fabric Group QZ1rs: Fine Sandy with Red-Slipped/Red-Fired Surface. Early/Middle Iron Age
The two samples from this fabric group are not the same fabric type despite the visual similarities of burnished surface treatment and very thin walls of the two bowls (red-slipped/red-fired surfaces). Sample 13 is similar to Sample 12 of Fabric Group QZ1 above.

Sample 13 (2202). A fine-grained, very sandy fabric with very rare flint and linear vesicles. Abundant, angular to sub-angular, very well-sorted quartz, ≤0.15 mm, numerous flecks of mica, a single, angular piece of calcined flint and very rare, narrow, linear vesicles probably resulting from naturally occurring organic matter, ≤2 mm long.

Sample 14 (22104). A glauconite-rich, medium-grained, sandy fabric. Common (20%), very well-sorted, rounded, limonite altered to glauconite, ≤0.5 mm with the majority ≤0.3 mm, and common, sub-rounded to sub-angular quartz, ≤0.6 mm with the majority ≤0.4 mm, naturally occurring in the clay matrix.

Fabric Group QT: Wuartzite-Tempered. Late Bronze Age
The samples are similar with regard to the presence of quartzite temper but different because Sample 15 also has a significant amount of grog temper and small amount of glauconite present.

Sample 15 (22490). A quartzite and grog-tempered fabric. Sparse to moderate, moderately sorted, angular quartzite, 0.2–4.0 mm across, and rare to sparse, angular grog, ≤3 mm, in a slightly glauconitic silty clay matrix with moderate, naturally occurring, sub-angular to angular, very well-sorted quartz, ≤0.2 mm, and rounded glauconite, ≤0.1 mm; the grog is unusual and may have been overfired material; the contrast in size and shape between the quartzite and grog compared to the quartz and glauconite indicate that the former are tempered additives.

Sample 16 (2291). Quartzite-tempered fabric. Moderate, angular, moderately sorted quartzite, ≤2.5 mm, in a clay matrix containing moderate, sub-rounded to rounded, well-sorted quartz, ≤0.6 mm.

Fabric Group FT: Flint-Tempered. Late Bronze Age/Early Iron Age
Despite the presence and similar quantity of flint temper in both, these samples are not the same fabric type. They have the same tempering technology but the selected clays into which the temper was added were completely different, and one sample has larger flint temper than the other.

Sample 17 (22588). Coarse, flint-tempered, fine very sandy fabric. Moderate, angular, poorly sorted, calcined flint, ≤4.0 mm, and one angular quartzite fragment, 2.5 mm across, in a clay matrix containing common, sub-rounded, very well-sorted quartz, ≤0.15 mm and numerous flecks of mica; the clay matrix of this fabric type is identical to Sample 13 and indicates that these two fabric types derive from the same natural resource, with Sample 17 having added flint temper.

Sample 18 (22465). Flint-tempered, slightly iron-rich fabric. Moderate, angular, moderately poorly sorted, calcined flint, ≤2.5 mm, in a clay matrix containing sparse, angular to sub-rounded, well-sorted quartz and sparse, rounded or angular to sub-angular, iron oxides.

Fabric Group ORG: organic-gritted fine ware, early/middle Iron Age. The clay matrix of this sample is very similar, if not identical, to Samples 12 and 13, and to the clay matrix of Sample 17.

Sample 19. Sparsely organic-gritted, very fine sandy to silty fabric. Sparse, narrow linear vesicles, ≤5 mm long, in a clay matrix containing abundant, very well-sorted, angular to subangular, fine to very fine-grained quartz, ≤0.15 mm with less than 1% up to 0.5 mm, flecks of mica and very rare, rounded, iron oxides, ≤1 mm; the narrow linear vesicle shape and their infrequency suggests these were burnt out organic matter naturally occurring in the original clay deposit and lost during the firing of the vessel.

Fabric Group LS: limestone-tempered, middle/late Iron Age and later. Sample 20 is a paleozoic limestone fabric (Group B1). This sample is closely similar to the Group B1 Paleozoic limestone fabric defined by Peacock.[106]

Discussion
Milton Hill North lies on the northern edge of Milton Hill, a plateau of Upper Greensand at the northern edge of the chalk uplands. Within an area up to 7 km around the site, alluvial, Gault, ferruginous sands and Kimmeridge Clay deposits can be found to the north of the plateau, and Lower, Middle and Upper Chalk to the south.[107]

If suitable clays and sources for tempers occur within a radius of 7 km, and if these were selected to prepare any of the fabric types/fabric groups described above, then these may be considered as local products. This is the distance within which 87% of historical and modern potters working in agricultural communities were prepared to travel by foot to obtain clay to make pots; the preferred resource zone of

[106] Peacock, 'A Petrological Study of Certain Iron Age Pottery from Western England', pp. 421–2.
[107] Geological Survey Map of England and Wales, sheet 253.

exploitation is 1 km.[108] Fabric types or groups for which no possible source for the clays and/or inclusions can be found, are considered non-local products.[109]

Sample 14 (Fabric Group QZ1rs) is the most likely example of a fabric which could have been made from immediately local resources. An abundance of glauconite in the fabric indicates that this ware derives from an Upper Greensand source.

Samples 5–8 (Fabric Groups SH1 and SH5), indistinguishable with their large quantities of fossil shell and similar clay matrices, are another obvious candidate for local pottery. The closest geological source for these inclusions is the Kimmeridge Clay of the Upper Jurassic system located within 7 km of the site.

What is interesting is that there are other fabrics with rare to sparse or with moderate amounts of glauconite present which reveal that several other sources of sandy or silty clays were exploited as potting clays. Those with moderate amounts (10–15%) of glauconite may have been made from clays derived from Upper Greensand/Gault sources, while the infrequency of glauconite in the fabric with rare to sparse amounts (3% or less) makes this uncertain (Samples 1–4 (QZ) for example). If this fabric group represents a significant proportion of the pottery assemblage, then it would be more likely that the source was a type of Gault deposit, but if not then there is every reason to look further afield and suggest an Eocene deposit source. Sample 11 (QZ1) is very similar to these medium to very fine grained samples but not identical.

Samples 9 and 10 (QZ6) have moderate amounts of glauconite present in their medium-grained sandy clay matrices, as well as malmstone which occurs geologically as a facies between Greensand and Gault clay.[110] The fineness of the glauconite and quartz in Sample 15 (Fabric Group QT) indicates that it derives from a different type of Upper Greensand/Gault clay deposit. This clay matrix with its very fine-grained to silt-grade sized naturally occurring quartz and infrequent glauconite was not used to make any other fabrics amongst these samples.

Samples 12, 13, 17 and 19 (QZ1, QZ1rs, FL and ORG) are linked by the presence of an abundance of fine-grained to silty quartz sand and no glauconite. It is most likely that this array of fabric types had been made at the same location and possibly by the same potter or group of potters using the same clay source. The presence of crushed, calcined flint temper in Sample 17 and rare, angular, small chips of flint unintentionally incorporated into Sample 13 are clear links, despite the former being a coarse ware fabric type and the latter a fine ware fabric type. These fabrics can be considered local products due to the proximity of Upper Chalk as a source for the flint.

Sample 16 (QT) has very distinctive angular crushed quartzite temper present, like Sample 15 above, but its clay matrix contains only medium-grained quartz sand rather than fine sand and glauconite. It is not possible to determine if gravel terraces in the local area were the sources for this quartzite/vein quartz, but there is every possibility that they might have been.

The clay matrix of Sample 18 (FL) is completely different from any of the above. It has only a sparse amount of medium- to fine-grained quartz sand but a moderate amount of iron oxides (10%). This clay did not come from the same source as that used to make the other flint-tempered fabric (Sample 17) despite the similarity of their tempering technologies nor from a source used to make any other sample.

The presence of the middle to late Iron-Age Group B1 Paleozoic limestone fabric (Sample 20; LS) at Milton Hill North is an excellent demonstration of inter-regional trade during the later Iron Age. This ware may have originated from the Woolhope Hills in Herefordshire, the Malvern Hills on the border of Herefordshire/Worcestershire or the May Hills in Gloucestershire, 90–100 km to the north-west.[111] The transportation of pots such a distance could have been as part of the extra-regional trade in Droitwich (Worcestershire) salt or have come as part of the dowry of a marriage partner. This is the furthest southeast that Group B1 pottery has been found.

METAL, BONE, GLASS AND FIRED CLAY ARTEFACTS by E.R. McSLOY

A total of 224 items of metal and worked bone was recovered from the pipeline route, but 149 items were unstratified or otherwise unphased and comprise mainly modern or fragmentary/unidentifiable objects. Items described below consist of selected objects of intrinsic interest, largely from stratified contexts.

[108] D.E. Arnold, *Ceramic Theory and Cultural Process* (Cambridge, 1985).

[109] E.L. Morris, 'Production and Distribution of Pottery and Salt in Iron Age Britain: A Review', *Proceedings of the Prehistoric Society*, 60 (1994), pp. 371–93; E.L. Morris and A. Woodward, 'Ceramic Petrology and Prehistoric Pottery in the UK', *Proceedings of the Prehistoric Society*, 69 (2003), pp. 279–303.

[110] R.L. Sherlock, *British Regional Geology: London and the Thames Valley* (London, 1960), p. 18.

[111] Peacock, 'A Petrological Study of Certain Iron Age Pottery', pp. 414–26.

