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This volume is dedicated to
John Bailey 1936–2008

Edited by Hester Cooper-Reade and David Ingham

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Cover: Reconstruction of Roman building at Shefford by Cecily Marshall
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Editorial note

After a gap of just over five years it seems fitting that this bumper volume has been published to coincide with the 50th anniversary of the Bedfordshire Archaeological Council. There have been a number of reasons for the long gap in publication and although at one point we were short of articles, the principle reason is simply one of time. To this end I am extremely grateful to my colleague, David Ingham, who has acted as joint editor and been instrumental in driving things forward towards final publication. With a number of articles now waiting for the next volume we can announce that such a long gap in publication is unlikely to happen for the foreseeable future.

Sadly this volume contains the obituaries of two stalwarts of Bedfordshire archaeology: John Bailey and Angie Simco; both of whom have contributed immensely to the understanding of the county's archaeology. This volume contains a re-print of John Bailey's seminal article on the development of carpentry in Bedfordshire, first published in 1998.

James Dyer has contributed his own personal view of the first 50 years of the Council and although we can reflect on the differences between the world into which the Council was born and the one we are working in now, there are still many challenges to face. Whatever one's views of the impact of privately-funded developer archaeology, the archaeological profession remains committed to undertaking good archaeology and publishing results; indeed public dissemination is now more strongly enshrined in the planning system with the publication of PPS5. Commercial funding does of course mean that a large part of the volume is self-financing and although, as already alluded to, there may be differing views of the post-1991 rise of archaeology-as-a-business, the Bedfordshire Archaeological Council welcomes the submission of articles from all sectors. It is, however, important that anyone undertaking archaeological research does considers how the work will be funded and published, particularly if that work involves intrusive fieldwork.

The Bedfordshire Archaeological Council remains the only formal grouping of curatorial, voluntary and commercial archaeologists based in the historic county of Bedfordshire and whilst there is much future debate to be had on the role of the Archaeological Council and the way in which archaeological results should be disseminated in an accessible and informative way, it is hoped that this new volume will help give that much needed boost.

Hester Cooper-Reade

Notes on Contributors

Joe Abrams, BA, MIfA is a Project Manager at Albion Archaeology. He graduated from University College London with a degree in archaeology. Joe is responsible for the implementation, management and academic publication of a wide variety of historic environment projects. Has experience of a wide variety of archaeological work, including excavation and post-excavation analysis.

Lynden Cooper, BA is a Project Officer for the University of Leicester Archaeological Services (ULAS). He has interests in the Early Upper Palaeolithic, and in 2005–07 was the joint manager of the National Ice Age Network in the East Midlands.

James Dyer, D.Arts, MA, FSA was a founder member of the Bedfordshire Archaeological Council in 1959, and of the Institute for Archaeologists. Born in Bedfordshire in 1934, he has worked in education and archaeology all his life. He has excavated in many parts of Britain, as well as Denmark and Greenland. He was Editor for ten years of 'The Bedfordshire Magazine' and is the author of more than two dozen books on archaeology and local history. He is Editor of the 'Shire Archaeology' series of books, ninety of which have appeared since their inception in 1974.

Catherine Edwards, BA, AIfA is a Project Officer with AOC Archaeology Group and manages archaeological projects in the field, regularly liaising with consultants, clients and regional archaeological monitors. Following her graduate qualification in archaeology in 1999, Catherine has established 11 years of fieldwork expertise and supervision. She has supervised complex urban and rural occupation contexts together with cemetery excavations, and she has a keen interest in research work abroad and in the UK. Catherine is committed to the dissemination of archaeological investigations and her publication record includes both excavation and geoarchaeological reporting spanning the Saxon period right through to the post-medieval period.

Terry Hopkinson is Lecturer in Archaeology at the University of Leicester. He specializes in the Lower-Middle Palaeolithic transition and also has interests in Neanderthals and modernity. In 2005–07 he was the joint manager of the National Ice Age Network in the East Midlands.

David Ingham, MSt, MIfA is a Project Officer with Albion Archaeology. He has worked in Bedfordshire and the surrounding counties since 2001, and has managed a range of fieldwork and post-excavation projects.

Mike Luke, BSc, MIfA is a Project Manager at Albion Archaeology. He graduated from the University of Wales (Cardiff) with a degree in archaeology. Has experience of a wide variety of archaeological work, including excavation, post-excavation analysis and publication. He has produced several articles on Iron Age and Roman sites in previous volumes of *Bedfordshire Archaeology*. He has published through East Anglian Archaeology the results of extensive archaeological investigations within the Biddenham Loop.

Anthony Maull, Cert. Arch. is a Senior Project Officer with Northamptonshire Archaeology. He joined Bedfordshire County Council Archaeological Services in 1984, where he was involved in numerous excavations, including urban sites within the historic core of Bedford and the Roman small town of Sandy. He joined Northamptonshire Archaeology in 1998 and has directed and managed excavations across the Midlands and beyond, including the excavation of a medieval moated manor at Tempsford.

Tracy Preece, BA, AIfA is a Project Officer with Albion Archaeology. She has worked on a range of evaluation and open-area projects in Bedfordshire since 2000. In addition, she has extensive post excavation analysis experience which has resulted in a number of forthcoming publications.

Dr. Mark Stephens is Lecturer in Physical Geography at the University of the South Pacific, Fiji. He has interests in Quaternary geology and geoarchaeology, and in 2006–07 was the East Midlands Project Officer of the National Ice Age Network.

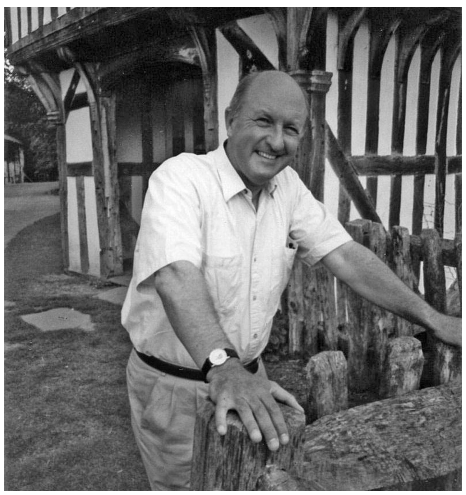
Charlotte Walker, BSc, AIfA is a Senior Supervisor with Northamptonshire Archaeology. Charlotte joined Northamptonshire Archaeology in 1998 as an excavator and progressed to project supervisor, leading several fieldwork projects. She also has been part of the Historic Environment Team within Northamptonshire County Council, and now works on the preparation and editing of client and publication reports.

Nigel Wilson, HND, AIfA studied at the Dorset Institute of Higher Education. He has supervised for a number of archaeological organisations on numerous fieldwork projects throughout the UK, ranging in date from the Mesolithic period to World War II sites. Formerly a Project Officer for Archaeological Services & Consultancy, Nigel now works as a freelance archaeologist

Bob Zeepvat, BA, MIfA is a graduate of Leicester University. As a member of the former Milton Keynes Archaeology Unit, he excavated and published several major sites in the new city before joining Archaeological Services & Consultancy, where he is currently Manager. Bob's main interests are the Roman and medieval periods, historic buildings and industrial archaeology.

John Bailey 1936–2008

John Malcolm Bailey, authority on timber framed buildings;
Born Colindale, North London, 1 May 1936;
Married Beryl: two daughters, Jennifer & Susan;
Married (secondly) Susan (marriage dissolved);
Died Cheltenham, 10 January 2008.



John Bailey, who was by profession a structural engineer, pursued an interest in archaeology and, in particular, timber-framed buildings. The archaeological part of his life is discussed elsewhere in this volume together with an article by him entitled 'The Development of Carpentry in Bedfordshire, 1200–1550'.

The only child of an officer in the Metropolitan Police CID, John went to school and college in Hendon, Middlesex. He was evacuated to the West Country during the war, and did National Service in the RAF, including a spell in Aden.

John worked as a structural engineer for the firm of Matthew Hall, of which he became a director. He was involved with big projects such as shopping centres and supermarkets, sometimes travelling to Europe and South America. John was a meticulous draughtsman of the old school. He continued with the company after it was taken over by AMEC, but with the advent of computer-aided design, that part of his career came to an end, and he was made redundant. He later worked for Oscar Faber in St Albans, Hertfordshire, and Hilson Moran in Farnborough, Hampshire, and was in demand as an expert witness in court cases arising from disputes over the fulfilment of building contracts.

In his younger days, John was a keen racing cyclist, and a member of the Icknield Road Club. He named each of the three cats he owned, successively, Morris Austin. He lived at various times in Dunstable, Markyate and Eaton Bray, in Bedfordshire, before moving to the Cotswolds, where he first lived in Stow-on-the-Wold before buying a house and moving to Moreton-in-Marsh. In July 2007 his home was flooded, and it is feared that many of his architectural and archaeological drawings and plans were lost. John died suddenly in January 2008 of an embolism, following a prostate operation, and was buried in the cemetery at Stow-on-the-Wold, close to the Fosse Way.

John had Asperger's Syndrome, and, like many others with this condition, on which he occasionally gave talks, exhibited an intense interest in a very specialised area of study. Some people found John difficult to get on with, especially on first acquaintance, but to those who persevered he was a very good friend, and always willing to share his knowledge and enthusiasms.

RICHARD WILDMAN and ALAN CRAWLEY
(condensed and amended, with permission, from their obituary published in *The Independent*, 4th February 2008).

Angie Simco 1952–2008

Angela Heather Simco, who died of cancer on 29 December 2008 at the age of 56, grew up with and made her distinctive contribution to the modern archaeological profession. A member of the Institute for Archaeologists from 1984, she was a familiar figure at annual conferences.

The youngest daughter of an airline pilot, Angie was brought up in the Bedfordshire village of Clapham, notable for its prominent Saxo-Norman church tower which she was later to record during conservation repairs and in whose churchyard she is buried. Her interest in archaeology stemmed from membership of a group of able and highly motivated local sixth-formers who were the core volunteers in training excavations at Elstow Abbey and rescue excavations at Bedford Castle in the late 1960s.

After graduating from the London Institute of Archaeology in 1973, Angie joined what was to become the Conservation and Archaeology Section in Bedfordshire County Planning Department. Initially involved with rescue threats, she excavated a Roman villa farmstead site at Newnham east of Bedford, but the main thrust of her public service career was curatorial. She guided the fledgling Sites and Monuments Record with characteristic thoroughness and the serious sleuthing skills required to order the inherited historiography of major heritage assets. Her definitive publication on *The Roman Period in Bedfordshire* showed what a well-stocked SMR could support; it includes a characteristically irrefutable deconstruction of inflated visions about unsubstantiated Roman roads. Perhaps her most important contribution was to the care and repair of Bedfordshire's historic bridges; she devised a methodology in the best traditions of what we now know as 'informed conservation', firmly but tactfully guiding sometimes over-enthusiastic highway engineers. Her book, with Peter McKeague, on *Bedfordshire's Historic Bridges*, explaining the method and the bridges, is a standard work.

After leaving Bedfordshire County Council in 1992 for a greater involvement in the work of her local church, she set up her own sole-trader consultancy in Archaeological Heritage Management. This allowed her to follow her main interests, describing herself on her well-presented web-site, as "a landscape archaeologist at heart … with a particular interest in researching the development of the historic landscape". Several woodlands surveys in south and east Midlands counties married documentary research and field survey. For the Monuments Protection Programme she prepared documentation on the Clay Industries, much admired as a model of its kind. She undertook assessments of landscape character and archaeological resources for her former employers, together with Historic Environment Record projects for data enhancement and systems migration. There were two episodes acting as an Inspector of Ancient Monuments in English Heritage's East Midlands Region, and continued consultancy advice on the repair of accident damage to Bedfordshire's historic bridges.

A reserved personality preferring to keep her powder dry until the problem at hand had been fully scoped, but then expounding the way forward with meticulous clarity, Angie exemplified many of the best qualities of archaeological professionalism. She is a sad loss to her friends and colleagues.

David Baker

Middle Devensian sediments at Sandy Quarry and speculation on the provenance of a handaxe find

Mark Stephens, Terry Hopkinson and Lynden Cooper

SUMMARY

This paper reports the recent find of a flat-butted cordate (or 'bout coupé') handaxe on a reject heap at Sandy Quarry, a sand and gravel quarry near the River Ivel. Handaxes of this type are typically found either in undatable surface contexts, or in Middle Palaeolithic sites associated with Neanderthal activity in Britain during Marine Oxygen Isotope Stage 3 (MIS 3; 59,000–27,000 years BP). Neanderthals were the sole human occupants of Britain for perhaps the first twenty five millennia of this period. This find therefore adds to the growing knowledge of Neanderthal activity and its extent in southern lowland Britain before the onset of the Last Glacial Maximum. Previous studies of the Middle Devensian sediments at Sandy Quarry were made by Gao et al. (1998), who dated organics that occured below and within the lower part of the main body of sand and gravel at ~30,000 years BP, which is a broadly similar timeframe to that of inferred Neanderthal activity in southern Britain. Newly exposed sections at Sandy Quarry reveal a broadly similar sequence of Middle Devensian sediments as previously found, with the major exception being far more extensive organic and silty sediments below the main body of sand and gravel that are indicative of a large backswamp area. Such an environmental setting was found at Lynford Quarry in Norfolk, the Neanderthal Middle Palaeolithic butchery site where forty-seven such handaxes were excavated. The handaxe from Sandy Quarry was found to be in a fresh condition with relatively sharp edges and minimal damage, which indicates that the handaxe had not been transported a great distance by fluvial action and was possibly deposited in the low energy backswamp area of the ancient floodplain.

INTRODUCTION

The sand and gravel at Sandy Quarry, north of Biggleswade (Fig. 1), were originally laid down by the River Ivel during the Middle Devensian period, at least 29,000 yrs BP (Gao *et al*. 1998). The River Ivel is a north-flowing tributary of the River Great Ouse and the quarry is presently located less than 1km west from the modern river (Fig. 1). In the past, however, the River Ivel was larger and flowed through the area that is now being quarried (Gao *et al*. 1998).

A handaxe was recently found at Sandy Quarry on a reject heap — where less marketable, 'oversize' rocks are stored — and is of the type usually termed *bout coupé* (although Roger Jacobi prefers the term 'flat-butted cordate') (Fig. 2). Such handaxes are typical of those used by Neanderthals in Britain during the late Middle Palaeolithic, before the onset of the last glacial stage (White and Jacobi 2002), a climatic period 59,000–27,000 yrs BP termed Marine Oxygen Isotope Stage 3 (MIS 3). This is the first handaxe found at Sandy Quarry although it is not an isolated case for the region, since several such handaxes have been found in Cambridgeshire from similarly aged gravels of the Great Ouse at Little Paxton, Fenstanton, Meadow Lane (St. Ives), Willingham, Over, Fen Drayton and Hemingford Grey (references in White and Jacobi 2002) and also from Bedford (Roe 1981; Tyldesley 1987; Wymer 1999). These finds provide an opportunity to better understand a period or phases of Neanderthal activity on lowland floodplain areas of southern Britain during MIS 3 (*e.g*. Schreve 2006).

This paper provides a description of recently exposed Middle Devensian sediments at Sandy Quarry (Fig. 3), and, although the handaxe was found on a reject heap, an attempt is made, based on the condition of the handaxe and the sedimentology of the deposits, to speculate on its likely provenance.

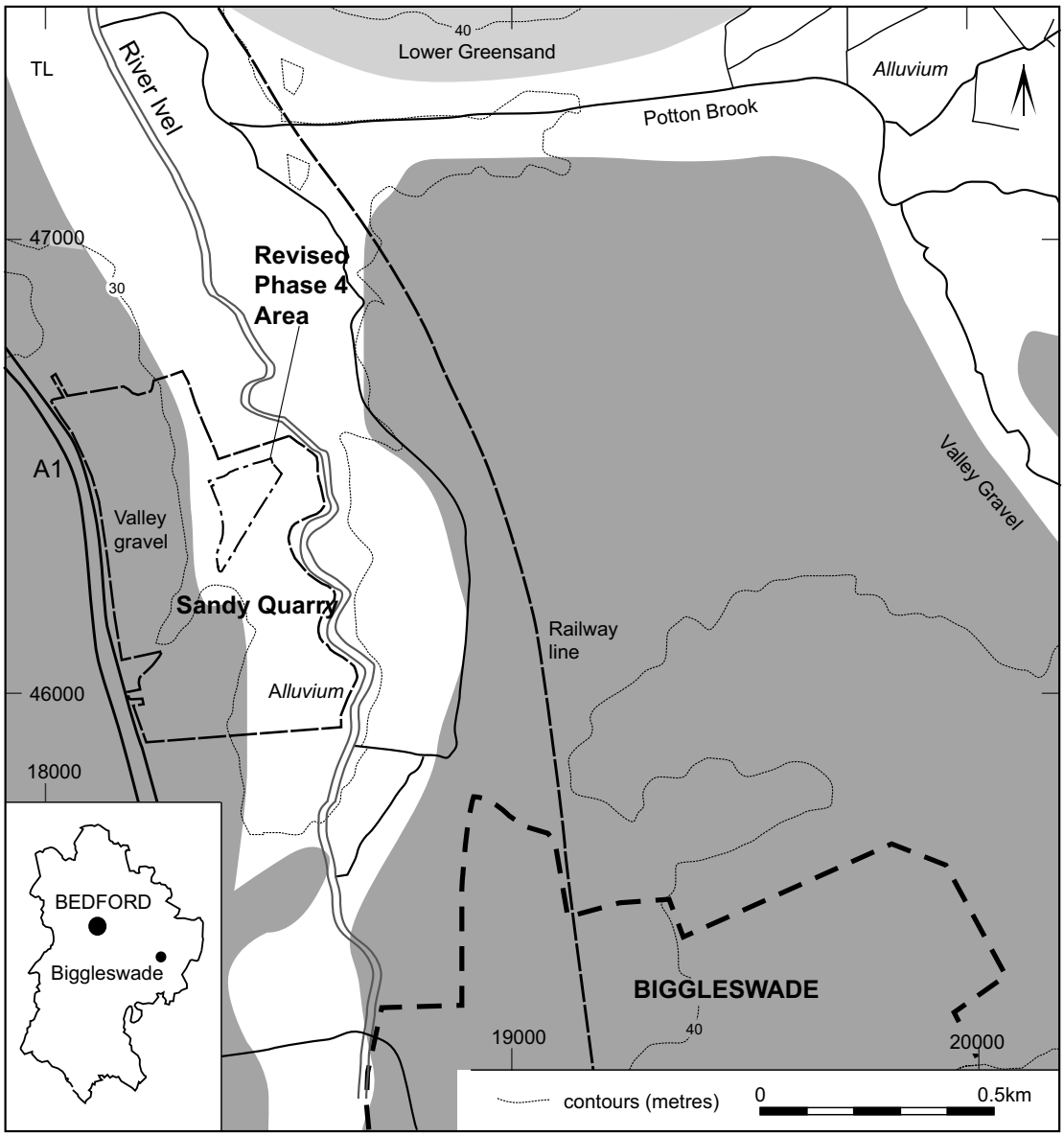


Figure 1: Location of Ivel Farm, Sandy Quarry. The handaxe was found from a reject heap of gravels excavated from the Revised Phase 4 area

PREVIOUS STUDIES OF THE MIDDLE DEVENSIAN DEPOSITS AT SANDY

Previous studies of the Middle Devensian sediments at Sandy Quarry have been made in detail by Gao *et al*. (1998). They described a sedimentary sequence around 4m thick, consisting of three lithological units (Fig. 4) that were seen recently in newly exposed section faces in Sandy Quarry. At the base is Unit 1, a sand, overlain by sand and gravel of Unit 2, followed by silts and clay of Unit 3.

Unit 1, over 1m thick, is a grey sand that is probably derived from erosion of the Lower Greensand bedrock. Unit 2, 2.5–3m thick, consists largely of a brownish gravel. The Unit 2 gravel is



Figure 2: Flat-butted cordate handaxe found on the reject heap at Sandy Quarry in August 2006 by Andrew Brown. Note the sharp edges indicative of minimal abrasion during and after deposition. There is small but very fresh damage to one of its corners and to its tip

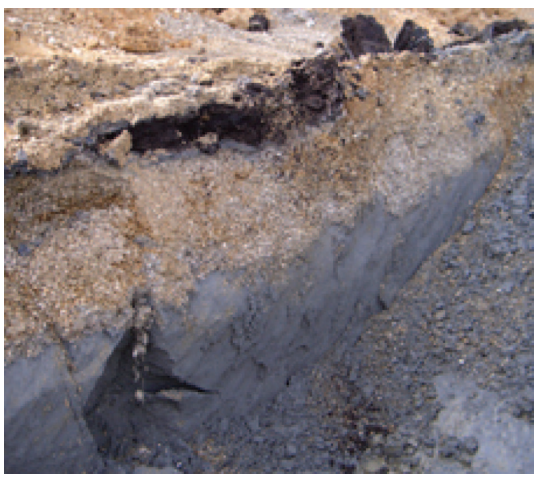


Figure 3: The silty black organic layer (*c*. 20cm thick in this photograph) close to the base of Unit 2. These extensive organics are likely to be the remains of a large backswamp area. It is possible that the handaxe was originally deposited in these sediments

clast-supported and mainly massive in structure — typically resembling the bedform of bars and sheets in a braided river. The gravels are dominated by flint, derived from erosion of the Anglian till (laid down by the Anglian ice sheet around 450,000 yrs BP). Layers of cross-bedded sand occur within the gravels that probably represent infills of small channels. Also occasionally present within the gravels are silt beds that contain organic detritus and molluscan shells (Fig. 4). The fine-grained nature of the silts indicates sediments deposited in slow-moving or still conditions, probably in temporarily abandoned channels of a floodplain (Williams and Rust 1969). Unit 3, an orange-brown silty clay up to 0.5m thick, is a recent floodplain sediment (Edmonds and Dinham 1965). Its uppermost part includes 25cm of modern soil (Gao *et al*. 1998).

It is from the organic materials of Unit 2 that Gao *et al*. (1998) obtained radiocarbon ages of 34,055 yrs BP and 29,250 yrs BP (Fig. 4). They also reconstructed the environmental conditions for these time periods. From the lower organic channel, they found many species of plant macrofossils, molluscs and insects that are typically found in colder climates at the present day. Fossil beetles were used to reconstruct the temperature at Sandy, with the warmest month between 8˚C and 11˚C and the coldest between –10˚C and –28˚C. Conditions were therefore harsh in Sandy around 30,000 years ago and like the tundra of arctic Russia at the present day (Gao *et al*. 1998).

THE HANDAXE FIND

The handaxe was found by quarryman Andrew Brown in August 2006 on a gravel reject heap, and was subsequently passed on to the contracting archaeological unit at Sandy Quarry, Albion Archaeology. The handaxe was in a relatively sharp and 'fresh' condition with minimal rounding

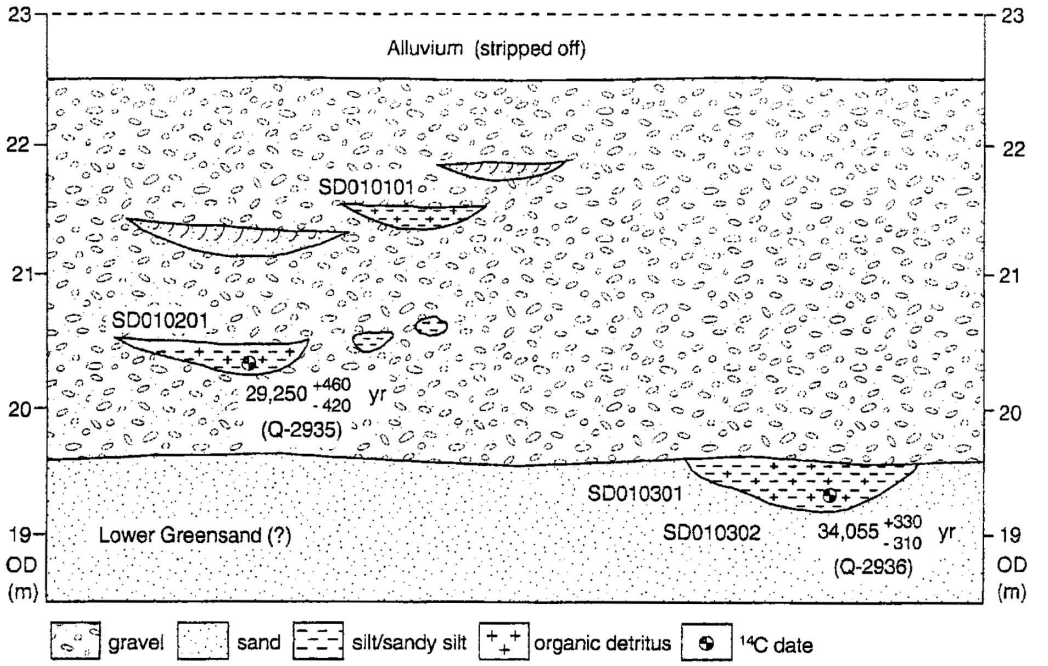


Figure 4: Schematic section of Middle Devensian sediments with radiocarbon dates in Sandy Quarry, from Gao *et al*. (1998)

of edges and little evidence of patination (the discolouration that occurs to the surface of lithic objects due to weathering over time) (Fig. 2). One of the basal corners and tip have been damaged and lost due to very fresh breaks, which are likely to have been inflicted in the mechanical gravel sorter. The reject heap on which the handaxe was found derived from the Revised Phase 4 area of Sandy Quarry (Fig. 1). The exact provenance of the handaxe from the Middle Devensian sequence within the Revised Phase 4 area is the main subject of the remainder of this paper.

REVISED PHASE 4 AREA OF SANDY QUARRY: DESCRIPTION OF THE NEWLY EXPOSED MIDDLE DEVENSIAN SEQUENCE

Subsequent visits were made by the authors in September and October 2006 to view the exposed section faces of the Revised Phase 4 area. The aim was to observe and describe the Middle Devensian sediments exposed, compare them to those described by Gao *et al*. (1998) and speculate from which deposits the handaxe was likely to have come.

The deposits observed were thus (from the base upwards):

Homogeneous sand, at least 1m thick, bluish grey in colour. Due to the homogenous grain size this was interpreted as being produced by sorting in a river. The bluish grey colour indicated possible gleying due to waterlogged conditions, or maybe locally reworked Lower Greensand bedrock (Gao *et al*. 1998).

Yellowish brown, flint-dominated, clast-supported, rounded to angular, medium gravel, *c*. 3m thick. Towards the base of the gravel were extensive beds of silt, *c*. 20–50 cm thick, containing fibrous (plant macrofossils) organic materials and small mollusc shells. These organic beds appeared to be patchy but overlay Unit 1 for almost the whole area of Revised Phase 4, *c*. 200m^2 (Fig. 1). In some places they lay directly above Unit 1, in others there was up to 50cm of fine gravel between Unit 1 and the organic beds (Fig. 3). Layers of cross-bedded sand also occurred within the gravels. In sections to the southeast of the site, more poorly sorted gravel with degraded fibrous, organic material was observed. In one section to the north of the site, *c*. 1m below the top of the Unit 2 gravel, were layers of sand with a

contorted structure. In a section to the northeast of the site, indurated beds of sand, *c*. 3–5cm thick, were observed in the very upper parts of the gravels, that fizzed vigorously with 10% HCl acid.

DISCUSSION

The broad sequence of deposits exposed had very similar sedimentary properties – and are thus inferred to be the same units – as those also described from Sandy by Gao *et al*. (1998). There are, however, some exceptions: a) the organic layers in the lower parts of the Unit 2 gravel were far more widespread in the Revised Phase 4 area, perhaps representing a larger backswamp area of the former river; b) Unit 3 was not present since it had been stripped away for quarrying; c) the poorly sorted gravel with degraded organics probably represents a fast-flowing section of the river that had ripped-up organic deposits from underneath and incorporated them within the gravel; d) contorted beds were present in the Unit 2 gravels that are typical of involutions caused by the seasonal melting of frozen ground in a cold periglacial climate; e) the indurated beds of sand in the upper gravel layers are carbonate-rich calcrete, possibly formed under local conditions during the Holocene (*cf*. Strong *et al*. 2006).

The relatively fresh and sharp condition of the handaxe found at Sandy (Fig. 2) indicates that it had not been transported a great distance by fluvial action. We speculate that it is unlikely that the handaxe originally derived from the main body of gravels, since there is little evidence for abrasion, rolling and rounding of its edges, as would be expected in a high-energy braided river. In addition, greater patination would perhaps be expected for a handaxe deposited in sand and gravel due to increased water seepage. Rather, it is more likely that the handaxe originally came from the silty layers of Unit 2, that represent slow-moving water perhaps in a backswamp area of the river (Fig. 3). These silts would have provided greater protection from weathering and reduced patination. The swampy area may have acted as a natural trap for large mammals, as has been speculated for the famous site at Lynford in Norfolk. At Lynford, forty-seven bout coupé handaxes were found alongside a rich assemblage of animal remains from organic sediments dated to MIS 3 (Schreve 2006) and in a similar sequence below river gravels as at Sandy.

However, no further lithic artefacts or large mammal remains were found from subsequent visits to the Revised Phase 4 area at Sandy Quarry. Inspections were also made of the reject heaps by the authors, but no further artefacts were found.

CONCLUSIONS

This paper reports the recent find of a flat-butted cordate (or 'bout coupé') handaxe from Sandy Quarry, a sand and gravel quarry, which is typical of handaxes found from sites associated with evidence for Neanderthal activity in Britain during MIS 3. This find adds to the growing knowledge of Neanderthal activity and its extent in southern lowland Britain before the onset of the Last Glacial Maximum. Previous studies by Gao *et al*. (1998) from Sandy Quarry dated organics that occurred below and within the lower part of the main body of sand and gravel at ~30 ka, which is a broadly similar timeframe to that of inferred Neanderthal activity in southern Britain.

Newly exposed sections at Sandy Quarry have been described, and reveal a broadly similar sequence of Middle Devensian sediments as previously found from the studies of Gao *et al*. (1998), the major exception being far more extensive organic and silty sediments below the main body of sand and gravel, indicative of a large backswamp area. Such an environmental setting was found for the famous Neanderthal butchery site at Lynford Quarry in Norfolk.

The handaxe from Sandy Quarry was found to be in a fresh condition with relatively sharp edges and minimal damage, which indicates that the handaxe had not been transported a great distance by fluvial action. We speculate that the handaxe was originally deposited in the low energy silts of the inferred backswamp area. These silts would have provided greater protection from weathering (reduced patination), whereas if the handaxe had been deposited in the main body of the river gravel, it would have been more susceptible to abrasion, rolling and rounding of its edges.

Subsequent visits to Sandy Quarry did not produce any further handaxe finds and work at the quarry has now ceased. However, it is possible that MIS 3 archaeology and animal remains could be revealed in any organic deposits found beneath or within the Middle Devensian sand and gravels during a watching brief on any future quarrying along

the River Ivel, with the potential for another discovery akin to Lynford.

ACKNOWLEDGEMENTS

Examination of the deposits at Sandy Quarry was carried out by Mark Stephens and Terry Hopkinson of the University of Leicester's School of Archaeology and Ancient History, and by Lynden Cooper of the University of Leicester Archaeological Services, on behalf of the National Ice Age Network. Cemex UK Materials Ltd are thanked for their cooperation with site visits. We thank Adrian Havercroft (Archaeological Consultant, The Guildhouse Consultancy) and Joe Abrams (Project Manager and Archaeological Contractor, Albion Archaeology) for help with site visits and useful discussions. We are particularly grateful to the quarryman Andrew Brown – the finder of the handaxe – for notifying Albion Archaeology of this important find. We would finally like to thank Roger Jacobi (British Museum) for confirming the lithic identification.

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Flint scatter at Priestley Farm, Flitwick

Richard Moore

with contributions from Lynne Bevan, Julie Candy and Rob Scaife

SUMMARY

A flint scatter site on the northern slope of the valley of the River Flit, to the west of Flitwick, was extensively sampled before and during construction of the Steppingley to Aylesbury natural gas pipeline. A large assemblage of flint tools and debitage was recovered, including pieces characteristic of both Mesolithic and later prehistoric technologies. Abandoned channels of the River Flit contained long sequences of peat which were sampled for pollen analysis, providing valuable evidence for the development of the later Holocene environment. There is some evidence for use of the site in the Middle Iron Age.

The flint assemblage indicates that Mesolithic activity was sporadic and probably seasonal, the variety of tools perhaps being more typical of small hunting groups rather than longer-term domestic occupation. Analysis of the spatial distribution of the flints indicates that there were specific centres of activity.

A high proportion of the assemblage consists of flint-working waste. Although this is difficult to date, there are indications that it mostly resulted from Bronze Age activity, otherwise represented by a number of diagnostic pieces, particularly arrowheads and scrapers. A few typical Neolithic forms were also recorded.

THE SITE

The site occupied parts of two arable fields between the River Flit and Church Road, west of Flitwick (Figs 1–2). The M1 motorway, 500m to the west beyond Priestley Plantation, separates the site from the village of Tingrith. Particularly during excavation, the site was commonly referred to as 'Tingrith' and this name persists in the titles of the specialist reports. From Church Road, the land initially drops very gently to the south, but beyond the boundary between the two fields there is a quite pronounced break of slope as the ground falls away to the south and east, towards the river.

This site was first discovered by members of the Ampthill and District Archaeological and Local History Society during the installation of the Southern Gas Feeder pipeline across the area in 1977 (Fadden 1991). However, because of a late change of route, the fieldwalking survey carried out by the society before construction of that pipeline did not cover the two fields containing the site, and the flint scatter was not identified until the topsoil had already been removed from the working width and the pipe-trench excavated. Although eighty-five pieces of struck flint, all believed to be of Mesolithic date, were recovered at this time, the significance of the site was not completely appreciated until the mid-1990s, when construction of another pipeline, from Steppingley in Bedfordshire to Aylesbury in Buckinghamshire, prompted the detailed study described here.

STAGES OF INVESTIGATION

FIELDWALKING SURVEYS

The significance of the flint scatter became apparent in the course of a fieldwalking survey carried out in the autumn of 1995, in advance of construction of the Steppingley to Aylesbury pipeline. In this survey, five parallel transects spaced 10m apart were walked, the central transect following

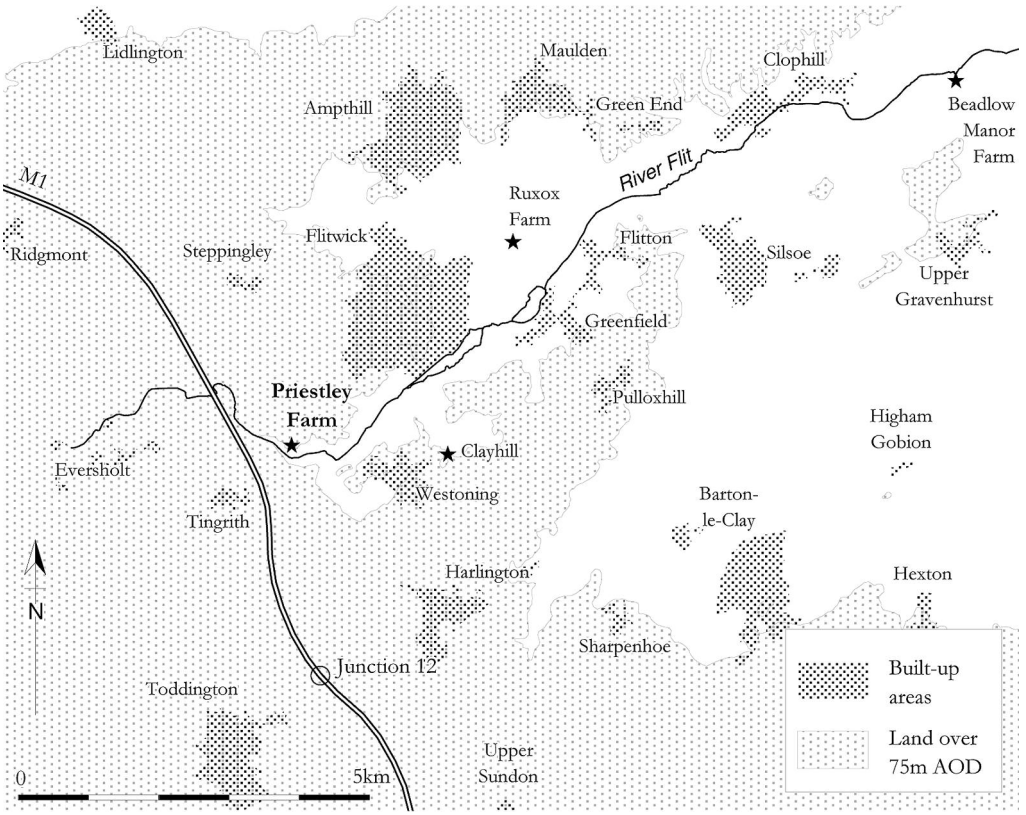


Figure 1: Location of the site, together with other sites in the area mentioned in the text

the proposed centreline of the pipe. A stretch of the route around 300m long yielded 217 pieces of struck flint, much of it recognisably Mesolithic in date.

An evaluation of the site carried out in 1996 consisted of more intensive fieldwalking, collecting all of the flint visible on the ploughed surface in three areas gridded into 5m squares. These areas (Figs 2–3) were oriented parallel to the field boundary crossing the site, in order to investigate the lateral extent of the flint scatter, as well as providing information about its north–south distribution. The three gridded areas covered a total of 4,275m^2, and produced 844 flints.

Excavation of sample pits

The excavation of sample pits was carried out between December 1996 and February 1997. The area sampled was 280m long by 35m wide, the width being determined by the working width necessary for pipeline construction. This area was gridded out into 5m squares (Fig. 3), and the whole area fieldwalked, the finds being recorded by grid square. The results were used in the selection of squares in areas of highest concentration which were targeted for total excavation. In addition, further squares were selected randomly for 20% excavation.

All of the selected squares were subdivided into 1m squares. In the nine targeted squares, all twenty-five of the 1m squares were excavated. The twenty-one randomly selected squares were subsampled by randomly selecting five of their 1m squares for excavation. In total, the excavated 1m squares accounted for just under 2% of the total survey area. The 5m squares were referenced by letter (A to G) and number (1 to 56) and within each one the 1m squares were numbered from 1 to 25, starting at the north-west corner and running west to east, and north to south.