Coins

Barbarous radiate, AD 270–90, reverse from Pax. Diameter 13 mm. Millets Farm, Frilford, topsoil.
Constantine I, AE2, AD 323–24, RIC 7 London 289. Millets Farm, Frilford, Ditch 1 (fill 54053). This coin is unworn, retaining the silvery sheen typically only seen on coins with very limited or no circulation.
Constantine I, AE3, AD 330–35, RIC 7 as Trier 520. Millets Farm, Frilford, topsoil.
William III, copper halfpenny, 1694–1702. Very worn. South-West of Drayton, subsoil.

Copper Alloy Objects (Fig. 19)

1. Hod Hill-type brooch. Brooches of this form emerge from continental types and are a conquest-period introduction and largely pre-Flavian in date. This piece is broken at the junction between hinge and bow, but clearly did not feature the lateral lugs which may be a later development.[112] The bow features a double row or knurled ridges. The foot is plain, but white metal-plated. L. 50 mm; W. 9 mm. Lollingdon Hill, fill 2680 of late Roman pit 2679.
2. 'Toilet spoon' of typical Roman form with small bowl, slightly angled upwards from shaft. Long-handled spoons or *ligulae* such as this were probably used to extract cosmetics or perfumes from long and narrow-necked containers.[113] L. 119 mm; Dia. 2 mm. Millets Farm, Frilford, fill 54087 of earlier Roman pit 54086.
Not illustrated. Pin from sprung brooch. Section of shaft, broken at both ends, at one end at first coil. L. 44 mm; Dia. 2.5 mm. Millets Farm, Frilford, fill 54113 of later Roman pit 54109.

Iron (Fig. 19)

3. Flesh hook. This object class has a long history, beginning in the pre-Roman period and recurring in the Roman and medieval periods. Although unstratified this example was associated with moderately large quantities of Roman pottery and matches known Roman examples.[114] It is incomplete but compares to Manning's more common Type 1, distinguished by (two) hooked teeth set in line to one side of the stem. The stem, which is incomplete, features the decorative twisting seen with the three Type 1 examples from London.[115] L. 161 mm; W. (stem) 6 mm; T. (stem) 3 mm. Lollingdon Hill, unstratified in subsoil.
Not illustrated. Shoe cleat. Distorted and incomplete. Iron shoe cleats serve in conjunction with or as an alternative to hobnails and are known from a number of Roman sites. There are examples from a late Roman burial from Filkins.[116] Lollingdon Hill, unstratified in subsoil.

Worked Bone (Fig. 20)

4. Triangular bone strip with stamped ring and dot. Probably inlay for a casket or similar. Cut from the cortex of a cow-sized long bone, the underside left unworked. Associated pottery suggests a later third- or fourth-century date. Similar decorative inlay is known from several sites and the dating is consistently late Roman. Twenty 'ring-and-dot' triangles were among a large group of bone inlays found at New Market Hall, Gloucester from a late fourth- or fifth–century context.[117] L. 25 mm; W. 18 mm; T. 5 mm. Millets Farm, Frilford, fill 54235 of later Roman pit 54134.
Not illustrated. Small fragment from sheep-sized metacarpal. Worn and narrowed at proximal end possibly as the result of wrapping of cord or a similar material around the bone. Polished from use or handling. L. (surviving) 23 mm. Milton Hill, fill 1714 of Iron-Age ditch 1716.
Not illustrated. Fragment from sheep-sized tibia. Perforated into cavity through distal end and polished from use or handling. L. (surviving) 90 mm. Milton Hill North, fill 2219 of late Iron-Age pit 2220.

Glass (Fig. 20)

Seven fragments (57 g) of vessel glass and one glass bead were recovered. A single fragment of Roman vessel glass (<1 g) was recovered from a soil sample from a later Roman pit at Lollingdon Hill. This

[112] A. Olivier, 'The Brooches', in T.W. Potter et al., 'Puckeridge-Braughing, Hertfordshire. The Ermine Street Excavations 1971–2', *Hertfordshire Archaeology,* 10 (1988), pp. 48–9.
[113] H. Eckardt and N. Crummy, 'Styling the Body in Late Iron Age and Roman Britain: A Contextual Approach to Toilet Instruments', *Monographies Instrumentum*, 36 (Montagnac, 2008), p. 39.
[114] W.H. Manning, *Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum* (London, 1985), p. 105.
[115] Manning, *Catalogue of the Romano-British Iron Tools*, plate 51 and pp. 36–7.
[116] E. McSloy, 'Metal Artefacts', in L. Coleman and A. Hancocks, 'Iron Age and Romano-British Remains at Filkins and Carterton', *Oxoniensia*, 99 (2004), fig. 10.
[117] M. Hassall and J. Rhodes, 'Excavations at the New Market Hall, Gloucester', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 93 (1975), p. 73.

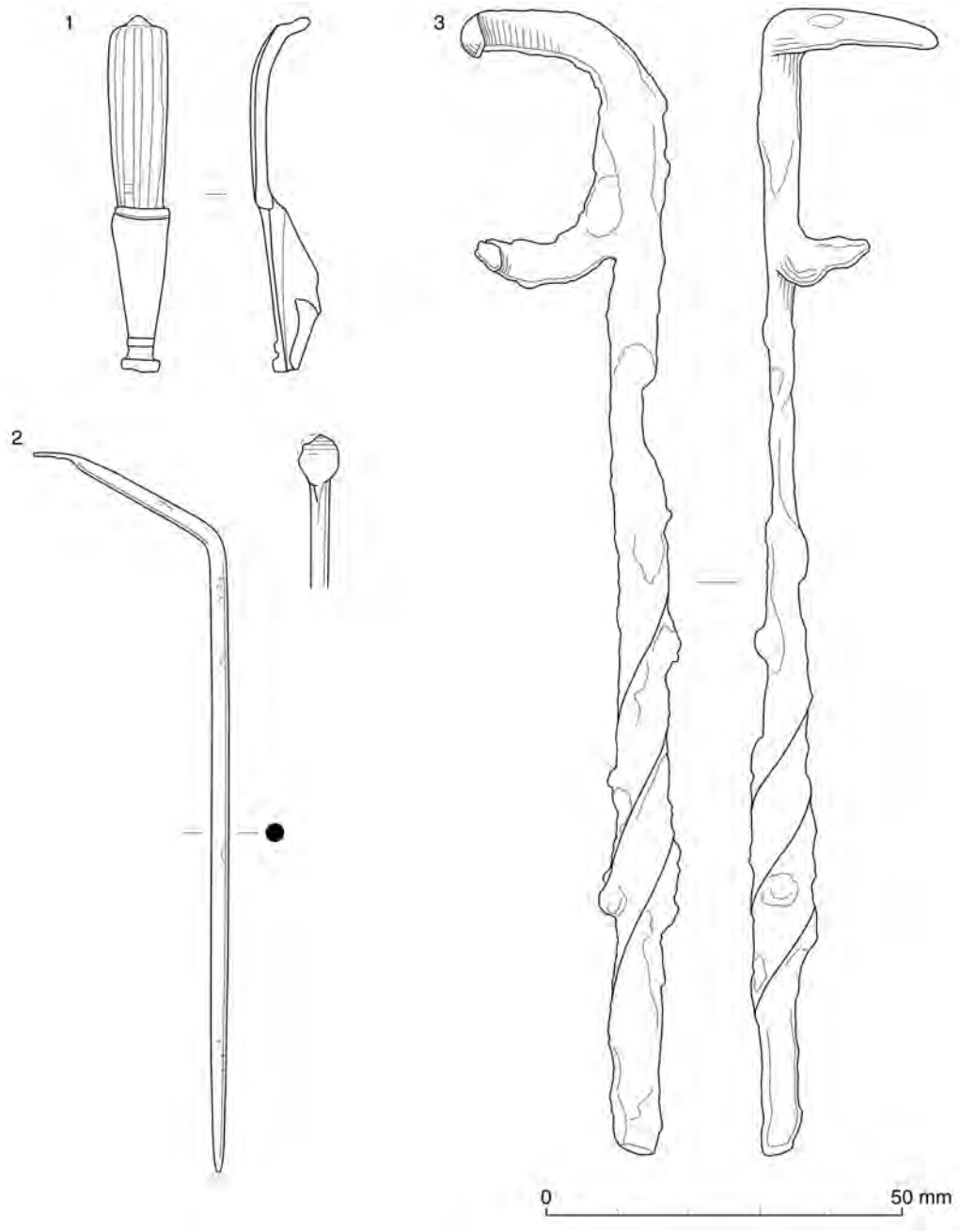

Fig. 19. Selected metal objects (1:1).

fragment is unfeatured, though its thinness (*c.*1 mm), pale green colouring and presence of small bubbles are characteristics of late Roman tablewares.[118] Six abraded and weathered fragments of post-medieval or later glass were recovered from the topsoil from Millets Farm, Frilford. All consist of thick (4–5 mm) mid or darker green coloured fragments probably from wine/spirits bottles of the kind typically dating after the mid 17th century.

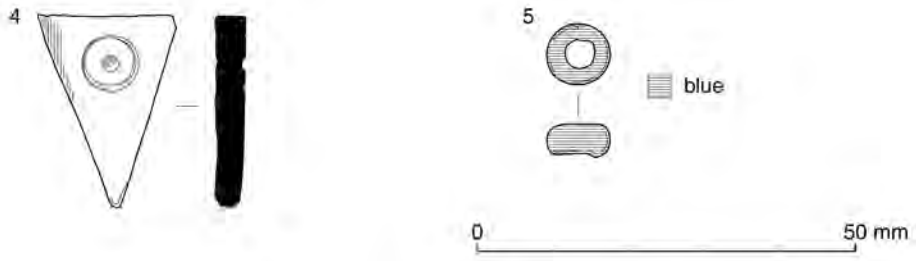

Fig. 20. Selected worked bone and glass objects (1:1).

5. Plain annular bead. Translucent dark blue glass. 'D'-shaped in section. Guido's Group 6(iva): 'medium annular blue beads translucent or opaque'.[119] Dia. 8 mm; T. 4 mm. Similar beads are common from Romano-British sites and the class continues into the post-Roman period.[120] Milton Hill North, fill 22139 of later Roman pit 22138.

Fired Clay

A summary report detailing all of the fired clay is contained in the archive and only classes of material or individual artefacts of particular interest are described below.

Not illustrated. Fired clay sling missile. Pointed oval/lentoid form. Length: 43 mm; maximum diameter: 26 mm; weight: 34 g. The fabric is hard-fired to a dark grey and is inclusionless. The use of the sling in Iron-Age Britain is well attested and large numbers of clay sling missiles were recovered from Danebury (Hants.).[121] Examples occur elsewhere from earlier Roman contexts, including Showell Farm, Chippenham (Wilts.), suggesting continuing use, presumably for the hunting of game.[122] Milton Hill North, fill 22141 of early Roman ditch 22142.

A total of 76 fragments (4,960 g) of ceramic plates was recorded from Milton Hill North, the large majority deriving from early Roman deposits. None of the plate fragments are complete. The largest pieces feature straight sides and rounded corners. Most are 25–30 mm thick and have one smoothed face which can feature some heat discolouration. The undersides of some plates exhibited impressions of organic materials, possibly resulting from the presence of straw or similar when drying. Three fabrics occur and are described below. The two more common types are almost certainly locally made using calcareous and glauconitic clays.

Comparable ceramic plates, seemingly of similar date, are recorded from Watkins Farm, Northmoor and Farmoor.[123] In both instances the fabrics are similar to those described from Milton Hill North, and

[118] J. Price and S. Cottam, *Romano-British Glass Vessels: A Handbook* (York, 1997), p. 16.
[119] Ibid. pp. 65–9.
[120] M. Guido, *The Glass Beads of the Prehistoric and Roman Periods in Britain and Ireland* (London, 1978), pp. 66–7.
[121] C. Poole, 'Objects of Baked Clay', in B. Cunliffe, *Danebury: An Iron Age Hillfort in Hampshire. Volume 2, The Excavations 1969–1978: The Finds*, CBA Research Report, 52 (1984), fig. 7.44.
[122] E. McSloy, 'The Finds', in R. Young and A. Hancocks, 'Early Bronze Age Ring Ditches and Romano-British Agriculture at Showell Farm, Chippenham: Excavations in 1999', *Wiltshire Archaeological and Natural History Magazine*, 99 (2006), pp. 10–50 and fig. 12.9.
[123] Allen, *An Iron Age and Romano-British Enclosed Settlement at Watkins Farm*, p. 53; J. Sanders, 'The Roman Pottery', in Lambrick and Robinson, *Iron Age and Roman Riverside Settlements at Farmoor*, p. 53–4.

the overall similarities suggest a common function and probably a regional tradition. The function remains obscure; possible use as lids for storage vessels would seem unlikely for these examples which are clearly not circular.[124] Allen's suggestion for use as hotplates for the keeping food warm remains plausible. A parallel from outside of the region is the 'Malvernian' clay slabs from Worcester and its environs, some of which are also sub-circular and which have been interpreted as elements within a form of press for preserving meats or other foods.[125]

Fabric 1: Marly. Light brown/buff throughout; soft with smooth feel and irregular/laminating fracture; common moderately sorted sub-rounded buff/white argillaceous inclusions (4–6 mm); sparse fine quartz and glauconitic sand; common gold mica. Quantity: 12 fragments (1,256 g). Thickness: 27–36 mm.
Fabric 2: Marly/sandy. Light brown throughout or with patchy light brown/grey surfaces; hard with sandy feel and irregular fracture; common to abundant medium coarse rounded quartz sand and medium-fine glauconite; common to sparse sub-rounded or irregular argillaceous buff/white inclusions 5–8 mm and occasionally up to 20 mm. Quantity: 59 fragments (3,400 g). Thickness: 20–45 mm.
Fabric 3: Sandy/pebbly. Red-brown throughout; hard with harsh feel and irregular fracture; abundant medium-coarse rounded quartz sand; common or sparse sub-rounded reddened quartzite pebbles (6–15 mm); sparse iron oxide. Quantity: 5 fragments (305 g). Thickness: 20–38 mm.

CERAMIC BUILDING MATERIAL by ANGELA AGGUJARO

A total of 83 fragments of CBM was recovered from six sites. The bulk of the assemblage was unstratified or related to post-medieval or modern deposits. This section deals with the larger stratified groups which relate to Roman deposits from Lollingdon Hill and Millets Farm, Frilford. The fabrics described below are insufficiently distinctive to suggest a source, though all might be local. The forms are mainly common roofing forms (tegula, imbrex). One tegula fragment from Millets Farm features a simple knife cut diagonal cut-away section at the top of the flange. One fragment of flue tile from the same site is of note and suggestive of a hypocaust-equipped building in the vicinity. A fragment of imbrex in fabric 1 from Lollingdon Hill exhibits two hoof prints from a sheep or a sheep-sized animal. Animal prints such as this are not uncommon and they are presumed to have occurred at the air-drying stage, prior to firing, and would suggest manufacture in a rural or semi-rural location.

Fabric 1. Orange throughout. Hard with regular fracture and sandy feel. Abundant fine or coarser, well sorted, rounded quartz sand; common sub-rounded iron-oxide and sparse sub-rounded limestone inclusions. Lollingdon Hill: 6 fragments; 699 g; tegula (1); imbrex (5). Millets Farm, Frilford: 1 fragment; 176 g; tegula (1).
Fabric 2. Orange surfaces, sometimes with slightly paler or grey coloured core. Soft with uneven fracture and sandy feel. Well-sorted inclusions comprising common rounded quartz sand; common sub-rounded iron-oxide and sparse sub-rounded limestone. May include very sparse angular flint and may be micaceous. Lollingdon Hill: 23 fragments; 1,273 g: tegula (10); brick (4); uncertain (8).
Fabric 3. Brown-orange. Soft, earthy fracture and sandy feel. Abundant moderately sorted rounded quartz sand inclusions and common sub-rounded limestone and iron-oxide. Lollingdon Hill: brick 2 fragments; 169 g.
Fabric 4. Orange throughout. Moderately hard with regular fracture and slightly sandy feel. Moderately sorted inclusions comprising common sub-rounded quartz sand; sparse sub-angular clay pellet and sparse iron-oxide. Millets Farm, Frilford: 2 fragments; 188 g: tegula (1); flue tile (1).

WORKED STONE by FIONA ROE (FIG. 21)

There are 7 pieces of worked stone. The interest in this assemblage lies in the evidence for prehistoric technology, both in the use of the bow drill and the accurate measurement of weights. One artefact, a hammerstone/polisher, was re-used and so is considered twice. Thus there are four prehistoric objects and four that are probably of Roman date, including the prehistoric hammerstone later utilized as a polisher. Imported stone from the Forest of Dean was used for two rotary quern fragments, while the

[124] Cf. ibid. p. 54.
[125] V. Bryant and J. Evans, 'Slab-Built Vessels', in H. Dalwood and R. Edwards, *Excavations at Deansway, Worcester 1988–89: Romano-British Small Town to Medieval City,* CBA Research Report, 139 (2004), p. 366.