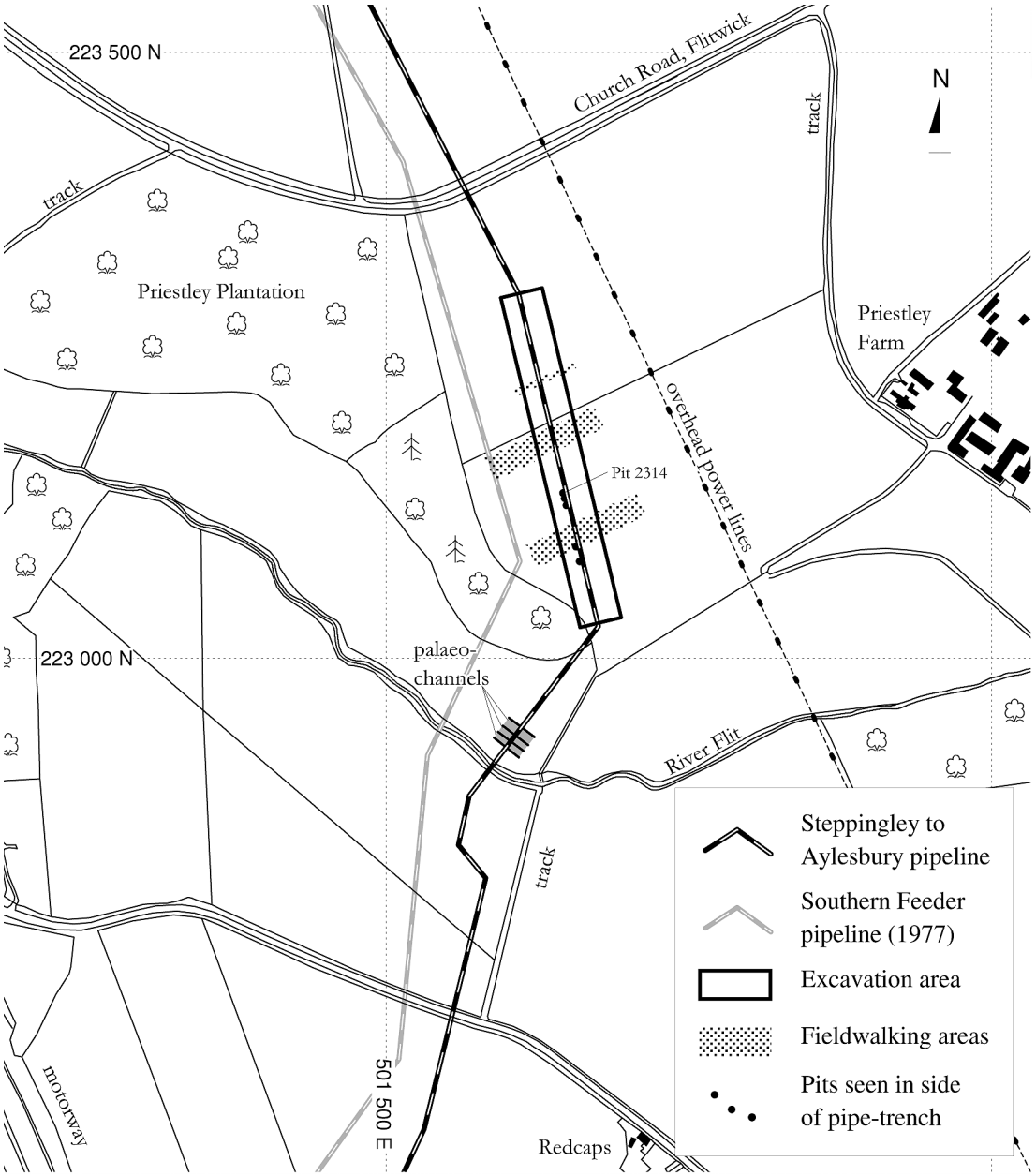


Figure 2: Location of fieldwalking and sample excavation areas, and of palaeochannels and pits recorded in the watching brief

The removed soil was passed through a 13mm mesh sieve into a wheelbarrow and then through a 6mm mesh sieve suspended from a scaffolding pole framework. The finds retrieved from the two sieves were separately bagged. Initially, a 3mm mesh was used, but it was found that the marginal improvement in retrieval of flints in comparison with the 6mm mesh was far outweighed by the increase in time taken, especially in the wet conditions prevailing during the winter of 1996–7. The recovered flints were identified by grid square, and notable individual pieces identified at this stage were given small find (SF) numbers. In all, 16,221 flints were recovered during this stage of work.

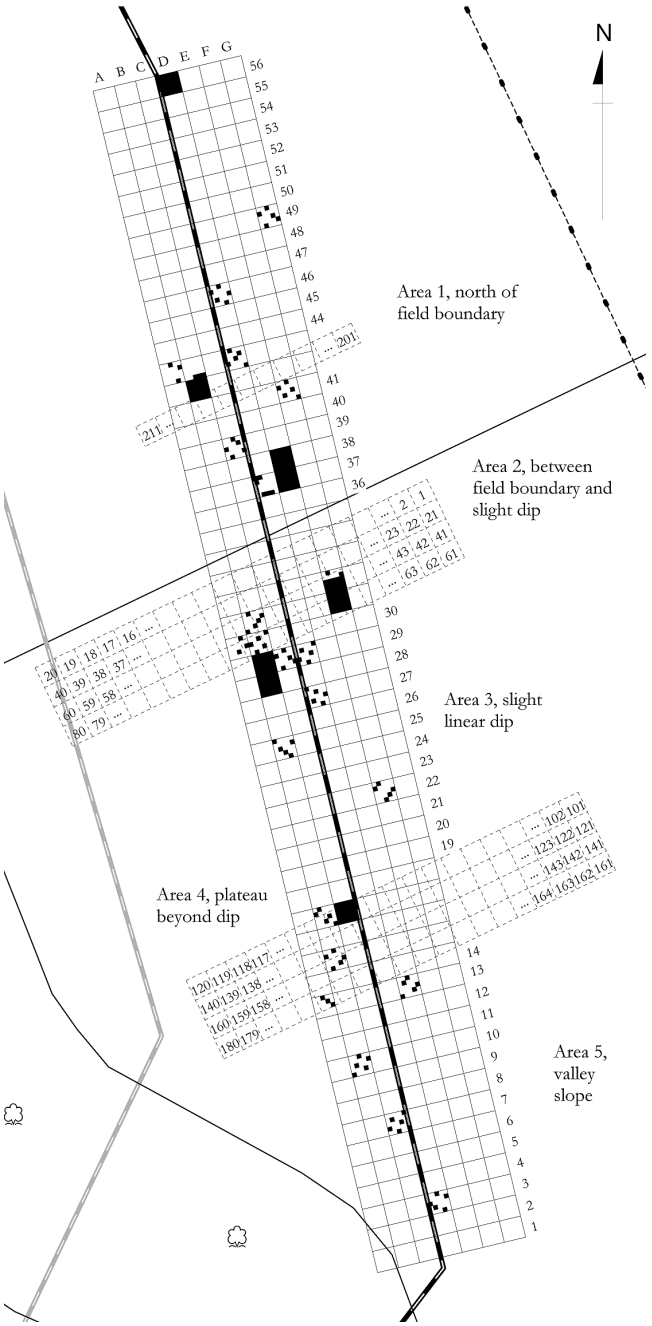


Figure 3: Fieldwalking and sample excavation grid squares, showing numbering, with excavated squares blacked in

In each of the excavated 1m squares, the dark grey topsoil was initially removed to reveal a pale, sandy subsoil. This was very similar in appearance to the natural subsoil but had inclusions of darker soil, decreasing with depth, indicating past disturbance. A 100mm spit of this subsoil was also removed and sieved. In a number of the sample squares, irregular features were recorded below the

topsoil layer. On excavation, none of these produced any datable artefacts and they were interpreted as tree-throws or burnt-out stumps.

Collection after topsoil removal

Topsoil was mechanically stripped from the site using a smooth-faced bucket immediately following completion of the sample pit excavations in early March 1997. No archaeological features were visible in the stripped surface. The surface and the heaps of removed topsoil were systematically searched, producing a further 785 pieces of struck flint from five broadly defined collection areas: the area to the north of the field boundary; the flattish area to the south of the field boundary; a slight linear hollow on the eastern side of the site; the area immediately beyond this hollow; and the slope down to the river (Fig. 3).

Post-excavation assessment

All of the above stages of work were carried out by Engineering Archaeological Services (AES) who produced a post-excavation assessment (Brooks and Price 1997) in July 1997.

Construction watching brief

Construction of the pipeline during the spring and summer of the same year allowed other elements of the immediate area to be investigated and recorded. The lower, southern end of the site was covered by a layer of sandy alluvium, and five small features, masked by this layer, were recorded when the pipe-trench was excavated. These were fairly irregular and may have been no more than tree-throws, similar to those recorded earlier in the northern part of the site, but one (pit 2314, Fig. 2) was notable for containing fifty sherds of a single pottery vessel. This heavy-rimmed vessel (Fig. 4) is decorated with rough vertical scores, typical of the Midlands Scored Ware (*e.g.* Breedon on the Hill, Leics, Kenyon 1950), and is therefore datable to the Middle Iron Age (Machling 1998).

The relatively fresh and unabraded nature of the pottery and the fact that the sherds were all from the same vessel indicate that they were dumped either within, or very close to the tree-throw, and that the hole filled fairly quickly after their deposition. Three flints found within the same fill as the pottery include a single, residual, Mesolithic cutting flake. In all, a further thirty-three flints were retrieved from the site during the watching brief.

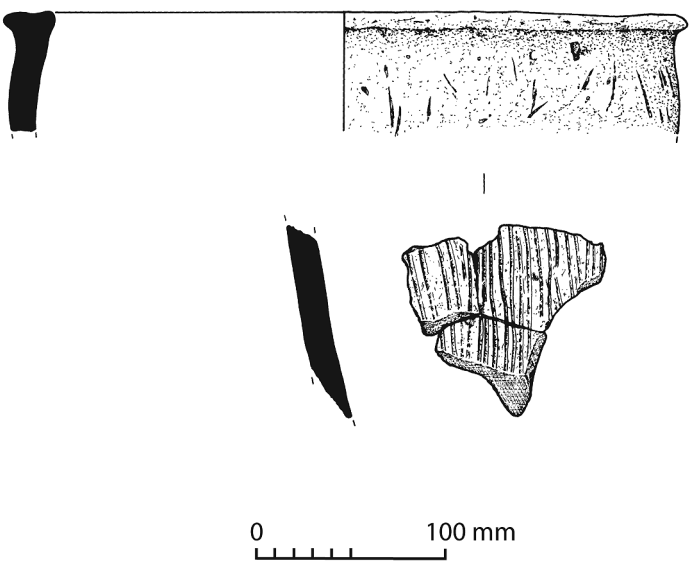


Figure 4: Iron Age pottery

Surface finds include a small amount of Late Bronze Age pottery.

Just to the south of the sample excavation area, the pipe-trench cut through a series of former channels of the River Flit, recorded as features 2317, 2323 and 2328 (Fig. 5). These contained stratified organic deposits sealed beneath layers of alluvium. Four column samples were taken through these layers for pollen analysis. Sub-samples of 2ml volume were taken from these column samples and prepared using standard procedures for the extraction of sub-fossil pollen and spores (Moore and Webb 1978; Moore *et al*. 1991).

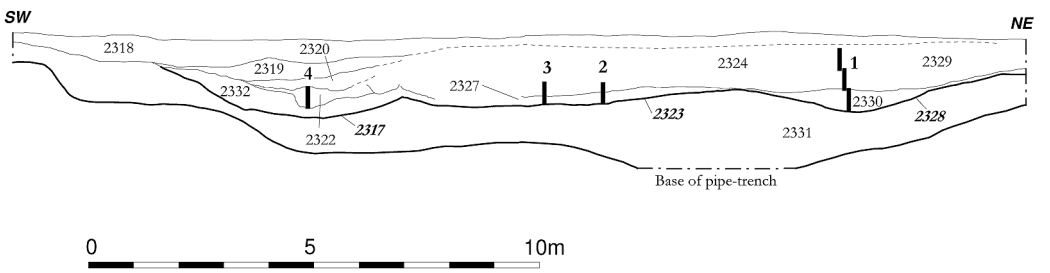
Seven peat samples, obtained from the monolith profiles at horizons of environmental change indicated by pollen analysis and stratigraphy, were submitted to Beta Analytic of Florida for radiocarbon measurement. These measurements have provided dates for changes in the successional vegetation of the early Holocene and for a principal hiatus in peat deposition.

THE FLINT ASSEMBLAGE
(Lynne Bevan and Julie Candy)

INTRODUCTION

This section is based on specialist reports on the flint as a whole (Bevan and Candy 1999) and on the microwear analysis (Candy 1999). The total assemblage from all of the stages of work outlined above consists of 18,107 items of humanly struck flint, weighing over 60kg. The quantities from the different stages of work are summarised in Table 1. Selected flints are illustrated in Figures 6–9.

The earliest activity occurred during the Mesolithic period and is represented by blade cores, microliths and a burin. There seems to have been some activity during the Neolithic period, but the bulk of the assemblage, particularly the debitage, is believed to have been generated during the Early to Late Bronze Age. However, it was not possible to assign the majority of other retouched



Layer	Description
2318	Mid- to dark orange-brown, oxidised, sandy loamy peat.
2319	Coarse white sand.
2320	Medium to coarse grey sand.
2321	Dark brown to black peat.
2322	Fine grey sand.
2324	Dark black-brown, sandy peat, ?same as layer 2329.
2325	Bands of white sand 0.02-0.05m thick.
2326	Mid black-grey, soft, humus rich peaty silt.
2327	Gravelly sand, grey silty bands, frequent flint gravels, ?same as fill 2330.
2329	Dark black-brown peat, ?same as layer 2324.
2330	Gravelly sand, grey silty bands, frequent flint gravels, reworked sand and gravel from layer 2331, ?same as fill 2327.
2331	Fluvio-glacial coarse sand, flint gravel and cobbles (diameter variable up to 0.15m).

Figure 5: Section through palaeochannels 2317, 2323 and 2328, showing location of pollen sample sequences 1 to 4

Stage of work	Site code	Total	Weight/g	Located by
Initial fieldwalking	SM1 96	217	462	Measurement from field boundary
Evaluation fieldwalking	SA 96	844	2,348	5m square (1 to 211)
Fieldwalking excavation grids	LTNMG 96/116	1,775	4,291	5m square (*e.g.* 37B)
Sample pit excavation		14,446	45,611	1m square (*e.g.* 37B 12)
Collection after topsoil strip		785	8,445	Area (1 to 5)
Watching brief	SAY 97	33	538	Marked on 2500 strip map
Unallocated		7		Location lost or unrecorded
Total		**18,107**	**61,764**	

Table 1: Quantity of flints collected in each stage of work

or utilised pieces, especially single-episode tools, to a specific chronological period.

In considering the overall distribution of the flint, it is clear that there were several areas of concentrated activity. In the analyses described below, sample squares producing particularly large quantities of flint have been considered in greater detail and are designated as 'key grid squares'.

Raw Material

The flint used is generally translucent, light to dark grey and brownish grey in colour, with some examples of an opaque blue-grey resulting from partial recortication. Occasional pieces of Greensand chert and pieces of a coarse, cream-coloured opaque material which is more like a coarser-grained rock than flint were noted in the assemblage, but these materials are too small in number to allow any spatial or numerical comparisons to be made. When present, the cortex is thin, brown, and compacted, characteristic of pebble flint from secondary deposits, the most probable source being local river gravels. Despite a prevalence of internal voids and crystalline inclusions which have resulted in a high incidence of hinge fractures, the quality of the flint is generally good and its appearance is almost exclusively glossy and fresh.

Assemblage Composition

Unretouched flakes account for 80% of the total assemblage and unretouched blades over 15%. The remainder of the assemblage consists of lumps (1.3%), cores and core fragments (1.2%) and retouched tools, each class of which accounts for less than 1% of the total assemblage (Table 2).

Class	Quantity	%
Arrowhead	5	0.03
Awl	8	0.04
Blade core fragment	1	0.01
Blade core trimming	7	0.04
Blade core	37	0.20
Blade-like flakes	2,754	15.21
Burin	1	0.01
Core	103	0.57
Core fragment	80	0.44
Core trimming	13	0.07
Denticulate	9	0.05
Denticulate/point	1	0.01
Flake	14,484	79.99
Hammerstone	3	0.02
Knife	3	0.02
Lump	238	1.31
Microburin	2	0.01
Microlith	35	0.19
Misc. pointed tool	15	0.08
Retouched blades	55	0.30
Retouched flakes	156	0.86
Scraper	90	0.50
Scraper/point	1	0.01
Serrated blades/flakes	6	0.03
Total:	**18,107**	**100.00**

Table 2: Composition of the flint assemblage

Recortication

Almost exactly two thirds of the pieces display some degree of recortication. Also known as 'patination' or 'cortication', recortication is a gradual opaque whitening which results from 'a complex range of factors, including chemical action, weathering, water and even light' (Edmonds 1995, 192) on decorticated struck flint. At least 80% of diagnostically Mesolithic flint classes — microliths, blades, blade-like flakes and Mesolithic-type cores — show total or partial recortication, compared to a much lower proportion, generally less than 40%, of those classes associated with later prehistory,

such as barbed and tanged arrowheads, thumbnail and discoidal scrapers, and denticulates. These results support the suggestion that recortication might have been related to soil conditions prior to Neolithic deforestation, resulting in a higher incidence of recortication among Mesolithic flint than flint from subsequent periods (Lawrence Barfield pers. comm.).

Nearby, at Ruxox Farm, recortication was used as a general guide to the dating of a similarly mixed fieldwalking assemblage with some success, the diagnostically Mesolithic flints tending to be totally or heavily recorticated while the diagnostically later flints were 'mostly' un-recorticated (Fadden 1972, 81). However, the rule that 'recortication equals Mesolithic' is not universally true for Bedfordshire material: none of the diagnostically Mesolithic flints from Beadlow Manor Farm, Clophill, 2km further north-east of Ruxox Farm, exhibited any recortication (Fadden 1973, 131).

When the less chronologically diagnostic tool classes in the Priestley Farm assemblage, such as side scrapers and side-and-end scrapers, were considered, the degree of recortication was found to be significantly lower than that for Mesolithic material, despite a bias which creates an artificially high percentage of recortication among the more poorly represented tool classes. This tends to support the hypothesis that the bulk of the collection was generated from activities which took place during later periods. The proportions of recorticated flint within the key grid squares are within the range 56.78% (square 17C) to 71.16% (square 31F), conforming fairly closely to the overall average for the whole collection (66%), with the exception of square 29B which has a significantly lower percentage at 38.37%.

Flint Class	No. recorticated	% of class
Discoidal scraper	3	18.8
Arrowhead	1	20.0
Thumbnail scraper	2	22.2
Side scraper	2	33.3
Scraper	8	34.8
Retouched flake	69	44.2
Denticulate	4	44.4
Misc. pointed tool	7	46.7
Non-Meso. core	65	45.8
Side and end scraper	12	60.0
End scraper	10	62.5
Lump	149	62.6
Hammerstone	2	66.7
Knife	2	66.7
Burin/microburin	2	66.7
Non-retouched flake	9,096	62.8
Retouched blade	38	69.1
Blade core	31	81.6
Meso. core fragment	10	83.3
Microlith	30	85.7
Bi. core trim/rejuv.	6	85.7
Meso. core	25	86.2
Awl	7	87.5
Non-retouched blades	2,410	87.5
Core trim/rejuv. flake	12	92.3
Denticulate/misc. point	1	100.0

Table 3: Recorticated flint by class

Tools

Microliths

Thirty-five microliths are present, including fifteen obliquely blunted points and fourteen backed points. Figure 10 shows their distribution within the sample grid. Three isosceles triangles were identified: a backed blade and two unidentifiable fragments. While obliquely blunted points (*e.g.* Fig. 7:7–9) are common in Early Mesolithic assemblages, the generally small size of the microliths at Priestley Farm suggests a Later Mesolithic date: they are comparable in size to three Later Mesolithic microliths in the predominantly Early Mesolithic assemblage from New Plantation, Fyfield and Tubney, Oxfordshire (Bradley and Hey 1993, fig. 11:F12; fig. 12:F14–5). The presence of geometrically shaped microliths such as isosceles triangles (Fig. 7:6) in the Priestley Farm microlith assemblage is also indicative of a Later Mesolithic date.

Scrapers

Ninety scrapers were identified (Fig. 11). Scrapers are generally not chronologically diagnostic tools, but there are two typically Early Bronze Age forms in the collection: discoidal scrapers, of which sixteen examples were identified, one of which has been illustrated (Fig. 9:25); and 'thumbnail' scrapers, nine examples of which were identified and two of which are illustrated (Fig. 9:26–7). The thumbnail scrapers tend to be small, with a rounded or roughly polygonal shape in plan, and exhibit a high ratio of retouched edge to flint surface area. This distinctive form of scraper is prevalent among Beaker-related industries (Healy 1986) and is not to be confused with typologically Mesolithic 'thumb' and 'button' scrapers known from central England (Saville 1972/3, 19; Saville 1973/4, 198–9, fig. 16:7), which, although small and generally round, tend to be more steeply retouched than the scrapers identified among the Priestley Farm assemblage.

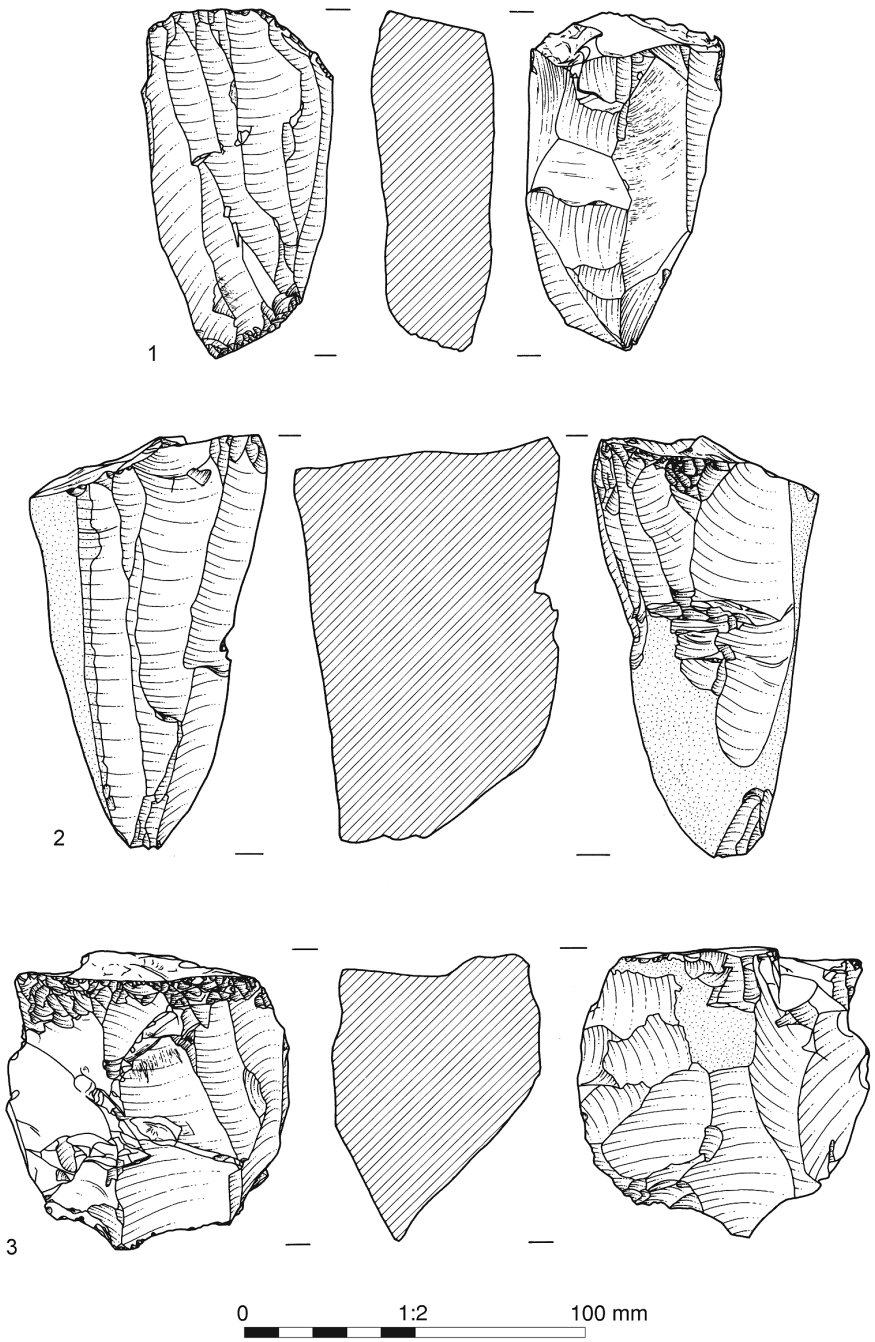


Figure 6: Flints, drawings 1 to 3

No.	Location	Description
1	29B 11	Single-platformed, pyramidal blade core with hinge fractures; blue-grey colour resulting from partial recortication.
2	49G 3	Opposed platformed core with narrow blade detachments, opaque blue-grey/white, almost totally recorticated and partially burnt.
3	49G 3	Multi-platformed, light grey, partially recorticated flake core with hinge fractures.

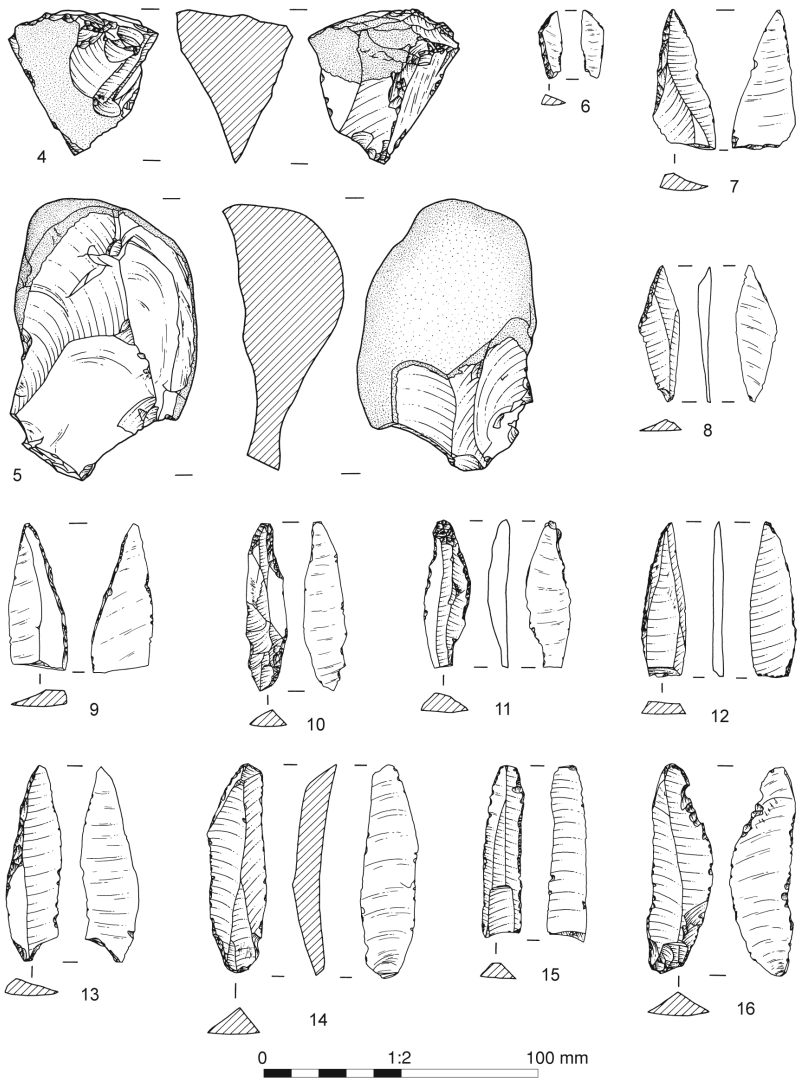


Figure 7: Flints, drawings 4 to 16

No.	Location	Description
4	56D 5	Multi-platformed blade core with a large crystalline inclusion, light brown flint.
5	7C 23	Core with broad flake detachments made from a split pebble, medium-grey flint.
6	12	Isosceles triangle with total white recortication.
7	31F 11	Obliquely blunted point, blunted at left side, light grey in colour with partial white recortication.
8	44D	Obliquely blunted point, blunted at left side, light grey in colour with partial white recortication.
9	31B	Obliquely blunted point, blunted at right side with micro-serration on left side, light grey in colour with partial white recortication.
10	41F 14	Backed point with distinct 'needle' tip and some retouch at lower right edge, light grey flint.
11	38E	Backed point with distinct 'needle' tip and retouch on both sides, light beige in colour with partial white recortication.
12	Area 4	Backed point with retouch on left side, light beige in colour with partial white recortication.
13	28B 22	Backed point with retouch on left side, white in colour, totally recorticated.
14	28B 11	Backed blade with retouch and traces of utilisation at tip and bottom left side, light beige flint.
15	41F 3	Backed blade with retouch and traces of utilisation on both sides, tip broken, light grey flint.
16	41F 3	Backed blade with retouch and traces of utilisation at right side, light orange flint.

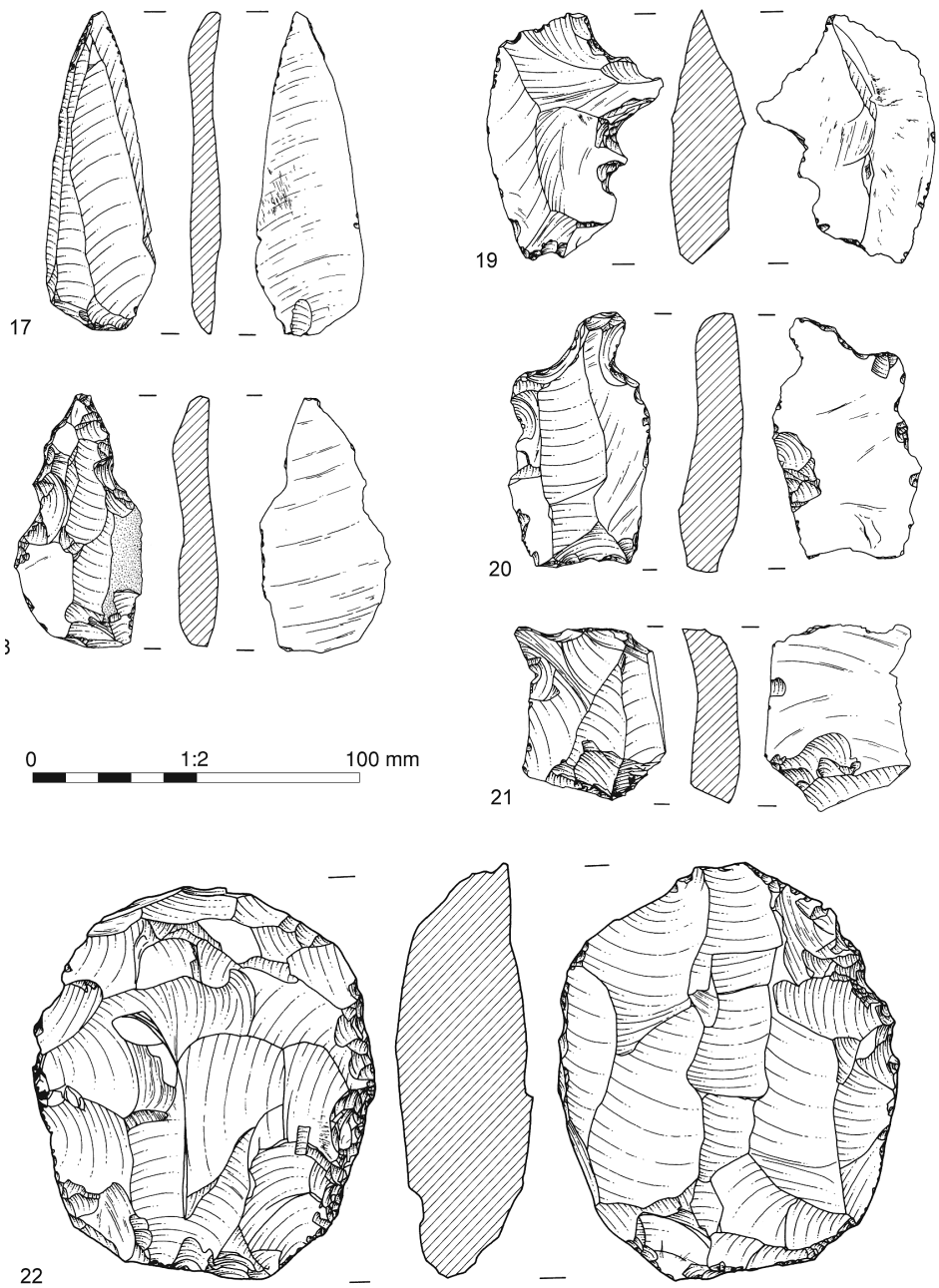


Figure 8: Flints, drawings 17 to 22

No.	Location	Description
17	155	Point, retouched on left side of tip, light grey flint.
18	37E 3	Awl, opaque light grey flint.
19	Area 2	Denticulated flake, opaque light grey flint.
20	Area 1	Pointed tool/borer, medium-grey flint.
21	29B 23	Composite scraper/borer, light grey opaque flint
22	None	Discoidal knife, light grey opaque flint.

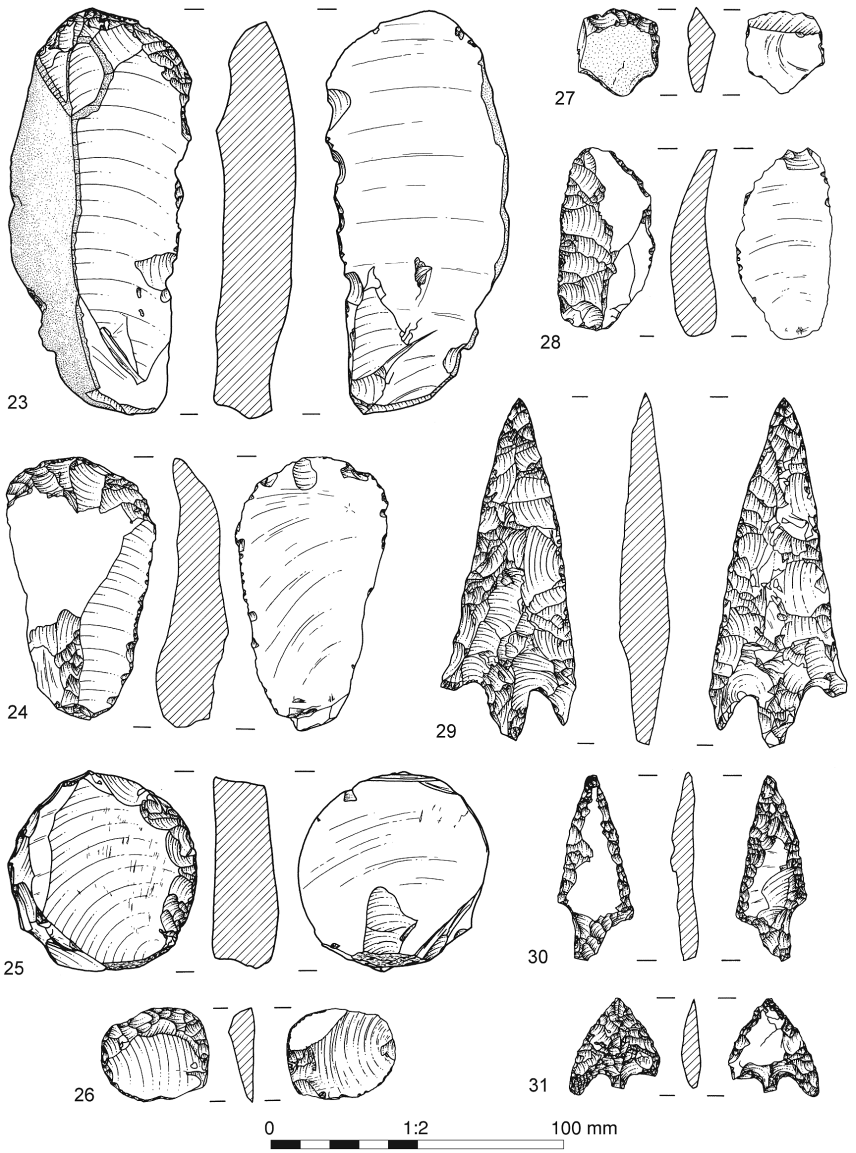


Figure 9: Flints, drawings 23 to 31

No.	Location	Description
23	38E 20	End scraper with a notched edge worked on the underside, dark grey flint.
24	Area 1	End scraper, dark grey flint.
25	31F 5	Discoidal scraper, medium grey flint, slightly burnt.
26	43	Thumbnail scraper; light grey flint.
27	Area 1	Thumbnail scraper, light grey flint.
28	42B 11	Knife with pressure-flaking on left side and partial recortication on lower right, medium-grey flint.
29	29B 1	Large barbed and tanged arrowhead, translucent beige flint, conforms to Ballyclare Type C in Green's arrowhead typology (1984, 28–9).
30	40F	Tanged arrowhead without barbs, medium-grey flint, pressure-flaked through surface recortication, conforms to Sutton B type in Green's typology (1984, 28–9).
31	17C 1	Barbed and tanged arrowhead with part of one barb broken, white from total recortication, conforms to Sutton A type in Green's typology (1984, 28–9).

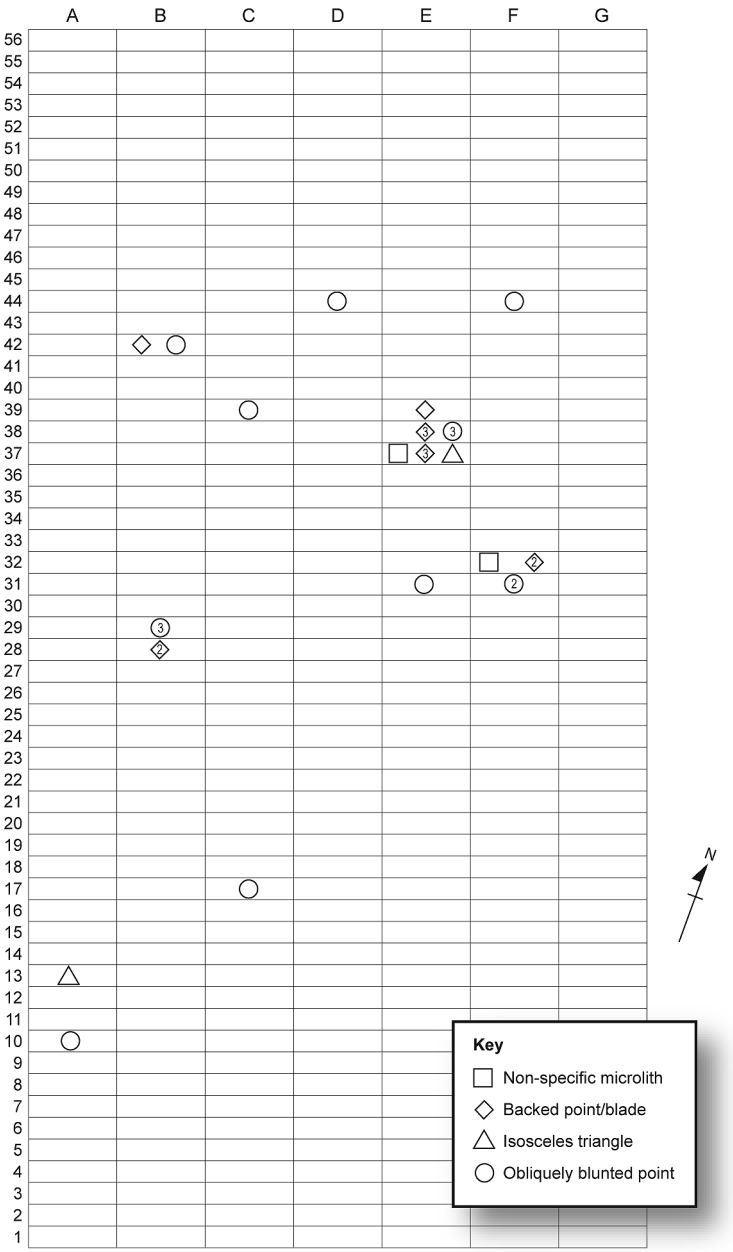


Figure 10: Distribution of microlith sub-types

Twenty-three scrapers are described as 'unclassified' since, mainly for reasons of fragmentation, they do not conform to any of the formal scraper groups defined. Other scrapers are classified as end (*e.g.* Fig. 9:23–4), side, and side-and-end scrapers. Less chronologically diagnostic than the other two groups, these scrapers are frequently characterised by the presence of regular retouch along the whole of either the side or end, or both the side and end of the scraper. Some of the sixteen end scrapers are similar to the typically Mesolithic forms illustrated in Wymer's Gazetteer

of Mesolithic Sites in England and Wales (1977, fig. 2:18–9). However, a later prehistoric date cannot be ruled out, in view of the recortication issue discussed above and stylistic parallels within known later assemblages. For example, many of these scrapers show similarities with material from Late Bronze Age hut platforms at Black Patch, Sussex (Drewett 1982, 374–6, fig. 35:1–3, 35:5–7, 35:13, 35:14–6).

Arrowheads

Five arrowheads were recovered, only one of which is complete (Fig. 9:29). The complete arrowhead conforms to Ballyclare Type C in

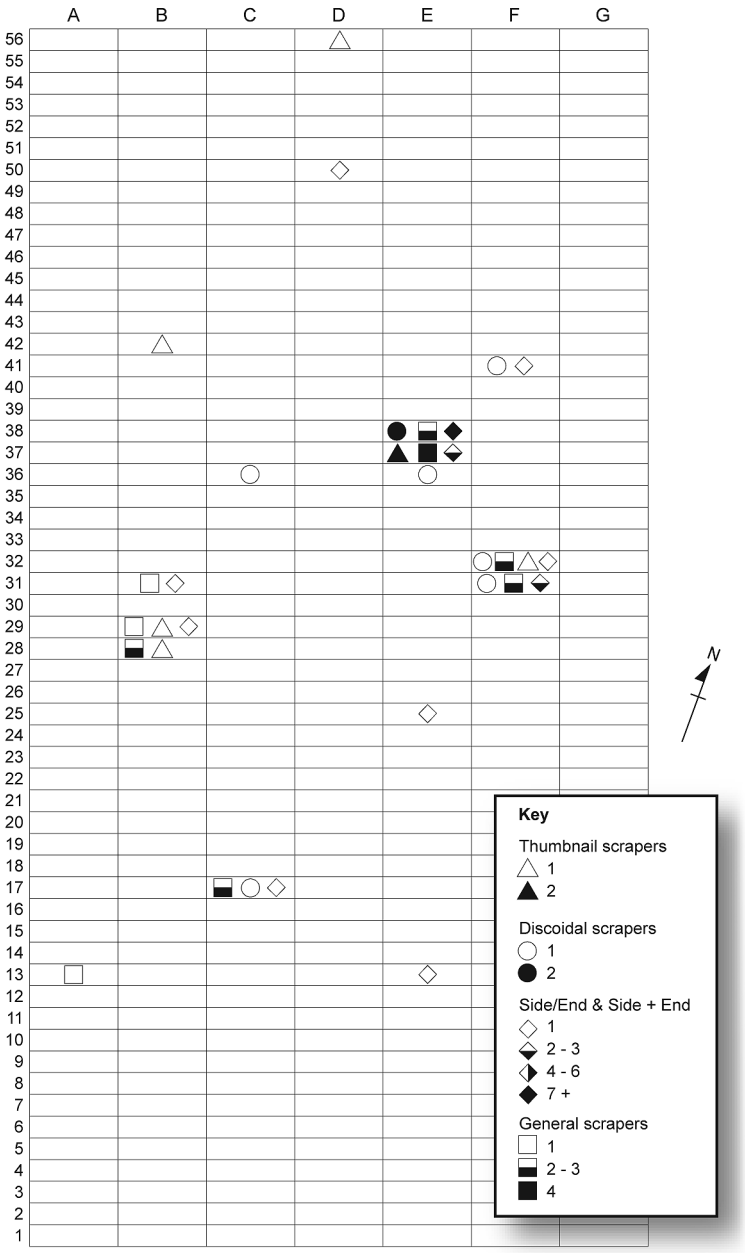


Figure 11: Distribution of scraper types by grid square

Stephen Green's arrowhead typology (Green 1980; Green 1984, 28–9), a comparatively rare type in lowland Britain, which probably originated from Ireland and which is 'associated with Early Bronze Age dating' (Green 1980, 138). Green has also suggested that these distinctive, large arrowheads were regarded as 'prestige objects or else as specialised missile point types, perhaps used in hunting larger, or different game' (Green 1980, 118), concluding that a 'ceremonial' use was more likely than a utilitarian function (Green 1980, 138). The example shown in Figure 9:29 is a particularly fine specimen, made from a translucent beige-coloured flint, which does not exhibit any evidence of having been used. A small fragment from another arrowhead of potentially the same type, and in the same coloured flint (37E 25, SF 131, not illustrated), was found, their relatively close proximity suggesting that these two arrowheads might have been part of a pair or set.

The other arrowheads are a possible un-barbed Sutton B Type (Fig. 9:30) and two barbed and tanged Sutton A Types (Fig. 9:3, and 38E 13, SF 48, not illustrated), all of which are broken to some extent (Green 1984, 28–9). An interesting aspect of the un-barbed arrowhead (Fig. 9:30) is that it was pressure-flaked through a milky-white recortication that appears to have affected the whole surface of the flint flake selected. The resulting two-tone effect might have been intentional, perhaps for aesthetic reasons. Sutton Type arrowheads are much more common than the Ballyclare Types, spanning 'the full chronological and cultural span of the occurrence of barbed and tanged arrowheads' and occurring 'with particular frequency in the graves of Beaker archers' (Green 1980, 138). They are widely distributed in southern England. Arrowheads are, however, generally associated with off-site, rather than site-based, activities (Schofield 1987), their presence indicating general activity in the wider area during the Early Bronze Age rather than a specific focus of activity. A general contemporaneity with the discoidal and thumbnail scrapers is likely. It is even possible that some of the arrowheads, particularly the illustrated examples (Fig. 9:29–31), might relate to funerary activity, although there was no other archaeological indication of this.

Other Pressure-Flaked Items

Other pressure-flaked items consist of a discoidal knife — a form of tool associated with the Later Neolithic period (*e.g.* Edmonds 1995, 96), the surface of which is devoid of cortex (Fig. 8:22) — and three small, partially pressure-flaked knives, one of which has been illustrated (Fig. 9:28). The two other knives (30B 19, SF 29 and 167, SF 156) are both made from a translucent beige flint with a fresh appearance. Although less effort was made to achieve a specific shape, such as that of the curved, ovoid shape apparent on the illustrated example, both pieces have been bifacially worked to some extent. The forms and techniques used for the production of these four items are characteristic of the Neolithic period, although closer chronological resolution is only possible for the discoidal knife (Fig. 8:22).

Denticulates

Nine denticulates, and a composite denticulate/miscellaneous pointed tool (29B, 21, discussed below), were identified. One of the denticulates has been illustrated (Fig. 8:19). While there is a degree of doubt regarding whether the denticulation on some of the smaller pieces is deliberate, the more obvious examples are made from large flakes and core fragments characterised by a series of contiguous notches along one or two edges. Denticulates are a form of tool usually associated with the Late Bronze Age (Stone 1937, pl. *vi*; Harding 1991, fig. 45, 84–5; Bevan forthcoming), but they have also appeared in lithic concentrations dated to either the Late Neolithic or the Early Bronze Age at Spong Hill, North Elmham, Norfolk (Healy 1988, 58–9, figs 48:L99 and 49:L114). Denticulated scrapers from Grimes Graves were also regarded as 'a distinctively Bronze Age type' (Saville 1981a, 21). The tools might have fulfilled an engraving function, perhaps for pottery decoration, or bone or antler working, or been used as boring tools. The fairly regular form of the tools suggests a multiple function, or that they are more versatile, composite tools.

Awls and Miscellaneous Pointed Tools

Eight awls, a burin, two microburins and fifteen miscellaneous pointed tools or piercers were identified within the collection. Awls are a pointed tool usually associated with boring and leatherworking, including hide-processing (*e.g.* Fig. 8:18). Five of the eight awls, including the illustrated example, were found in squares 37E and 38E, raising the possibility of the localised use of this tool type. Microwear results indicate that they have been used predominantly for scraping or

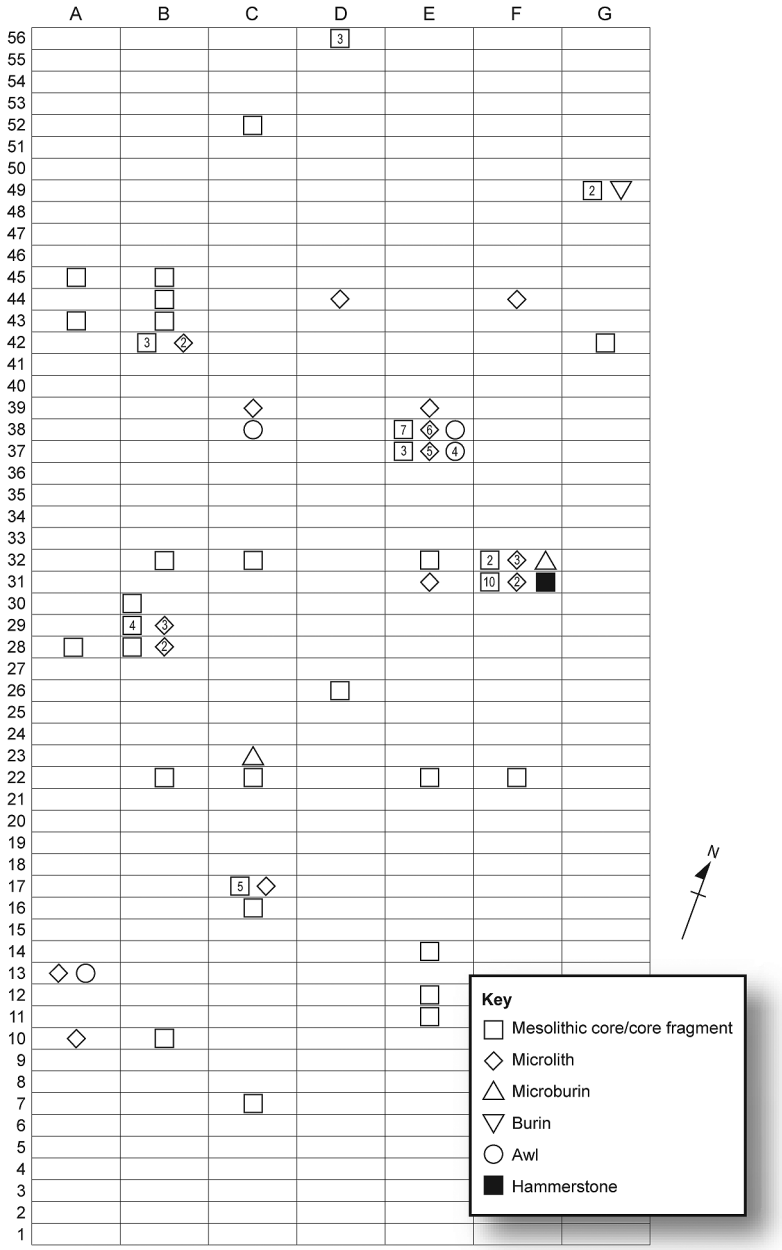


Figure 12: Distribution of Mesolithic tools and waste

perhaps engraving. The high incidence of recortication, observed in seven of the eight awls, suggests a Later Mesolithic date for this tool type.

One burin, a tool associated with bone and antler working (Bordaz 1989, 71), was recovered from square 49G. Its small size and general shape suggest a Later Mesolithic date, but its condition is poor and it has not been illustrated. Two microburins were also identified (23C, 32F). Microburins were by-products of microlith manufacture and seldom fulfilled a specific function (Bordaz 1989, fig. 42, 94). The definition

'miscellaneous pointed tool' encompasses all of those pieces which do not conform to the classic awl shape, yet which appear to possess either a deliberately worked point or seem to have a natural spur which has been utilised in a boring, scraping or gouging action (*e.g.* Fig. 8:20).

The miscellaneous pointed tools were widely distributed, although most of these tool types were excavated from grid squares with a generally high flint density. One piece from grid square 50F exhibits some polish on the point, suggesting that it has been used for bone or antler working. Harding has noted the proportional dominance of piercers as typical of late Bronze Age assemblages in southern England (Harding 1991, 85), and it is possible that a number of pointed tools are of Later Bronze Age date. The small number of pointed tools identified departs from the general model. While the awls may have been connected with site function, perhaps localised hide or bone working during the Later Mesolithic in the area of 37E and 38E (Fig. 12), the relatively low incidence of miscellaneous pointed tools might indicate a preference for bone or metal points during later prehistory.

Composite Tools

Two apparently composite pieces were found, both from grid square 29B (Fig. 13). The first is defined as a denticulate/miscellaneous pointed tool as it displays both notching and a point (29B 21, not illustrated). The second piece is categorised as a scraper/borer (29B 23, SF 91, Fig. 8:21) and its shape, combined with the pattern of retouch and utilisation, suggests that this implement served as both an end scraper and a borer, with a scraper edge at one end and a well defined point at the other. This is similar to the 'multiple tool ... a combined scraper and point' identified among Bronze Age material at Grimes Graves (Saville 1981, 25).

Blades

A total of fifty-five blades and 2,754 unretouched blade-like flakes were recorded, 15.5% of the entire collection. Of these, 180 pieces display evidence of utilisation.

Serrated Blades and Flakes

Serration, the presence of regular, tiny notches along the edge of a struck flint, was noted on six pieces, two of which are blades, the rest flakes. They were mostly from those grid squares with the highest concentrations of both tools and debitage. Current debate on serration centres on whether it was intentional or whether it was caused by edge-damage from being used for a certain function, for example as a sickle on plant material (Andrew Brown pers. comm.). Polish was not observed on any of the serrated flints, only one of which, a yellow-grey, long blade from square 28B, really has the shape and size necessary for such a function. The same edge-wear pattern was observed on all the serrated pieces suitable for microwear analysis and indicates a scraping function on medium-hardness materials.

Retouched Flakes

The term 'retouched flake' was applied to any flake which exhibited some degree of retouching, whether the removal of just a few scales or the extensive retouch of the whole of one or two edges. The majority of the 156 pieces identified within the collection have been retouched on one edge only, while a smaller number have been retouched on two or three edges. Analysis of the positioning of the retouch on the flakes shows no bias towards a certain area of the flint, but retouch is more likely to be located towards the distal end of the flake. Nearly all the pieces (91.7%) have been utilised and exhibit some degree of edge wear, frequently on more than just the retouched edge.

The characteristics of the retouched flakes vary considerably, with a range of colours, shapes and sizes. Twelve pieces have been retouched through a layer of recortication, indicating the re-use of older struck flakes. Eight pieces appear to have been deliberately notched, while nine pieces have a very small, fine pattern of retouch. This fine retouch suggests that high skill, care and precision were not just reserved for formal tools. The occurrence of such 'deliberately modified pieces' supports Bradley's observation regarding the high incidence of this general tool class on later Bronze Age sites at a time when the formal tool repertoire was decreasing (Ford *et al*. 1984, 165–7).

The colours of the retouched flakes were quantified and compared with the values recorded for the non-retouched flakes (Table 3). Significant differences were observed, with much higher numbers of beige-brown, brown-grey and grey pieces within the retouched flake group, and a much smaller quantity of white flints. The popularity of brown-grey flint probably reflects the most common colours of flint pebbles available, and perhaps flint in this colour range tended to be of a higher quality and was more easily worked.

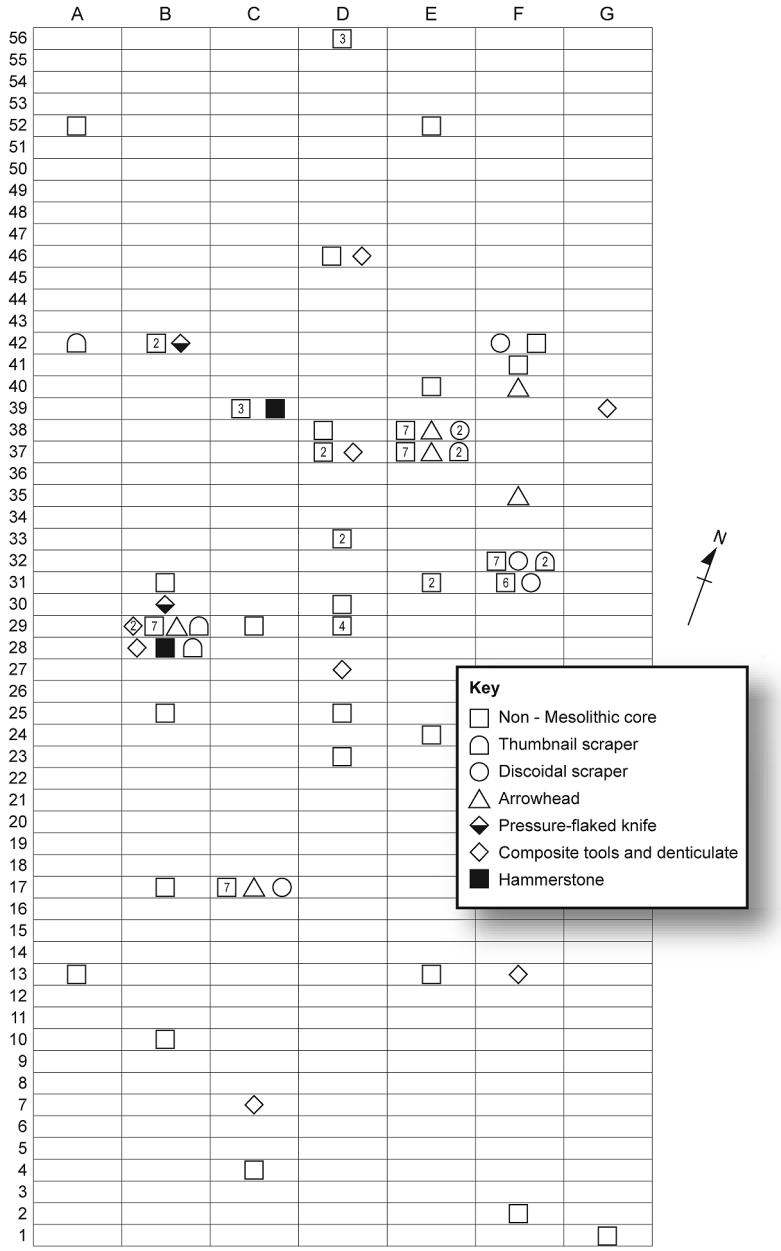


Figure 13: Distribution of Neolithic and Bronze Age tools and cores

Aesthetic reasons may also have been a factor in selection, with perhaps translucent beige and brown pieces being selected for their attractive sheen, as well as for their quality.

Almost half of the retouched flakes from Priestley Farm derive from the six key grid squares (Table 5) and the data from these squares were analysed in order to see whether there were any coherent, spatially linked groups. Squares 31F and 38E were both found to contain two pieces which exhibit retouch through a layer of recortication. Within a single 1m^2 sub-square (32F 16), three pieces were found which have been very finely retouched. All three weigh 2–3g and have been

Colour group	Retouched	Non-retouched
Beige-brown	14	14
Beige-brown-grey	15	34
Grey	49	29
Blue-grey	17	12
White	5	3
Other		8

Table 4: Comparison of colour of retouched and non-retouched flakes

Grid Square	No. retouched flakes
17C	6
29B	11
31F	12
32F	13
37E	19
38E	8
Total	69

Table 5: Quantities of retouched flakes in the key grid squares

used in a scraping action. It is tempting to see these pieces as representing a contemporaneous episode of flint use. The other 1m squares which contained more than two retouched flakes were 31F 14; 32F 19; 37E 4; and 37E 11. These 1m squares also contained several tools and many utilised pieces.

Core and Waste Categories

Cores

Of the 241 cores and core fragments identified in the assemblage, including core trimming/rejuvenation flakes, eighty-six are, or are from, prepared blade cores of Mesolithic type. Of these, thirteen are core fragments and seven are core trimming/rejuvenation flakes. The average weight of this type of core is just over 31g. Mesolithic-type cores are characterised by a series of narrow detachments from one, two or, occasionally, more platforms. Some blade cores are pyramidal, with a single platform (Fig. 6:1), some bipolar, with two platforms from opposing ends of the core (Fig. 6:2), and others exhibit a series of platforms across the body of the core (Fig. 6:3–4), revealing that in many instances the core has been utilised beyond its apparent usefulness, an indication of resource stress. Most flake cores (*e.g.* Fig. 6:3) and some blade cores (*e.g.* Fig. 6:4) have multiple platforms, although the blade cores are Later Mesolithic in date and the flake cores are later. Like the blades within the collection, these cores frequently exhibit recortication, to the extent of displaying a colour within the range of white to a light bluish-grey.

The less chronologically diagnostic cores, which are probably of Bronze Age date, either have flake, rather than blade, detachments removed from a series of randomly placed platforms across the surface of the flint (Fig. 6:3), or are 'pebble cores' consisting of split pebbles with a series of broad flake detachments from the broken end (*e.g.* Fig. 6:5). With the exception of two unusually large pebble nodule cores weighing 259g and 513g, both from fieldwalking, the average flake core weight is 52.5g and the average pebble core weight is somewhat higher, at 71.6g.

Flake cores with multiple platforms and pebble cores are both characteristic of later prehistoric flint-working; for example, in the assemblage from the Late Bronze Age riverside zone at Runnymede Bridge, Egham, Surrey (Bevan forthcoming). At Mount Sandal, Coleraine, Ireland, in a similarly mixed assemblage to that from Priestley Farm, multi-platformed flake cores were used to determine the focus of post-Mesolithic activity (Woodman 1985, 53).

Hammerstones

Three hammerstones were recovered, all of which were made from pebbles. A totally recorticated hammerstone made from a quartz pebble and exhibiting signs of intensive use (3lF, SF 66) may be of Later Mesolithic date. This has been included in the distribution plot of Mesolithic material within the main grid (Fig. 12). The other two hammers have been included with the post-Mesolithic tools and waste categories (Fig. 13). In addition, several of the cores exhibit traces of wear characteristic of re-use as hammerstones.

Technology

Flint cores and pebbles were a common choice of material for hammerstones; they would have been locally available and, in the case of the re-used cores, an expedient tool for use in flint-working. Such hard hammers are often associated with later prehistoric flint assemblages and are known to produce pronounced bulbs of percussion. However, the relative percentages of diffuse and pronounced bulbs visible among the flake assemblage, which are almost identical, suggest that soft hammers of antler, bone and perhaps wood must also have been used, although these materials were not preserved

archaeologically. Soft hammers appear to have been used to a greater extent in blade production since the incidence of diffuse bulbs is significantly higher (Table 6). This might indicate a period-specific preference, with more controlled flint-working being conducted with direct or indirect percussion using antler, bone or wooden hammers during the Later Mesolithic period.

Further comparison of other attributes of flakes and blades revealed similar ratios of feather and hinge terminations for each class of artefact, with hinge terminations being slightly lower than feather terminations in each instance (Table 6). While feather terminations are a characteristic of successful and skilled flint-working, hinge terminations can result from either poor craftsmanship or a raw material of unpredictable quality. That the relative percentages are almost identical for both blades and flakes suggests that, in this case, the quality of the raw material appears to have been the main cause of hinge fractures during all periods of activity on the site. This is supported by a high incidence of crystalline inclusions and other potential faults noted, as well as a number of hinge fractures visible on many of the Later Mesolithic blade cores, which had otherwise been prepared and reduced with more skill than the later multi-platformed flake cores and rough pebble cores.

A comparison of flake and blade platforms revealed similar percentages of different platform types, with a higher incidence of absent blade platforms resulting from use and post-depositional breakage (Table 6). Corticated platforms are, as would be expected, higher among the flakes, many of which were detached from unprepared flint pebbles. The fairly high incidence of plain platforms among both flakes and blades suggests that platforms were usually well prepared, which would be expected particularly among the blades, most of which are believed to have been generated during the Later Mesolithic period.

	Flakes		Blades	
	Number	%	Number	%
Bulb				
Uncertain	60	8.3	11	7.1
Diffuse	326	45.1	88	56.0
Pronounced	337	46.6	58	36.9
Termination				
Uncertain	65	9.0	11	7.0
Feather	382	52.8	86	54.8
Hinge	276	38.2	60	38.2
Platform				
Uncertain	60	8.3	11	7.0
Absent	125	17.3	48	30.6
Corticated	101	14.0	5	3.2
Faceted	41	5.7	3	1.9
Plain	396	54.8	90	57.3

Table 6: Comparison of flake and blade bulbs, terminations and platforms

Flake Dimensions

Flake dimensions can be useful in determining, in a broad sense, whether flint-working took place during earlier or later prehistory, on the premise that narrow blade-like flakes were generated during the Later Mesolithic/Early Neolithic period, and thereafter waste flakes became much broader (Pitts 1978). This relatively simple method, which involves plotting the dimensions of individual complete flakes on to a numbered grid, is applicable to unstratified assemblages, provided that the measured sample is sufficiently large. Ideally, comparisons should be made with locally excavated assemblages of known date. This method has been used successfully by one of the authors to determine the predominantly Mesolithic character of fieldwalking assemblages from the vicinity of Kinver Edge in the West Midlands, by comparing this set of data to that derived from an excavated Later Mesolithic site at Lightmarsh Farm, near Kidderminster (Bevan 1995a and 1996). This method was also successfully used at Wasperton, Warwickshire to determine the predominantly Late Neolithic to Early Bronze Age date of the unstratified ring ditch assemblage (Bevan 1995b).

Measurement of all complete flakes in the Priestley Farm assemblage enabled compilation of length to breadth scattergrams of the key grid squares from the excavation, which contained some of the largest collections of struck flint. This was done in order to determine, in this case, whether the majority of the flint had been worked during the Later Mesolithic period or the Bronze Age, based upon the incidence of chronologically diagnostic tools and core types within this mixed assemblage. Scattergrams of complete blades were also compiled for some key contexts for comparative purposes. The results appear in Figures 14 and 15.

A general pattern of broad, rather than particularly slender, flakes was noted in the key grid squares, with flakes from certain squares tending to be shorter and squatter (*e.g.* 31F and 32F). Although a generally longer and more blade-like

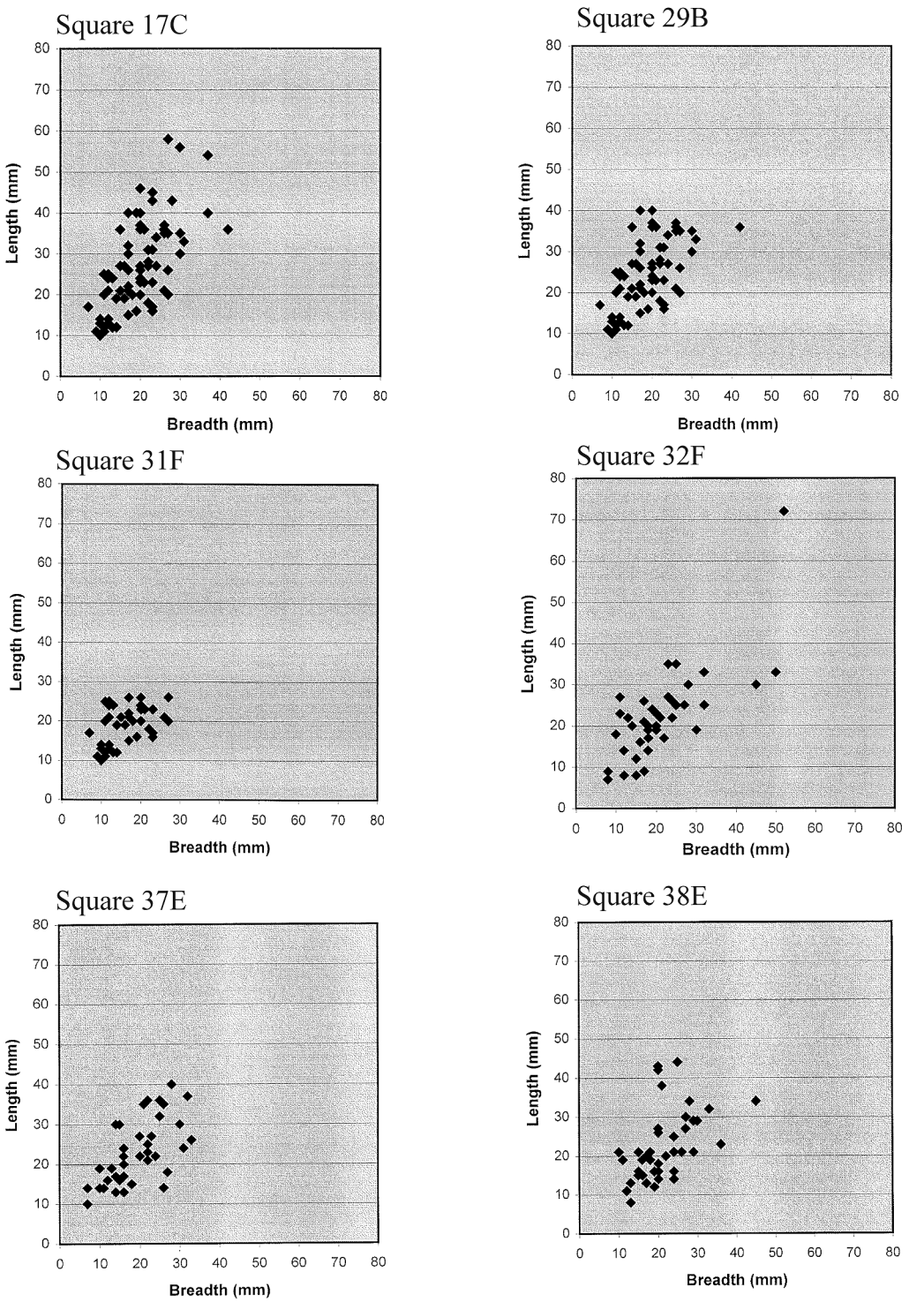


Figure 14: Scattergrams showing length:breadth ratios for complete flakes from key grid squares

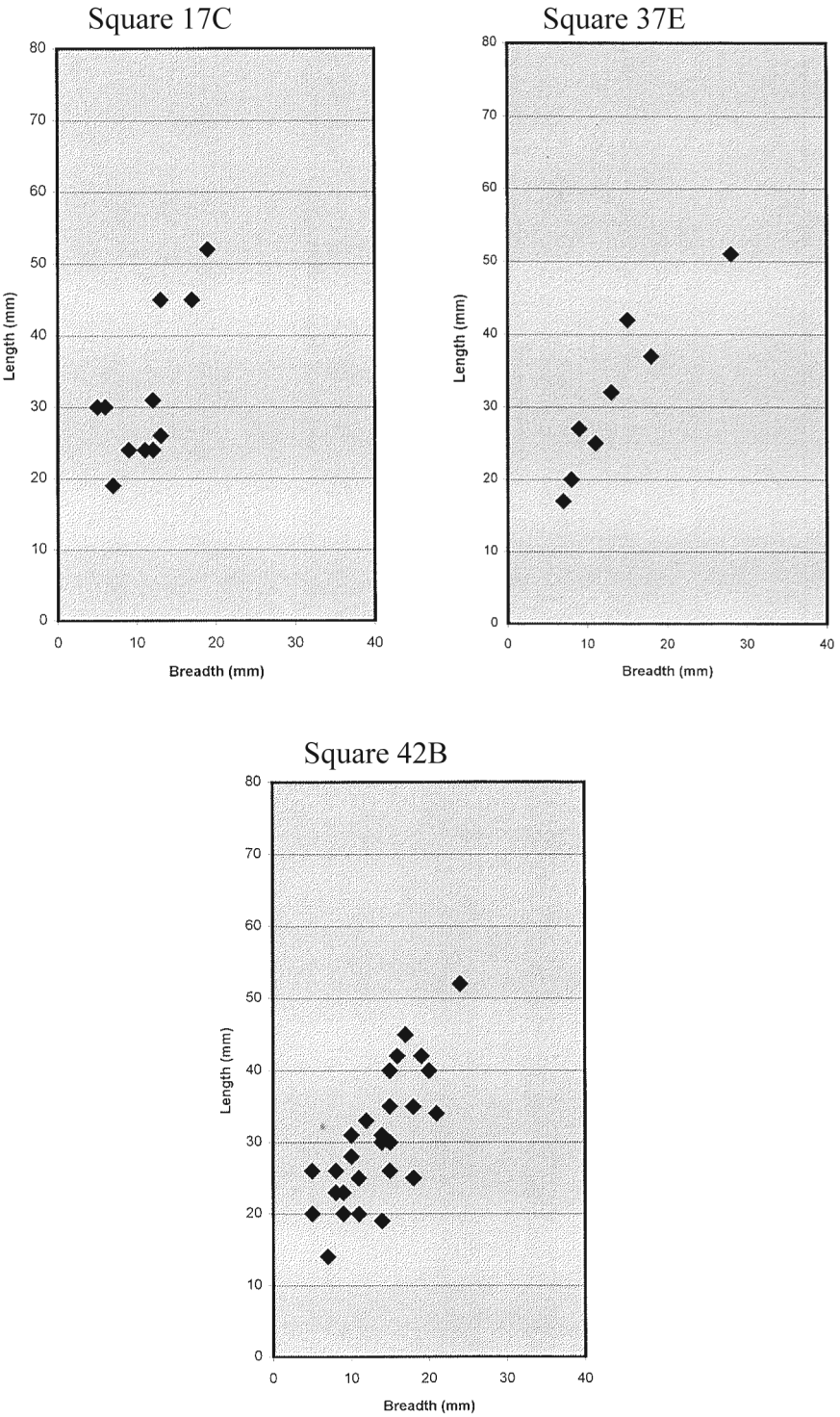


Figure 15: Scattergrams showing length:breadth ratios for complete blades from key grid squares

flake component was apparent, the general size range and pattern are very close to those from the Late Bronze Age riverside zone at Runnymede Bridge, Egham, Surrey (Bevan forthcoming). While Later Mesolithic material is obviously present among the Priestley Farm debitage, it appears from the scattergrams that the bulk of the assemblage is post-Mesolithic, and contemporary with the multi-platformed and pebble cores and predominantly Bronze Age tool forms described above.

Burnt Flint

A total of 2,370 pieces of burnt flint were identified, 13.09% of the total assemblage. Burning among the waste flakes may be connected with the practice of flint-knapping around hearths or the establishment of new hearths on former knapping areas. No clear archaeological indications of hearths, such as stones or charcoal deposits, were noted during the excavations, but the flint might have become disassociated from the hearths by deliberate removal; in many non-western societies discard tends to take place away from habitation (*e.g.* Binford 1978; Simms 1988; Gould 1980). Alternatively, post-depositional processes might have obliterated any traces of hearths. The flint from grid square 31F revealed a high incidence of burning among waste flakes (from Nos. 21, 22, 24 and 25), which might indicate the former location of a hearth, although post-depositional burning from subsequent activities on the site cannot be ruled out.

There was some variation in relative percentages of burnt flint between the key grid squares, with the highest amount, nearly 19%, occurring in grid square 38E. This square, and the neighbouring square 37E, produced a high proportion of the Later Mesolithic awls. The association between stone tool-making and hearths is well attested in the ethnographic record (*e.g.* Binford 1980), as indeed is the common association between females and hearth-related activities (*e.g.* Grøn 1995; Bevan 1997; Moore 2000).

The Mesolithic Assemblage

In contrast to the bulk of the flint assemblage, the diagnostically Later Mesolithic component appears concentrated in certain grid squares, although the extent of the debitage is difficult to quantify (Fig. 12). Compared to the more convincing evidence for episodes of flint-working and perhaps longer-term habitation on the site during the Bronze Age, the Later Mesolithic presence appears much more ephemeral, potentially reflecting shorter, perhaps seasonal, occupation. In functional and spatial terms, it has been possible to isolate this part of the assemblage with more success and to plot areas of more intensive, or potentially different, activities.

The closest affinities for the Later Mesolithic component of the assemblage are found among the assemblage from Peacock's Farm, Shippea Hill in the Cambridgeshire fenland, which included a high proportion of obliquely blunted points (Clark 1955, 8, fig. 2:1-11, 2:20-3), some points with oblique basal retouch (Clark 1955, fig.2:12, 2:14, 2:30), and an isosceles triangle (Clark 1955, fig. 2:37). Microburins, essentially by-products of microlith production, were also found among the material from Peacock's Farm, as were narrow blade cores, the majority of which were single or double platformed (Clark 1955, figs 3 and 4, 9–10). The other retouched items, particularly the scrapers, which might have been contemporary with the Mesolithic material or with either the Neolithic or Bronze Age elements of the collection, were chronologically ambiguous. Convex scrapers, long end scrapers with percussion retouch rather than 'scale flaking typical of the Early Bronze Age assemblage', were attributed to the Mesolithic on the basis of their 'lustrous surface and intermediate to heavy patina' (recortication) (Clark 1955, 11).

The degree of recortication among the Priestley Farm scraper assemblage, only sixty-five of which are not of obviously Bronze Age types, is significantly lower than that observed among the diagnostically Mesolithic material. While a number of convex end scrapers similar to those from Peacock's Farm are present, there is no demonstrable spatial correlation between any potentially Mesolithic scrapers and diagnostically Mesolithic material, such as microliths and blade cores, except perhaps in grid squares 37E and 38E where a concentration of awls was recorded (Fig. 12).