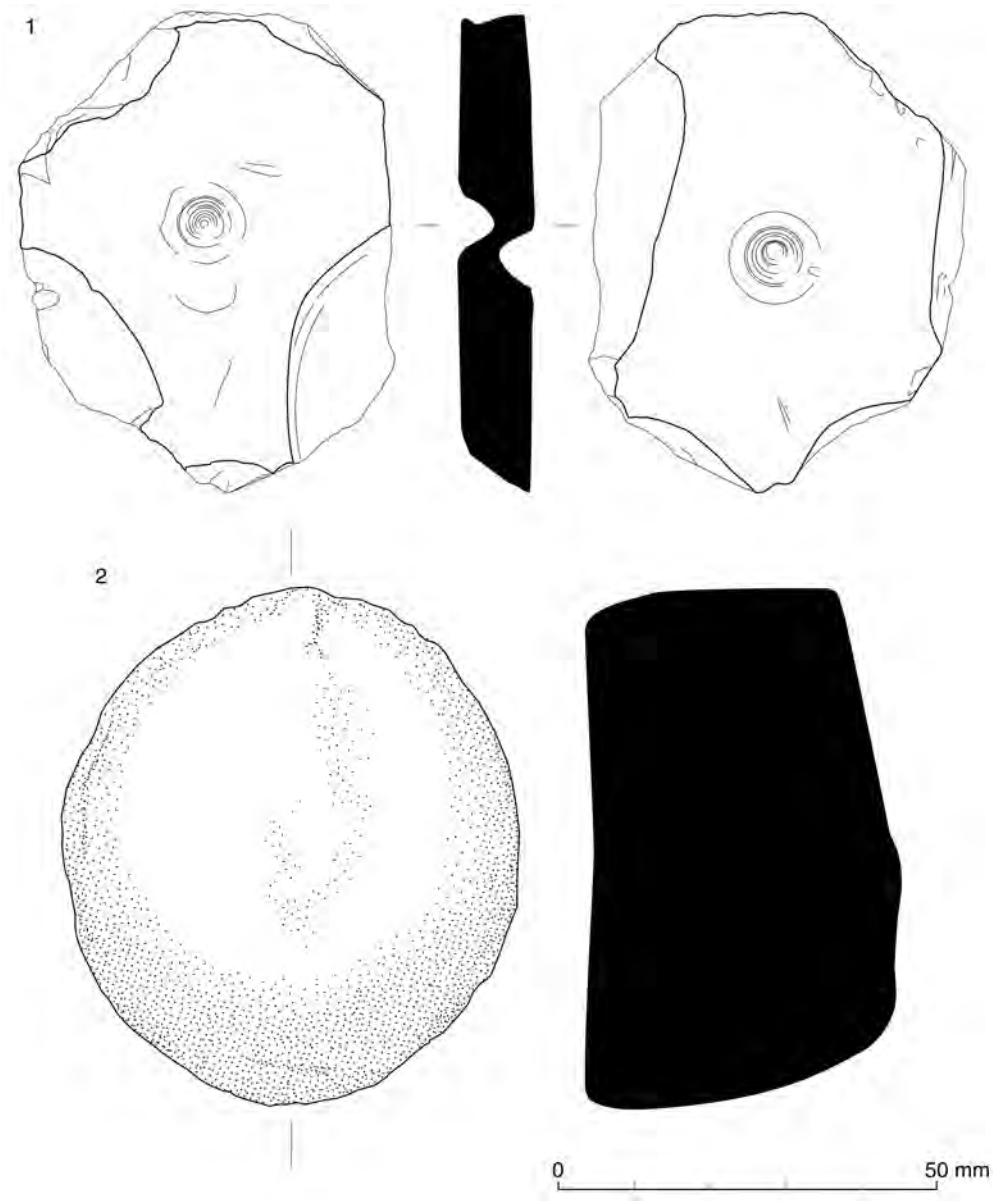

Fig. 21. Objects of stone (1:1).

other objects were made from local varieties of stone. All the stone finds can be paralleled by ones found at other sites, with the exception of the partially drilled disc from a Beaker pit at Harwell Field.

One well-dated earlier prehistoric object, a flat disc of Corallian limestone with an indentation on either side (Fig 21, 1) was found in pit 003 at Harwell Field where it was associated with 25 sherds of Beaker pottery, worked flints and a little animal bone. Comparable discs from Beaker contexts have not currently been recorded, though similar artefacts have been found on later prehistoric sites and it has

been suggested that they could have been used as hand rests for bow drills.[126] This seems to be demonstrated by the traces of rotary movement in each of the indentations on the disc. It is not easy to find stone discs with indentations that might compare with this object. Stone discs are known to occur in Neolithic contexts, appearing most frequently in chambered tombs, but these are usually plain discs only. One with a pecked hollow was, however, recorded from Cairnholy I, Galloway.[127] A disc with one indentation came from an Iron-Age context at Maiden Castle, Dorset, and there are some pottery discs of similar type from Danebury.[128] The nearest to a Beaker association is known from Portugal, where a piece of stone with one small hollow was found in the tholos of Barro, Torres Vedras, a passage grave in which some of the grave goods were of Beaker date.[129]

Two pebbles utilized as hammerstones from Milton Hill North are likely to be of prehistoric date, although found in the fill of a Roman burial. One, of quartzitic sandstone, also has a worn facet at one end, while the other, of quartzite, was later re-used as a polisher. A further fragment of burnt quernstone from topsoil at the same site is also likely to be prehistoric, since Culham greensand was a saddle quern material.[130] It probably relates to the Iron-Age activity at the site.

Quartzite pebbles were often used as polishers, possibly for burnishing pottery or perhaps for leatherworking. The incomplete example from the Roman grave at Milton Hill North has one side worn to a glossy surface. Upper Old Red Sandstone, imported from the Forest of Dean, was used for two quern fragments from Millets Farm, Frilford. One is a rim fragment with a grooved grinding surface from a rotary quern of the Roman disc type, the other a fragment from the topsoil. A less usual find, also from Millets Farm, is a stone weight (Fig 21, no. 2), which is more typical of weights from Iron-Age sites though found in a late first- to second-century feature.

Pebbles of hard quartzite and quartzitic sandstone were frequently collected from the Thames gravels for use as hammerstones and so are common on prehistoric sites along the river valley, of which Milton Hill North is one. Examples have for instance been recorded from Abingdon and also at Appleford.[131] There are also good examples of comparable querns from the local area. The Culham greensand was much used for saddle querns before the advent of rotary querns in the middle Iron Age and sites in the vicinity with these querns include Abingdon and the Wittenhams.[132] Rotary querns made from Forest of Dean Old Red Sandstone have also frequently been found locally and they are now usefully recorded from Frilford, where 15 querns from earlier excavations were apparently not kept.[133] These Old Red Sandstone querns have also occurred at the Wittenhams and at most other Roman sites in the region.[134] Quartzite pebbles utilized as polishers are another artefact type widely found on Roman sites and one occurred at Northfield Farm, Long Wittenham.[135] Such polishers are not exclusively Roman in use but also occur in prehistoric contexts, which again include the Wittenhams.[136] Weights were sometimes made of metal, but stone ones of Iron-Age type are known from Hampshire and Somerset.[137] At Danebury stone weights were drilled from the top to take the fitting for an iron ring.[138] There is no sign of a similar fixture on the single weight from Millets Farm and though incomplete it appears to compare best with weights

[126] S.C. Stanford, *Croft Ambrey* (Hereford, 1974), p. 180 and fig. 85.

[127] S. Piggott and T.G.E. Powell, 'The Excavation of Three Neolithic Chambered Tombs in Galloway, 1949', *Proceedings of the Society of Antiquaries of Scotland,* 83 (1949), p. 121 and fig. 9. 7.

[128] N.M. Sharples, *Maiden Castle: Excavations and Field Survey 1985–6,* English Heritage Archaeological Report, 19 (1991), p. 233 and fig. 185, no. 6; C. Poole, 'Pottery Discs', in Cunliffe and Poole, *Danebury: An Iron Age Hillfort in Hampshire*, vol. 5, p. 372 and fig. 7.43.

[129] V. Leisner, *Die Megalithgräber der Iberischen Halbinsel: der Westen*, (Berlin, 1965), taf 1, 36.

[130] F. Roe, 'Worked Stone', in T. Allen et al., *Castle Hill and its Landscape; Archaeological Investigations at the Wittenhams, Oxfordshire,* Oxford Archaeology Monograph, 9 (2010), p. 170.

[131] F. Roe, 'The Worked Stone', in J. Muir and M. Roberts, *Excavations at Wyndyke Furlong* (Oxford, 1999), p. 44; idem, 'Worked and Burnt Stone', in P. Booth and A. Simmonds, *Appleford's Earliest Farmers* (Oxford, 2009), p. 52 and fig. 23, sf 25.

[132] Roe, 'The Worked Stone', p. 170 and plate 6.6.

[133] J.S.P. Bradford and R.G. Goodchild, 'Excavations at Frilford, Berkshire 1937–8', *Oxoniensia*, 4 (1939), p. 13, n. 3.

[134] Roe, 'The Worked Stone', p. 173.

[135] M. Gray, 'Excavations at Northfield Farm, Long Wittenham, Berkshire', *Oxoniensia*, 35 (1970), pp. 107–9; Oxford County Museum, Standlake.

[136] Roe, 'The Worked Stone', p. 173.

[137] G. Wainwright and M. Spratling, 'The Iron Age Settlement of Gussage All Saints', *Antiquity*, 47 (1974), p. 120.

[138] K. Laws et al.,'Objects of Stone', in Cunliffe and Poole, *Danebury: An Iron Age Hillfort*, vol. 5, p. 383 and figs. 7.51 and 52.

found at Cadbury Castle.[139] Such weights would have been used in conjunction with metal balance beams, one of which was found in a late Iron-Age pit at Gussage All Saints, while another possible example came from Cadbury Castle.[140] It is clear that a pre-Roman weighing system was in operation and it could well have been in use at Millets Farm.

Some 78 small fragments of local burnt stone were recovered, with a chalky variety of greensand predominating, while Corallian limestone was also used, together with smaller quantities of Lower Calcareous Grit, quartzite and other materials. The greatest number of pieces came from Iron-Age contexts at Milton Hill North and they seem best explained as a useful part of cooking processes.

1. Incomplete, part-bored disc. Limestone, fine-grained, Corallian. Dimensions: 64 x 49 x 11 mm; weight 20 g. Harwell Field, fill 305 of pit 303.
2. Roughly shaped cylindrical weight; not quite complete. Lower Calcareous grit. Diameter 63–66 mm, thickness 41 mm; weight 250 g. Millets Field, Frilford, fill 54087 of earlier Roman pit 54086.