It is also entirely possible that the Later Mesolithic assemblage was never geared towards the large-scale production or use of flint scrapers, as, for example, the broadly contemporary assemblage from West Stow, Suffolk, may have been, which was dominated by microliths and burins

(Pieksma and Gardiner 1989). In this sense, the assemblage, although too small for relative percentages to be calculated with confidence, might be tentatively described as one of Mellars' Type A microlith-dominated assemblages, characterised by a high incidence of microliths compared to other retouched forms and a correspondingly low incidence, or absence, of scrapers (Mellars 1976, 386–9). Small blade cores, reflecting microlith manufacture, and burins are also present in Type A assemblages which 'appear to reflect a strong bias in favour of primary subsistence activities (presumably hunting) and against the usual range of 'maintenance' or 'domestic' activities (*e.g.* skin preparation, bone working)' (Mellars 1976, 388). Based upon the relative scarcity of scrapers, tools traditionally associated with hide-processing, which might have been more likely to have taken place during the winter months, Mellars proposed short-term, summer-season occupation for Type A assemblages (from both upland and lowland sites) which 'can be attributed with some confidence to the second half of the Mesolithic' (Mellars 1976, 395).

While attribution of scrapers to the Later Mesolithic assemblage is problematic, other diagnostically Later Mesolithic tools have been plotted by grid square and their associations have been studied. While occurring in small groups of up to three items, many of the microliths appear to have been made by the same hand, including the three obliquely blunted points from grid squares 28B and 29B. It is very likely that they were part of the same industry, but their purpose is less clear since no organic hafting material was preserved at Priestley Farm. That they were found in such small groups suggests collective hafting in composite tools, such as saws or harpoons, but they might equally have been used individually as projectile armatures or as scraping, boring, or scribing tools.

In his study of Maglemosian sites, Grøn makes the point that few microliths found on settlement sites exhibit damage 'from use as projectile points, compared to the often very large relative number of microliths with no wear traces at all' (Grøn 1995, 10), suggesting that 'many damaged points were discarded and replaced during the hunt, far from the settlements' (Grøn quoting Nuzhnyi 1990, 114, 122). Grøn suggests 'that the microliths found on the sites represent the intra-site aspect of hunting: production and maintenance of hunting weapons, removal of projectile remains from meat, etc'. This accords well with the low level of microwear identified among the microlith assemblage and the relatively low incidence of breakage, much of which might be explained by post-depositional damage. These factors suggest that the microlith assemblage is a combination of debris generated during manufacture, chance losses, or discard at small hunting camps, rather than off-site losses during hunting.

When compared to the lithic debris generated by a long-term settlement such as that of the Later Mesolithic assemblage from Oakhanger, Hampshire (Oakhanger VII), which included 1,458 microliths, nearly 2,000 scrapers and over 1,000 cores (Rankine and Dimbleby 1960), the Mesolithic component of the Priestley Farm assemblage clearly does not reflect a settlement here of any longevity. Instead, it appears to have resulted from activities of a more ephemeral nature, although the material recovered is of a higher density than that recovered from other local Mesolithic sites (see below). Such satellite camps might have been repeatedly revisited over time, although it is unlikely that any occupation was of a very long duration.

The apparent paucity of scrapers, generally a tool associated with the hide-working activities carried out by females (Hayden 1992; Grøn 1995; Bevan 1997), supports the possibility that occupation of the site was mainly limited to a small band of hunters. Ethnographic studies suggest that hunting is almost exclusively associated with males (Grøn 1995, 53), although the assumption that only males used projectiles during the Mesolithic has been challenged (Finlay 1997). The concentration of awls in grid squares 37E and 38E, where a typologically Mesolithic scraper on a flake was also found, along with several other potentially Mesolithic side scrapers and side-and-end scrapers, provides an exception to the general pattern. This concentration, which also includes blade cores, is more suggestive of hide-processing activities which might have involved a larger family group.

The Post-Mesolithic Assemblage

The majority of the struck flint was generated during later prehistory. A proportion of this, but arguably only a small one, is diagnostically of Neolithic date (Fig. 13), principally the Late Neolithic discoidal knife (Fig. 3:22), the pressure-flaked tools (including Fig. 9:28), and the possible

sickle fragment (see 'Serrated blades and flakes' above). While it can be difficult to distinguish between Later Mesolithic and Early Neolithic blade cores, in this instance there is little doubt that most, if not all, of the blade cores, blades and blade-like flakes belong to the Later Mesolithic phase of activity on the site, in view of the high incidence of recortication and their general homogeneity. This is supported by an absence of leaf-shaped arrowheads, measured against a prevalence of microliths among the retouched component of the assemblage.

The presence of multi-platformed flake cores and pebble cores, combined with the occurrence of diagnostically Early Bronze Age projectiles and scraper forms, indicates that the majority of the assemblage, particularly the waste flakes, is of Bronze Age date. However, not all of the post-Mesolithic and post-Neolithic assemblage can be viewed as contemporary with the diagnostically Early Bronze Age tool types such as the discoidal and thumbnail scrapers, which, along with awls and burins, are tools characteristic of occupation *foci* (Schofield 1987). Scrapers are also often associated with the presence of females (*e.g.* Bevan 1997); the high incidence of use-wear observed among these tools suggests the longer-term settlement of perhaps a more mixed population in the area during the Early Bronze Age than during the Later Mesolithic occupation or the subsequent Middle/Late Bronze Age period, although in the latter instance this impression might be erroneous as there are fewer period-diagnostic scraper forms.

During the Later Bronze Age, as observed in the flint assemblage from the riverside zone at Runnymede Bridge, flint procurement strategies changed from preparing formal cores of even the most basic kind to the smashing of flint pebbles, which resulted in a low incidence of cores combined with a high incidence of thick flakes and 'struck chunks', among which re-fitting is very limited (Bevan forthcoming). As part of the apparent decline observed in flint-working in the later Bronze Age (Ford *et al*. 1984), there was also a tendency towards using unretouched flakes for expediency rather than expending time creating formal tools, as was also noted in the Later Bronze Age assemblage from the riverside zone at Runnymede Bridge (Bevan forthcoming).

The characteristics of this Late Bronze Age 'smash and grab' technology can be observed in the Priestley Farm collection: few cores; few formal tools; and a high incidence of unretouched flakes exhibiting wear traces. Alongside the occurrence of miscellaneous pointed tools, denticulates and composite tools, all of which are characteristic of later prehistoric assemblages, this suggests that the majority of the Priestley Farm assemblage dates to the Middle/Late Bronze Age, although the exact proportion is unquantifiable. Flint-working may have been the principal activity carried out at Priestley Farm during later prehistory, perhaps to the extent that this was the major reason for the occupation of the site, but the spatial arrangement of tool-making and other activities is even more difficult to reconstruct than for the earlier periods, not least in view of the limited tool repertoire and the mixed nature of the deposits.

The Late Bronze Age assemblage at Mildenhall Fen in West Suffolk shows a similarly low standard of flint-working, with surface nodules being utilised rather than mined flint (Clark 1936), suggesting that this site may be broadly contemporary with Priestley Farm, although similarities with the artefactual assemblage are otherwise not that particularly marked. Flint assemblages collected during fieldwalking in the Great Ouse Valley, approximately 20km to the north-east of Priestley Farm, ranged in date from the Late Neolithic to the Middle Bronze Age, with the majority of material being dated to the Early and Middle Bronze Age (Woodward 1978). A high incidence of Early Bronze Age thumbnail scrapers was noted in the collections, as well as some borers, burins and gravers of similar date (Woodward 1978, 44). Occupation appears to have been sited on the gravels adjacent to the river during the Early and Middle Bronze Age in the Biddenham area, with some encroachment on an area of ring ditches during the Middle Bronze Age which might be explained by pressure on land use. At Roxton, Early Bronze Age occupation was sited 'well above the flood plain of the river and at the junction of two environmentally different areas' where the gravel terrace meets the glacial clays (Woodward 1978, 49–50). Although these sites are beyond the Greensand ridge, the preference for riverine, sometimes high-ground occupation of the kind seen at Priestley Farm seems to have been a feature of later prehistoric settlement in the region.

Evidence for later prehistoric activity on a more local level comes from Ruxox Farm where, in addition to the Later Mesolithic assemblage, Neolithic and Bronze Age tool types have been recovered (Fadden 1970 and 1972). Here Fadden attributed an absence of features or pottery to 'the

light, easily eroded soil where artefacts of all periods continually arrive on the land's surface' (Fadden 1972, 4). The chronologically mixed nature of the assemblage at Priestley Farm attests to the reoccupation of a favoured location through time.

Spatial Aspects of the Assemblage

Certain chronologically diagnostic components of the flint assemblage can be isolated, but plotting activity or habitation episodes spatially is of limited value with such a mixed assemblage, most of which is composed of waste material and a number of non-diagnostic tool types. However, some clustering can be observed among the larger assemblages from key grid squares, and sometimes a recurring chronological bias can be identified among the flint assemblages, with an obvious Mesolithic presence followed by perhaps an Early (or Middle/Late) Bronze Age presence in the same square. For example, despite the presence of a pebble core and a quantity of undiagnostic waste flakes, grid square 17C appears to have been a focus of Mesolithic activity, where an obliquely blunted point (SF 105), several Mesolithic-type cores, including a pyramidal core, and blades were found. Much of the debitage, including several blades, appears to have originated from the same blade cores, although no refits were possible. The Mesolithic focus in 17C also appears to continue towards the south-west, since three Mesolithic cores were found just outside grid square 2 where it extends beyond the excavated area.

Square 31F was again a focus of Mesolithic activity, where ten blade cores, a potentially Mesolithic hammerstone and two microliths were identified, and the high incidence of burning among tools and debitage suggests the one-time existence of a hearth here. Grid squares 37E and 38F appear to have been another focus of Later Mesolithic activity, since five of the eight awls identified in the assemblage were found there, as well as eight Mesolithic-type cores and five backed points. A potentially Mesolithic retouched and utilised flake and a typical Mesolithic scraper on a flake were also identified in the assemblage, which is composed mainly of broad flakes and also includes pebble cores and an early Bronze Age type scraper. Awls are not generally datable, but, while one of the awls, a large dark grey example, is potentially post-Mesolithic in date, the majority of them would not look out of place in a Later Mesolithic assemblage. Their presence is generally suggestive of an activity area connected with hide-working, especially perforating skins for sewing, although microwear analysis suggests that these tools were employed for scraping and perhaps even engraving tasks. For this reason, bone-working, or more likely woodworking, in view of the hardness of materials suggested by the microwear study, might have been the dominant activity practised in this area.

In comparison, grid squares 28B and 29B appear to have been a focus for both Later Mesolithic and post-Mesolithic flint-working. Here, Mesolithic material includes three very similar, obliquely blunted points, a backed point, a retouched blade and a serrated blade. The evidence for Late Bronze Age flint-working — the quantity of broad flakes and smashed cores — is more marked. A Mesolithic core and a matching, but non-joining, blade came from grid square 42B, from which the highest percentage of blades was recovered, but, again, the bulk of the waste material comprises large, smashed pebble cores and barely modified pebble nodules typical of Late Bronze Age flint-working techniques.

The Priestley Farm Mesolithic Assemblage in a Local Context

The material recovered fits well with that found in the earlier work on the site (Fadden 1991), with close parallels among the blades and blade cores in particular (Fadden 1991, 93, fig. 2). Apart from one barbed and tanged arrowhead, Fadden makes no mention of Bronze Age material; this may have been the result of selective collection or of the assumption that all the undiagnostic material was Mesolithic.

The mixed Mesolithic/Neolithic–Late Bronze Age assemblages from Ruxox Farm (Fadden 1970; Fadden 1972) included a number of burins of both Mesolithic and post-Mesolithic date (Fadden 1972, figs 1–2). No microliths were present in the assemblages, but the large proportion of burins, particularly among those flints attributed to the Mesolithic period, is generally regarded as indicative of wood-, bone- or antler-working activities. For example, at the Mesolithic encampment of Vaenget Nord on the Danish island of Zealand, microwear analysis demonstrated that burins were associated with bone-working (Price and Peterson 1987, 96).

Other small Mesolithic assemblages have been recovered in the region, including the remains of a 'working floor' from Beadlow Manor Farm, Clophill (Fig. 1), which is approximately 9km north-east of Priestley Farm but in closer proximity to Ruxox Farm (Fadden 1973, 131). Here, similarities with the Ruxox Farm material have been noted, both in terms of the flints and the site locations on the lower Greensand ridge bordering the River Flit, as possible evidence of wider Mesolithic settlement (Fadden 1973). Two microliths were found at Beadlow Manor Farm, but neither was sufficiently complete to allow comparison with the examples from Priestley Farm (Fadden 1973, 8, fig. 1:4). Nearer to Priestley Farm, four identifiably Mesolithic tools were found during extensive fieldwalking in the Ampthill area in 1972, at Flitton, and near Westoning (Fadden 1975). Again, the distribution of finds is on the Greensand, near the River Flit (Fadden 1975, 2).

These smaller assemblages appear to have been the result of short-stay activity at sites or even isolated knapping activities, while Priestley Farm, with a much larger tool repertoire, would have been a favoured area for settlement. The apparent difference between the burin-orientated assemblage from Ruxox Farm and that from Priestley Farm, where microliths were common but only one burin was identified, is of particular interest in view of the microwear results. At Priestley Farm, microwear analysis confirmed that the main functions among the awls and pointed tools were scraping and, to a lesser extent, boring (perhaps including engraving), involving medium-hardness materials. The low incidence of boring, even among the awl concentration observed in grid squares 37E and 38E, might actually indicate a similar site function to that carried out at Ruxox Farm, despite the apparent artefactual differences. The range of tools suggests bone-, antler- or wood-working as the site functions at Ruxox Farm, although without the benefit of microwear study this remains a supposition, and these, or similar, activities might equally have been carried out at Priestley Farm in squares 37E and 38E, where the awl concentration was identified. The two sites, as well as others in the same area, may well have been contemporary, and it is tempting to interpret these two assemblages as evidence of related sites in a mobile cycle of encampments designed to take advantage of, and process, seasonally available resources in a favourable riverine environment on and around the Greensand ridge. The site locations conform to the general model of preferred Mesolithic site location: south-facing slopes and vantage points on sandy soils (Clarke 1976, 475; Jacobi 1978b, 77; Mellars 1976, 380; Saville 1981, 61). To the north-west, among fieldwalking assemblages from the east Warwickshire plateau, a similar Mesolithic preference for 'higher ground sandy locations' was noted, while river valley activity appeared to be more restricted, although the evidence might have been obscured by alluviation (Saville 1981b, 61).

The recovery of chronologically mixed assemblages from both Ruxox Farm and Priestley Farm indicates the reoccupation of favourable locations over time. While our interpretation of these phases of activity is limited by chronological mixing, problematic debitage and a paucity of other finds, it has been possible to identify possible occupation *foci* among the much larger assemblage from Priestley Farm, an important site on both a local and regional level, illuminating an area where prehistoric activities had previously been considered to be ephemeral and largely Mesolithic. In spatial and functional terms, the Later Mesolithic component of the assemblage has proved more useful, revealing other dimensions to a sparse collection of local working floors and setting them in a wider context as possibly different aspects of an annual cycle of related, special-purpose camps.

POLLEN ANALYSIS (Robert Scaife)

This section is a brief summary of the results of pollen analysis carried out on peat sequences sampled from the palaeochannels at the southern end of the site. The full results (Scaife 1999) will be published separately. Pollen analysis and radiocarbon dating of the Priestley Farm peat profile provided evidence of vegetation and environmental changes which took place during three distinct periods. The first is the late (Devensian) glacial from 11,000 BP to 10,000 BP, and the second extends into the mid-Early Holocene at around 8,500 BP. Archaeologically, these two time spans equate with the Upper Palaeolithic and Early Mesolithic periods respectively. Thirdly, after a stratigraphic hiatus, there was a later accumulation which spanned the Late Holocene, Neolithic period. The principal vegetation changes are summarised as follows.

In the Late Glacial Interstadial (the Allerod; Lake Windermere interstadial; Zone II) there was some scattered birch woodland and dwarf shrubs including dwarf birch and juniper. A dated peat sample (10,930 ± 80 BP Beta-143289) demonstrated that by the Late Devensian Stadial (Younger Dryas; Zone III; Loch Lomond re-advance), an open herbaceous environment and dwarf shrubs, possibly including dwarf birch, had become established.

In the transitional period between the Devensian Glacial and the Holocene interglacial, juniper and meadowsweet (*Filipendula*) pollen reached a maximum, and birch and pine were increasing. The birch and pine pollen may have derived from the broader region but with increasing values as sources migrated closer. A peat sample from this zone was dated to 9,950 ± 80 BP (Beta-112215).

The Pre-Boreal Period (Flandrian Ia) saw a rapid expansion of colonising (pioneer) birch woodland, demonstrated in a sample dated to 9,730 ± 70 BP (Beta-143288). Also at this time, hazel (*Corylus avellana*) -type and oak pollen began to appear, possibly from long distance, regional sources but becoming closer due to post-glacial migration from *refugia*. In the subsequent Early Boreal (Flandrian Ib) period, birch was ousted as pine arrived, presumably from the east and south-east. This zone, from which a date of 9560 ± 70 BP (Beta-143287) was obtained, also showed hazel becoming important to give Boreal pine/hazel woodland (Godwin 1940, 1956, 1975a).

The next dated sample, at 8950 ± 40 BP (Beta-143286), corresponds to the arrival of oak and elm along with the increasing importance of hazel, and the establishment of woodland in which these species progressively out-competed pine. Sun-loving herbaceous vegetation was progressively shaded out by the increasing dominance of closed-canopy woodland.

There was a hiatus in the peat accumulation around 8500 BP, possibly due to climatic dryness typical of the Boreal continental period (Flandrian chronozone Ib–c). The next sample was dated to 4790 ± 60 BP (Beta-143285), by which time peat formation was once again taking place. This corresponds to the Late Holocene (Sub-Boreal; Flandrian III). This sample demonstrates the presence of woodland dominated by oak, elm, lime and hazel but also displays evidence of Neolithic cereal cultivation and agriculture. The on-site community comprised alder carr woodland. Anthropogenic activity may have been responsible for higher water tables through reduction in evapotranspiration rates and increased ground water levels and surface run-off, creating again anaerobic conditions suited to peat accumulation.

The upper horizon of peat gave a date of 3670 ± 60 BP, showing that peat formation ceased in the Late Neolithic or Early Bronze Age.

DISCUSSION

While it is clear that there is both Mesolithic and Bronze Age material present within the flint assemblage, there is room for doubt about the relative contributions of these two periods, and about the more precise dating of the Mesolithic component. The excavators of the site were of the opinion that the majority of the assemblage was Early Mesolithic in date, with minor components being Late Mesolithic and Late Neolithic to Early Bronze Age (Brooks and Price 1997). However, the more detailed analysis presented here suggests that Bronze Age material makes up the larger part of the assemblage, and that the Mesolithic material is Late rather than Early Mesolithic.

Waste material from flint-working makes up a high proportion of the total assemblage. This is generally not diagnostic and is inherently difficult to date, but there are indications that it mostly relates to the later period of activity. The nature of the Mesolithic material suggests that occupation of the site was mainly limited to a small band of hunters, probably using the site sporadically and seasonally. However, the distribution of flints indicates that there were some specific areas of use, a concentration of awls in one case perhaps indicating that this included hide processing. The composition of the Bronze Age assemblage seems to suggest longer-term settlement in the area, perhaps with family groups engaged in a wider variety of activities.

Priestley Farm is the largest, so far discovered, of a series of flint sites along the Flit valley. The surface scatter could be seen to continue in the field either side of the pipeline easement, and covered a total area of *c*. 5–6 hectares. The pipeline probably passed fairly close to the centre of the scatter, but even so, the investigations probably sampled less than 20% of its total area. Given that only a 2% sample of the soil from this area was sieved, the amount sampled may be less than 0.4% of the total flint scatter. If this is a reasonably accurate estimate, the 18,107 items of humanly struck flint recovered from the scatter would represent a

total for the whole scatter of close to 5 million pieces. The contrast between the numbers of pieces recovered by sieving and by the various phases of surface collection demonstrates how much could be have been missed by not sampling the site systematically.

In common with the other sites in the Flit valley, Priestley Farm offers dry, well-drained land, close to a ready supply of water, and it is easy to imagine that it would have been favoured as a place of settlement. The re-use of a Mesolithic site in the later prehistoric period also seems to be a pattern common to a number of these sites and suggests that Bronze Age flint-workers may have deliberately targeted old sites as a source of raw material. The distribution of the flint closely reflects the topography of the site, with the highest concentrations on the relatively flat areas at the top of the valley slope.

The pollen sequence shows the expected evolution of the local environment from an open post-glacial landscape to closed-canopy woodland, and provides valuable evidence of the details and chronology of this transition in an area of the country where datable peat sequences are rarely available for study. A long hiatus in peat formation probably corresponds to a drier climatic period, and it may be significant that this seems to correspond to the earliest periods of activity on the site. The final infilling of the old river channels and the cessation of peat formation seems to correspond to the later periods of activity, and it may be that this event was anthropogenic, caused either by deliberate water management or, more likely, as a result of silting from increased agricultural use of the land.

The single Middle Iron Age pottery vessel recovered provides evidence of some continuing activity at the site. The relatively fresh and unabraded nature of the sherds of this vessel indicates that they were dumped either within, or very close to, the feature in which they were found, and that the hole filled fairly quickly after their deposition. The feature was shallow and irregular and may perhaps be best interpreted as a tree-throw hole, which was perhaps used as temporary shelter.

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Aspects of a prehistoric landscape in the Ivel Valley, north of Biggleswade

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with contributions by
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Illustrations by Cecily Marshall

SUMMARY

In 1974 cropmarks on aerial photographs of the eastern bank of the river Ivel to the north of Biggleswade were first characterised as a possible cursus. Recent fieldwork has not only confirmed the existence of this Neolithic monument but has also demonstrated that, at >750m, it is at least twice as long as previously suspected. The excavated part of the cursus was shown to have had two phases of construction. Evidence for earlier tree clearance and environmental conditions during the monument's lifetime was also recovered. The possible reasons behind the topographical setting of the cursus and its relationship to similar monuments in the Great Ouse river system are also considered.

In a pattern widely recognised across lowland Britain, the disused cursus subsequently became a focus for Bronze Age barrows. A cluster at the eastern end of the monument was mirrored by at least one at the western end. An Iron Age pit was also dug within the circuit of the cursus ditches.

INTRODUCTION

Between June and November 2004, Anglian Water Services commissioned Albion Archaeology to carry out a programme of archaeological work as part of their expansion of the Biggleswade Sewage Treatment Works. It comprised evaluation followed by a small scale open area excavation and watching brief to mitigate the impact of the development. All work was carried in accordance with project designs prepared by Albion Archaeology (2004a, 2004b), in response to briefs issued by the County Archaeological Officer of Bedfordshire County Council (BCC 2004a, 2004b). The project archive will be deposited with Bedford Museum, under accession number 2004:54.

SITE LOCATION AND DESCRIPTION

The *c*. 0.7ha development site lay approximately 1.5km north of Biggleswade, and *c*. 500m east of the river Ivel (Fig. 1). It was centred on grid reference TL 1897 4666, at a height of *c*. 25m OD. The generally flat, arable land was bordered by further farmland to the south and east, by the existing sewage works to the north and by the east coast mainline railway to the west. The underlying geological strata are river valley gravels.

ARCHAEOLOGICAL BACKGROUND AND THE SIGNIFICANCE OF THE RECENT INVESTIGATIONS

The development site lay in a landscape rich in archaeological remains dating from the Palaeolithic period onwards (BCC 2004a). The Historic Environment Record (HER) lists several cropmark sites (of probable prehistoric and Roman date) within the immediate vicinity (Fig. 1). These include a ring ditch (HER10138), assumed to represent a Bronze Age barrow, on the western edge of the development site itself. A combination of aerial photographic analysis and trial trenching (Albion Archaeology 2004c) demonstrated that

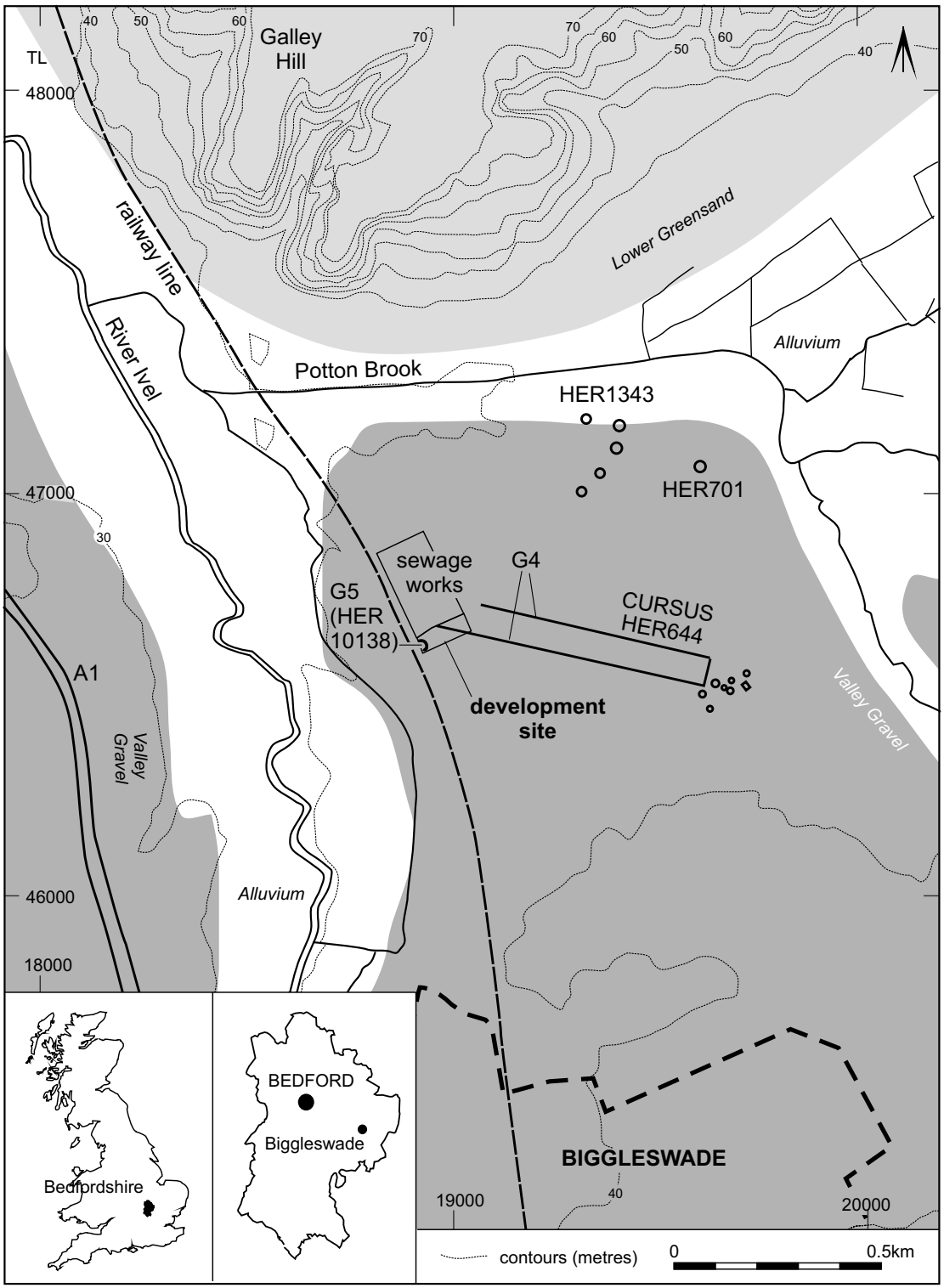


Figure 1: Site location, topography and geology

part of the barrow survived within the development site, despite truncation by modern sewage pipes and the railway. The latter is also thought to have destroyed the Baldock–Sandy–Godmanchester Roman road which ran along the eastern side of the Ivel valley (Simco 1984).

Another series of cropmarks (HER644), *c*. 500m east of the development site, had previously been characterised as a cluster of ring ditches at the eastern end of a large linear monument, possibly a cursus. Further aerial photographic analysis and trial trenching (Albion Archaeology 2004c) indicated that the monument (definitely a cursus) extended 400m further westwards than previously thought. Furthermore, one of its ditches crossed the centre of the development site, where a 33m section of it was investigated during the mitigation works.

The results of these investigations and their implications for our understanding of this important group of prehistoric monuments are discussed in this report. The relationship of the Biggleswade cursus to other similar monuments within the Great Ouse river system is also considered.

RESULTS OF THE INVESTIGATIONS

NEOLITHIC

Tree-throw hole G2

A number of amorphous features, containing deposits of silty sand, were cut into the river gravel terrace. The majority of these represent tree roots or animal burrows. However, one large tree-throw hole (Figs 2 and 3h), truncated by the cursus ditch, is of greater archaeological significance. Although no artefactual dating evidence was recovered, its stratigraphic relationship with the cursus suggests it marks the position of a tree that was cleared prior to construction of the monument.

Such features contribute to our understanding of changes in the landscape, caused by human activity. It is widely accepted that tree clearance became a major activity during the Neolithic period; prior to this, hunting and gathering were the predominant methods of procuring food, so clearing forests on a large scale served no practical purpose (Pollard 1997). Pollen cores taken around Britain have indicated that the major period of tree clearance took place around 3000 BC (Darvill 1987), as tree pollen levels declined significantly and consistently in the following centuries.

The cursus: cropmark evidence

The ditches of the cursus first appeared as a series of rectilinear cropmarks on aerial photographs taken in 1946 (NMR TL1946/1/3232; Cambridge AP, BBY 15–17). They were first recognised as a possible cursus in 1974 when the cropmark evidence was being entered onto the HER. They do not take the form of a continuous circuit, but rather a series of ditch lengths (from 20m to 180m) which together form a rectangular shape. Figure 1 depicts a schematic representation of the entire circuit, rather than an actual cropmark plot. It is likely that this discontinuous appearance is due to the limitations of aerial photography, rather than the true character of the monument. The sewage works and, probably, the railway were built over the cursus (Fig. 1), although the exact position of the west-north-west end of the monument is presently unknown. Its known, surviving length is *c*. 750m and it is *c*. 70m wide. It thus originally enclosed an area of at least 5.25ha.

The cursus occupied a localised area of almost imperceptibly higher ground between the river Ivel to the west and the Potton Brook to the east and north. This brook drains an area of former fen, occupying an embayment in the Greensand Ridge to the south-west of Potton. The confluence of the Potton Brook and the Ivel is *c*. 1km north of the known western limits of the cursus. The lower reaches of the brook, over a distance of *c*. 1.5km, appear to have been straightened. It then turns south-west towards the former fenland east of Biggleswade. At its nearest point the brook is just 400m from the eastern end of the cursus (Fig. 1).

The earlier cursus ditch G3: excavated evidence

Where the southern arm of the cursus crossed the development site, it consisted of two ditches on the same alignment. After the earlier ditch G3 had at least partially silted up (potentially, over a considerable period of time), it was cut by the later ditch G4 (Figs 2 and 3c). A 2.30m long section of ditch G3 was investigated. It was up to 0.98m deep and 1.70m wide, tapering towards the point of its intersection with ditch G4. It probably terminated here, although the actual terminal itself was destroyed by the later ditch.

The bottom of ditch G3 contained a 0.67m thick band of variegated sands and gravels, the result of weathering of the cursus in the first few years after its construction. The bulk of the ditch was filled by alternating deposits of silt and sand, which again appear to have been the result of natural

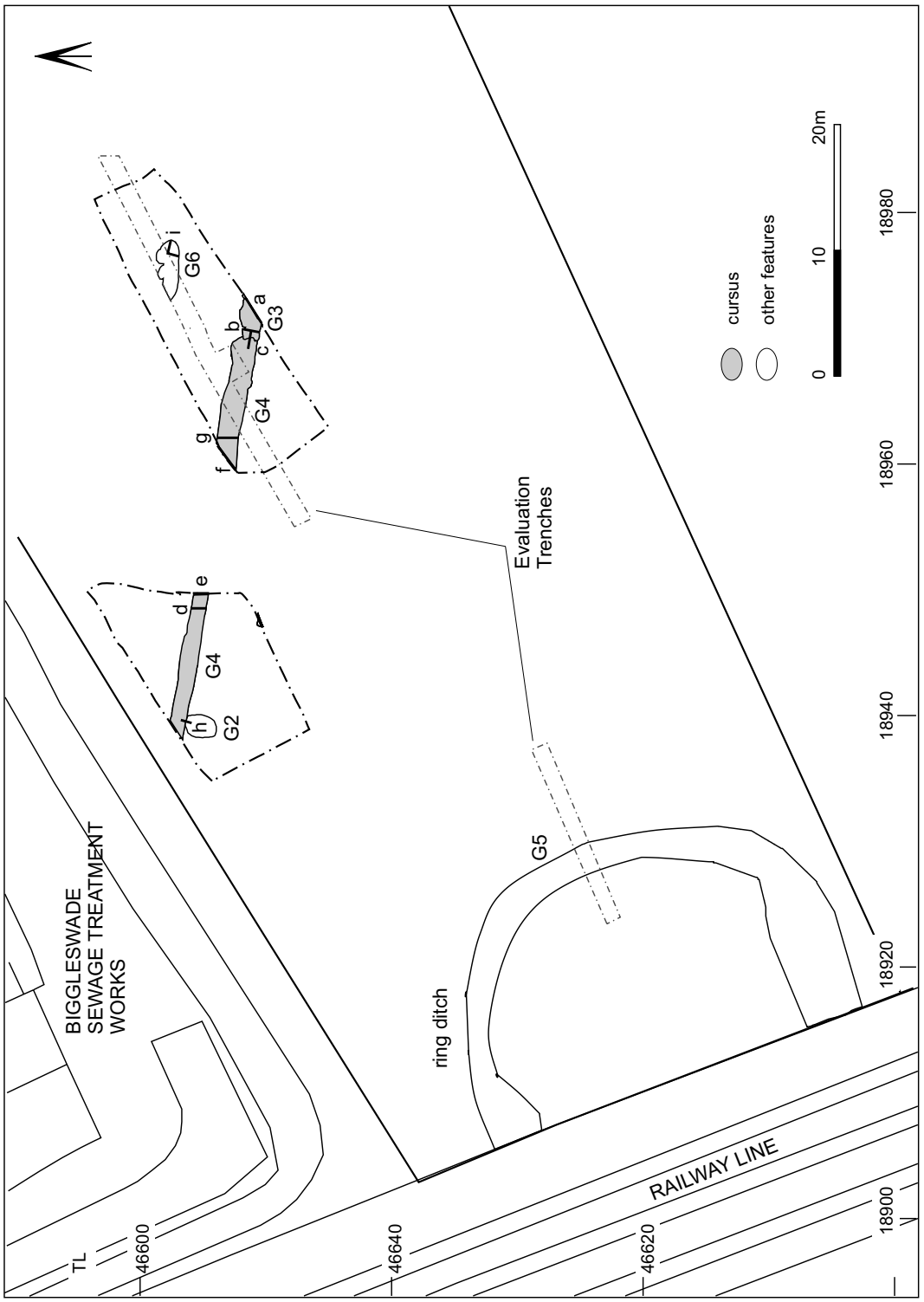


Figure 2: All features plan

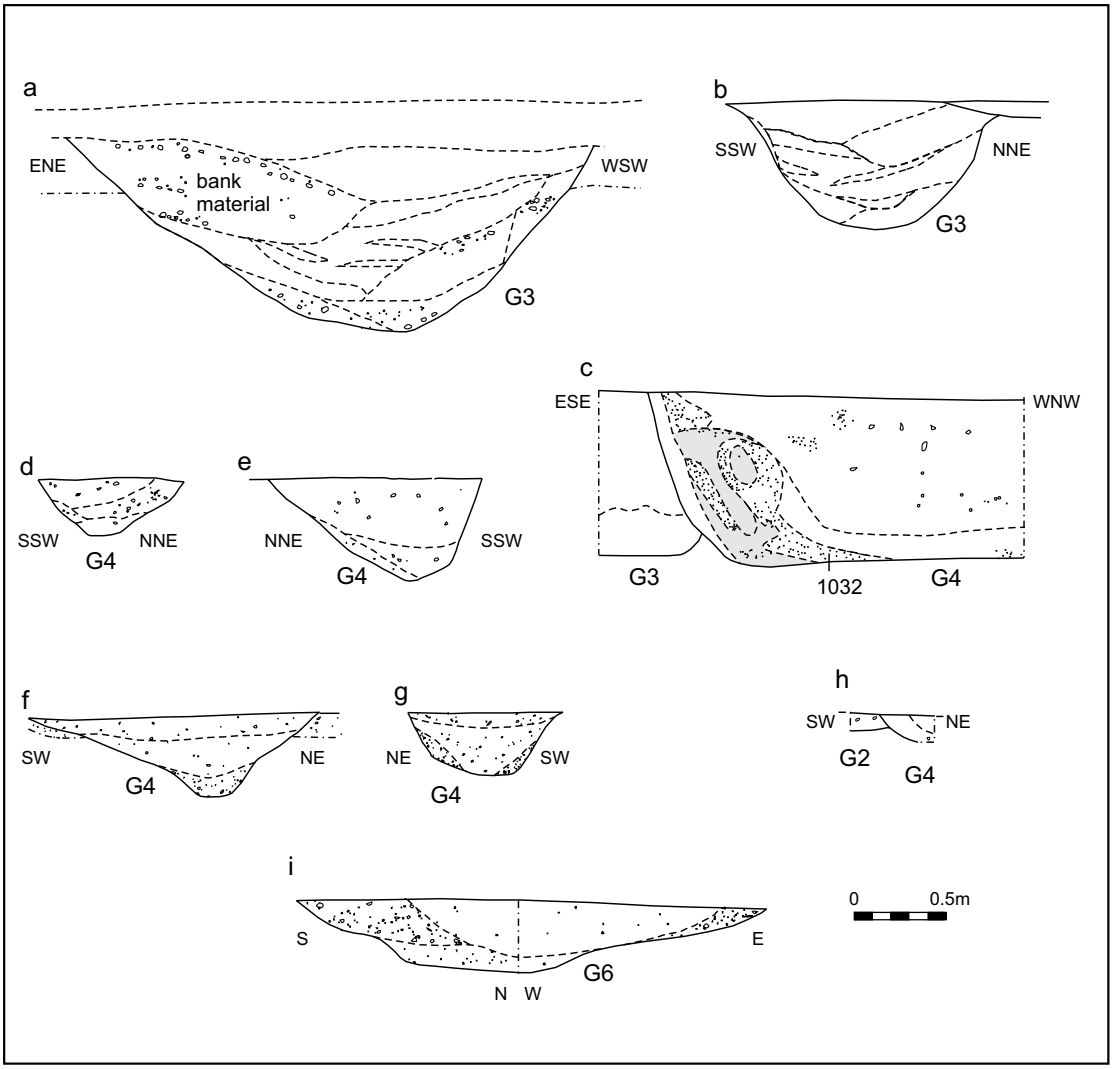


Figure 3: Selected section drawings

processes rather than deliberate backfilling. A relatively thick (0.45m), stonier deposit on the northern side of the ditch may have been derived from an internal bank (Fig. 3a). Such a bank would have accentuated the monumental appearance of the ditch and the cursus as a whole.