METALLURGICAL RESIDUES by E.R. McSLOY

Small quantities (1,330 g) of metallurgical and other residues relating to high-temperature processes were recovered, primarily from Milton Hill North and Millets Farm, Frilford. Ditch 2 at Milton Hill produced a small quantity (16 g) of 'fuel ash', a lightweight vesicular material resulting from elevated temperatures, not necessarily relating to metallurgical activity, but arising from the reaction between alkaline fuel and silicates present in either a clay lining or in sandy ground surfaces. The remainder of the residues comprises ferrous slags, consisting of blocky slags of mainly iron silicate composition. Similar material can be produced by iron smithing or smelting. Material from pit 22366 at Milton Hill North is distinguishable for its lower vesicularity. Such dense ironworking slag is similar in appearance to some smelting slags, but lacks the distinctive smooth or rippled surfaces of free flowing tapslags.

A single possible example of a smithing hearth bottom was recovered from the backfill of an early Roman well at Milton Hill North. This consists of a compact bun of slag (246 g), probably formed in the smithing hearth as the result of high temperature reactions between silica, in the form of the sand introduced as a flux or deriving from the clay lining, iron and iron scale. The example from this deposit is unusually small but exhibits characteristics of plano-convex profile and with a smoothed, vitrified upper surface, which are typical for this slag type. Further possible fragments of hearth bottom were recovered from Ditch 2 at Millets Farm, Frilford.

HUMAN REMAINS by HARRIET JACKLIN

Four inhumations, one disarticulated skeleton (with an extra cranium), an isolated cranium and a small amount of disarticulated human bone were recovered by hand-excavation and from processed samples. Full details of the methodologies used for analysis can be found in the archive. The majority of the skeletons were dated stratigraphically and by the associated finds and pottery; two were radiocarbon dated.

Iron Age

Milton Hill North, Skeleton 22318. A crouched inhumation. The preservation of the bone was fair and the skeleton was 75–100% complete. The skeleton was that of an infant with an age at death of between birth and two months, based on dental eruption, epiphyseal fusion and measurements of the femur, tibia, humerus, radius, ulna, fibula, clavicle and pars basilaris.[141]

Periostitis was diagnosed on the cranium by plaque-like new bone growth and slight colour change affecting the left and right temporal bones and left and right sphenoid bones ectocranially (externally). Periostitis also affected the entire lateral diaphysis of the left and right tibiae. Periostitis is a condition

[139] P.S. Bellamy et al., 'Stone, Clay and Copper Weighing Equipment', in J. C. Barrett et al., *Cadbury Castle, Somerset. The Later Prehistoric and Early Historic Archaeology,* English Heritage Archaeological Report, 20 (2000), p. 247.

[140] Wainwright and Spratling, 'The Iron Age settlement of Gussage All Saints', p. 115; Bellamy et al., 'Stone, Clay and Copper Weighing Equipment', p. 248.

[141] L. Scheuer and S. Black, *Developmental Juvenile Osteology* (London, 2000); tables adapted from I. Gy. Fazekas and F. Kosa, *Forensic Foetal Osteology* (Budapest, 1978) and M.M. Marsh, 'Measurements from Roentgenograms', in R.W. McCammon (ed.), *Human Growth and Development* (Springfield, 1970), pp. 157–200.

affecting the periosteum (outer layer of bone) which causes abnormal/new bone growth and is symptomatic of a number of different diseases. The periostitis affecting this individual is extremely slight, as would be expected in such a young individual and the exact cause of the condition cannot be identified, it is likely that the primary undiagnosed disease led to the demise of the individual.

Milton Hill North, Skeleton 22386. A crouched inhumation. Preservation was fair and the skeleton was 50–75% complete. Age at death was estimated at between birth and two months old based on epiphyseal fusion and measurements of the femur, tibia, humerus, radius, ulna and pars basilaris.[142] Skeleton 22386 exhibited periostitis in the form of very slight, plaque-like, new bone growth and slight colour change affecting the lateral surface of the right ilium (pelvis).

Land south of Marcham, Skeleton 5049. A crouched inhumation. Preservation was fair, but the bone was quite fragmented. The skeleton was 50–75% complete. A sample of bone from the individual's left tibia provided a radiocarbon date of 362–176 cal BC (Table 1). At death the individual was 25–35 years old, based on epiphyseal fusion. No age-related changes were found and the vertebrae were in very good condition. The sex of the individual could not be determined securely from the measurements of the pelvis, femoral and humeral heads, although the mid-shaft diameter of the right femur indicated a male. Very slight porosity was found affecting the individual's right humeral head. The thoracic vertebrae showed signs of Schmorl's nodes, which are depressions affecting the vertebral bodies and are often the result of herniation of the inter-vertebral disc caused by lifestyle and/or trauma. The pit fill contained 122 g of fragmented human bone, ranging from <1 mm to 10+ mm in size and part of Skeleton 5049. The majority comprised long bone fragments. Also found were lumbar vertebrae (transverse process), a metacarpal, a hand phalanx and foot phalanx fragments, and a fragment of sacral neural arch.

Roman

Lollingdon Hill, Skeleton 2682. A redeposited cranium within later Roman pit 2681. Preservation was fair but the material was quite fragmented. Age at death was estimated to be between 15 and 17.5 years, based on dental eruption and dental wear. No pathology was present.

Lollingdon Hill, Skeletons 26111a and 26111b. Skeleton 26111a comprised the disarticulated remains of one individual, with approximately 50–75% of the skeleton available for study. Skeleton 26111b consisted of a cranium only. Both were found within late Roman pit 26109. Preservation was very poor and the bones were extremely weathered and fragmented. The age at death of Skeleton 26111a was estimated at between birth and 6 months, based on epiphyseal fusion and measurement of the left ulna. All the other long bones were too fragmented to be measured. Skeleton 26111b was estimated to be of a similar age. No pathology was visible but this may be due to very poor preservation.

Milton Hill North, Skeleton 22389. A prone inhumation burial. The right fibula yielded a radiocarbon date of 82–248 cal AD (Table 1). The skeleton was well preserved but fragmented and between 75–100% complete. Age at death was 25–35 years, based on dental eruption and attrition, epiphyseal fusion and analysis of the auricular surface. The individual was identified as male, based on scoring of the pelvis (sciatic notch) and of the cranium (supra-orbital ridge, supra-orbital margin, nuchal crest, mastoid process and mental eminence).

Slight signs of localized porosity affecting the cervical vertebrae may be due to taphonomic processes, as the vertebrae were all very damaged and badly preserved. Very slight porosity was also present on the lateral end of the left clavicle. A developmental or congenital abnormality (possibly osteochondritis dissecans) was also noted in both feet with the proximal ends of the left and right proximal phalanxes (1) affected. The left maxilla showed ante-mortem loss of three teeth with substantial alveolar bone loss, indicating a localized infection, possibly an abscess.

Human Remains from Other Contexts

Two contexts produced disarticulated human remains from processed samples. An infant's ulna (58.18 mm in length) was found within the fill of Iron-Age ditch 54069 at Millets Farm, Frilford, while 75% of a scapula and a rib fragment (likely to be from an infant under three months old) were found within the fill of Roman ditch 22253 at Milton Hill North.

Conclusion

Individual burials are a regular occurrence on Iron-Age sites in the region.[143] Allen comments that although the data regarding Iron-Age burial practices is growing, there are still insufficient sizeable

[142] McCammon (ed.), *Human Growth and Development*, pp. 157–200.
[143] C. Roberts and M. Cox, *Health and Disease in Britain: From Prehistory to the Present Day* (Stroud, 2003).

assemblages to make the examination of the variation in burial rite meaningful.[144] Whilst many sites present a number of different modes of burial, crouched burials like the examples above appear to be relatively common (including at Yarnton).[145] Hope suggests that crouched (pit) burials may be indicative of opportune use of available space, rather than specifically preparing a grave for the burial of the dead.[146] Prone burials like the one from Milton Hill North are not uncommon in the later Roman period, for example at Cirencester where thirty-three examples were found.[147] The re-deposition of human remains is also a custom known during the Roman period.[148]

ANIMAL BONE by SYLVIA WARMAN

An assemblage of 4,567 bones (62 kg) was recovered from sites along the pipeline. Over 1,000 specimens were potentially identifiable to species. Animal bone from Lollingdon Hill, Hagbourne Hill, Milton Hill North and Millets Farm, Frilford was subjected to full analysis. Details of the bones from the other sites are in the archive. Specimens were identified to element and species. Other data recorded included size, sex, weight, parts present, fusion, tooth wear, pathology, burning, butchery and weathering. Age at death was estimated using epiphyseal fusion of long bones following Silver and from mandibular tooth eruption and wear following Grant.[149] Numbers of animals represented were estimated using the minimum number of individuals (MNI) method. The NISP (number of identified specimens) values are also quoted to aid comparison with other published assemblages. Estimations of the shoulder or withers height of domestic stock species were made following von den Driesch and Boessneck for ungulates, and Kiesewalter for horses.[150] The animal bone that was not identified to species (not included in Tables 6–8) was classified by size category with medium and large mammals present; the former is likely to be derived from cattle and horse, the latter from sheep/goat. Further information on the methodology employed and the data collected are provided in the archive.