Despite extensive sampling, only a few cereal grains (with barley the only identifiable species), fragments of oak charcoal, and a single struck flint flake were recovered.

Significantly, the uppermost surviving deposit within ditch G3 was truncated by ditch G4 (Fig. 3c). Thus, although the original cursus ditch had become infilled to a depth of almost 1m (and possibly more), the monument itself was still clearly visible as a feature in the landscape which could be renewed and/or extended.

The later cursus ditch G4: excavated evidence

A 31m length of the stratigraphically later ditch G4 was revealed within the development site (Fig. 2). A series of segments, totalling *c*. 10m, were excavated across it. The ditch was 0.42m to 0.78m deep, 1.10m wide at its western end and 2.00m wide at its eastern terminal.

Variations in profile, from V-shaped to concave (Fig. 3d–g), are interpreted as the result of the sides of the ditch collapsing where it had been dug through relatively loose sand and gravel. Its original profile would have been more uniformly

V-shaped. This collapse led to the build up of 0.18m of silty sand in the bottom of the ditch. Sampling of this material produced sparse charred plant remains: barley grains, leguminous weed seeds and possible fragments of emmer wheat. The presence of uncharred seeds suggests modern contamination of these deposits, probably as a result of root action or animal burrowing. A single rodent tooth was also recovered.

The variegated upper fills of sandy silt were probably the result of weathering and infilling over a considerable timespan. This suggests that the cursus ditch was not deliberately backfilled when the monument went out of use. Sampling of these deposits produced relatively large (for this site) amounts of charred material, particularly from the ditch terminal. Barley is the commonest of the cereal grains. A wheat grain and a rachis fragment, some straw node fragments and tubers of onion couch grass are also present. Oak charcoal is abundant, although the presence of modern contaminants (fragments of coal) again suggests that not all of this material is prehistoric in date.

The reason for the concentration of charred material in the terminal of ditch G4 remains obscure. The temptation to see it as a special deposit, indicative of ritual activity, should be tempered on this occasion. Charcoal would be produced by a fire used for any purpose, and charcoal fragments, along with many other light items, may simply have become trapped in the terminal of a ditch having travelled unhindered along its length.

Bronze Age

Several circular cropmarks (Fig. 1) were identified from aerial photographs held by the HER. The majority were adjacent to the east-south-east end of the cursus and are likely to be the remains of deliberately positioned Bronze Age barrows. Interestingly, all of the putative barrows are located outside the disused cursus, suggesting that it retained both a physical presence and a residual respect in the minds of the barrow builders.

One of the circular cropmarks (G5, Fig. 2) lay within the development site. It was located during the trial trenching and shown to survive as a *c*. 1.7m wide ditch with a diameter of *c*. 30m. It was determined that the monument could be preserved within the proposed development and so, to avoid unnecessary damage, no hand excavation was undertaken.

Iron Age

A single east–west aligned, elongated pit G6 (Figs 2 and 3i) was identified immediately north of the cursus ditches G3 and G4. It was 4.2m long, 1.2m wide and up to 0.75m deep. Its basal fills produced four abraded fragments (weighing 2g) of a grog-tempered, late Iron Age pot. Sparse charred remains (including cereal grains, the only fragment of hazelnut shell from the site and hawthorn charcoal) and a single, heat-affected, unworked flint were also recovered.

Interestingly, the pit is located within the cursus monument and has a similar orientation to it. Was it excavated deliberately on this alignment in order to emulate the remnant earthwork still present at that time or is its orientation merely coincidental?

DISCUSSION

The Neolithic Cursus

The morphology and development of the Biggleswade cursus

The Biggleswade cursus was 70m wide and at least 750m long. Its full extent to the west is obscured by the sewage treatment works and the railway. It is, however, possible that it continued westwards onto the Ivel floodplain where its terminus may be concealed beneath alluvium, deposited from the late Roman period onwards (Dawson 1994, 129). Whatever its original length, it is the *only* convincing example of a cursus monument within Bedfordshire, despite claims that have been made for a number of other sites.

The often cited cropmarks of three linear monuments (perhaps better characterised as mortuary enclosures) to the north of Octagon Farm in the Cardington/Cople monument complex, are significantly smaller in size than the Biggleswade cursus. The largest was 60m wide and 175m long. Two evaluation trenches sampled the monument; its ditches were 1.6m wide and between 0.5m and 0.7m deep (BCAS 1995). Eynesbury, downstream on the Great Ouse at St Neots, provides a better parallel. There, the larger of two cursus monuments was 77m wide and 316m long. The ditches which defined this monument were 2.0m to 2.6m wide and between 0.5m and 0.8m deep (Ellis 2004, 6).

Cursuses are frequently associated with other Neolithic monuments, such as long barrows and

various forms of enclosures, in so-called monument complexes. Unusually, there are, at present, no other known Neolithic monuments in the vicinity of the Biggleswade cursus. The nearest is a possible Neolithic oval barrow, associated with a cluster of ring ditches, *c*. 1.5km to the north-west on the west bank of the Ivel (HER 1495). It is, however, feasible that some of the ring ditches associated with the cursus may be Neolithic rather than Bronze Age in date.

Within the development site, the southern arm of the cursus was shown to have had two phases of construction. Two separate ditch lengths, each with a terminus, were identified. The pattern of silting within them clearly demonstrates that a considerable period of time (certainly years, perhaps decades, possibly even centuries) elapsed between the excavation of the first and the second ditch. This suggests that the cursus was extended towards the river during the Neolithic period or that it was partially re-dug as a series of discontinuous ditch lengths.

The character of the deposits within both ditches suggests that the cursus was left to become infilled as a result of natural weathering and erosion. This may suggest that it was abandoned for considerable periods of time or that, more likely, the existence of an earthwork bank and a partially infilled ditch adequately served the purposes of its users.

Worked and unworked flint represent the only possible remains of Neolithic material culture recovered from the cursus. The assemblage is of poor quality flint: five worked flakes (6g) and four unworked, heat-affected pieces (23g). Most of the material came from the sieved residues of soil samples. Edge damage on the flakes suggests that they were only incorporated accidentally into the cursus ditches, long after they were discarded elsewhere. Such a paucity of artefacts is not uncommon on cursus sites, where the ditches were seemingly never used for the large-scale deposition of material (Barclay and Bayliss 1999, 20).

Charred plant remains from the cursus provide more direct, if limited, evidence for the Neolithic domestic economy. Sparse cereal remains include grains of barley and emmer wheat, chaff and straw, together with a few weed seeds. These are likely to represent remains associated with the preparation and consumption of cereals in the vicinity of the cursus.

The setting of the Biggleswade cursus

The terraces of the Ivel valley, north of Biggleswade, have long been settled and exploited, as demonstrated by the prehistoric, Roman, Anglo-Saxon and medieval remains found during gravel extraction on the western bank of the river (Dawson and Maull 1996; Albion Archaeology 2004d). The cursus lies on these same gravel terraces, albeit on the opposite bank of the river.

One of the difficulties in considering the reasons behind the cursus builders' selection of this particular location for their monument is the lack of information about the Neolithic riverine environment. At present, the cursus is *c*. 500m east of the Ivel and *c*. 600m south of the confluence of the Potton Brook and the Ivel. However, the form of the present-day river channel is due, in part, to attempts in the second half of the 18th century to make it navigable (Cook 1990). Earlier, albeit undated, channels have been identified during quarrying on the western bank (Dawson and Maull 1996, 60; Albion Archaeology 2005). It is unknown whether or not similar features existed on the eastern bank, although the presence of a small watercourse running parallel to the main river channel suggests that this is a possibility. At the very least, the Neolithic river is likely to have had a much more braided appearance than its present-day successor. Similarly, the dead straight alignment of the lower reaches of the Potton Brook is clearly a relatively modern development, again possibly associated with the creation of the Ivel Navigation. The precise form and location of this watercourse in the Neolithic period are unknown.

What can be inferred is that the cursus must have been surrounded by water on three sides: the river to the west and low-lying fen to the north and east. The latter is now drained by the Potton Brook and its tributaries but its former, not inconsiderable extent can be gauged from the distribution of present-day place names, such as Fen Farm, Millhouse Fen and Dunton Fen. This location offers a tremendous contrast to Galley Hill, a *c*. 60m OD high promontory defining one side of the breach in the Greensand Ridge created by the Ivel, and located just 1km north of the cursus (Fig. 1). The monumental landscape focussed around the cursus would perhaps have been best viewed from this location. This natural topography would undoubtedly have been a fundamental factor in determining the siting of the cursus.

In this region and beyond, rivers represented the major communication routes in prehistoric societies. People and goods could be moved longer distances more easily on water than on land.

Rivers had great religious significance and were also important as valuable sources of drinking water for humans and animals, food (fish and wild fowl) and raw materials (reeds used in house construction). Clearly, the correlation between the location of cursus monuments and river valleys (Fig. 4) is not accidental.

During the Neolithic period there was another reason why river valleys became especially important: cattle. At Eynesbury the faunal and charred plant remains allude to an economy in which cattle played a pivotal role. Cereal crops, wild plant foods and wild sources of meat (roe and red deer) were present. However, the importance of pastoralism was exemplified by the presence of cattle bone within ceremonial and ritual contexts (Ellis 2004, 87). A similar pattern has also been demonstrated during recent research into sites in the Thames Valley (Barclay and Hey 1999, 71). Cattle predominate when compared to wild sources of meat, and the absence of charred plant remains suggest that arable production came far behind cattle-rearing in the food economy.

The river valleys of the Great Ouse catchment provided ideal grazing land and fresh drinking water, which are so important for domesticated cattle. The pastoral communities which moved repeatedly through these valleys in an annual cycle would quite naturally have chosen them as the location in which to construct their sacred spaces/monuments, of which the cursuses are the largest.

What impact did the cursus builders have on the landscape and ecology of the river valleys?

The visual impact of the large, ditched monuments they were creating must have been a major factor in the minds of the cursus builders. However, such an impact could not have been achieved without extensive tree clearance, effected either by direct human felling or more indirectly, possibly accidentally, as a result of over-grazing by domesticated animals. Livestock can feed on saplings and the lower branches and leaves of trees, interrupting natural woodland regeneration. Over several consecutive years, this process can completely remove large areas of woodland. It is highly likely that the cattle-dependant Neolithic economy not only contributed to the removal of primary woodland but also ensured that open grasslands were maintained (Campbell 1983, 145).

Possible physical evidence for this process was found during the recent excavation work on the Biggleswade cursus. An infilled tree-throw hole (Fig. 2, G2) was subsequently truncated by the southern cursus ditch. This stratigraphic relationship provides useful physical evidence that the cursus was constructed in a tree-cleared landscape. Similar evidence of Neolithic tree clearance was also noted at the Eynesbury monumental complex, including the re-burial of the base of a tree trunk in a pit (Ellis 2004, 104). Further afield, in the Thames Valley, a direct link between cursus construction and tree clearance has also been identified (Barclay and Hey 1999, 71). During excavation of the Drayton cursus, located on gravel slopes near a major river, a series of tree-throw holes were recorded. These were formed prior to the construction of the cursus and again demonstrate deliberate tree clearance ahead of monument construction.

Analysis of molluscan remains, charred plant remains and charcoal also confirms the idea that the Drayton cursus was created in open grassland, previously cleared of primary oak woodland. The evidence from the Biggleswade cursus, albeit on a much smaller scale, supports a similar conclusion. Oak was the only identified species of charcoal in soil samples taken from the ditches of the cursus. Analysis of these fragments has demonstrated they were derived from very quickly grown wood, with wide rings, suggesting it could have been from mature trees. The presence of charred onion couch grass tubers also suggests that the local landscape included ungrazed grassland, abandoned pasture or arable land.

What purpose did the cursus serve?

Most current research sees cursus monuments as key elements of a sacred landscape. For example, Tilley's (1999) phenomenological study of the landscape around the Dorset cursus concluded that the area was not settled but, rather, was visited periodically by people who used the cursus as a processional route along which the bones of recently dead individuals and/or ancestors were moved. The route of the cursus took in key points in the landscape as part of this ritual journey. Last (1999) also suggests a link between this monument type and the practice of human procession through a specific landscape. He notes the geographical connection to rivers and suggests the cursus may be an artificial reference to the river, designed to connect the natural world with the cultural world.

Others have suggested that the cursus served a dual role, as a sacred site and political boundary

marker. A cattle-based economy is land hungry, as livestock needs to be regularly moved to new pasture. Transhumant pastoralists do not create permanent settlement sites. However, as the seasons change, they do move in a predictable, repeated pattern, from which, it is suggested, tribal territories evolve. Malim (2000, 81) points to the even distribution, at roughly 6km intervals, of prehistoric monumental complexes along the Great Ouse. He suggests that the cursus monuments were constructed on the edge of tribal territories, the river forming a natural boundary and the cursus a man-made, artificial one.

The Biggleswade cursus fits neatly into this dual role model. Its physical setting within a watery landscape at the foot of the Galley Hill promontory marks it out as an archetypal sacred site. It also lies at the southern limit of the distribution of cursus monuments within the Great Ouse catchment (Fig. 4) and it is tempting to postulate that it was associated with a group of pastoralists moving around the Ivel valley and the surrounding uplands. The fact that the Ivel also gave its name to another tribal grouping, the *Gifle*, who are recorded as occupying the valley in the 7th century AD, is probably best regarded as no more than an intriguing coincidence.

A Bronze Age Monumental Landscape

The physical remains of part of a ring ditch within the development site and a cluster of circular cropmarks at the eastern end of the cursus suggest the presence of at least eight Bronze Age barrows. Their arrangement, all immediately outside and to the south of the cursus, is striking. It is clear that the cursus was still a visible earthwork when the barrows were constructed and that the monument was still respected by the barrow builders. A further cluster of probable barrows, 400m north of the cursus near the Potton Brook, is also visible on aerial photographs (Fig. 1, HER 1343 and HER 701).

Such continuance of a sacred monumental landscape from the Neolithic to the Bronze Age has several parallels within the Great Ouse catchment (Malim 2000). For example, the phenomenon has been demonstrated by fieldwork at Cardington/Cople, Eynesbury and Rectory Farm Brampton (Cambridgeshire). At Stonea, Buckden-Diddington and Fenstanton (all in Cambridgeshire) aerial photographs show possible cursus monuments associated with round barrows. Significantly, all these sites are located in the counties of Cambridgeshire and Bedfordshire where the Great Ouse valley is wider and the topography of gradually sloping valley sides is similar. In contrast, further west into Buckinghamshire (where there is a relative paucity of such sites) the upper reaches of the river and its valley sides are significantly narrower. Although the Ivel is only a tributary, it shares the defining topographic characteristics of the middle reaches of the main river and demonstrates a similar longevity of sacred space during the early prehistoric period.

Iron Age

A single elongated pit dating to the Iron Age was recorded within the development site. It contained a small quantity of pottery, burnt stones and charred plant remains. The function and significance of Iron Age pits has been much debated (Hill 1995). However, there is no indication that the material in this pit represents a deliberately placed deposit. It is more likely to represent debris from nearby settlement activity.

More significant is the pit's position within, and broadly parallel to, the cursus. It has been suggested that in the Thames valley the cattle-focussed economy of the Neolithic continued to be practised right through to the Iron Age. The seasonal movements through the landscape, the favoured grazing lands, and the sacred spaces may, in some cases, have endured (Barclay and Hey 1999, 71). The digging of this pit within the Biggleswade cursus may mean that even in the Iron Age this location was still considered special.

Project Strategy

A combination of techniques were employed in order to identify, target and sample any potential archaeological remains within the development site. The following paragraphs are intended to serve as a brief commentary on the adopted approach and to suggest additional means of investigation which might be considered in the future.

In this instance, aerial photography was very useful in developing an understanding of the cursus. Digital rectification allowed a connection to be made between previously unplotted cropmarks within the development site and cropmarks to the east of the site which had been sketch-plotted and

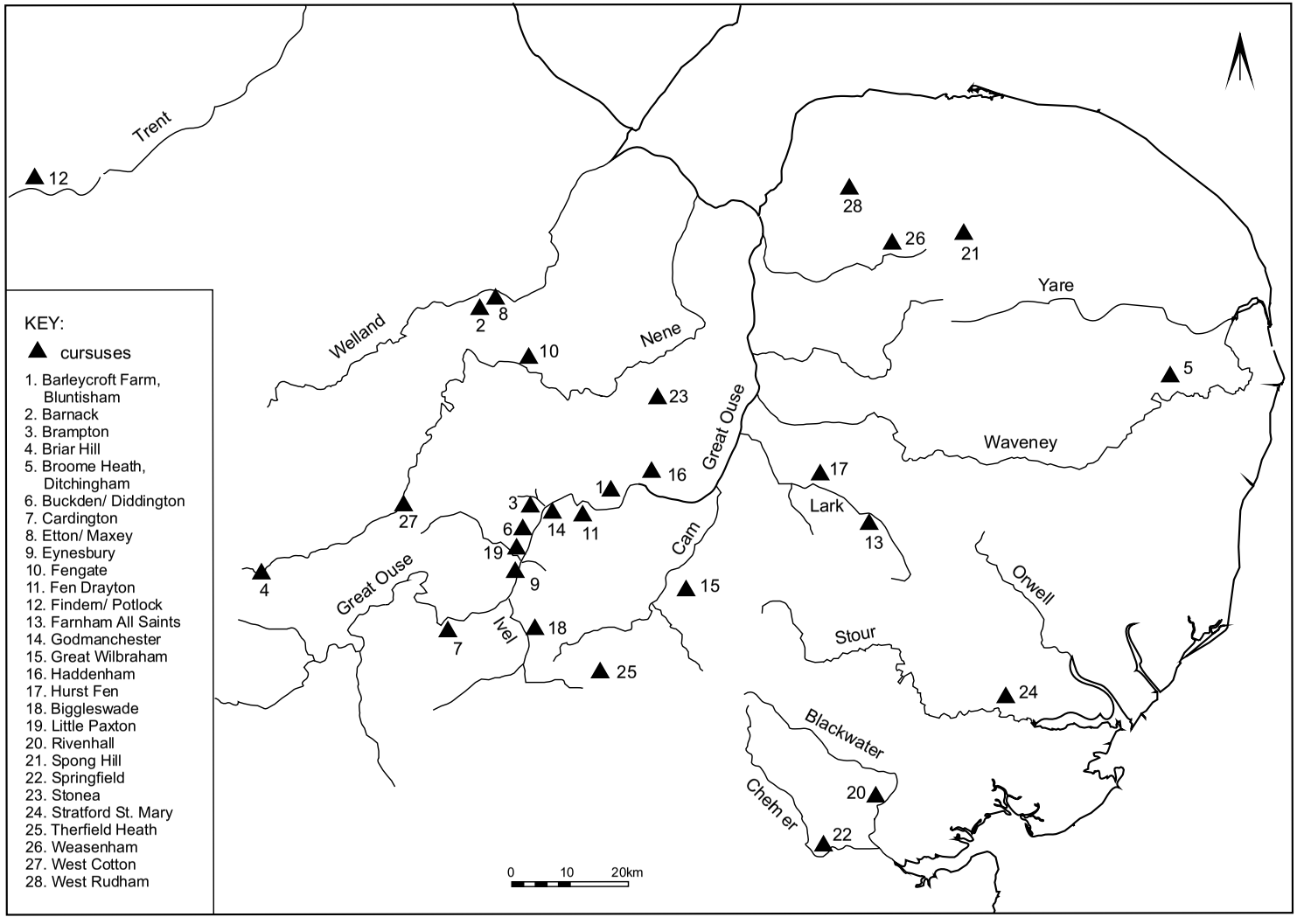


Figure 4: Distribution of cursuses in the eastern region (after Last 1999, fig. 8.1). Additions made by Albion: Kempston Cursus has been removed from map, Biggleswade cursus and River Ivel added)

recorded in the HER. The relatively small amount of intrusive fieldwork which followed confirmed this connection and helped to put a major prehistoric monument "on the map". Before the project took place it had been virtually ignored in the two most recent considerations of prehistoric monuments in the Great Ouse valley (Malim 2000, 81 and fig 8.2) and eastern England (Last 1999, fig 8.1).

Because a low density of charred plant remains was anticipated, a comparatively large volume of soil (569 litres) was floated, relative to the small size of the investigation area. However, the poor results (Appendix 1) and the ubiquity of intrusive, modern material within the cursus ditches must call into doubt the merits of this approach. A better strategy might be:

i) to hand-excavate and sample a small number of key segments, *e.g.* terminals or changes in alignment, and then
ii) to machine-excavate the remaining ditch fill with a view to revealing and sampling localised, placed deposits which might produce higher densities of genuinely Neolithic artefactual or ecofactual remains.

This approach might also have a better chance of producing material suitable for radiocarbon dating. In the latter's absence, optically stimulated luminescence, as used at Eynesbury (Ellis 2004, 61–62), is likely to represent the best alternative scientific dating technique.

CONCLUSIONS

The complex of prehistoric ritual monuments in the Ivel valley to the north of Biggleswade is a good example of a regionally, and nationally, recognisable landscape-type. At its heart is the Biggleswade cursus, the only such monument within Bedfordshire to have been examined in an open area excavation, using modern archaeological techniques. Indeed, it is argued above that the Biggleswade cursus is the only known cursus within Bedfordshire. Its sheer size and the clustering of later barrows on its periphery mark it out as a classic cursus. By contrast, even the largest of the three monuments within Cardington/Cople complex is probably better classified as a long mortuary enclosure. Similarly, the excavator of the two large rectangular enclosures at Eynesbury (in Cambridgeshire) acknowledged that their classification as cursuses was not entirely unequivocal (Ellis 2004, 6). Admittedly, this distinction is somewhat academic because all are within a broad tradition of linear Neolithic monuments. On the other hand, however, it does serve to highlight the distinctiveness and importance of the Biggleswade cursus.

The siting of the Biggleswade cursus is partly a reflection of purely local topography: water on three sides and a Greensand promontory to the north. However, there are also wider reasons for this choice of location. A link has been made in this region, and elsewhere, between transhumant pastoralists, with a cattle-based economy, and the clearance of large swathes of woodland to create open grassland more suitable for grazing. In tandem with this economically driven landscape change, arose the opportunity to create large, visually impressive monuments in river valleys like the Great Ouse. The cursus monuments may have functioned as territorial markers. They may have provided processional ways, used for funerary rites, or perhaps as a means for visiting sacred places within a landscape familiar to their builders. Our understanding of their use, or uses, is still at an early stage of development.

The effect of the presence of cursus monuments within the landscape was long-lived. The Biggleswade cursus attracted Bronze Age barrow builders. To date, no barrows have been identified *within* the monument, perhaps indicating that its internal sacred space also endured.

The recent fieldwork on the Biggleswade cursus has only touched on a tiny part of the archaeological potential of this prehistoric monumental landscape. Future work could address such questions as:

Where is the western end of the cursus and what is its total length?

Are there other Neolithic monuments in the vicinity of the cursus?

If the cursus does extend west of the railway, will its potential to preserve organic material increase as it nears the present-day course of the Ivel?

Is there widespread evidence for tree clearance contemporary with the creation of the cursus?

When was the cursus built and how long was it in use for?

Does the interior of the cursus contain contemporary features that might help to elucidate its function?

Can we learn more about the local topographic setting of the cursus and the later monuments, particularly the riverine environment?

Are the later monuments next to the cursus different in any way to those clustered to the north?

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The site was visited and monitored at key stages by Lesley-Ann Mather, Bedfordshire County Council's Archaeological Officer. Specialist advice was given by Dr Pete Murphy, English Heritage Regional Science Advisor, who also visited the site.

Finally, Anglian Water Services should be applauded for amending their building plans in order to avoid unnecessary damage to the remains of Bronze Age barrow HER 10138. The remains of this monument will be preserved for the foreseeable future within the confines of the extended sewage treatment works.

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APPENDIX 1: CHARRED PLANT REMAINS AND CHARCOAL (TECHNICAL DETAIL)

CHARRED PLANT REMAINS: ANGELA MONCKTON, UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES

Introduction

Samples were taken for the recovery of charred plant remains which can provide information on diet, agriculture and other activities on archaeological sites. The features sampled included the Neolithic cursus ditches and an Iron Age pit. The recovery of charred plant remains from Neolithic deposits is a priority because of their rarity. It was hoped that such remains might contribute to the evidence for activities at cursus monuments, and also provide material for radiocarbon dating.

Methodology

A total of eleven large bulk samples were processed and submitted for assessment. Ten samples were from the Neolithic cursus and one from an Iron Age pit (Table 1).

Processing

Samples were wet sieved using a 0.5mm or 1mm mesh with flotation into a 0.3mm mesh sieve. The residues were air dried and the fraction over 5.6mm sorted for all finds, then discarded. The fine fractions of the residue were reserved for analysis. The flotation fraction (flot) was air dried and packed carefully in self-seal polythene bags. This work was carried out by Albion Archaeology.

Assessment

The flots were all sorted using a x10–x30 stereo microscope and the plant remains were removed to glass specimen tubes. Selected residues were examined for the presence of charred plant remains and nothing except a trace of charcoal was found. This showed that recovery by flotation had been good and that processing had been carried out efficiently. The plant remains were identified, counted and listed (Table 1). The plant names follow Stace (1991).

	Phase	Neo	Neo	Neo	Neo	Neo	Neo	Neo	Neo	Neo	Neo	IA
	Group	G3	G3	G3	G4	G4	G4	G4	G4	G4	G4	G6
	Sample	6	7	11	5	1	2	3	8	10	12	4
CEREAL GRAINS												
Triticum cf *dicoccum* Schubl.	Emmer wheat	—	—	—	2	—	1					
Triticum dicoccum/spelta	Glume wheat	—	—	—	—	—	—	—	—	—	—	1
Triticum free-threshing grain	Wheat	—	—	—	3	—	—	—	—	—	—	—
Triticum spp.	Wheat indet.	—	—	—	—	—	—	—	—	1	2	1
Hordeum vulgare L. grain	Barley	2	6	—	—	1	—	—	—	3	—	—
Hordeum sp. hulled grain	Barley, hulled	—	—	—	5	—	—	—	—	4	—	—
Cereal/Poaceae	Cereal/Grass	—	—	—	3	—	—	—	—	—	—	—
Cereal grains indet.	Cereal	1	2	3	7	—	1	—	—	5	1	1
CEREAL CHAFF												
Triticum cf *dicoccum* glume	Emmer glume	—	—	—	—	1	—	—	—	—	—	—
Triticum sp. rachis	Wheat chaff	—	—	—	1	—	—	—	—	1	—	—
Culm node large	Straw	—	—	—	—	—	—	—	—	2	—	2
OTHER PLANTS												
Corylus avellana L.	Hazel nut shell	—	—	—	—	—	—	—	—	—	—	1
Vicia/Lathyrus	Vetch/Vetchling	—	—	—	1	—	—	—	1cf	2	1cf	—
Vicia sp.	Vetch	—	—	—	6	—	—	—	—	—	—	1
Medicago/Trifolium type	Clover type	—	—	—	1	1	—	—	—	—	—	—
Poaceae (large)	Grasses, large	—	—	—	—	1	—	—	—	—	—	—
Arrhenatherum elatius (L) Beauv. Var bulbosum.-	Onion couch grass tuber	—	—	—	—	—	—	—	—	—	5	
Tubers indet.	Tubers	—	—	—	—	—	—	—	1?	5	3	—
Indeterminate seeds	Indet. seeds	—	—	—	5	—	—	—	—	6	3	—
Uncharred seeds	Uncharred seeds	+	+	—	+++	+	+	+	++	+	++	+
OTHER REMAINS												
Charcoal	Charcoal	+	+	—	+	+	—	—	+++	+++	+++	+
Charred fragments indet.	Charred frags	+	++	++	+	+	+	+	++	++	++	+
Snails	Snails	—	—	—	—	(1)	—	—	—	—	—	—
Small bones	Small bones	—	—	—	(1)	—	—	—	—	—	—	—
Total	items	3	8	3	34	4	2	0	2	29	15	7
Volume of sample	litres	22	50	40	200	40	40	20	7	100	50?	40
Volume of flot	mls	20	12	15	45	4	2	1	20	15	120	15
2mm Residue	litres	0.75	2.0	—	—	1.0	—	1.5	0.2	1.0	1.2	—

Key: + = present, ++ = moderate amount, +++ = abundant. glume. = glume base, ra = rachis segment. cf. = probable identification. Remains are seeds in the broad sense unless stated.
* Neo = Neolithic; IA = Iron Age

Table 1: Charred plant remains

Results

Charred plant remains were recovered from nine of the ten Neolithic samples as well as from the single Iron Age sample. However, these were all at low densities, up to only 0.3 items per litre of soil. The Neolithic samples contained cereal grains in small numbers including barley (*Hordeum vulgare*), some of a hulled form, occasional emmer grains (*Triticum dicoccum*) and other wheat grains including possibly free-threshing grains (*Triticum* free-threshing), which is a type similar to bread wheat. However, it is abraded and this could not be confirmed. Very few chaff fragments were recovered, including a glume possibly of emmer, and a couple of rachis fragments of wheat which are basal segments and could not be identified further. A few charred straw nodes were also recovered.

A small number of weed seeds were also present. These comprise mainly leguminous plants such as vetches (*Vicia* sp.). Such plants are typically associated with grassy vegetation and also grow as arable weeds. A few larger fragments were classified as vetches or vetchling (*Vicia*/*Lathyrus*) which grow in similar conditions; these may have been from edible legumes, but all are incomplete. One sample contained tubers of onion couch grass (*Arrhenatherum elatius*). This plant is typically grown on ungrazed grassland, abandoned pasture or arable land and when dry can be used for kindling (Moffett, Robinson and Straker 1989). It is known to be edible, although gathering and processing these coarse tubers for food does not explain their frequent presence in cremations and other prehistoric features (Moffett, Robinson and Straker 1989). Other tubers, possibly also of grasses are present. Charred material of an amorphous nature was found in some of the samples. Uncharred seeds of common field weeds are present and are numerous in one of the samples, suggesting modern intrusive material. The Iron Age sample contained relatively few remains, the most significant being a fragment of hazelnut shell (*Corylus avellana*), surprisingly the only fragment from the site.

Dating evidence combined with more examples of the surrounding vegetation is needed in order to augment our knowledge of the settlement patterns and economy of people living in this area during prehistory.

Charcoal

Gc Morgan, University Of Leicester

Results

The samples were identified and a record was made of their dimensions and apparent growth rates (Table 2). The diameter, in mm, is the estimated minimum size for the sample. The ring count is for those present, and the age is the estimated minimum.

Oak, *Quercus* spec., was the only identified species of wood charcoal in soil samples taken from the ditches of the cursus. Analysis of these fragments has demonstrated they were derived from very quickly grown wood, with wide rings, suggesting it could be from mature trees.

The presence of coal is interesting, although it may well be derived from local alluvial deposits or have been deliberately brought to the site. The presence of this material would cause problems for radiocarbon dating of charcoal or other material with which it had come into contact.

Ecofact Sample No	Group	Phase	Details	Identity	Dia	Rings	Estimated age
1	G4	Neolithic	300μm flot	Oak and coal fragments	5	5	5
2	G4	Neolithic	300μm flot	Seeds and insects			
3	G4	Neolithic	300μm flot	Seeds and insects			
4	G6	Iron age	flot	Miscellaneous fragments of charcoal, seeds and coal			
4	G6	Iron age	5.6mm	Hawthorn type	15	6	6
5	G4	Neolithic	flot	Miscellaneous fragments of charcoal, insects and coal			
6	G3	Neolithic	flot	Fragments of oak and coal			
7	G3	Neolithic	flot	Miscellaneous fragments of charcoal, insects and coal			
8	G4	Neolithic	charcoal fcrom flot	Fragments of oak, seeds, insects and coal			
10	G4	Neolithic	charcoal from flot	Oak	20+	5+	10+
10	G4	Neolithic	flot	Fragments of oak, seeds and coal			
11	G3	Neolithic	flot	Fragments of oak and coal			
12	G4	Neolithic	5.6mm	Oak	20+	5+	10+
12	G4	Neolithic	flot	Oak, mature wood	50+	6+	20+
12	G4	Neolithic	flot	Oak	60+	10+	30+

Table 2: Charcoal

The Biggleswade reinforcement water main: archaeological investigations, 2001

Nigel Wilson and Robert Zeepvat

With contributions by
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SUMMARY

Archaeological evaluation, monitoring and excavation on the route of a water main between Cople and Biggleswade provided an opportunity to examine the archaeology of two distinct landscapes, the Greensand Ridge and the Ivel Valley. Four sites were excavated, one of late Bronze Age date and three belonging to the late Iron Age and Roman periods. On the rest of the route, no significant features were identified during the watching brief. The results of the excavations have in general confirmed the existing view of the archaeology of those areas through which the water main passes.

INTRODUCTION

In 2001 *Archaeological Services & Consultancy Ltd* (ASC) undertook evaluation of the proposed route of a 17km water main from Cople to Biggleswade. The scheme, designated the *Biggleswade Reinforcement Water Main,* was intended to reinforce water supplies to Biggleswade in order to cope with the demands of recent industrial development. The evaluation comprised a desk-based study and walkover survey of the route (Zeepvat *et al* 2000), followed by a geophysical survey (Johnson 2001).

Using the information obtained from the evaluation, the route of the water main was finalised, avoiding known archaeologically sensitive areas where possible. Along the route nine areas of potential archaeological interest remained (Table 1). Topsoil was stripped from these areas under archaeological supervision, and any archaeological features present were excavated and recorded to appropriate standards. Topsoil stripping along the remainder of the route was subject to an intermittent watching brief, with provision for examining and recording any archaeological features revealed. The work was funded throughout by *Anglian Water Services Ltd*, who also paid for the publication of this paper.

SETTING AND ROUTE

The water main route (Fig. 1) commences in open farmland about 1.5km southeast of Cardington village with a junction to an existing water main, at an elevation of about 27m OD. From here it runs in a generally south-easterly direction towards Old Warden, passing through farmland and climbing from the heavy clays of the Ouse valley to the lighter sandy clay of the Greensand Ridge. Passing over the crest of the ridge, it then falls gradually to meet the Old Warden road north-east of Old Warden Airfield. At this point the geology of the route changes again, from the Greensand Ridge clays to the gravel soils of the Ivel valley. From Old Warden the water main route follows the Biggleswade road eastwards, crossing the road at intervals to avoid houses and other obstructions. North-east of Broom Quarry, the route turns to follow Gypsy Lane southwards towards Broom. It then turns east to cross the Ivel downstream from Holme Mills, continuing eastwards to pass beneath the East Coast railway line. The route then follows the railway southwards, before climbing to the south-east to terminate at the Toplers Hill reservoir, adjacent to the A1 at an elevation of 77m OD, 5km south of the centre of Biggleswade. This final section from the railway to Toplers Hill passes through an area of heavier clayey soils.

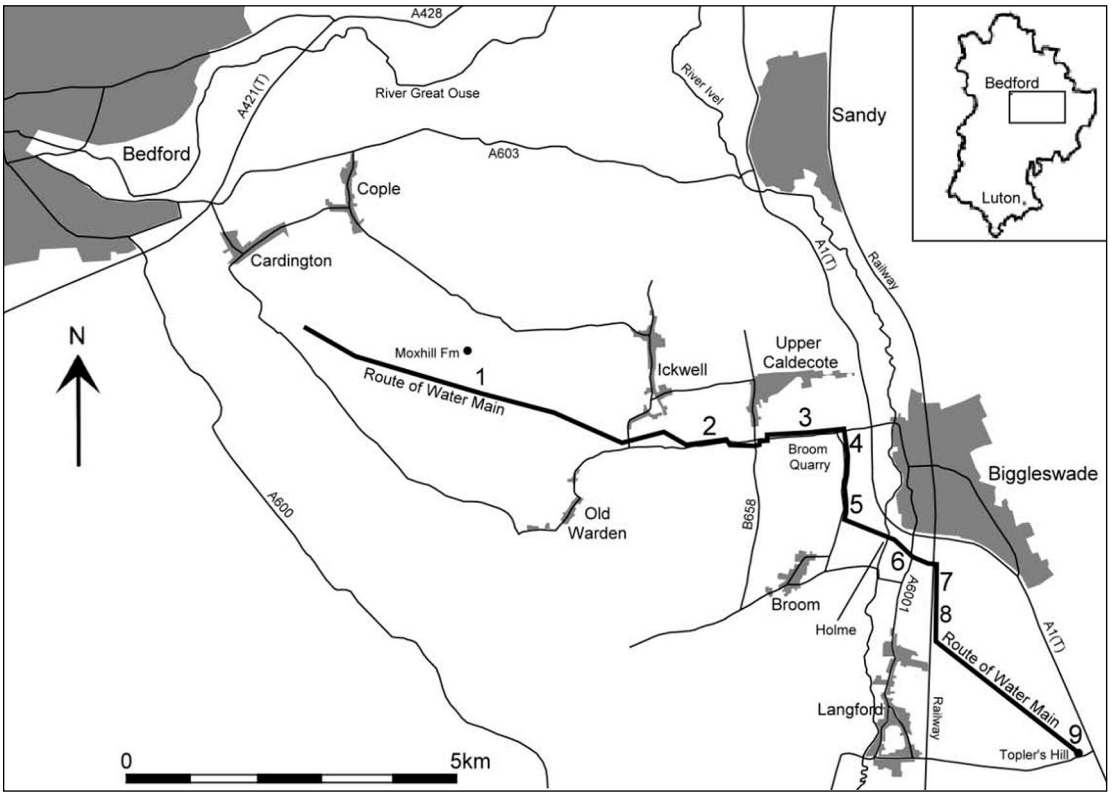


Figure 1: The water main route, showing site locations

HISTORIC LANDSCAPE

Present knowledge regarding the historic landscapes of the two main geological areas through which the water main passes is greatly varied. Little is known about the archaeology of the Greensand Ridge, which comprises the western half of the water main route. The significant features recorded in this area comprise earthworks and landscape features, such as ridge and furrow, of medieval or later date. In contrast, the lighter soils of the eastern part of the route, within the Ivel valley, have revealed a great deal of evidence of early activity, mostly as cropmarks visible on aerial photographs. From these it is apparent that the lighter alluvial soils have been subject to occupation and agriculture from the Bronze Age onwards.

Relatively little is known of prehistoric activity and occupation along the line of the water main route. The Broom Quarry cropmark complex includes a number of ring ditches and many of the undated cropmarks in this area may date to the early Prehistoric, Iron Age or Roman periods. Evidence of prehistoric activity elsewhere along the water main route is provided by individual artefacts, mostly of Bronze Age date.

At Toplers Hill, investigations in advance of road improvements (Luke 2004) revealed traces of late Bronze Age / early Iron Age occupation. Many of the extensive cropmark sites west and south of Biggleswade may be of Late Iron Age or early Roman date. A group of Iron Age cremation burials has been excavated at Stratton Business Park, (Shotliff 1995) and a further cremation has been identified at Old Warden, near Quince Hill (SMR 459), south of water main route.

At the present time little is known of the nature of Roman occupation in Biggleswade and the immediately surrounding area. The water main route runs alongside the possible Roman road following the line of the present B658 and Hill Lane from Biggleswade towards Old Warden (Margary 1955, I, fig. 7). Trial excavations along the west bank of the River Ivel, *c*. 300m east of the water main route (Dawson 1994) show that at this time the landscape of the Ivel valley was divided into

small fields. Excavations north of the route at Warren Villas have shown a similar pattern of agricultural activity, with field boundaries aligned towards the river (Dawson & Maull 1996). The water main passes through extensive linear cropmarks to the west of Biggleswade which may be of a similar date, indicating that this pattern of land use probably extended across the valley. Finds of Roman date have been found on the Greensand Ridge, *c*. 300m south-west of the route at Quince Hill (SMR 972).

GEOPHYSICAL SURVEY

The geophysical survey comprised an initial scan of the whole route for magnetic susceptibility, followed by more detailed magnetometry survey of areas where the results suggested archaeology may be present. The survey revealed convincing evidence of buried archaeological features at four locations (Sites 1, 2, 5, 6), and possible features at a further five (Sites 3, 4, 7, 8, 9). The results of the survey are summarised in Table 1.

Site	Description
1	**Moxhill Farm**: (S of): a possible curving enclosure ditch and other associated features, revealed by geophysical survey.
2	**Old Warden**: cut features, probably related to extensive cropmark to the north
3	**Broom Quarry**: area of inconclusive geophysics, between known archaeology in Broom Quarry itself and cropmarks to the north
4	**Gypsy Lane North**: section of route adjacent to known cropmarks. Geophysics inconclusive.
5	**Gypsy Lane South**: section adjacent to, and to the east of Gypsy Lane, adjacent to known cropmarks. Evidence from geophysics of a ring ditch and various cut features
6	**Langford Road:** section of route crossing recorded site of Roman burials. Geophysics shows some cut features.
7	**Holme Green**: section of route crossing area at west end of Holme Green deserted village. Geophysics inconclusive: some possible cut features present.
8	**Balls Farm** (N of): extensive cropmark area (HER 1486). Geophysics showed some possible cut features, but much interference from trackside equipment.
9	**Toplers Hill**: southernmost section of the route, passing through the cropmarks around the water tower. Geophysics inconclusive, due to buried water pipes, etc.

Table 1: Summary of the geophysical survey results

Roman burials have been recorded at two locations along the water main route. An inhumation burial accompanied by pottery and glass vessels and a bronze lamp was found in the mid 19th century north of Holme, in the appropriately named *Coffin Field*. During the construction of the Great North Road turnpike in *c*.1840, inhumation burials thought to be Roman were encountered at Toplers Hill. During the aforementioned investigations at Toplers Hill a complex of possible Roman enclosures associated with Ermine Street was also revealed.

During the Saxon and medieval periods, the landscape through which the water main route passes was largely given over to arable farming, as evidenced by the areas of surviving ridge-and-furrow along the route. The water main passes through two settlement sites of this period. One, located west of Brookland Farm, has been identified with a 12th-century settlement known as *Frogs Hall*. The other is the extensive settlement at Holme Green, south of Biggleswade. The eastern part of the route passes close to several medieval moated sites, but does not affect them directly.

The geophysical survey largely confirmed the results of the desk-based assessment. However, it is interesting to note that it failed to reveal any archaeological features in the section of the route north of Broom Quarry, which passes between the intense multi-period activity recorded in the quarry to the south, and an extensive area of cropmarks recorded to the north.

METHODOLOGY

The construction corridor for the water main was typically 15m wide. Those sections where archaeology was likely to be present (Table 1), amounting to 3km of the route, were stripped of topsoil under close archaeological supervision, using a 360° tracked excavator fitted with a toothless ditching blade. Subsequent cleaning and excavation of archaeological features was by hand and subject to a sampling strategy agreed with the County Archaeological Officer. The remainder of the route was stripped largely by bulldozers, and was subject to an intermittent watching brief.

In the following text, each of the sites examined along the water main route has been described and discussed separately. Feature numbers are shown in square brackets, for example [1234], and layer numbers in parentheses, as (6789). On Site 2, with its more complex archaeology, individual features identified during post-excavation analysis have been given three-digit group context numbers.

THE WATCHING BRIEF

On the western part of the route, the watching brief revealed mostly modern agricultural features in the Ouse Valley, and on the lower slopes of the Greensand Ridge. To the west of Site 1, a series of broad regularly-spaced linear features on a NE–SW alignment were interpreted as a continuation of ridge and furrow ploughing identified and investigated during the excavation of Site 1. On the remainder of the route, only modern agricultural drainage features were observed.

SITE 1

Site 1 was centred on TL 118 457, and covered some 250m of the water main corridor, on the west-facing slope of the Greensand Ridge between the 60m and 70m contours. The natural subsoil in this area consisted of a dark yellowish brown clay below 0.3m of plough-soil.

The most recent features on the site (Fig. 2) were ten shallow plough furrows, aligned NE–SW at about 6.0m centres. The furrows were filled with dark brown silty clay, and were probably of late Saxon or medieval date, though the only finds from them comprised residual late Iron Age and Roman material.

Nine small roughly circular concentrations of charcoal [1500–1508] towards the eastern end of Site 1 were identified as plough-damaged cremations. Because of their condition, these deposits were lifted *en bloc,* and wet-sieved. The details of this appear in Table 4. All the deposits contained bone, though only that from [1500] and [1504] could be identified as human. Pottery was present in three of the deposits, though only [1504] contained sufficient sherds to suggest that a pottery vessel formed part of the deposit. Sherds from [1504] have been dated to the mid to late 1st century. At least five vessels are represented; two jars, a platter, a possible beaker and a bowl. Other finds from these deposits included a fragment of tile [1501], a copper-alloy pin or wire fragment [1502], and a copper alloy globule or bead and a glass bead [1504].

Site 1 was traversed by two closely spaced, intercutting NW–SE aligned ditches, [100] and [101]. Ditch [100] was the more recent, as it cut ditch [101]. It measured *c*. 1.5m wide and 0.4m deep, with sloping sides and a flat base. It was filled with dark brown silty clay (1002, 1012), waterlogged towards the base of the feature. Ditch

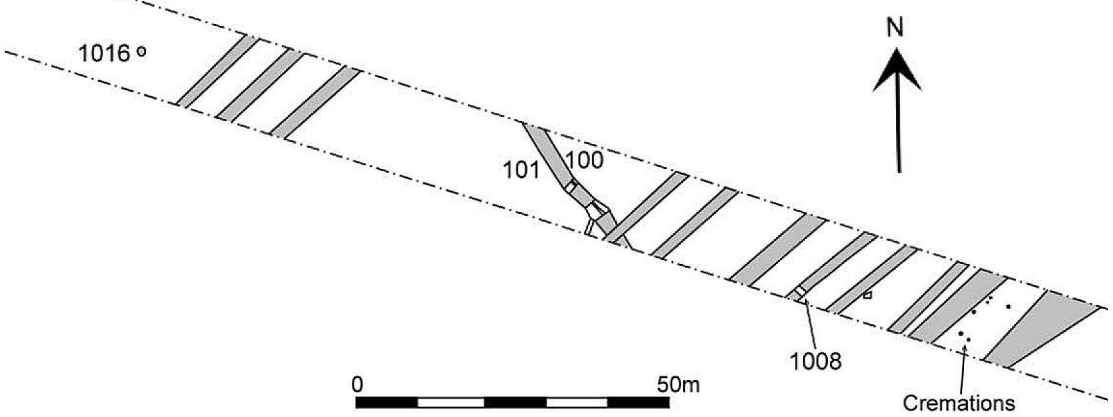


Figure 2: Site 1, overall plan

[101] was about 1.2m wide and 0.4m deep. Its sides were slightly concave, sloping to a rounded base. The feature was filled with olive-brown sandy clay (1004, 1010), also waterlogged towards the base.

Pottery recovered from the ditch fills indicates that [101] was of late Iron Age date, and [100] was dated to the mid 1st century AD. As both ditches followed a similar line, it seems reasonable to suggest that they were successive phases of a field boundary or drainage ditch.

The only other feature present on Site 1 was pit [1016], located towards the north-western end of the area. This was sub-oval in plan, measuring 0.95 × 0.75m, with a depth of 0.25m. Its sides were slightly concave, sloping to a slightly rounded base. Its fill was orange-brown clay with occasional stones. No finds were recovered from the fill, and it is possible that this was a natural feature.

Interpretation

The most prominent features located on Site 1 were the cremations, which appeared to represent the remains of a small cemetery of late Iron Age to early Roman date. As only one cremation, [1504], was sufficiently well preserved to permit any meaningful analysis, it is difficult to make much of the site's history and its place in the landscape. The site's environs contain a number of cropmark sites, probably of late Iron Age or Roman date, and it seems likely that the cemetery is related to one of them.

SITE 2

Site 2 was located north-east of Old Warden Airfield, on the north side of Hill Lane. That part of the water main corridor identified for excavation was *c*. 800m in length, from TL 155 449 to TL 162 450.

The geology of Site 2 comprises calcareous clays and gravel at the western end of the area, rising to more slowly permeable calcareous till soils of sand and clay in the main area of investigation. The archaeological features present were covered by up to 0.30m depth of silt wash and windblown sands. Towards the eastern end of the area the ground level rises, and the surface geology changes to sand and gravel with pockets of calcareous clay.

In the desk-based assessment a complex of substantial north-south aligned linear features was identified from aerial photographs across and to the north of Site 2. The geophysical survey evidence confirmed that this complex extended over a 60m length of the water main corridor, centred at TL 157 449. Other features to the east and west of the main complex appeared to be ditches and gullies interspersed with pits.

The excavation broadly confirmed the above evidence. After topsoil stripping, three dark soil spreads (Fig. 3) were revealed running north-south across the water main corridor. Excavation revealed these spreads each to be a complex of intercutting ditches, gullies and some pits and postholes, all of Roman date. The area between each group of features was largely devoid of archaeological features.

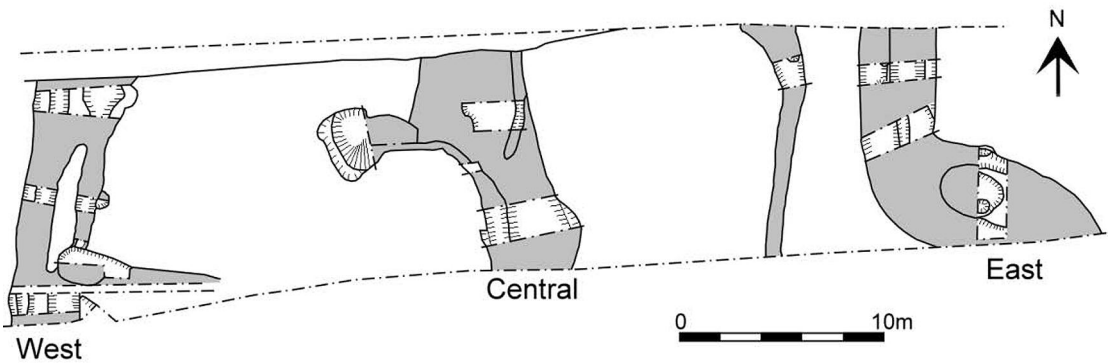


Figure 3: Site 2, overall plan

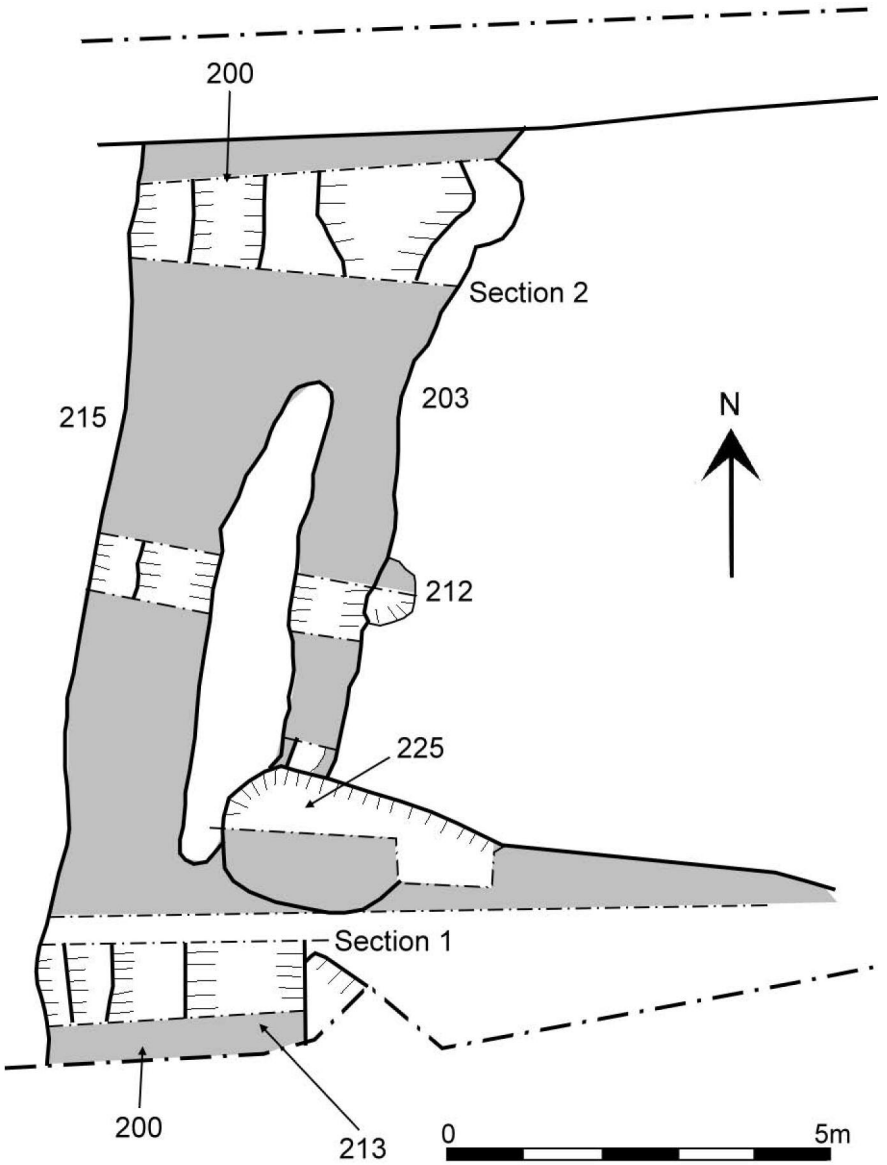


Figure 4: Site 2, western complex, plan

A similar pattern of development was recorded in each of the three complexes. Activity on the site seems to have commenced in the mid 1st century AD, and most features were dated to the late 1st to late 2nd centuries. During the 3rd century there seems to have been relatively little activity, but in the 4th century activity seems to have increased, with existing ditches being cleaned out and new ones cut.

WESTERN COMPLEX (Fig. 4: Sections 1 & 2)

One of the earliest features in this part of the site was a small pit or posthole [212] 0.8m in diameter and depth, on the east side of the main complex of ditches. Its fill of reddish-brown silty clay contained no finds, but was cut by the late 1st to early 2nd century ditch [203].

About 2m south of [212] was an east-west aligned gully, [226]. This feature petered out to the

east: to the west it was cut by pit [225], and its relationship to the main north-south ditch complex, if any, had thereby been destroyed. Pottery from its fill of mid reddish-brown silty sand (2042) suggests a 1st-century date for this feature.

Pit [225], 2m to the south of [212], was a large sub-circular feature 2.6m in diameter with a depth of 0.5m. Its dark yellowish-brown sandy silt fill (2072) was cut by ditch [203], though the pottery recovered from it suggests a similar late 1st or early 2nd century date.

The earliest phase of the western group of ditches was represented by ditches [203] and [215]. Ditch [203] was about 1.25m wide, with a depth of 0.3m. Ditch [215], parallel with and to the west of [203], was about 0.5m wide, with a depth of 0.2m. The fills of both features comprised mid reddish-brown sandy silts (2040: 2050, 2065). Pottery from both ditches indicates that they were infilled in the late 1st or early 2nd century.

At some later period the line of ditch [203] south of pit [225] was recut. The resulting ditch, [213], was about 1.25m wide and 0.30m deep, with a fill of mid yellowish-brown silty sand (2060). The limited amount of pottery recovered from this feature indicates a broad date range from the 2nd to 4th century for its infilling.

The most recent feature in this complex was ditch [200], which cut [215] and [203], following a course between these ditches. Ditch [200] was about 1.25m wide with a depth of 0.4-0.6m. Its fill of yellowish brown clayey silt (2048, 2056) contained 4th-century pottery. The upper fill (2063) of [200] contained significant amounts of animal bone, comprising the partial skeletons of at least two cattle. These animals appear to have been buried in the ditch.

Central Complex (Fig. 5: Section 3)

The central group of features comprised a number of small, shallow gullies, running along the general line of a natural north-south depression. To the west of this were two interconnecting pits, into which at least one of the gullies ran.

Gully [216] ran along the west side of the depression, turning westwards into pit [205]. It was about 0.95m wide with a depth of 0.45m. Its fill (2011, 2037) consisted of dark reddish brown sandy silt. Pottery recovered from this feature was of late 2nd-century date.

Gully [223] was a V-section feature, about 0.95m wide and 0.55m deep, running along the east side of the depression and terminating at its centre. Its fill, comprising fine dark brown clayey silt (2014), contained a single sherd of Roman pottery.

On the east side of the depression, gully 227 comprised the butt end of a feature extending beyond the southern limit of the excavation. It measured about 0.9m in width, with a depth of 0.15m and a rounded profile. Its fill of dark brown sandy silt (2009) contained no dateable finds.

Pit [205] was roughly oval, measuring 4.0 × 3.0m, almost vertical sides falling to a flat base, at a depth of 1.2m. Its lower fills consisted of a series of tip layers, all mid brown sandy silts with varying amounts of clay inclusions. Pottery from the early fills of the pit (2022, 2031, 2032) was of 2nd-century date. Pit [205] had been recut once, by which time the feature had largely been filled in. The area of the re-cut pit could not be determined, but it was about 0.65m deep, with steep sides. Pottery from the fill of the recut (2018), which was similar to the earlier fills, was of mid to late 2nd-century date.

Pit [228] was located on the east side of [205]. It was slightly smaller, measuring *c*. 2.9m in length and 1.15m in depth. Its fill comprised a primary deposit of greenish-brown sand, containing no dateable finds, and an upper layer of dark brown sand, containing pottery of mid 2nd-century date.

Eastern Complex (Fig. 6: Sections 4 & 5)

The eastern complex comprised two inter-cut north-south ditches [210] and [211], dog-legging to the north into a group of inter-cut pits adjacent to the south boundary of the excavation. To the west of the main group of features was a single north-south ditch [216].

The earlier of the ditches within the main complex was ditch [210]. This feature, over 1.8m wide and up to 1.3m deep, had been re-cut twice. The fill of its earliest cut, comprising mid olive-brown sand (2079), contained a single abraded sherd of uncertain Roman date. Its first re-cut, filled with mid brown sandy silt (2077), contained pottery of mid to late 2nd-century date. The final re-cut filled with (2058) contained no dateable finds.

Ditch [211] lay to the east of [210], and cut the fills of the latter's earliest two phases. Its orange-brown sandy silt fill (2083) contained 2nd-century pottery.

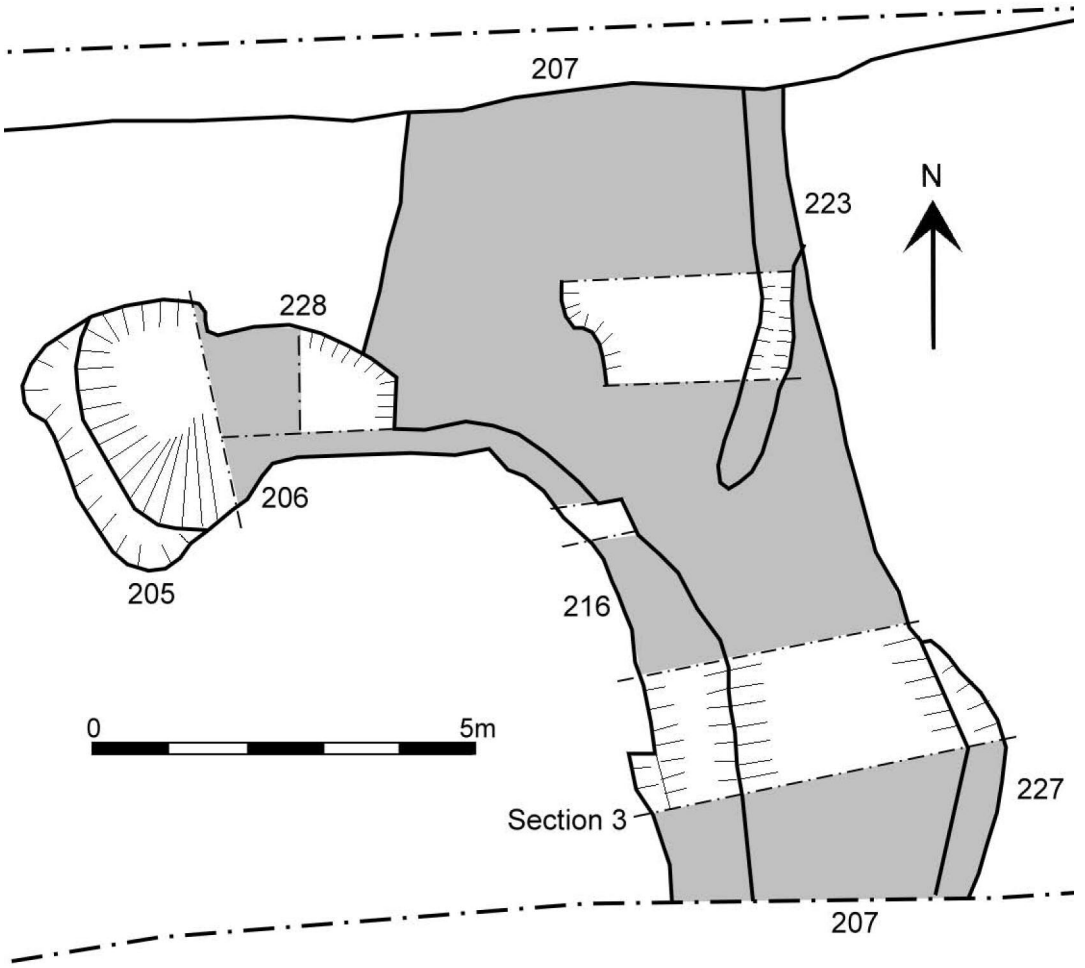


Figure 5: Site 2, central complex, plan

At their south end, ditches [210] and [211] passed through [220], an extensive pit-like depression, at least 5m wide and 9m in length, and 1.2m deep. The lower fills of this depression (2100) comprised a mixed deposit of silty clay lenses, most of which contained no dateable finds. The pit appeared to have been recut on several occasions. The pottery that was recovered from pit [220] was dated to the mid 1st and early 2nd century, but was for the most part heavily abraded, suggesting that it may have been re-deposited. On the outer edges of the feature, the cuts for ditches [210] and [211] were clearly visible. The upper fill of this complex of features, a dark brown silty clay (2093), contained no dateable finds.

At the west of this group of features, ditch [216] was about 1.4m wide with a depth of almost 0.5m, filled with brown silty clay (2006). The steep sides sloped to an uneven base. Pottery recovered from the fill indicates a 4th century date for the infilling of this feature.

Other Features

The only other feature discovered on Site 2 was a shallow grave [2002] located towards the eastern extent of the site. The grave (Plate 1) contained an extended inhumation, probably a male of 30-40 years at death. No grave goods or related finds were present. The bones were badly degraded by ploughing and the insertion of a modern field drain [2007]. The date of the burial remains uncertain.

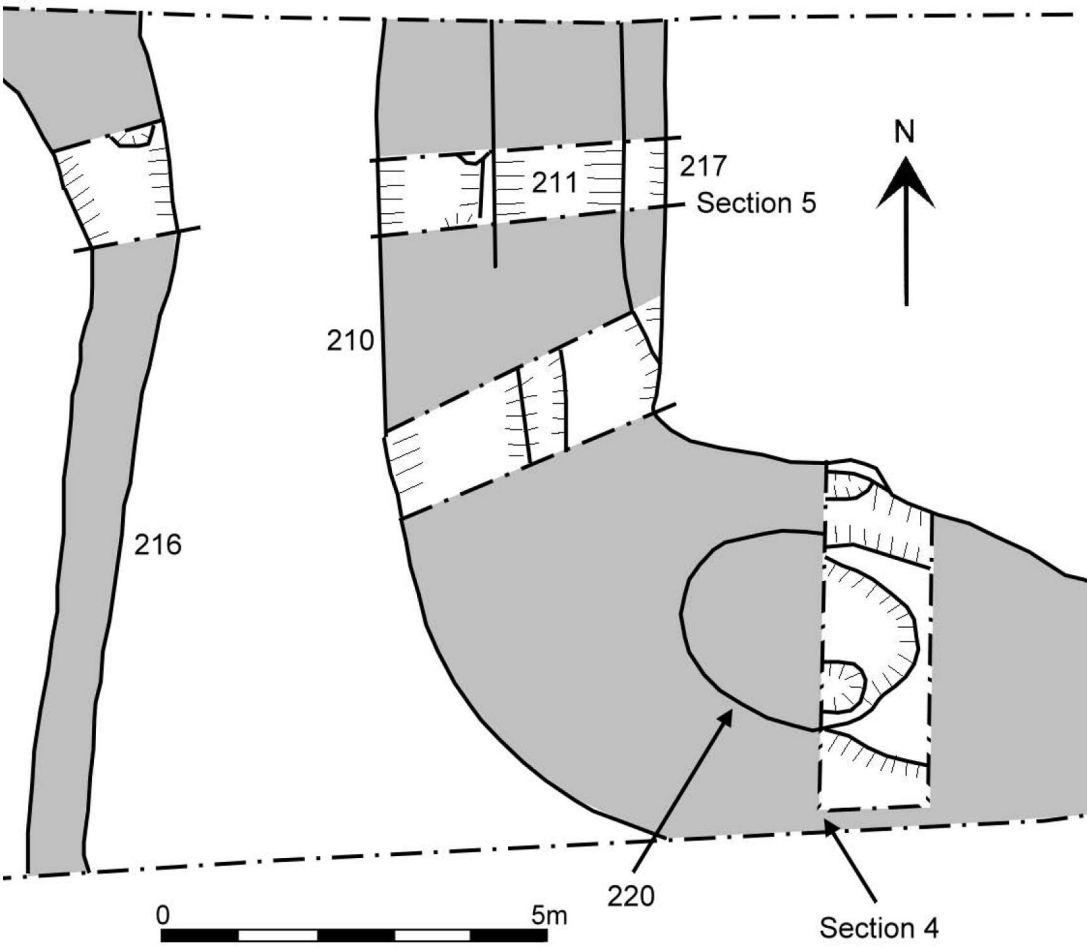


Figure 6: Site 2, eastern complex, plan

INTERPRETATION

From the number of ditch cuts present in the three feature alignments examined at Site 2, and the dating evidence obtained from them, these features appear to represent a series of long-lived boundary or drainage alignments. These were probably connected with the settlement indicated by the cropmark of a trapezoidal enclosure in the field to the immediate north of Site 2. The ditch alignments follow the shallow south-facing slope of the field, towards the brook located about 160m to the south of the site. Most of the pottery recovered from these features was abraded, suggesting that it probably found its way gradually into the ditches, rather than being dumped directly as domestic refuse. However, the date range of the pottery can be taken as an indication of the date range of the settlement, spanning the 2nd to 4th centuries AD.

SITE 3

Site 3 was located on the north side of the B658 Biggleswade to Shefford road, to the north of Broom Quarry. The section of the water main corridor identified for detailed examination measured 600m in length, from TL 170 451 to TL 177 451. In recent years, excavations at Broom Quarry have revealed extensive evidence of late Iron Age and Romano-British activity. Aerial photographs examined in the desk-based assessment showed that cropmarks were present in the fields to the

north of the B658, suggesting a continuation of the activity in Broom Quarry across the water main route. However, the geophysical survey for Site 3 was inconclusive, and no archaeological features or artefacts were identified following topsoil removal across the area. Observation of the excavation of the water main trench on this part of the route confirmed that no archaeological features were present. The absence of archaeological features and finds on Site 3 indicates that Broom Quarry and the cropmarks to the north of Site 3 do not form a continuous site, though it is likely that they are part of the same prehistoric landscape.

SITE 4

Site 4 was located on the east side of Gypsy Lane, south of its junction with the B568, comprising a 120m length of the water main corridor centred on TL 179 449. This area was designated for detailed examination because of the existence of an area of cropmarks to the west of the area. No features or artefacts were revealed in this area following topsoil stripping.

SITE 5

Site 5 was located on the east side of Gypsy Lane, centred on TL 179 442, and was sited to investigate a circular feature, identified by the geophysical survey and interpreted as a ring ditch (Johnson 2000, figs 25, 26). After the area was stripped no features were visible, but the subsoil appeared to be a flood deposit, possibly overlying earlier features. As the geophysical anomaly was so strong, two north-south trenches were excavated across the location of the geophysical anomaly. Only a few small poorly defined, shallow features were revealed in the underlying natural gravel. None contained finds, and it seems most likely that they were of natural origin. No trace of the circular feature revealed by the geophysical survey was found.

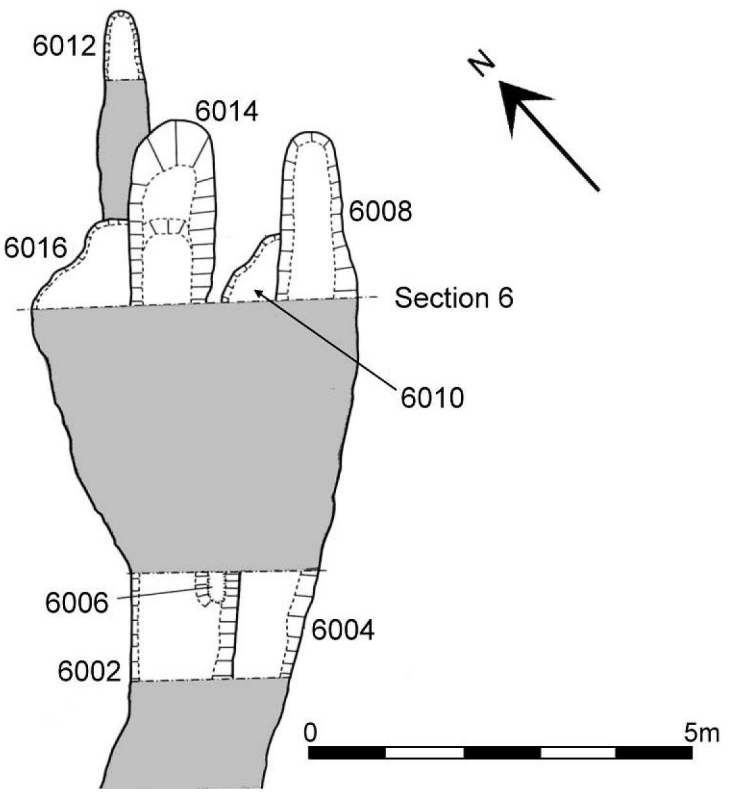


Figure 7: Site 6, overall plan

SITE 6

Site 6 was located between the River Ivel and the Langford road at TL 188 432, at an elevation of *c*.27m OD. Soils in this area are generally light and sandy: prior to the excavation the field had held a crop of potatoes. In this field, formerly known as *Coffin Field*, the discovery of a Roman inhumation burial in the 19th century is recorded. The geophysical survey showed probable features against the north boundary of the field.

The excavation revealed a complex of features (Fig. 7: Section 6) in the location indicated in the geophysical survey. These comprised three or four

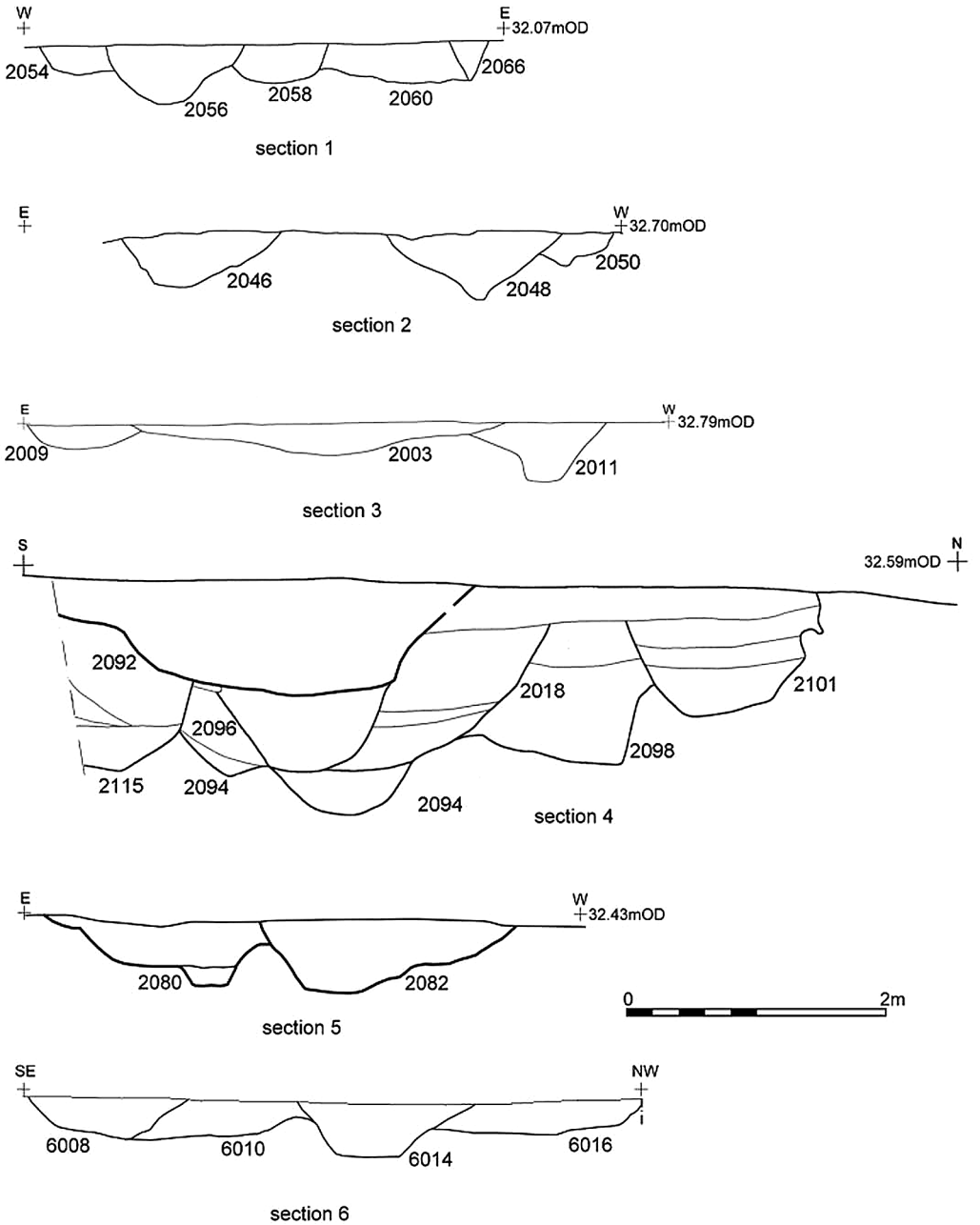


Figure 8: Sections, sites 2 and 6

intercut north-south ditches, each about 1.0m wide and 0.3 to 0.4m deep, terminating at their southern ends. A considerable amount of Roman pottery and a quantity of oyster shells were also recovered from the layer sealing the ditches and their fills. Ditch [6012] was stratigraphically the earliest of the features on Site 6, though its fill did not contain any dateable finds. Most of the other ditches were ceramically dated to the mid 2nd to mid 3rd century, though the pottery from them was mostly abraded. The most recent ditch in the group was [6014], which contained pottery of mid 3rd to early 4th-century date.

INTERPRETATION

Too little was revealed of the features on Site 6 to permit any detailed analysis of their function. It is evident from the number of cuts present that this alignment of ditches comprised a feature that was in use over perhaps two centuries, during that time requiring several episodes of recutting or realignment. Considering the site's proximity to the Ivel, it is likely that these ditches were used for drainage. This quantity of pottery and shell recovered from these features might be taken to indicate the presence of a settlement in the vicinity, probably to the north or west.

SITES 7 AND 8

Sites 7 and 8 comprised two lengths of the water main corridor totalling 840m, parallel to the East Coast railway line, from TL 193 430 to TL 193 421. Site 7 passed close to the west extent of the Holme Green deserted village, and Site 8 was in close proximity to an area of cropmarks identified in the desk-based assessment. The geophysical survey of these areas was inconclusive: some possible archaeological features were identified, but the survey readings were adversely affected by overhead power systems on the railway.

No archaeological features were identified in Sites 7 and 8. The soil profile in these areas was noticeably different to that in adjoining sections of the route, having only a very thin layer of topsoil. According to local sources, the topsoil was taken from this area some years previously to cover a disused landfill site near Biggleswade. It is likely that this operation would have truncated or destroyed any archaeological features present.

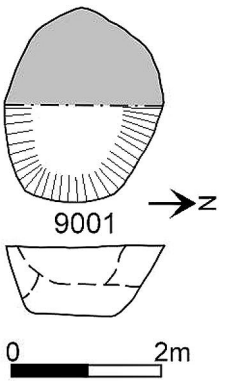


Figure 9: Pit [9001], plan and section

SITE 9

Site 9 was located immediately north of the Toplers Hill water tower. Although cropmarks have been recorded in this area, the geophysical survey results were inconclusive, probably because of interference from buried water pipes and other services. To the west of the site, evidence was recorded of Bronze Age or early Iron Age features adjacent to the A1 road (Luke 2004).

About 150m north of the water tower at NGR 2145 4039 was an oval pit [9001], cut into the natural clay subsoil. This feature (Fig. 9) measured 0.9 × 0.7m, with a depth of 0.6m. Its primary fill consisted of grey brown clayey silt with a few small stones. Overlying this and against the sides of the pit was a deposit of yellowish-brown silty clay, probably representing slumping from the sides. The latest fill of the pit was olive-brown sandy silt. Within this layer was a large quantity of charcoal, especially towards the base of the fill. Pottery from the upper layer suggests that this pit was filled during the late Bronze Age or early Iron Age. No other features or finds were observed within Site 9.