Lollingdon Hill

The assemblage comprised 969 bones weighing just over 12 kg. Animal bone was also retrieved from five bulk samples (66 g). A total of 225 specimens was fully identified and subjected to analysis (Table 6). The

Table 6. Quantification of animal bone by number and weight from Lollingdon Hill

	MBA		E Roman		L Roman		Total	
	count	*weight*	*count*	*weight*	*count*	*weight*	*count*	*weight*
Cattle	8	224.0	14	756.0	62	2798.0	84	3778.0
Horse			11	1671.0	16	1459.0	27	3130.0
Dog	1	4.0	1	126.0	15	112.3	17	242.3
Sheep			2	21.0	1	6.0	3	27.0
Sheep/Goat	2	8.0	20	209.5	61	268.0	83	485.5
Pig			2	23.0	9	74.0	11	97.0
Total	11	236.0	50	2806.5	164	4717.3	225	7759.8

[144] T. Allen, 'Oxfordshire: Later Bronze Age and Iron Age Historic Resource Assessment. Solent-Thames Archaeological Research Framework': http://www.buckscc.gov.uk (2005).

[145] G. Hey et al., 'Iron Age Inhumation Burials at Yarnton, Oxfordshire', *Antiquity*, 73 (1997), pp. 551–62.

[146] V.M. Hope, 'The Iron and Roman Ages: *c.*600 BC to AD 400', in P.C. Jupp and C. Gittings (eds.), *Death in England: An Illustrated History* (Manchester, 1999), pp. 40–64.

[147] A. McWhirr et al., *Cirencester Excavations II: Roman British Cemeteries at Cirencester* (Cirencester, 1982).

[148] Roberts and Cox, *Health and Disease in Britain*.

[149] I.A. Silver, 'The Ageing of Domestic Animals', in D.R. Brothwell and E.S. Higgs (eds.), *Science in Archaeology* (London, 1969), pp. 283–302; A. Grant, 'The Use of Tooth Wear as a Guide to the Age of Domestic Ungulates', in B. Wilson et al., *Ageing and Sexing Animal Bones from Archaeological Sites,* BAR BS, 109 (1982), pp. 91–108.

[150] A. von den Driesch and J. Boessneck, 'Kritische Anmerkungen zur Widerristhohenberechnung aus Langenmassen vor-n und Frühgeschichtlicher Tierknochen', *Säugetierkundliche Mitteilungen*, 22 (1974), pp. 325–48; L. Kiesewalter, 'Skelettmessungen an Pferden', University of Leipzig dissertation (1888).

majority of the identified animal bones was from Roman deposits. It was moderately well preserved and weathering was not severe. Root etching, however, was frequent, and sometimes severe, limiting the visibility of surface alterations such as finer cut marks, gnawing and pathology.

Middle Bronze Age. A small quantity of cattle, sheep/goat and dog bones was recovered from ditch and pit fills. The most common elements are teeth and foot bones with occasional limb bones. A small quantity of cattle teeth and toes from pit 2651 show signs of weathering and root etching and their presence is likely to relate to taphonomic factors rather than deliberate selection of body parts at the time of deposition. Most of the assemblage is from adult animals, but a deciduous cattle tooth provides evidence of juvenile livestock. The small quantities of animal bone are likely to represent single individuals from each species.

Late Iron Age/early Roman. Much of the assemblage came from the fills of pit 2689. Cattle, sheep/goat, sheep, goat, pig, horse and dog are present. Sheep/goat is the most numerous by both count and MNI, followed by cattle and horse. Dog and pig occur in very small numbers and are represented purely by cranial elements. These are likely to be from single animals of each species. The bones from domestic stock species (cattle, horse and sheep/goat) all include meat-bearing limb bones with some skulls and teeth. Dog gnawing is very rare, suggesting that the material was deposited and sealed rapidly. Only one example of pathology was noted, a sheep/goat mandible with dental calculus (mineralized dental plaque) on the cheek teeth. The causes of this condition are not yet well understood, but diet may play a role.[151]

Cattle were slaughtered between 2.5 and 3.5 years (based on fusion data). Horse long bone fusion data indicates animals aged between 18 months and 3 years. Sheep/goat were killed at a young age, all under 3.5 years and some under 18 months. This is supported by the evidence from tooth wear which indicates the presence of juveniles. The dog remains comprise an adult skull with well-worn teeth from a large individual. Pig is represented by skull fragments and teeth, all from adult and sub-adult animals (over 2 years). Pit 2689 included a complete radius and metacarpal of a horse. The radius had a lateral length of 305 mm and the metatarsal 242 mm, from which the withers heights are calculated as 1.32 m and 1.29 m respectively, suggesting an animal which stood around 13 hands high.

Late Roman. The later Roman assemblage is similar to that of the early Roman period apart from an increased number of sheep/goat relative to cattle. The most numerous species by count are cattle and sheep/goat, with smaller numbers of horse and dog and very small quantities of pig. However, the MNI calculation reveals a very different pattern: dog is the most numerous, followed by cattle and sheep/goat. Much of the animal bone came from the fills of Ditch 4 and was dominated by cattle bones, with sheep, horse, pig and dog present in smaller numbers. Post hole 26117 contained a concentration of sheep/goat foot bones (metapodials and phalanges) that may indicate the deposition of specialized waste.

Cattle remains include a range of body parts from both the head and limbs including meat-bearing bones. Horse bones are mostly limb bones with some skull fragments and teeth. Dog remains comprise skull and long bones. Sheep/goat includes a range of limb bones and skull fragments and teeth. Pig bones are largely from the head (skull fragments and teeth) with some vertebrae and occasional forelimb bones. Evidence of butchery, in the form of bones which have been chopped through, is seen in cattle bones but not in the bones of the other livestock species.

Cattle were mostly killed between 1.5 and 3.5 years of age (based on epiphyseal fusion. This is consistent with the estimated age based on the teeth. Pigs were killed between 1 year and 2.5 years (indicated by fusion data). The dog remains are at least 16 months old or older following fusion data and the dental evidence. As in the early Roman period sheep/goat were killed quite young, between 10 months and 2 years, with a few specimens living beyond 2.5 years. The information for age at death for horse is less conclusive, with epiphyseal fusion indicating animals older than 18 months. Both deciduous (milk) teeth and permanent teeth are present indicating a range of age groups extending to at least 4 years.

Milton Hill North

This site produced a large and moderately well-preserved assemblage of 2,727 bones weighing 40.5 kg of which 634 were fully identified to species and element (Table 7). Root etching and weathering are rare making modifications resulting from butchery, animal gnawing and pathology easily visible.

[151] K. Dobney and D. Brothwell, 'Dental Calculus: Its Relevance to Ancient Diet and Oral Ecology', in E. Cruwys and R. Foley (eds.), *Teeth and Anthropology,* BAR IS, 291 (1986), pp. 55–81.

Table 7. Quantification of animal bone by number and weight from Milton Hill North

	E-MIA		LIA		LIA/E Roman		L Roman		Total	
	count	*weight*	*count*	*weight*	*count*	*weight*	*count*	*weight*	*count*	*weight*
Cattle	93	7912.6	65	2491.0	81	4928.0	22	1048.7	261	16380.3
Horse	45	4893.0	17	928.0	18	887.0	5	342.0	86	7050.0
Dog	14	214.9	2	22.0	8	65.0			24	301.9
Sheep	3	70.0	1	3.0	2	33.0	1	7.0	7	113.0
Goat			1	7.0	1	12.0			2	19.0
Sheep/Goat	55	374.4	41	302.3	55	462.3	34	183.1	185	1322.1
Pig	13	149.6	13	182.0	38	478.0	7	29.6	71	839.2
Total	223	12614.5	140	3925.3	204	6865.3	69	1610.4	636	26025.5

Early to middle Iron Age. Cattle, horse, sheep, sheep/goat, dog and pig are present, with cattle forming almost half of the assemblage by count (NISP). Sheep/goat is the next most numerous followed by horse. The most numerous species by MNI is horse at 5, followed by sheep/goat (4) and cattle and pig (both 3). Cattle display the widest range of elements including many meat-bearing bones, and some of the limb bones show butchery marks and gnaw marks from dogs. A metatarsal has damage visible on the proximal joint surface.

Sheep/goat remains reveals a predominance of skull fragments, mandibles and teeth, though limb bones are also present. Pig remains are mostly mandibles and teeth with a few metapodials and phalanges, but no meat-bearing long bones. Horse includes limb bones, mandibles, teeth and foot bones. Two horse bones show signs of butchery, having been chopped, and some bones have been gnawed by dogs. The horse bones include five possible instances of pathological changes in the lower limb and foot, mostly additional bone growth around joints, with just one example of damage upon the joint surface.

The horse bones from pit 2221 appear to be from a single animal. The measurements from a tibia, metacarpal and metatarsal give a withers height of 1.28 m and suggest the horse stood 12.2 hands high. Most of the horse bones from pit 22644 also appear to be from a single individual, which appears to be a mare.

The dog remains are entirely cranial (skull, mandible and loose teeth). One specimen displays alteration in the bone surface consistent with alveolar disease, an advanced form of gum disease where the bone around the tooth sockets becomes infected.

The majority of cattle were killed between 2 and 3.5 years (from long bone fusion data). This suggests a focus on meat production. The large quantity of cattle bones seems to be, at least in part, butchery or food waste. The skull and horncore butchery marks are consistent with the removal of the horn sheath. The damage to the meat-bearing bones occurs mostly in shafts that have been chopped through and may relate to the jointing of the carcass. Vertical splitting of long bones is also seen and this can be interpreted as evidence for extraction of the bone marrow.

The fusion data and dentition for sheep/goat indicates that many were killed between 2 and 3 years with a small proportion surviving into adulthood, and only a few bones exhibiting butchery marks. Adult and sub-adult pigs are present. Dental information and long bone fusion suggests animals within a range of 2.5 to 3.5 years. The only butchery evidence is one mandible which has been chopped vertically.

Fusion evidence suggests most horses were older than 3.5–4 years old at death, with just a few killed between 2 and 3.5 years. Further evidence for the presence of juvenile horses is the presence of a deciduous (milk) tooth which has reabsorbed roots; this occurs shortly before the tooth is naturally shed.[152] Deciduous teeth in this condition are usually taken to indicate the stalling/corralling of young animals on site. The incidence of pathologies in bones forming joints of the foot and lower limb may relate to the use of this species for traction, burden or riding. However, such conditions can, and do, develop in older horses regardless of the tasks they are used for. All the dog teeth are permanent and wear suggests these specimens represent adult or even aged individuals.

Overall the cattle, sheep/goat and pig remains indicate culling at a young age as soon as a good meat weight is reached. The age structure of the sheep/goat is consistent with breeding/rearing at Milton Hill

[152] S. Hillson, *Teeth* (Cambridge, 1988).

North. Horses appear to survive a little older and have pathologies consistent with traction, riding or burden. Some horse bones also bear butchery marks which suggest horse was either eaten or that the carcasses were divided up to provide food for dogs. The dogs were all fully adult and might have been used to guard livestock or for hunting.

Late Iron Age. These deposits produced a smaller animal bone assemblage but with a similar range of species as in the early to middle Iron-Age deposits, with the addition of goat (represented by a single horncore fragment). Cattle are most numerous by count but sheep/goat has the largest MNI of 5. Horse is less numerous, whilst a handful of pig bones represent at least two individuals. Sheep and dog all have a MNI of 1. There is evidence for butchery and gnawing by dogs on cattle and sheep/goat bones. Horse and pig bones show signs of dog gnawing but not butchery. Over half the sheep/goat specimens are mandibles or teeth although limb bones are also present.

Most cattle were killed between 2 and 3.5 years with a small number living to maturity. The presence of both deciduous and permanent teeth indicates both juvenile and adult animals were present. Horses were mostly adult, older than 3.5 years (based on fusion evidence). All of the horse teeth recovered are permanent, supporting the suggestion that all specimens are from fully adult individuals. Sheep/goat ageing is based largely on tooth wear and indicates that sub-adult animals (less than 3 years old) are the most numerous age group. Although the fusion data broadly supports this, it also indicates the presence of some even younger specimens (less than 1 year old), as well as some skeletally mature animals. Dental evidence suggests that the pigs were mainly sub-adult and juvenile animals whilst fusion evidence indicates ages between 1 and 2 years. The dog specimens are from an adult/sub-adult animal.

The age at death information is consistent with a focus on meat production for cattle, sheep/goat and pig. Horses are all adults which is consistent with use for traction. The adult dogs may have been kept for either herding or guarding the livestock. One sheep/goat mandible has calculus and another two infections of the bone associated with tooth loss.

Late Iron Age/early Roman. This assemblage is dominated by cattle, which is the most numerous species by count, MNI and weight. Sheep/goat are the next most frequent, followed by pig and horse. Sheep, goat and dog are each represented by a few specimens and all have MNIs of 1. Cattle bones include the full range of elements including meat-bearing bones. Sheep/goat shows a bias towards mandibles, teeth and foot bones, although meat-bearing limb bones are also present. Pig remains are largely cranial including loose teeth, but some limb bones are also present and there is a wider range of elements for this species than for earlier periods at this site. Dog bones include skull, long bones and carpals/tarsals.

Long bone fusion evidence indicates that cattle were usually killed between 1.5 and 3.5 years, with a small number surviving to skeletal maturity. The dental information is somewhat at odds with this, indicating adults, and just one juvenile. Thus it appears that most cattle were killed between 18 months and 3 years but a significant minority survived to full dental maturity. The small number of horse bones and teeth makes the estimation of age at death more difficult. Epiphyseal fusion indicates horses were all over 18 months old with some older than 2 years. Dental evidence suggests that most were sub-adult or juvenile animals. The fusion evidence for sheep/goat indicates that most were killed between 2 and 3.5 years; the dental evidence suggests that juveniles were present but that some individuals were surviving beyond 3.5 years. The fusion evidence for pig shows that some were killed before 1 year old, most at less than 2 years old, and none exceeded 3 years of age. The dental evidence supports this. The ageing evidence suggested a continued focus on meat production for cattle and sheep/goat. Pig makes more of a contribution to the assemblage, and thus presumably to the diet/economy, than in the preceding or following periods. All of the dog bones are all from adult animals.

Late Roman. Sheep/goat is the most numerous species by count, cattle by weight but both have an MNI of 2. Horse, pig and sheep are present in much smaller numbers, than for the earlier Roman period, all with an MNI of 1 and dog is absent. Cattle and sheep/goat bones include the widest range of elements; horse includes limb bones, metapodials and a tooth; pig remains are mostly skull and teeth, and sheep is represented by a single skull fragment.

Cattle appear to have been killed after 3.5 years old. All of the horse bones and teeth are from adult animals. Sheep/goat were killed prior to 3.5 years with a few animals even younger (less than 18 months). The pig sample is too small to estimate age at death accurately. It appears that the focus on meat production from sheep/goat continued but that cattle were now being exploited at a more mature age, possibly suggesting greater use of secondary products such as traction or milk. The presence of a cattle proximal femur which exhibits eburnation (polishing of the joint surface), which can be an indication of joint disease such as arthritis, could support this, but such pathologies can also develop in older animals which have not been used for traction.

Millets Farm, Frilford

An assemblage of 570 fragments from 449 bones weighing 6 kg was recovered. Of these 113 were fully identified and subjected to full analysis (Table 8). The bones are generally in moderate to good condition with weathering being rare and generally mild when present. Root etching occurred infrequently and is not severe.

Table 8. Quantification of animal bone by number and weight from Millets Farm, Frilford

	Iron Age		**LIA/Roman**		**Unphased**		**Total**	
	count	*weight*	*count*	*weight*	*count*	*weight*	*count*	*weight*
Cattle	2	95.0	44	3151.0	1	28.0	47	3274.0
Horse			4	215.0	1	6.0	5	221.0
Sheep/Goat	2	11.0	54	523.0			56	534.0
Pig	1	2.0	1	5.0			2	7.0
Dog			3	196.0			3	196.0
Toad			1	0.4			1	0.4
Total	5	108.0	107	4090.4	2	34.0	114	4232.4

Iron Age. Cattle, sheep/goat and pig are present in small numbers in this assemblage, each having an MNI of 1. The cattle bones comprise an adult pelvis and tarsal, the sheep/goat a pelvis and a metapodial, also from adult animals, and the pig a skull fragment from a juvenile.

Late Iron Age to late Roman. The assemblage includes cattle, sheep/goat, pig, horse, dog and toad. Sheep/goat are the most numerous by count and MNI (3), followed by cattle (2) and other species have a MNI of 1. Much of the animal bone is from the fills of Ditches 1 and 2. Fusion data indicates that cattle were killed between 18 months and 3.5 years, but information from tooth wear suggests that a small number of individuals survived to full dental maturity. Sheep/goat were mostly killed between 1 and 3.5 years. A number of limb bones representing a single lamb, just a few months old at most, were found in pit 54037. Horse, pig and dog bones are all from adult animals. The single pig tooth is a permanent tooth and has been worn. Some cattle and sheep/goat specimens show signs of butchery and have been gnawed by dogs. Two measurable long bones are present. A sheep femur had a greatest length of 171 mm which provides a withers height of 600 mm, a large individual. A cattle metacarpal has a greatest length of 200 mm, which provides a withers height of 1.2 m. This assemblage is consistent with the breeding and rearing of sheep/goat with the fusion data suggesting a focus on meat production in cattle and sheep/goat rather than on secondary products such as milk and wool.

Discussion

Lollingdon Hill is the only site to produce a Bronze-Age assemblage. Whilst small, it provides tentative evidence for cattle rearing and shows some similarities with that from Ashville Trading Estate.[153] The restricted range of species is likely to result from the small assemblage size since a larger assemblage from Eynsham Abbey includes a greater number of species.[154]

The Iron-Age assemblage from Milton Hill North has the greatest range of identified species: cattle, sheep/goat, goat, sheep, horse, pig and dog. Cattle are the most numerous taxon followed by sheep/goat, a pattern recorded at other sites in the region including Ashville Trading Estate, Gravelly Guy, Watkins

[153] B. Wilson et al., 'The Animal Bones', in M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring-Ditches and Roman Features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974–76*, Oxfordshire Archaeological Unit Report 1 (1978), pp. 110–39.

[154] J. Mulville, 'The Animal Bone', in Barclay et al., 'A Prehistoric Enclosure at Eynsham Abbey', pp. 146–50.

Farm and Mingies Ditch.[155] The evidence from Milton Hill North indicates that cattle and sheep/goat were generally killed at a relatively young age indicating a focus on meat production, rather than secondary products. A similar pattern of exploitation is seen at Mingies Ditch, although not at Watkins Farm, where more sheep and cattle survive into old age reflecting exploitation for milk and wool as well as meat.