FINDS

Apart from pottery and animal bone, the sites examined along the water main route produced surprisingly few archaeological artefacts. With the exception of a bone needle recovered from Site 6, all registered finds (from Sites 2 & 6 only) mostly comprised poorly preserved iron nails or fragments. The copper pin fragment and beads of glass and copper recovered from Cremation [1605] on Site 1 have already been commented upon.

ROMAN POTTERY

A. R. Fawcett

Introduction

A total of 1477 sherds weighing 15112g with a R.EVE (Estimated Vessel Equivalent, by rims) of 11.24 were recovered from the excavations at Sites 1, 2 and 6. Through interpretation of the ceramic record, the report provides a date range for activity on the site as well as a 'socio-economic' statement. To enable comparison with sites of a similar nature in Bedfordshire and neighbouring counties, the fabric codes (Table 2) are based upon those developed by Bedfordshire County Council (*i.e.* R22a) and those employed by Tomber & Dore (1998) and Going (1987).

Form matches are utilised from a number of sites, principally the kiln site at Harrold (Brown 1994), Baldock (Stead & Rigby 1988), Chells (Waugh 1999), Verulamium (Wilson 1984) and Chelmsford (Going 1987). Other form matches, such as Thompson's *corpus* on grog-tempered pottery (1982) are also used where necessary. Unless specified below, all form matches relate to the Going *corpus* (1987). All the pottery has been examined at ×20 magnification. Specific detail such as unsourced coarseware division and detailed fabric division can be found in the site archive.

Site 1

A total of 582 sherds weighing 1165g with a R.EVE of 0.81 were recovered from this site. In general the pottery may be described as abraded, only [1004] and [1504] appear to contain pottery that is in its original place of deposition. In [1004]

Fabric Codes		Description
Tomber *et al*	Beds CC	
SOB GT	F06b	Southern British grog tempered ware
UNS FT	F01a	Unsourced flint tempered ware
UNS SC	F30	Unsourced grog and calcite ware
LGF SA	R01b	La Graufesenque samian ware (southern Gaul)
LEZ SA 1	R01a	Lezoux samian ware category 1 (central Gaul)
LEZ SA 2	R01a	Lezoux samian ware category 2 (central Gaul)
LMV SA	R01a	Les Martres-de-Veyre samian ware (central Gaul)
CHF SA	R01c	Chemery-Faulquemont samian ware (eastern Gaul)
RHZ SA	R01c	Rheinzabern samian ware (eastern Gaul)
UNS EG	R01c	Unsourced eastern Gaulish samian ware
COL CC	R04e	Colchester colour coated ware
LNV CC	R12b	Lower Nene Valley colour coated ware
OXF RS	R11g	Oxford red/brown slipped ware
UNS CC	R38	Unsourced colour coated ware
VER WS	R10c	Verulamium white slipped ware
UNS WS	R06h	Unsourced white slipped ware
LNV WH	R12a	Lower Nene Valley white ware
OXF WH	R11e	Oxford white ware
VER WH	R03a	Verulamium region white ware
UNS WH	R03	Unsourced white ware
HAD OX	R22a	Hadham oxidised ware
UNS OX	R05a	Unsourced oxidised ware
BSW	R06f/09d	Black surfaced or Romanising grey wares
DOR BB 1	R07a	Dorset black burnished ware category 1
UNS BB	R07b	Unsourced black burnished ware
GRF	R06c	Unsourced fine sandy grey wares
GRS	R06b	Unsourced sandy grey wares
GRS	R06e	Unsourced sandy grey wares (calcareous]
HAD RE 1	R22b	Hadham reduced ware category 1
HAD RE 2	R22c	Hadham reduced ware category 2
HOR RE	-	Horningsea reduced ware
LNV CC	R06a	Lower Nene Valley reduced ware
HAR SH 1	R13	'Harrold' shell tempered ware category 1
HAR SH 2	R13	'Harrold' shell tempered ware category 2

Table 2: Pottery fabric codes used in this report.

two fragmentary jar bases are recorded, dated to the post conquest period. Cremation [1504], also dated to the post-conquest period, holds the preponderance of ceramic data recorded on the site (546 sherds). The average sherd weight is a very low at 1.83g, reflecting the very abraded condition of the pottery. Unfortunately there is little diagnostic data that can be readily identified beyond the general class of vessel available in [1504] (*i.e.* jar). Nevertheless, at least five different vessels, represented mostly by partial base fragments, are associated with the cremation: two jars, a platter, a possible beaker and finally a bowl (Stead & Rigby 1986, no. 259 is a possible match).

Another jar occurs in [1009]: although too small for an accurate identification, it is contemporary with [1004] and [1504]. All the fabrics in this period are unsourced coarsewares, which are most likely locally produced. A single context [1023] is dated to the late Roman period and this also contains the only sourced fabric, HAD OX.

Apart from the presence of a cremation, no additional worthwhile comment can be made about the status, function or economy of the site due to the limited assemblage.

Site 2

This site yielded 600 sherds with a weight of 8754g and R.EVE of 6.17, recovered mostly from pits, gullies and ditches. The pottery from the site as a whole may be described as being mostly slightly abraded.

Mid 1st to early 2nd century AD

There is no clear evidence for pre-Roman activity: the earliest assemblages fall between the mid 1st and early 2nd century AD. The larger part of the pottery (134 sherds) occurs in [1072] the remaining contexts contain only small numbers of sherds.

A single samian sherd is recorded, represented by a Drg18/31 transitional plate/bowl from Les Martres-de-Veyre in central Gaul. No Romano-British fineware sherds are present. The majority of sherds are in fabric HAR SH; thereafter, small quantities of the unsourced BSW and GRS are noted. The only sourced coarseware from outside Bedfordshire is a single sherd of HAD RE 1.

The main recognisable form class is jars, most of which are too small for further identification. The only interesting piece is a channel-rim type jar from [2073]. This has some close matches from the kiln *corpus* (Brown 1994, no 36), Verulamium (Wilson 1984, no. 2299) and Baldock (Stead & Rigby 1986, no.283). It is dated from the late 1st to the early 2nd century and displays a fairly prominent upper rim (Fig 10.**1**).

Early to mid 2nd century

Activity continues into the first half of the second century, although this is represented by only two contexts. Three sherds of central Gaulish samian ware account for the continental fineware input. They are from Lezoux and all form an O & P LV13 cup. Again, no Romano-British finewares are present.

This phase sees the introduction of DOR BB1 and its local fabric copies. Two forms occur; a plain rimmed dish (Stead & Rigby 1986, no. 677) and a bowl. The latter has no direct match; related forms can be seen at Baldock (*ibid,* no. 416) and in the Kent corpus (Pollard 1988, no. 130). The form is burnished and has convex sides with a downturned rim (Fig. 10.**2**). Other related types attract a later date and indeed this may have a fairly long life. The only other sourced fabric is HAR SH: the small number of sherds in this ware represent an unidentifiable jar.

The unsourced fabrics are divided between BSW, GRS and GRF. Just one form is present, a jar in the GRF fabric. Similar vessels have been recorded at Stevenage (Waugh 1999, no.131) and Baldock (Stead & Rigby 1986, no. 493).

Mid to later 2nd century

This period witnesses a slight intensification in activity on the site. Lezoux samian ware, with two bowl forms Drg 30 and 31, again represents continental finewares. Also present is a single non-diagnostic sherd from Rheinzabern in east Gaul. One sherd from the Lower Nene Valley marks the introduction of Romano-British finewares to the site.

The sourced coarseware range once more comprises small numbers of DOR BB1, though as before HAR SH dominates. The only diagnostic sherd within these two fabrics is an unidentifiable jar in DOR BB1. Finally, among the coarsewares are a small number of VER WH sherds, represented by a bifid rim flagon (Wilson 1984, no.1964).

Although BSW is consistently present (represented by a single jar) it is GRS that is the dominant unsourced coarseware. Within the GRS

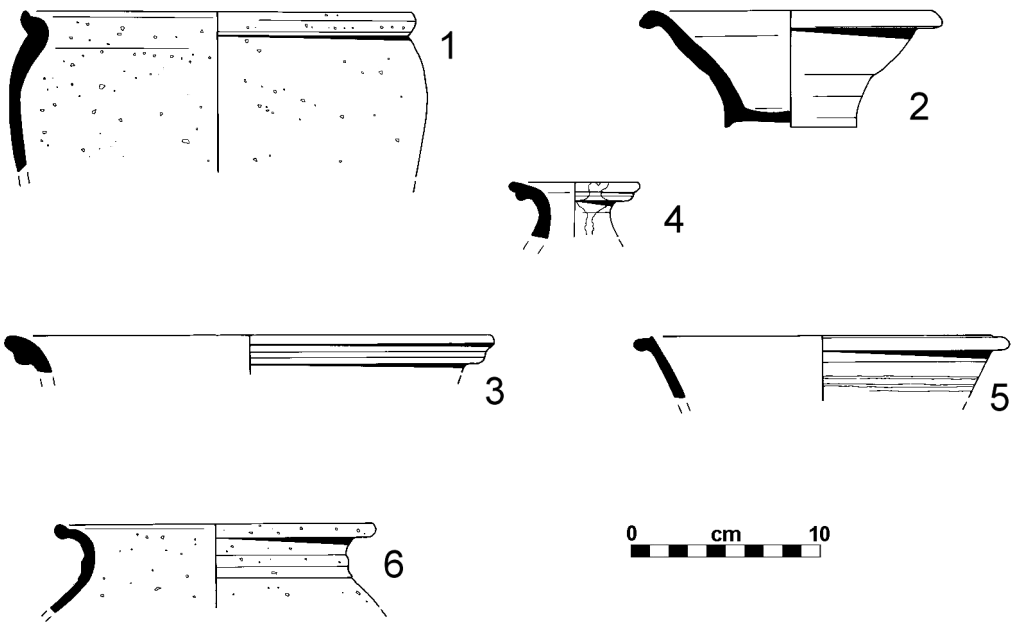


Figure 10: The pottery (scale 1:4)

group are three plain dishes, one flat rim and one moulded rim type. A single necked jar with cordon and bulge decoration is also present.

Late 2nd to early/mid 3rd century

This phase is represented by pottery from a single ditch context. Its main difference from the previous period is the demise of samian on the site and a slight increase in the presence of Lower Nene Valley products. The single form in LNV CC is an indented beaker body sherd displaying rouletted decoration. Also from the same source is LNV WH, represented by a grooved dish (Perrin 1999, no. 228).

As before, the sourced coarsewares are dominated by DOR BB1 and HAR SH (the only form present being an unidentified jar in the latter fabric). However, of particular interest is the presence of HOR RE from Cambridge. This fabric has only recently begun to be more readily identified beyond the boundary of that county. Recent research has shown that the products of these kilns supply north-west Essex and north-east Hertfordshire (Fawcett 2004; Martin forthcoming), so it is not surprising to find its attendance in east Bedfordshire. The jar form with a bifid rim has no direct match (Fig. 10.**3**): nevertheless, the general style can be seen in the Evans (1991) notes on the industry.

4th century

A few contexts are placed within the 3rd and 4th century. However, they are poorly dated. Nevertheless, one narrow neck jar with a bifid rim is of interest, as its design is clearly contemporary with the Horningsea style (Fig. 10.**4**). Although only one context is dated to the 4th century, amongst the surface finds there are also sherds dating to this period.

Within the small assemblage of [2194] are single instances of late fabrics in LNV CC and HAD OX (with the exception of HAR SH the remaining fabrics are unsourced). HAR SH contains the only diagnostic element, a plain-rimmed dish (Brown 1994, no.368) and a flanged version (Brown 1994, no. 344).

Discussion

As a whole Site 2 during the Roman period sees consistent use from around the mid or late 1st to around the late 2nd to early 3rd century. After this period there is still activity although on a limited scale.

The small assemblages assigned to each phase make it difficult to draw firm conclusions and indeed to make meaningful comparisons with other local and regional sites. Nevertheless, one or two basic deductions can be attempted. Firstly, none of the assemblages in any of the phases

suggests high status activity, the amount of samian and other finewares as a whole being comparable to basic rural activity. Equally outside the fineware categories there is little of consequence coming from beyond the modern county boundary, with the exception of DOR BB1 and a few sherds of VER WH. Considering the close proximity of the large rural nucleated kilns at Hadham and later on at Horningsea, it is notable that products from these centres have made a negligible impact on the site. This contrasts with the evidence from Site 6 (below). Excavations at Friary Fields in Dunstable displayed a similar lack of Hadham wares (Fawcett 2005). Nevertheless, one must take into consideration the consistent output of the shell-gritted industry throughout the Roman period in this area: HAR SH is always the most prevalent fabric on the site across all phases.

The form assemblage is equally unimpressive throughout, dominated by a basic range of jars and dishes in the coarseware category, with only one instance of a flagon. Although most of this assemblage may be described as being 'slightly abraded' with a reasonable diagnostic element, mostly the forms are not identifiable beyond their general class. As the finewares suggest, only a very small number of beakers, cups and bowls are present.

The overall analysis suggests low-grade rural activity with a fairly basic local economy. The samian and DOR BB1 would have been readily available from local trading centres, and are not indicators of a dynamic economy. However, we must also consider that this assemblage does not represent the main focus of activity for this site, which is probably situated beyond the excavated area.

Site 6

The ceramic assemblage recovered from Site 6 amounts to 295 sherds with a weight of 5193g and R.EVE of 4.26. The pottery was recovered mostly from ditch fills, and its condition ranges from abraded to slightly abraded.

Late 2nd to early/mid 3rd century

Although there are sherds present on the site from the earlier Roman period ([6015] & [6007]) the focus for intense activity is clearly over a fairly short period of time. In contrast to Site 2, Romano-British finewares are more common, originating from Colchester and the Lower Nene Valley (Table 3). The only form within COL CC is a Cam392 beaker and in LNV CC an indented beaker with 'butchers hook' decoration. All the LNV CC sherds recorded on the site pertain to indented beakers.

Five, sourced coarseware fabrics are present from outside the county: DOR BB1, HAD OX, HAD RE 1, HAD RE 2 and LNV RE. As can be seen from the percentages, the Hadham contribution is higher than that noted on Site 2. The Hadham form range is restricted to three types: a narrow neck jar, a bowl-jar and finally an incipient flanged dish. This latter form (Fig. 10.**5**) has no direct match in this fabric, although at Chelmsford it fits into the B5 category (Going 1987). Not sur-

Fabric	No. Sherds	%	Weight (g)	%	R.EVE	%
COL CC	5	3	9	Pres	0.05	2
LNV CC	17	9	80	3	0.13	6
LNV WH	1	—	100	—	0.50	—
UNS CC	2	1	27	1	—	—
HAD OX	3	2	32	1	0.09	4
BSW	6	3	44	2	—	—
DOR BB 1	2	1	31	1	0.09	4
UNS BB	10	5	107	5	0.44	19
GRF	2	1	23	1	0.02	1
GRS	33	18	337	14	0.20	9
HAD RE 1	17	9	210	9	0.23	10
HAD RE 2	3	2	43	2	—	—
LNV RE	1	1	18	1	—	—
HAR SH	82	45	1421	60	1.03	4
HAR SH St	15	—	1009	—	—	
Totals	**199**		**3491g**		**2.78**	

* not including LNV WH & HAR SH St due to weight distortion

Table 3: Late 2nd to early/mid 3rd century AD

prisingly, the largest proportion of sourced wares is HAR SH (60% by weight). This assemblage is made up entirely of jars, mostly with a variety of everted rims. One type in particular appears to be a transitional type to the undercut and hooked rim later style (Fig.10.**6**). The jar has light buff surfaces: its nearest match is from the kiln *corpus* (Brown 1994, no. 178).

The two dominant unsourced fabrics are UNS BB and GRS. Within UNS BB there are two plain rim dishes, followed by a flat rim version. Unfortunately all the forms within the latter fabric are too small for further identification.

Discussion

Site 6 demonstrates a little more diversity than Site 2, with a higher percentage of imports from outside the county. Nonetheless, apart from the beakers in the fineware category, the coarseware form range is as restricted as before; composed of jars and dishes with beakers and flagons being totally absent.

On the face of it, this assemblage seems to represent a slightly higher status than that from Site 2. However, in the absence of other evidence it should still be regarded in a similar vein to Site 2 in terms of function and economy.

Unfortunately, there is too little in the published record for Bedfordshire containing phased percentages of ceramics to provide a meaningful comparison of data. However, one possible road of enquiry worth pursuing is the economic interaction between the industries of Hadham and Harrold. Once quantified data is available from Bedfordshire, the interaction may be measured throughout the Roman period at any one given time and against different classes of sites. Furthermore, assemblages may then be used for comparative exercises with Cambridgeshire, Essex and Hertfordshire. For instance, the Roman site at Chells (Stevenage) in ceramic periods 3 to 4 (AD130 to 260/75) rose from 21% to 45% of HAD RE1 and HAD OX (by weight percentage of the assemblage). In comparison; HAR SH products went from 4.5% to 10% in the same period (Waugh 1999, 108–110). Table 3 demonstrates a reversal of this trend.

ENVIRONMENTAL REMAINS

Introduction

Soil samples were collected for environmental analysis from Sites 1, 2 and 9 (Table 4). In addition a small collection of animal bones was recovered by hand during excavation from Sites 1, 2 and 6.

Methods

Sample volume and weight was measured prior to processing. The samples were washed in a 'Siraf' tank (Williams 1973) using a flotation sieve with a 0.5mm mesh and an internal wet sieve of 1mm mesh for the residue. Both residue and flot were dried, and the residues subsequently refloated, to ensure the efficient recovery of charred material. The dry volume of the flots was measured and the volume and weight of the residue recorded. A

sample no.	context number	context type	sample volume (l)	date
1500		Cremation	3.5	Rom
1501		Cremation	10	Rom
1502		Cremation	21.5	Rom
1503		Cremation	2.5	Rom
1504		Cremation	18.5	Rom
1505		Cremation	12	Rom
1506		Cremation	3.5	Rom
1507		Cremation	1.5	Rom
1508		Cremation	28	Rom
1	2025	Silty sand fill of pit 2023	29.5	2nd C AD
2	2037	Primary fill of pit 2023	20	2nd C AD
3	2077	Sandy silt fill of gully 2076	10	mid-late 2nd C AD
9500	9002	Sandy silt fill of pit 9001	30	LBA EIA

Rom- Romano-British; LBA-late Bronze Age; EIA-early Iron Age

Table 4: Samples taken for environmental processing

total of 190.5 litres of soil was processed in this way.

The residue was sorted by eye, and environmental and archaeological finds picked out, noted on the assessment sheet and bagged independently. A magnet was run through each residue in order to recover magnetised material such as hammerscale and prill, and a count was made of the number of flakes or spheroids of hammerscale collected. The flot of each sample was studied under ×10 magnification and the presence of environmental finds (*i.e.* snails, charcoal, carbonised seeds, bones etc) was noted and their abundance and species diversity recorded on the assessment sheet. Along with the finds from the sorted residue, these constitute the material archive of the samples.

Following processing and initial sorting, the flots and residues were passed to the appropriate specialists (below) for examination and reporting. The individual components of the samples were then identified. Detailed statistical results of the analysis are retained in the site archive.

Results

Site 1

Environmental samples were collected from all nine of the possible Roman cremation burials at Site 1. Three of the samples contained pottery, Cremation [1504] producing a considerable number of sherds from one or two vessels (pottery report, above). A copper alloy pin was present in [1502], and a copper alloy bead and a glass bead in [1508]. All the samples produced burnt bone, although preliminary study identified cremated human bones only in [1500] and [1504], although in the other samples the bones was so fragmented that identification was difficult. The cremated bone is reported on separately below. An unburnt horse tooth was recovered from Cremation [1501].

The flots from all but three of the cremations were very small, with small amounts of comminuted charcoal and one or two charred cereal grains and weeds seeds (below). Cremations [1501] & [1502] contained somewhat larger flots, and Cremation [1508] produced a large flot with abundant charcoal and several charred cereal grains and weed seeds. The charred plant remains are reported in detail below.

Five of the cremation samples contained snails, but in three these were shells of the blind burrowing snail *Cecilioides acicula*, a species almost certainly intrusive into the deposits. Two of the samples produced other taxa (Table 7), [1502] containing a few shells of the genus *Vallonia* sp. a group associated with grassland, and [1508] produced taxa characteristic of open country grassland habitats and damp or marshy ground. The most abundant shells in this small assemblage are *Vallonia excentrica* and *Pupilla muscorum,* indicating the dominance of the grassland element.

Seventy-three bone fragments were hand-collected from Site 1. Fifty-four of these were recovered from [1005] and a further 19 from [1011]. Both contexts are fills from segments of Ditch 101 and date to the late Iron Age. This small assemblage is dominated by cattle bones (Table 7), with horse bones and teeth next in abundance and sheep/goat the least frequent. No other species are recorded. The assemblage is small, but includes bones or teeth from immature and adult cattle, immature and adult horse and immature sheep. Five of the fragments show evidence of dog gnawing, while one scapula of an ox is butchered. One cattle horn core from [1005] is robust and suggests a large bull.

Site 2

Three samples were collected from Site 2. Samples 1 and 2 were taken from the fills of 2nd-century pit [205/206] (Fig. 5) and Sample 3 from the first recut of ditch [210], of mid-late 2nd-century date (Fig. 6). The pit produced pottery, an iron object, a little fired earth, a few flakes of hammerscale and animal bone, particularly in the later fill [2025]. The ditch also contained a few flakes of hammerscale but little else.

The flots from these samples were small and little charcoal and few seeds were recovered. The upper fill of the pit, [2025], produced a few charred cereal grains including wheat, and the gully fill [2077] also produced charred wheat grain. The primary fill of the pit, [2037], produced no identifiable charred plant remains, although a single fragment of grain was present. It did produce a small fish vertebrum, although of such a

Context	1005	1011
Horse	7	1
Cattle	17	5
Cattle size	26	7
Sheep/goat	2	4
Indeterminate	2	2

Table 5: Site 1: Frequency of identified fragments of bone

small size that it is unlikely to have derived from a fish that was eaten. The presence of house mouse in [2025] suggests that buildings may have been located nearby since this species normally occupies houses, barns and other buildings. The charred cereal remains and weed seeds are considered in more detail below. All three samples produced small assemblages of terrestrial snail shells (Table 7) and all indicated an open country grassland habitat around the sampled features.

This site produced the largest collection of hand-collected animal bone from the pipeline. Three hundred and fifty bone fragments and parts of two skeletons of cattle were recorded. The assemblage contains a much larger number of fragments but many of these are due to modern breaks and could be recorded together as a single bone. The level of recent breakage is indicated by the fact that the 350 recorded fragments derive from 571 fragments counted after bone washing. The number of fragments deriving from the two partial skeletons was not counted but approximates to 345.

Most of the assemblage has been dated to either the early Roman or the late Roman period, with a few fragments from 'modern' contexts or unstratified. Much of the material is in a good state of preservation, only four fragments showing signs of erosion and degradation. Thirty-two fragments show evidence for dog gnawing and eighteen carry physical evidence for butchery in the form of chop or knife marks.

Although the data are limited it is clear that there is an appreciable increase in the proportion of cattle bones in the 4th-century phase. This is largely a product of two contexts, [2049] and [2063], which might contain unrepresentative assemblages. This is certainly the case for [2063], since this gully fill contains parts of at least two, and possibly three, different cattle skeletons and is clearly not a domestic rubbish assemblage. However, even excluding these contexts, cattle bones outnumber sheep by 70% in the 4th century, compared to a numerical dominance of sheep bones in the 1st to 2nd-century group. This may well be a real difference between the animal economies of the two phases, but the sample is not large enough to give confidence to this statement. Other identified species include horse, pig, dog, chicken, an indeterminate wild bird, an indeterminate fish and frog or toad bones.

There is a small amount of data relating to the age at death of the main domestic species. One calf bone was recovered from the 1st to 2nd-century group: otherwise, the cattle bones indicate animals slaughtered as sub-adults or adult animals. This contrasts with the data for the 4th century. In these contexts the cattle bone assemblage includes a number of calves, immature animals and an adult on the dental data. This is supported by the post-cranial bones, which are dominated by bones of calves and immature beasts. Although the sample sizes are small this does appear to be a radically different age structure, although it must be remembered that the assemblage includes at least two calves that probably died through natural causes and this does not, therefore, reflect the slaughter pattern. The change in the cattle bone assemblage may reflect a difference in the character of the settlement, and the presence of the calf bones and skeletons in the 4th-century group indicates a farmstead or holding breeding their own animals, but it could also be due to a difference in the husbandry of the stock.

Unfortunately the data for the sheep are more limited, although immature and adult animals are present in both phases of occupation, and one mandible from the 1st to 2nd-century group and a metapodial derive from animals no more than a few months old. The small group of pig bones includes fragments from juvenile, immature and young adult animals, the last represented by a mandible with its 3rd molar just coming into wear.

Ditch 200, Context 2063

This context, a 4th-century ditch fill (Fig. 4), contained the partial skeletons of at least two cattle. One, a young calf, is represented by a large number of bones including parts of the vertebral column, the ribs, the skull, the front and back limbs. It is clear anatomically that the bulk of the bones and fragments can be assigned to this animal. A second young animal, a little larger and possibly a little older, but still with all the epiphyses unfused, is represented by a back leg including the femur, tibia, and ankle joint. Several other bones may derive from this individual. Four cervical vertebrae have come from an animal of similar age; two scapulae could also derive from this animal, as could possibly one of a pair of right mandibles. Most of this material was excavated as a single deposit in which the bones of both calves can be seen. The neck and thoracic and lumbar vertebrae of the younger calf were articulated while a displaced front and back limb and the pelvic bones and another scapula suggest

considerable disturbance to this burial. A femur and tibia of a second animal and the four cervical vertebrae can be seen at the left side of the image. The three visible mandibles clearly indicate the presence of at least two animals in this group. A third juvenile is represented by another mandible, and a fourth by most of a foot, including the 1st and 2nd phalanges and one 3rd phalanx, although neither of these is visible in the photograph. The latter bones are fused and indicate an animal older than the other three. One cervical vertebrum whose central epiphysis is fused may represent yet another animal, in this case a fully adult individual. An absence of butchery marks on any of these bones and no evidence for dog gnawing suggests that the two calves at least may have been buried in the gully, but both burials have been heavily disturbed, the larger calf perhaps being partially ploughed out.

Site 2 discussion

Most of the material in the samples and the hand-collected bone from the 1st to 2nd-century group phase of activity suggest occupation debris, with perhaps some evidence for crop processing and an indication that iron-smithing was undertaken somewhere on the site. Cattle and sheep may have been kept in similar numbers with pig somewhat less important. On the other hand the animal bone assemblage from the 4th-century features presents a somewhat different picture. Cattle dominate the assemblage and a number of partial skeletons are present, suggesting that fallen stock was being disposed of in the gullies and pits at this time. This might indicate a movement of the habitation away from this area, but as it was not possible to take soil samples from this later phase, it has not been possible to assess the density of other remains in the deposits.

Species	6003	6005	6007	6009	6011	6015	6017	6107	**Total**
Horse				1			2		**3**
Cattle	6	2		1		3	6		**18**
Cattle size	3	6		6		4	14	4	**37**
Sheep/goat				3		4	2		**9**
Sheep size	1	3	2	2	1		11		**20**
Dog							1		**1**
Chicken						1			**1**
Indeterminate		2		1	1		6		**10**

Table 6: Frequency of identified bone fragments by context

Date	Rom	Rom	1–2nd C	1–2nd C	m–l 2nd C	LBA/EIA
Context	1502	1508	2025	2037	2077	9002
Open country						
Cecilioides acicula	+	+	++	+	++	++
Vertigo pygmaea		+	+		+	+
Vertigo sp.				+	+	
Pupilla muscorum		+				
Vallonia costata			+		+	
Vallonia excentrica		+	+	+	+	+
Vallonia sp.	+					
Catholic						
Hygromia hispida		+	+	+	+	+
Helix sp.			+	+		
Cochlicopa sp.		+	+			+
Marsh						
Vitrea sp.						+
Vertigo antivertigo						+
Lymnaea truncatula		+				+
Carychium sp.		+				
Planorbis leucostoma		+				

Habitat groupings broadly taken from Evans, 1972; Ellis 1969; Cameron and Redfern 1976.

Table 7: Molluscan taxa recorded from the samples

Site 6

The only environmental finds from Site 6 are the hand-collected animal bones. This small group comprises ninety-nine recorded fragments (Table 6), from eight contexts, all of them ditch fills. The bulk of this material dates to the early-mid and middle Roman period. Cattle outnumber sheep bones by two to one, with horse, dog and chicken comprising the other identified taxa.

There is little that can be said about the assemblage. The three ageable sheep/goat bones all derive from adult animals, while a cattle mandible indicates a young calf and a single cattle 3rd maxillary molar an animal of sub-young adult age.

Site 9

A single soil sample was collected from pit [9001]. The pit fill is dated to the late Bronze or early Iron Age and it proved to be the richest of the sampled features. Pottery, fired earth and bone were recovered from the sample and a magnetic component of 10g suggests that the fill included mineral material that had been heated in a fire. Microscopic examination showed that this magnetic fraction was a mixture of heated ironstone grits and fired earth crumb.

This sample produced the richest flot with spelt wheat chaff, wheat, barley and oat grain (below) and relatively abundant charcoal. Among the bone fragments from the residue pig, sheep/goat, field vole and a mouse were identified. The small assemblage of terrestrial snail shells (Table 7) indicates an open grassland environment around the pit, but a marsh element in the fauna suggests either that the pit or its immediate surroundings were wet or damp at the time of deposition, or perhaps the pit received vegetation collected from such an environment.

This mixed collection of pottery, bone, charred cereal, charcoal and fired earth has the character of habitation rubbish and the discard of domestic fire debris.

CHARCOAL

Rowena Gale

Introduction

This report includes the analysis of charcoal from the late Bronze Age/ early Iron Age fill of pit [9001] on Site 9, and three of the Roman cremations [1501, 1502, 1508] from Site 1. The study was undertaken to determine differences in species content between the two periods, and to assess evidence of species selection for the cremations.

Methodology

The flots and charcoal sorted from the residues of these four samples were scanned under low magnification and the charcoal separated from other plant macrofossils. Stems with intact radial or cross-sections were rare. Charcoal fragments measuring >2mm in radial cross-section were considered for species identification. Context [9002] from pit [9001] was 50% subsampled.

The condition of the charcoal was mostly fairly good, although it was sometimes rather friable. Standard methods were used to prepare the samples for examination (Gale and Cutler 2000). The anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to ×400. The taxa identified were matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (*i.e.* heartwood/ sapwood) and stem diameters recorded. It should be noted that charred stems may be reduced in volume by up to 40%.

Sample	Context	Description	Acer	Fraxinus	Pomoideae	Prunus	Quercus	Viburnum
Late Bronze Age/ Early Iron Age								
9500	9002	Fill of Pit 9001	1	—	1	6r	3h, 9s	2r
Romano-British								
1501	—	Cremation	—	29s	—	—	16s	—
1502	—	Cremation	—	45s	—	—	10h, 15s	—
1508	—	Cremation	—	2	—	1	1h,116s, 1r	—

Key. h = heartwood; r = roundwood (diameter <20mm); s = sapwood (diameter unknown).

Table 8: Charcoal from a late Bronze Age/ early Iron Age pit and Roman cremations (the number of fragments identified is indicated)

Results

The taxa identified are presented in Table 8. Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964-80). Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level, for example members of the Pomoideae (*Crataegus*, *Malus*, *Pyrus* and *Sorbus*). When a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features, and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Aceraceae. *Acer campestre* L., field maple
Caprifoliaceae. *Viburnum* sp., wayfaring tree or guelder rose
Fagaceae. *Quercus* sp., oak
Oleaceae. *Fraxinus excelsior* L., ash
Rosaceae. Subfamilies:
Pomoideae, which includes *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These taxa are anatomically similar: one or more taxa may be represented in the charcoal.
Prunoideae. *Prunus spinosa* L., blackthorn.

Site 1

Charcoal was examined from cremations [1501, 1502 and 1508]. The samples consisted of fragments measuring up to 20mm in length and 15mm in width. Contexts [1501] and [1502] were similar in character: both contained a mixture of ash (*Fraxinus excelsior*) and oak (*Quercus* sp.), mostly sapwood from fairly wide roundwood. In contrast, Sample 1508 consisted almost entirely of oak (*Quercus* sp.), with very small amounts of ash (*Fraxinus excelsior*) and blackthorn (*Prunus spinosa*); the oak consisted mostly of sapwood from fairly wide roundwood.

Site 9

A relatively small quantity of charcoal was recovered from the fill of pit 9001. Deposits of charred cereal grain and animal bone suggest that the pit was used to dump domestic rubbish and, by association, it seems likely that the charcoal represents domestic fuel debris. Examination of the charcoal indicated the use of oak (*Quercus* sp.), field maple (*Acer campestre*), the hawthorn/ *Sorbus* group (Pomoideae), blackthorn (*Prunus spinosa*) and wayfaring tree or guelder rose (*Viburnum* sp.). Both the *Viburnum* and blackthorn consisted of narrow roundwood measuring about 5mm in diameter.

Discussion

Prehistoric and Roman assemblages of charcoal were examined to obtain environmental data and evidence of species selection for domestic and funerary uses. The taxa identified suggest that the local environment supported woodland communities composed of oak (*Quercus* sp.), ash (*Fraxinus excelsior*) and field maple (*Acer campestre*), with more open areas and marginal woodland colonised by shrubs and scrub, e.g. blackthorn (*Prunus spinosa*), hawthorn/ *Sorbus* group (Pomoideae) and wayfaring tree or guelder rose (*Viburnum* sp.).

The sample from the fill of prehistoric pit 9001 was interpreted as domestic fuel debris and identified the use of oak and field maple and twiggy pieces of blackthorn and wayfaring tree or guelder rose.

Samples from the Roman cremations [1501, 1502 and 1508], represented pyre fuel and demonstrated a strong preference for ash and oak. These residues suggest that the cremation pyres were constructed from poles or wide roundwood with a high percentage of sapwood.

CHARRED PLANT REMAINS

John Giorgi

Introduction

Eleven of the thirteen samples (flots and residues) produced charred plant remains other than charcoal. Two flots from the richest samples were also examined to establish whether any identifiable botanical material remained unsorted. All but these latter two samples had very few identifiable remains (Table 9).

Identification

A binocular microscope was used together with modern and charred reference material and reference manuals for the identification of the botanical material. Taxonomic order and habitat information

	Period	LBA/ EIA	ROMAN							2nd C		M/L 2nd C
	Feature	PIT	CRM	CRM	CRM	CRM	CRM	CRM	CRM	PIT	PIT	GUL
	context	9002								2025	2037	2077
	sample	9500	1501	1502	1503	1504	1505	1506	1508	1	2	3
	vol.soil (l)	30.0	10.0	21.5	2.5	18.5	12.0	3.5	28.0	29.5	20	10.0
	flot vol (ml)	33	36	55	2	1	4	1	450	5	<1	5
species												
Cereal grains												
Triticum dicoccum/spelta	emmer/spelt wheat											1
Triticum sp(p).	wheat	2				1				3		
cf *Triticum* sp(p).	?wheat	5		1						2		
Hordeum sativum L.	barley	6										
cf. *H. sativum*	?barley	3										
Hordeum/Avena sp.	barley/oat									1		
Avena sp.	oat	1										
cf. *Avena* spp.	?oat fragments (estimate)	3										
indeterminate cereals	cereal grains (estimate)	38		1	3	1				12	1	4
cf indeterminate cereals	?cereal grain fragments	++	++	+		+	+			+		+
Cereal chaff												
Triticum spelta L.	spelt glume bases	2										
T. cf *spelta* L.	?spelt glume bases									1		
Triticum sp(p).	wheat glume bases	1						1		3		
Triticum sp.	wheat rachis fragments									1		
grass stems									+			
Other plants												
Ranunculus acris/repens/ bulbosus	buttercup											1
Medicago/Trifolium sp(p)	medick/trefoil								3			1
Leguminosae	indet. legumes											1
Rumex sp(p).	docks	1								2		
Urtica spp.	nettles											2
Tripleurospermum inodorum (L.) Schultz-Bip.	scentless mayweed	1										
Compositae	—											1
Cyperaceae	—											1
Bromus spp.	bromes	3								3		
cf *Arrhenatherum elatius*	'oat-grass' (onion couch) tubers								++			
Gramineae	indet. grass seeds	1							2	1		4
indet seeds	—	+					+			+		+
indet tubers (round)									+			
charcoal fragments	—	++++	++++	++++	+++	++	+++	++	++++	+++	++	+++
Total number plant items		67	—	2	3	2	—	1	5	29	1	16

Key
Periods: LBA = late Bronze Age; EIA = Early Iron Age;
Features: CRM = cremation; GUL = gully fill; PIT = pit fill
Charcoal, cereal, stem fragments: + = 1–10; ++ = 11–50; +++= 51–150; ++++ = 150+ fragments

Table 9: Charred Plant Remains from Sites 1, 2 and 9

was obtained from *Flora of the British Isles* (Clapham *et al* 1987). All the identifiable charred plant items were counted except for very small charred cereal and possible cereal fragments, tubers, charcoal and indeterminate items. The frequency of the unquantified remains was estimated using the following codes: + = 1–10; ++ = 11–50; +++ = 51–150; ++++ = 150 + fragments.

Results

The results are shown in Table 9. Charcoal was present in small quantities in most of the samples, with three producing relatively large or large quantities. However, the samples only produced very small quantities of other identifiable charred plant remains with a total of just 125 quantified items and a very low item density of counted plant remains per litre of processed soil. Most of the botanical remains were from the late Bronze Age/early Iron Age pit fill [9002] from Site 9 and from two of the samples from Site 2, the fills of Roman pit [2025] and gully [2077]. Very little material was recovered from the Roman cremation fills from Site 1. The identifiable remains from most of these fills consisted largely of fragmented cereal grains plus occasional chaff fragments, a few weed seeds and tubers.

Virtually all the analysed samples contained small numbers of uncharred seeds from mainly high seed producing plants of waste places and disturbed (including cultivated) ground; e.g. chickweed (*Stellaria media* gp.), goosefoots/oraches etc. (*Chenopodium/Atriplex* spp.) and black bindweed (*Fallopia convulvulus*). Rootlets were also present in many of the samples, and two of the cremation samples [1504, 1508] included quantities of modern straw and chaff indicating the ploughing-in of recent cereal crops.

Site 1

The seven cremation samples produced very small plant assemblages with occasional grains in five of the samples, including wheat grains in two samples [1502, 1504] and a wheat glume base in [1506]. The charred remains in [1508] were different from the other samples in containing charred tubers, possibly of onion couch (cf. *Arrhenatherum elatius*), and a few other weed seeds including medick/trefoil (*Medicago/Trifolium* spp.). Onion couch has been found in association with Bronze Age cremations at Raunds, Northamptonshire (Parry 2006, 45), which also included small leguminous plants). It is possible that the onion couch was used as tinder for the cremation together with the other wild plants represented by weed seeds.