Horse makes up around a fifth of the assemblage by count at Milton Hill North. Significantly, it is the most numerous species by MNI, suggesting it was a major part of the economy. The presence of deciduous teeth is evidence of juvenile animals, although most were fully adult. Horse breeding and rearing appears likely, as is the case with the assemblages from Mingies Ditch and Thornhill Farm.[156] Although horses are assumed to have been kept largely for traction and riding there is evidence from Milton Hill North that horse carcasses were butchered, with the meat either used for human consumption or fed to dogs. This has been suggested at other sites in the region, including Gravelly Guy where horse bones show a higher level of butchery than pig bones.[157] The horse bones from Milton Hill North include several measurable examples from which an average withers height of 12.2 hands was calculated, similar to a small modern pony. This size appears to be typical during this period as other assemblages in the region such as Gravelly Guy provide very similar values.

Pig makes a relatively small contribution to the assemblage and thus presumably to the diet at Milton Hill North, as was also the case at other Iron-Age sites including Mingies Ditch and Watkins Farm. Adult dog bones, although not numerous, are present at Milton Hill North and Milton Hill. Dogs are present in similarly small quantities at other sites in the region, where they have been interpreted as sheep or guard dogs.

In summary, the Iron-Age animal bone assemblages from the various pipeline sites are dominated by cattle and sheep/goat which appear to have formed the subsistence economy, with the additional specialisation of the breeding and rearing of horses. Some information on the quality of the animal husbandry may be gleaned from the examples of pathology. Both cattle and to a greater extent horses display joint damage that may reflect use of these animals for traction or burden. Sheep/goat and dog display oral pathologies which may result from unbalanced or poor diets.

The only wild animal identified is red deer, represented by a single antler from Hagbourne Hill. The lack of postcranial bones suggests that this may just be an example of the ad hoc collection of a useful raw material. This species is also present at both Mingies Ditch and Watkins Farm, again solely represented by antler. The hunting and consumption of red deer during the Iron Age is attested by the presence of butchered meat-bearing bones at Gravelly Guy.[158]

The animal bone assemblages of Roman date recovered from Lollingdon Hill, Milton Hill North and Millets Farm, Frilford all contain a similar range of species: cattle, sheep/goat, horse, pig and dog. Cattle and sheep/goat alternate between sites as the most numerous taxon. The age profile for sheep/goat is consistent with a focus on meat production rather than secondary products. Cattle show a similar age profile with animals being slaughtered shortly after maximum meat-weight was reached. Assemblages from Gravelly Guy, Ashville Trading Estate and Watkins Farm show similar proportions of the main domestic species. At Milton Hill North there was an increase in the percentage of the assemblage made up by pig bones during the earlier Roman period but this was not sustained into the later Roman period. For other sites in the area pig also makes up only a small part of each assemblage.

The assemblage from Millets Farm, Frilford provides measurable sheep and cattle bones. The cattle were larger than those from Ashville Trading Estate, but smaller than those recorded at Denchworth Road, Wantage.[159] The sheep withers height of 60 cm is comparable with examples from Mill Street, Wantage.[160]

[155] Wilson et al., 'The Animal Bones', in Parrington, *The Excavation of an Iron Age Settlement,* pp. 110–39; J. Mulville and B. Levitan, 'The Animal Bone', in Lambrick and Allen, *Gravelly Guy*, pp. 463–78; R. Wilson and E. Allison, 'The Animal and Fish Bones', in Allen, *An Iron Age and Romano-British Enclosed Settlement at Watkins Farm*, pp. 57–61; B. Wilson, 'Reports on the Bones and Oyster Shell', in Allen and Robinson, *The Prehistoric Landscape and Iron Age Enclosed Settlement at Mingies Ditch*, pp. 123–34.

[156] M.K. Rielly, 'The Animal Bones', in J. Pine and S. Preston, *Iron Age and Roman Settlement and Landscape at Totterdown Lane, Horcott, near Fairford, Gloucestershire*, TVAS Monograph, 6 (2004), p. 80; M. Levine, 'The Faunal Remains', in Jennings et al., *Thornhill Farm*, pp. 109–32.

[157] Mulville and Levitan, 'The Animal Bone', in Lambrick and Allen, *Gravelly Guy*, p. 473.

[158] Ibid.

[159] M. Maltby, 'Animal Bone', in A. Barber and N. Holbrook, 'A Romano-British Settlement to the Rear of Denworth Road, Wantage, Oxfordshire; Evaluation and Excavation in 1996 and 1998', *Oxoniensia*, 66 (2001), pp. 320–5.

[160] M. Maltby, 'Animal Bone', in N. Holbrook and A. Thomas, 'The Roman and Early Anglo-Saxon Settlement at Wantage, Oxfordshire. Excavations at Mill Street, 1993–4', *Oxoniensia*, 61 (1996), pp. 155–63.

Horse present at the three Roman sites includes juveniles and sub-adults. The age structure is consistent with horse breeding and rearing and reflects a continuance of Iron-Age practices. One measurable horse from Lollingdon Hill would have stood at 13 hands, similar to a medium-sized modern pony. The presence of butchery marks on horse bones from Milton Hill North indicates that some animals at least were eaten once their working lives were over. The presence of mostly young adult horse and few mature and aged specimens might reflect the export of horses, once they have reached optimum working age. This has also been suggested for other sites in the area such as Mingies Ditch and, most convincingly, Gravelly Guy. Adult dogs were present in small quantities at the three sites and those from Lollingdon Hill include a relatively old individual. The presence of adult dogs suggests that they may have been bred elsewhere or perhaps that dogs were disposed of differently to the other domestic species. One interesting omission from the Roman assemblages is domestic fowl but this may reflect the small size and variable preservation of the assemblage. There are fewer instances of pathology than in the Iron-Age assemblages. A sheep mandible from Lollingdon Hill has calculus, which may reflect diet, and a cattle femur with joint damage from Milton Hill North presents very tenuous evidence for use of this species for traction.

The overall assemblages reveal that Roman animal husbandry on these sites focused on rearing sheep/goat and cattle for meat as well as horse breeding. Pig only made a small contribution to the diet and large dogs may have been kept for hunting or guarding.

PLANT MACROFOSSILS by SARAH COBAIN

Some 22 bulk soil samples were assessed for plant macrofossil and charcoal remains, but only one sample was considered worthy of full analysis. This derived from late Iron-Age pit 22392 at Milton Hill North. Details of the other samples are contained in the archive. Plant macrofossil remains were retrieved by standard flotation procedures using a 250-micron sieve to collect the flot and 1 mm mesh to retain the residue. The dried residue was sorted by eye and seeds from the floated material identified using a low power stereo-microscope. Identifications were made using a modern reference collection and identification literature.[161]

The plant macrofossils from pit 22392 consist of a single carbonized barley grain (*Hordeum vulgare*), carbonized melilot/sweet clover (*Melilotus* spp), fat hen (*Chenopodium album*), cultivated flax (*Linum usitatissimum*) seeds and an uncarbonized sow thistle (*Sonchus* spp) seed. Charcoal, bone, burnt bone, fired clay, flint, slag and magnetic material were also retrieved from the sample and suggest firing debris as well as the disposal of other domestic refuse. The presence of barley is to be expected on an Iron-Age site, although the absence of cereal chaff, together with the increased trade of cereal crops established during the late Iron Age, means that it can not be confirmed whether barley was being cultivated and processed locally or brought to the site.[162]

Flax was cultivated during the Iron Age and is known to have been used to produce linen and rope from the plant fibres and also linseed oil from the seeds.[163] It has a shallow root system and will grow on calcareous grassland in moist soils.[164] The location of the Ginge brook and associated alluvial deposits at the foot of Milton Hill would have provided an ideal location for cultivation, and also the retting process, which would have required large volumes of water in order to soak the stems and separate the fibrous material.[165] However, the small size of the assemblage demands caution in suggesting that flax was cultivated on site, particularly given the rarity of previously recorded examples of cultivated flax on Iron-Age sites in this region, and it is possible that the flax seeds were accidentally carbonized during the drying process (in preparation for crushing for linseed oil) or were present within waste material burnt on the hearth.

The plant macrofossils also give an indication of species within the local environment. The fat hen and melilot/sweet clover are opportunistic species which grow well on cleared/waste ground within

[161] T.J. René Cappers et al., *Digital Seed Atlas of the Netherlands* (Eelde, 2006): www.seedatlas.nl; G. Berggren, *Atlas of Seeds: Part 3* (Arlöv, 1984); A. Anderberg, *Atlas of Seeds: Part 4* (Uddevalla, 1994); C. Stace, *A New British Flora* (Cambridge, 1997).

[162] P. Dark, *The Environment of Britain in the First Millennium A.D.* (London, 2000).

[163] R. Gale and D. Cutler, *Plants in Archaeology-Identification. Manual of Artefacts of Plant Origin from Europe and the Mediterranean* (Kew, 2000).

[164] K. Behre, 'Collected Seeds and Fruits from Herbs as Prehistoric Food', *Vegetation History and Archaeobotany*, 17 (2008), pp. 65–73.

[165] F.W. Tanner, 'Microbiology of Flax Retting', *Botanical Gazette*, 74(2) (1922), pp. 174–185.

settlement areas.[166] Although fat hen is a weed, it can be eaten raw as salad or used in stews and soups,[167] and as such could have been gathered opportunistically, or even cultivated. The sow thistle was uncarbonized and is probably a modern intrusion.[168]

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[166] J.T. Williams, '*Chenopodium Album L.*', *The Journal of Ecology*, 51(3) (1963), pp. 711–25; F. Rose, *The Wild Flower Key* (London, 2006).
[167] Williams, '*Chenopodium Album L.*', pp. 711–25; Behre, 'Collected Seeds and Fruits from Herbs', pp. 65–73.
[168] Rose, *The Wild Flower Key.*