Site 2

Pit [2023], fill [2025], dated 2nd century: This sample produced 29 identifiable items consisting mainly of unidentifiable cereal remains although a few wheat grains were identified, with a tentative identification of spelt based on one of several recovered glume bases. There were also a few weed seeds. This material represents the burnt residues from virtually fully processed cereal crops.

Gully [2076], fill [2077], dated mid-late 2nd century: The charred plant remains in this sample included a few cereal grains, including emmer/spelt (*Triticum dicoccum/spelta*) and a small range of weed seeds including leguminous plants, buttercup (*Ranunculus acris/repens/bulbosus*), nettles (*Urtica* spp.) and indeterminate grasses.

Site 9

The sample from [9002], dated to the late Bronze/early Iron Age, produced 67 identifiable and quantifiable items, over 50% of the quantified items from the site. The plant remains consisted mainly of cereal grains, although most of the grains were very fragmentary and not identifiable. The few better-preserved grains were identified as barley (*Hordeum sativum*) (including evidence for six-row hulled barley) and wheat (*Triticum* spp.), with several wheat glume bases indicating the presence of spelt (*T. spelta*). There were also a few oat (*Avena* spp.) grains, although these may be wild rather than cultivated grains. A small number of weed seeds were also identified, including bromes (*Bromus* spp.), dock (*Rumex* sp.) and scentless mayweed (*Tripleurospermum inodorum*), a weed of waste, rough and cultivated ground.

This plant assemblage represents mainly the burnt residues of processed grain, possibly accidentally charred during drying of the crop or cooking over open fires.

CONCLUSIONS

The results from Site 1 are interesting in that they show a specific selection of poles or fairly wide roundwood of oak and ash to fuel the fires of the cremation pyres. Rare cereal remains, charred grass stems and possible onion couch may indicate

the use of straw and grasses as tinder. The accumulation of domestic animal bones in the fills of two parallel ditches suggests some occupation nearby in the late Iron Age.

At Site 2 the debris recovered from the 1st to 2nd-century phase of Romano-British activity suggests habitation in the immediate vicinity. The soil samples produced a scatter of domestic rubbish, house mouse was present and charred wheat and barley, with a tentative identification of spelt wheat chaff, indicate the cereal crops being exploited. The cereal grains may have been used for bread, porridge, gruel and cakes (Wilson 1991, 234). Wheat was probably used exclusively for human food, while barley may also have been used for animal fodder, particularly for horses, and possibly brewing, although no sprouted barley grains were found on the site. There were also a small number of chaff fragments and weed seeds in the samples, which are probably by-products of crop processing, later burnt as fuel. An assemblage of animal bones shows that cattle and sheep were the major contributors to the diet at the site, with pig and even fish also present. This material is butchered and gnawed, indicating that it has been processed for consumption and discarded for the local dog population to scavenge. The few snails in the samples indicate an open grassland environment in the immediate vicinity of the sampled features.

The 4th-century phase of Romano-British activity at this site appears quite different. We have no samples from this phase to compare with the earlier material, but the animal bone assemblage is quite different. One gully and a ditch appear to have been used for the disposal of whole animal carcasses that have later been disturbed, possibly by burials or ploughing, and cattle bones are considerably more abundant than in the earlier phase of activity. The presence of a number of calves and immature animals in this assemblage contrasts with the earlier sample suggesting a different husbandry of the cattle. Although we have no soil samples from this later phase, the bone assemblage suggests a site on which the breeding of animals, and disposal of cattle and horses was taking place. It seems less likely that animal burials would be placed close to a habitation, and although the bone sample is much larger from this phase, the number of butchered and dog gnawed bones (excluding context 2063) is less than in the 2nd century sample. The domestic buildings may be further away than in the earlier phase.

The only environmental remains from the early to mid and middle Roman activity in Site 6 are a few animal bones. These allow little interpretation, but show a dominance of cattle bones over sheep, with dog, pig and horse the only other identified species.

Site 9 is represented by a single environmental sample taken from a late Bronze Age/early Iron Age pit. Although this is the richest sample from the pipeline we can deduce little from it. The charcoal indicates a disposition to collect fuel from a fairly wide range of species, with oak, field maple, Pomoideae, blackthorn and wayfaring tree or guelder rose giving some idea of the woodland, scrub or hedgerow resources exploited for fuel. Spelt wheat and barley have been identified among the cereal grains and the few oat grains found probably represent cereal weeds rather than crops. The few snails reflect an open, but perhaps damp, environment around the pit. The few domestic animal bone fragments indicate the presence of pig and sheep/goat at the site. This assemblage appears characteristic of a domestic context and suggests that contemporary habitation must have been located very nearby, perhaps truncated by ploughing and later activity or outside the easement of the pipeline.

HUMAN REMAINS

Simon Chapman

Introduction and Methods

Human remains were recovered from two sites in the water main corridor. Two of the possible cremations on Site 1 [1501, 1504] contained fragments of human bone, and an isolated inhumation [2000] was recovered from the east end of Site 2.

The cremations were analysed in a quite different manner to the inhumation. Due to the fact that the skeletons themselves had been heavily reduced during their cremation and subsequent excavation, and since most of the remaining bone had either shrunk or shattered, it was necessary for a far more painstaking analysis to be carried out. Firstly, each of the cremations was sieved through progressive wire meshes (10mm, 5mm and 1mm) in order to separate the bone fragments according to constituent sizes. The different levels could then be viewed, piece-by-piece, through a desk magnifier. The fragmented bone from each cremation was classified according to specific type. In most cases the classificatory terms used were general ones:

cranial, appendicular (upper limb/lower limb), axial *etc*., since the small size of the fragments made specific identification virtually impossible. However, in some instances specific bones could be identified according to unique morphology (Spence 1967). These bones were further examined in an effort to determine age and sex characteristics, using the methods described by Wells (1960), Gevall (1971) and McKinley (1989). Each cremation was then recorded in terms of the weight of the whole cremation and of its constituent elements, of its percentage composition, in terms of metrical variations (Gevall 1971) and according to visual characteristics.

Results

The Inhumation (Skeleton 2000)

Summary:

Age:	30–40 yrs
Sex:	male ??
NMV's:	None observed
Pathology:	None observed
Stature:	Indeterminate

Due to the fact that the surviving bone from this skeleton was of an extremely fragmentary nature (Table 10), very little discussion could be generated from their analysis. From the evidence of the in situ photograph of these remains (Plate 1) it appears that the skeleton consists of the right hand, right thigh (femur), right lower leg (tibia and fibula), and skull (cranium and mandible). It is uncertain whether the skull, positioned next to the inner calf of the right leg, originated from the same individual, thus representing a disturbed or decapitation burial, or whether it represents a second individual entirely. The surviving right leg appears to be articulated, and the associated hand in correct anatomical position for an articulated skeleton. Aside from the skull, the remainder of this skeleton appears to be laid out on its back (supine) and fully extended, with the right hand at its side.

	Weight (g)
Unidentifiable Fragments	80
Skull	189
Femur	239
Hand	30
Vertebrae	19
Tibia / Fibula	35
Mandible	36
Total	**628**

Table 10: Inhumation [2000]: inventory

Due to the high level of fragmentation of the bones from this skeleton it was not possible, nor practical, for any metrical study to be carried out. All but one of the standardised measurements described by Bass (1987) and Brothwell (1981) were unobtainable, due either to bone absence or fragmentation (the height of the mandibular symphysis (H_1) being the only exception to this rule at 24mm).

Sexing of this individual was problematic in the absence of the most reliable bones for sexual dimorphism (pelvis, cranial morphology and heads of long-bones). Only the 'chin-line' of the mandible gave a suggestion of male characteristic (Keen 1950), in that it was more flattened and squared than might be expected for a female. The sexing of this individual as male should thus be seen as a 'best guess', as opposed to a certainty.

The age of this individual was similarly difficult to determine in the absence of virtually all epiphyses and of the pubic bones, the most accurate ageing criteria (Brothwell 1981.60), (White 1991.314) (Brooks & Suchy 1990). The only usable criteria remaining was that of tooth enamel attrition, based on the assumption that teeth wear down at a standard rate during the life of the individual. Using data collected by Miles (1963) and Brothwell (1981) the loose teeth can be seen to display wear patterns consistent with an individual of between 30–40 years.

A full examination of each of the bones present was carried out in the hope of identifying any extant pathology, non-metric variations (NMV's) and so on. However, no features of any note could be identified. It was also hoped that an examination of the surviving atlas and axis bones of the neck would shed some light on the possibility of decapitation. However, none of the surviving fragments displayed any sign of cut or chop marks to prove or disprove the theory.

The Cremated Bone – Contexts [1500] & [1504]

The weights of the cremated bone samples (237g / 944g) compared to cremation weights obtained elsewhere, can be said to be of fairly small size. McKinley (1989, 69) observed wide range of weights for adult cremations, ranging 200–2,000g (up to 3,600g from modern crematoria), but with a mean weight of *c*.800g.



Plate 1: Inhumation burial [2002]

	Cremation [1500]	Cremation [1504]
Total weight	237g	944g
Identifiable bone	133g (47.7%)	332g (35.2%
Cranial	59g (52%)	161g (48.5%)
Axial	1g (0.89%)	33g (9.9%)
Upper Limb	43g (38.1%)	33g (9.9%)
Lower Limb	10g (9.01%)	105g (31.7%)
Unidentified bone	124g (52.3%)	612g (64.8%)
Fragment sizes:		
>10mm	74g (31.2%)	428g (45.3%)
10–5mm	159g (67.1%)	407g (43.1%)
< 5mm	4g (1.7%)	21g (11.6%)
Maximum fragment size	42mm	34mm
Minimum number of individuals (MNI)	1	1
Age	Indeterminate	Indeterminate
Sex	male ??	male ??
Pathology	None observed	None observed
Non-metric variations (NMV)	None observed	None observed

Table 11: Results of osteological analysis of the cremated bone

Most of the bone represented (Table 11) had been fully calcined. Cremation [1500] displayed uniformity of colour, almost entirely a pale whitish grey, while in Cremation [1504] about 30% of the bone was less well calcined, indicated by a darker blue grey colouration.

The loss of the organic components of bone results in it becoming very brittle. Consequently the remains had been shattered into very small pieces prior to analysis. Fragment size may have been further reduced by intentional breaking and grinding of the remains prior to final

burial, though as McKinley (1994) argues, fragmentation was also an inevitable product of the cremation process and of post-depositional taphonomy.

Most of the bone had suffered from shrinkage and/or distortion, especially in the case of the long-bones, which tended to twist and splay out at their ends. The surface of the bone was fissured with both curving and serrated cracks by the effects of very high firing temperatures.

As most of the bone was of very small fragment size, and due to the lack of distinguishable fragments, each cremation can only be said to contain the remains of a minimum of one individual. In the absence of more detailed evidence, it is not possible to determine the precise nature of the cremation rites and procedures being followed here.

Determination of age and sex in cremated bone samples, wherever possible, follows the same methods as would be employed in unburnt skeletons (Bass 1987), (Brothwell 1981), (Workshop of European Anthropologists 1980), principally through examination of sexually dimorphic features of the pelvis and skull for sex, and bone and dental development and degradation for age determination. However, such methods do rely heavily on the preservation of large pieces of the relevant bones. Some research has been undertaken into the sex determination of highly fragmentary/cremated remains, notably by Van Vark (1975) and Gejvall (1971), using bone thickness. However, these secondary methods are far less accurate than the primary ones mentioned, and are usually only employed if primary features are not present for analysis. Neither of the Biggleswade cremations could be sexed in the traditional manner, so secondary methods based on the thickness of the cranial vault, as described by Gejvall (1971), were employed (Table 12).

Determination of age at death for either of the individuals, represented by the cremated samples, was not possible in the absence of diagnostic parts (bone ends, teeth and pelvis).

Sample	Range	Mean	Diagnosis
1500	4.4–5mm	mean = 4.68mm	male ??
1504	5–6.5mm	mean = 5.63mm	male ??

Table 12: Age determination of the cremated remains, based on cranial thickness

Conclusions

No discussion is possible regarding the state of health and/or conditions of life experienced by this small population, due to the fact that the bone remains had been largely destroyed.

However, analysis of the cremation burials has shed some light on the nature of the funerary ritual associated with human remains at Site 1. Studies of modern crematoria (operating at between 500–1000°c, well above the temperatures obtainable in ancient pyres) have shown that an adult body will reduce to between 1,600g–3,600g of calcined bone (McKinley 1989.66). What is most likely occurring at Biggleswade, and at other ancient pyre sites, is the burning of the body on a pyre construction followed by a selective removal of human bone for secondary burial elsewhere. Since, following the collapse of the pyre, the calcined bone would have been mixed with other burnt remains (wood, grave goods etc.) it seems highly likely that only a small percentage of the original body would be recoverable. McKinley (1989) has speculated about possible methods of this retrieval, which may include raking, picking by hand and even winnowing, each of which would favour the recovery of the larger surviving fragments, predominantly the limb and cranial bones. Bones with more fragile interior structures, such as pelvis, vertebrae, ribs and long-bone ends crumble more readily, especially during pyre collapse, and tend to be lost in the debris along with the small bones of the hands and feet. This is certainly upheld by the evidence from the Site 1 cremations.

That the fragments of bone were so heavily calcined and fragmented suggests that the pyre was either maintained at high temperatures for a short time or lower temperatures for a very long time. The fact that Cremation [1504] displayed less complete calcination may be an indication that this pyre was not so well maintained as Cremation [1500].

Finally, the presence of curved and serrated fractures and bone warpage (Baby 1954); (Spencer 1989); (Thurman & Willmore 1981); (Buikstra & Swegle 1989); (Piontek 1976) on the analysed cremated fragments indicates that both of the cremated individuals from Biggleswade were burnt as ‘fleshed bodies’. These attributes may be a result of the differential speeds of desiccation, and, in the case of fleshed bodies, the rapid contraction of the large muscles in intense heat, leading to the assumption of the so called ‘pugilistic pose’.

CONCLUSION

The watching brief and excavations along the route of the water main have enabled the examination of a considerable swathe of the mid-Bedfordshire landscape in a single project. The route commenced in the archaeologically rich Ouse Valley, crossing the apparently archaeologically barren Greensand Ridge, and descending into the Ivel Valley with its extensive prehistoric cropmark sites. From the evidence obtained during the project it is clear that the route did not disturb any major settlements, and it is most likely that it passed through areas which have never been anything more than agricultural land with scattered farmsteads and hamlets, much as is still evident today. Archaeological features were revealed and excavated in four of the nine possible locations identified along the pipeline route by the desk-based study and geophysical survey.

On the heavy clay soils of the Ivel Valley, which extends from the start of the pipeline route to the foot of the Greensand Ridge, no archaeological finds or features were identified. From the base of the ridge to Site 1, evidence of ridge and furrow ploughing was noted. On Site 1 the presence of 1st century cremations and Roman drainage ditches indicates that parts of the northwest-facing slope of the ridge was being used for both burial and agriculture. On this evidence it seems likely that the upper slopes of the ridge were not heavily wooded at this time. It can also be assumed that a small farmstead or settlement existed in the vicinity during the 1st or early 2nd centuries AD. A possible candidate for this might be the cropmark site HER 16752, which lies c.400m south of Site 1.

On the east part of the route, the largest and possibly the most significant site examined was Site 2. Here the geophysical survey indicated the presence of a complex of pits and ditches. This was largely confirmed by the excavation, which revealed three concentrations of inter-cutting features, mostly field boundaries, and some pits, all of Roman date. Most features appeared to be of late 1st to 2nd-century date, though a few ditches were not infilled until the 4th century. Quantities of pottery sherds and animal bone again indicated the presence of occupation nearby: in this instance, the most likely location for this is the cropmark site HER 16787, comprising a trapezoid enclosure which lies immediately to the north of Site 2.

Moving eastwards, the pipeline route passed to the north of Broom Quarry, where activity from the Bronze Age onwards has been amply recorded in the HER though not, as yet, published. As there are extensive areas of cropmarks to the north (HER 9093) and east (HER 15099) of the quarry it was supposed that these were in effect an extension of the Broom Quarry site, and that the pipeline route would encounter significant archaeology in this area. The fact that neither the geophysical survey nor the controlled topsoil stripping and subsequent watching brief in Sites 3 and 4 revealed any archaeological features cannot be readily explained. One possible explanation is that Area 3 was either part of a large ditchless field or a narrow dead area between two areas of activity during the later Iron Age and Roman period.

The circular feature shown in the geophysical survey on Site 5 proved to be similarly elusive, and even more inexplicable. The geophysical evidence for this feature appeared conclusive, but supervised topsoil stripping and a subsequent excavation failed to locate it. The reason for this remains uncertain.

Excavations at Site 6 revealed a group of ditch terminals, all of Roman date. The finds recovered from them indicate the presence nearby of a hitherto unrecorded occupation site, possibly in the field to the north. As the pipeline was drilled through that area, no opportunity was afforded to test this hypothesis.

To the east of the railway crossing, Sites 7 and 8 proved barren, confirming the results of the geophysical survey. It was evident here that the most of the topsoil had been removed from this area in the recent past for re-use elsewhere, an operation that most likely would have severely damaged or destroyed any archaeology that might have been present.

On Site 9, the isolated Bronze Age pit may relate to the contemporary activity recorded in recent excavations at Toplers Hill, 150m to the north (Luke 2004).

In conclusion, it seems reasonable to say that the archaeological strategy adopted to minimise the impact of the pipeline on the archaeology along its route was successful. With the exception of the circular feature on Site 5, the findings of the monitored stripping and watching brief were largely in agreement with the geophysical survey results and the information gained from the desk-based study. No unexpected sites were discovered during the watching brief. It might be argued that fieldwalking the route, and possibly trial trenching the anomalies revealed in the geophysical survey,

might have been of use in adjusting the final course of the pipeline to minimise its archaeological impact still further. However, given the nature of the access problems inherent in this type of project, and the fact that sufficient provision was made to deal with any archaeology, known or unsuspected, that might be revealed during construction, use of these additional investigative techniques would probably not have made any difference in this case.

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A middle to late Iron Age open settlement near Milton Ernest, Bedfordshire

David Ingham

with contributions by
Stephanie Vann and Jackie Wells, and illustrations by Cecily Marshall

SUMMARY

An excavation by Albion Archaeology in 2008 revealed the remains of a middle to late Iron Age open settlement north of Twinwoods Business Park, Milton Ernest. Ceramic evidence suggests that the settlement had a short lifespan. No further activity was identified until the Middle Ages, when the land was taken under ridge and furrow cultivation, and a trackway crossed the site. The first evidence of enclosure comes from the post-medieval period, with the identification of the boundary ditch that defined Mock Beggar Close, known from historical maps.

INTRODUCTION

In May 2008, Albion Archaeology evaluated (and subsequently excavated) a small area of land immediately north of Twinwoods Business Park, Milton Ernest (Fig. 1), on which a bio-fertiliser storage tank and associated bunding were due to be constructed. The site, centred at TL 0308 5692, lies at a height of 89m OD on a boulder clay plateau, overlooking the valley of the River Great Ouse to the south.

The excavated area lies within a landscape of rich archaeological potential, in a part of Bedfordshire that was intensively occupied during the Iron Age and the Roman period. Crop-mark enclosures that are likely to be of this date are visible to the north-east (HER 16583), whilst Iron Age pottery has been found to the north and north-west (HER 910 and HER 904 respectively). Some scatters of iron slag and burnt stone recorded to the north and west are also thought to be Iron Age in date, although most are more likely to be late Saxon or early medieval. Late Saxo-Norman activity has been identified immediately to the south, along with a series of undated field systems (Albion Archaeology 2004).

The results of the excavation are described below, and are illustrated in Figures 1, 2 and 5. During analysis, each feature (excluding modern ones and those of natural origin) was assigned to a Group (G); each Group contains a set of features that are similar and contemporary. For clarity, modern features and land drains have been excluded from the all-features plan on Figure 1. Excavated segments are shown in white on Figures 2 and 5. Selected artefacts are illustrated on Figures 3 and 4; standard drawing conventions have been used for pottery, with vessels shown at one quarter size, external view on the right and internal view on the left. The pie diagram accompanying each illustration indicates the proportion of the vessel recovered.

RESULTS OF THE EXCAVATION

Middle to late Iron Age settlement (Fig. 2)

Most of the excavated features relate to an unenclosed middle to late Iron Age settlement (G1–G4). Nineteen pits, five post-holes, a ditch and a beam slot can be dated to this period, whilst the balance of probability suggests that four more undated post-holes within G4 were of the same date. Not all the remains were in use at the same time — there was a degree of intercutting between some of the pits, and two of them were stratigraphically earlier than ditch G2 — but they are likely to have been broadly contemporary with each other. The only possible exceptions are the two shallow pits in G1 — the pottery from the western pit was similar to that recovered from

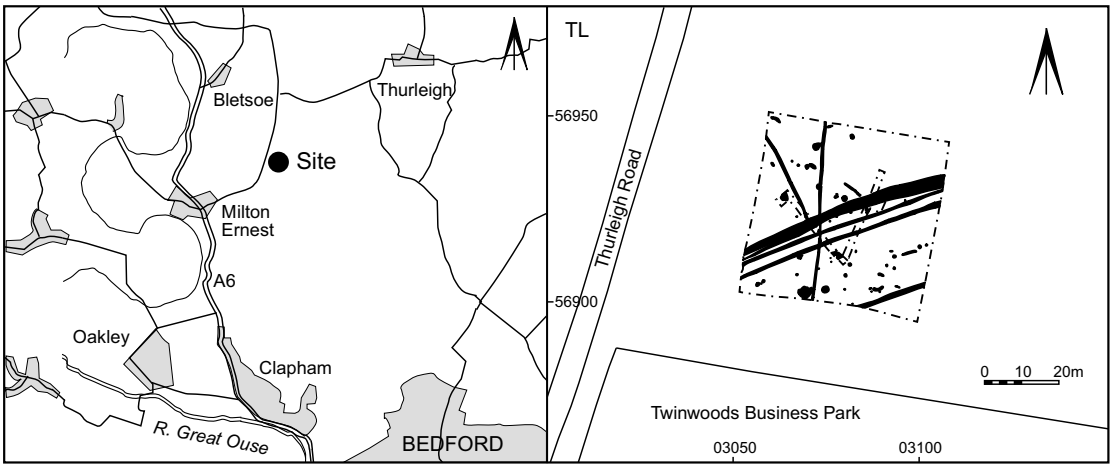


Figure 1: Site location plan showing all features

the rest of the site, but the pit produced an assemblage of worked flint that is broadly datable to the late Neolithic or early Bronze Age. The nine items comprise two primary flakes, two blades/bladelets, two denticulates (serrated flakes), an unfinished or damaged scraper, and the tips of two oblique or barbed and tanged arrowheads; two pieces of unworked burnt flint were also recovered. The quality of the workmanship is highly variable, ranging from crude to very fine.

Despite the presence of nine post-holes, none of them could clearly be identified as the remains of a building. Whilst some may have been associated with insubstantial structures such as animal pens, others perhaps had a non-structural function such as tethering-posts for animals. It should also be noted that the identification of two or three of these features in the south-east corner of the site as post-holes is only tentative: they may have been natural in origin, in common with a number of other features across the site that appear to have been the result of either bioturbation or animal burrowing. The only structural feature that could clearly be identified was beam slot G3, which was 5.5m long, 0.45m wide and 0.1m deep (Fig. 2, e); it may have been associated with the two post-holes to the south-west, but the form and function of the structure of which it formed a part is otherwise unknown. A piece of daub with a partial wattle impression that was recovered from the northern-most segment of ditch G2 may have come from this structure, or from another one that lay beyond the excavated area.

The nineteen pits that were spread across the site varied considerably in size. Some were only slightly larger than the post-holes (*e.g.* Fig. 2, f), whereas the largest, [335], was 3.6m long, 3.3m wide and up to 0.45m deep. The irregularity in plan and profile of [335] suggests that it was a quarry pit, whereas its neighbour [341], which was 2m long, 1.75m wide and 0.8m deep, had a much more regular shape. The two pits produced the majority of the finds from the site (66% of the Iron Age pottery assemblage by weight, with a similar proportion of animal bone, including fifty-nine burnt fragments), and seem to have been used as rubbish pits. Nearby pit [338], though much smaller, also produced a similar density of finds. Two incidences of pottery from a single vessel in the primary and secondary fills of [341] suggest fairly rapid infilling of the pit from a single deposit such as a midden. Pit [341] also yielded a large sandstone cobble hammerstone or pestle, and a smoothing/burnishing stone fashioned from fine-grained micaceous sandstone. The latter fits well into the palm of the hand, and has a worn flat surface and weathered underside; a comparable example was recovered from a middle Iron Age deposit at Great Barford (Shaffrey 2007, 279).

The main cluster of pits and post-holes in G4 was located further north, on either side of ditch G2. Although the original function of most of these features is uncertain, the nearly vertical sides and flat base of pit [321] suggest that it was used for storage (Fig. 2, d). A layer of charred material near its base may represent a lining that was burnt *in situ*. Burning was also evident in the two post-holes immediately west of pit [321], the southern one of which produced thirteen fragments of burnt bone. The northern one contained an incomplete

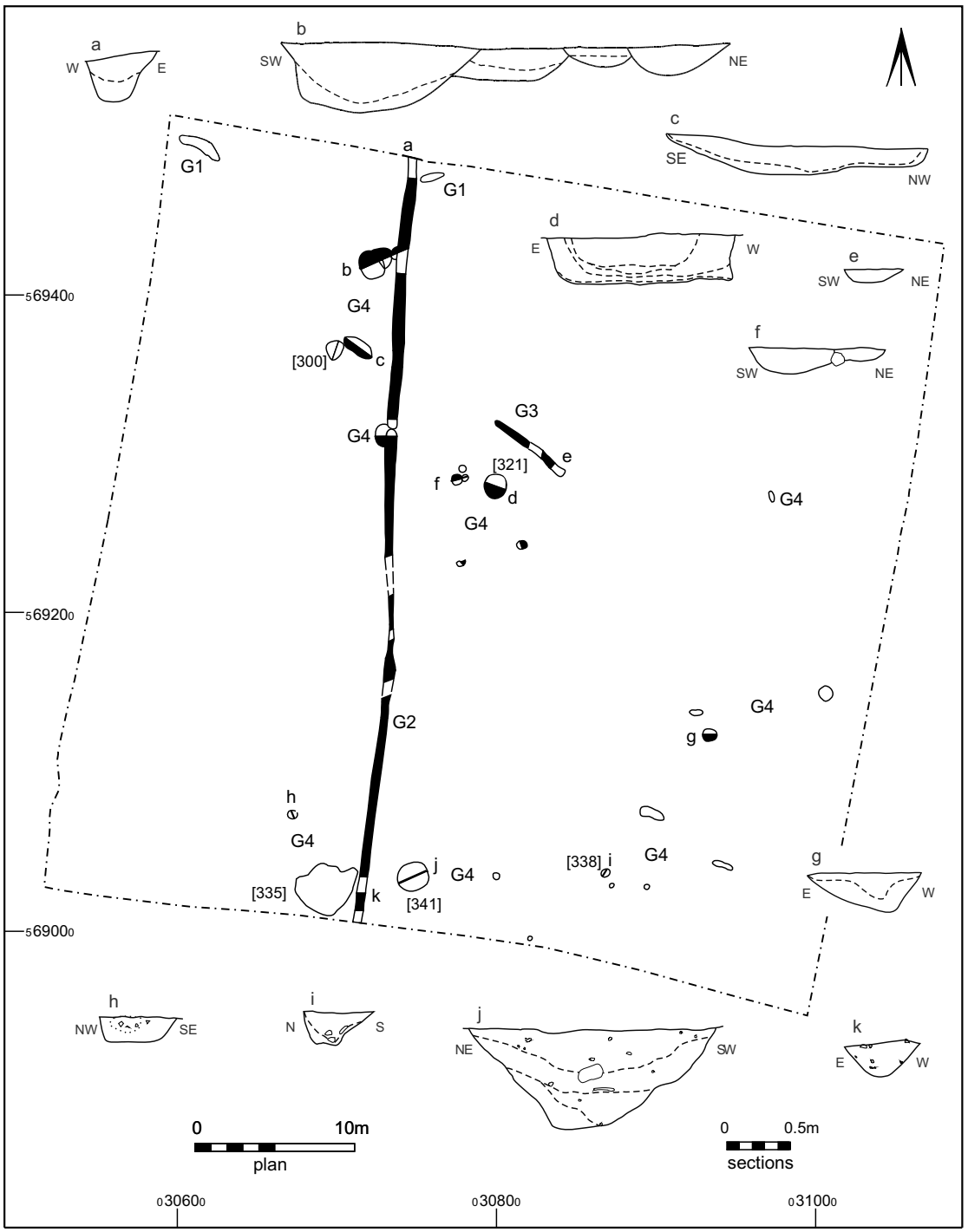


Figure 2: Plan of Iron Age settlement, with representative sections

ceramic triangular loom weight (Fig. 3), made in a coarse version of sand and calcareous fabric F30. The fragmentary condition of the object precludes reconstruction of its dimensions and weight. Triangular loom weights are found widely on Iron Age sites in south-east Britain after *c*. 500 BC (Elsdon and Barford 1996, 330), and were used in conjunction with the warp-weighted loom. There were also signs of burning in the pits to the west of ditch G2; little charcoal was recovered, but the reddened clay within the fills indicates the presence of intense heat. This may be material that was redeposited from a hearth, as pit [300] contained more than a dozen of the 'pot-boiler' stones that are so frequently found on domestic Iron Age sites.

It is unclear how ditch G2 relates to the rest of the Iron Age remains. It appears to have been stratigraphically later than at least two of the pits (although neither relationship was entirely certain), and it is unclear why what appears to have been a single settlement should have been divided in two by this boundary. Despite its central location within the settlement, the ditch produced just thirty-nine sherds (285g) of pottery (7% of the overall assemblage by weight) and very little animal bone. The poverty of its finds assemblage perhaps supports the idea that the ditch postdated the main period of the settlement, with any contemporary settlement activity either restricted to just one side of the ditch, or focussed in a different location outside the excavated area.

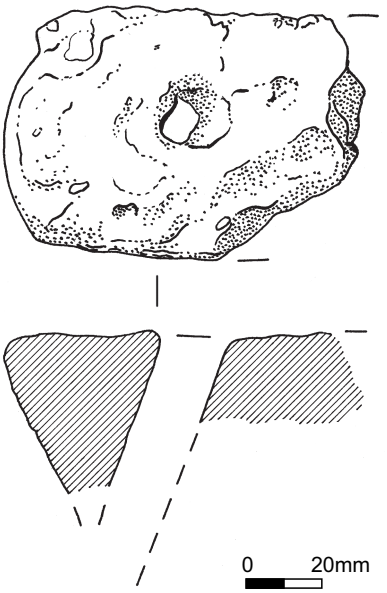


Figure 3: Ceramic loom weight from G4 post-hole

Pottery
Jackie Wells

Features relating to the Iron Age settlement produced 421 sherds (3.6kg), representing 249 vessels. The pottery generally survives in good condition, although vessels in shelly/calcareous fabrics have suffered post-depositional leaching

Fabric code	Common name	Reference
Late Bronze Age/early Iron Age		
F01C (1)	Flint and quartz	Wells 2009, 165
Early to middle Iron Age		
F03 (61)	Grog and sand	Parminter and Slowikowski 2004, 443
F04 (2)	Organic	Parminter and Slowikowski 2004, 443
F14 (119)	Fine mixed inclusions	Slowikowski 2000, 63
F15 (32)	Coarse mixed inclusions	Slowikowski 2000, 63
F16 (120)	Coarse shell	Parminter and Slowikowski 2004, 444
F17 (41)	Grog	Slowikowski 2000, 63
F18 (1)	Fine sand and shell	Wells 2009, 165
F19 (3)	Sand and organic	Parminter and Slowikowski 2004, 445
F22 (11)	Grog and organic	Slowikowski 2005, 103
F27 (3)	Shell and grog	Slowikowski 2000, 64
F28 (28)	Fine sand	Wells 2009, 165
F29 (6)	Coarse sand	Wells 2009, 166
F30 (4)	Sand and calcareous inclusions	Wells 2009, 166
F37 (2)	Calcareous mixed inclusions	Wells 2009, 166
Late Iron Age 'Belgic'		
F06B (1)	Medium grog	Parminter and Slowikowski 2004, 443
F24 (3)	Buff shell	Parminter and Slowikowski 2004, 445

Table 1: Ceramic Type Series

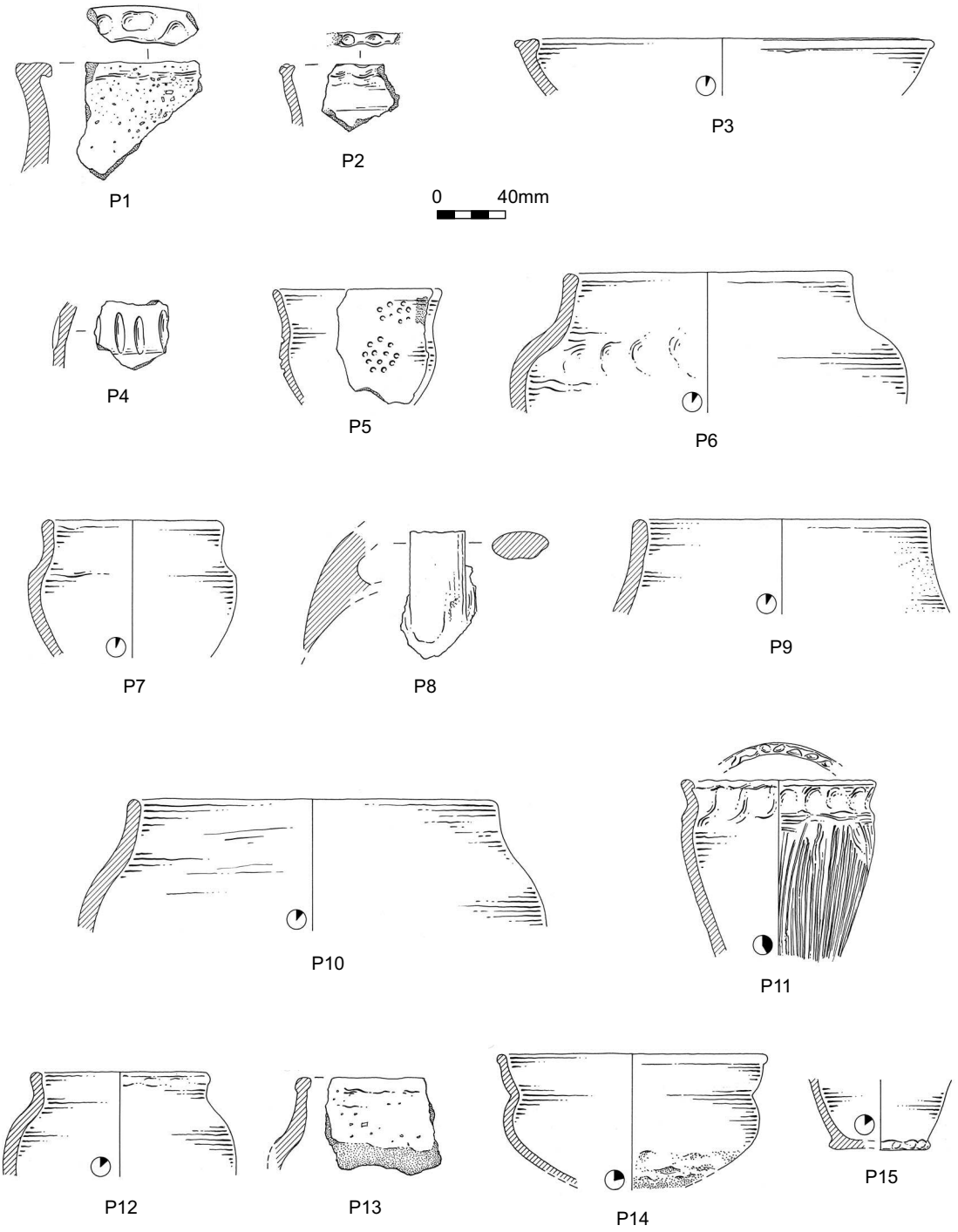


Figure 4: Selected pottery

Illust. No.	Group	Feature	Fabric type	Description
P1	2	240	F16	Rim with internal flange and finger-impressed decoration
P2	4	300	F16	Flat rim with finger-impressed decoration
P3	4	300	F16	Bowl with flanged rim
P4	4	321	F14	Body sherd with vertical linear decoration
P5	4	335	F03	Bowl with clustered circular stamped 'dimples'
P6	4	341	F14	Ovoid jar
P7	4	341	F14	Round-shouldered jar
P8	4	341	F03	Strap handle
P9	4	341	F14	Vessel with upright rounded rim
P10	4	341	F14	Ovoid (?) vessel
P11	4	341	F15	Scored jar with finger-impressed decoration
P12	4	341	F15	Round-shouldered vessel
P13	4	341	F16	Vessel with flat rim
P14	4	321	F14	Ovoid bowl
P15	4	335	F14	Base with finger-impressed decoration

Table 2: Catalogue of illustrated pottery

and abrasion. Sherds are fairly small, with an average weight of 12g; however, a number of vessels are represented by more than single sherds, and the overall assemblage has a vessel to sherd ratio of 1:7. The pottery mainly comprises a range of fabric types (Table 1) and vessel forms datable to the middle to late Iron Age period, all of which are handmade. The type codes and common names in Table 1 are in accordance with the Bedfordshire Ceramic Type Series, maintained by Albion Archaeology; published references are noted. Bracketed numbers after each fabric code denote sherd numbers.

Although the assemblage is small, a wide range of fabric types occur. Vessels tempered with mixed and variable proportions of shell/grog/sand/organic inclusions (types F14 and F15) constitute 34% of the assemblage, those containing coarse fossil shell 28% (F16), quartz sand 22% (F03, F18, F19, F28, F29), grog 13% (F17, F22, F27), calcareous material 2% (F30, F37), and organic matter (F04) makes up the remainder. The composition of the assemblage is comparable with other middle to late Iron Age sites in Bedfordshire, which have yielded a highly variable range of pottery fabrics, based on the availability of raw materials, and emphasising the localised nature of pottery production (*cf*. McSloy 1999, 70; Webley 2007, 224).

Diagnostic vessel forms include ovoid and round-shouldered vessels with a range of round, beaded, flat, tapering, internally bevelled and flanged rims; and flat bases (classified after Knight 1984, 20–1). There is also a single strap handle. Vessels are generally well made, and none show evidence of modification or repair. Vessel wall thicknesses vary between 5mm and 18mm, indicating a range of differently sized vessels — the smaller are likely to have been used for cooking and serving, and the larger for storage. Sooting and internal residues visible on a small proportion of the finer vessels confirm their use as 'kitchen' wares.

Decoration is rare, and comprises fingernail and fingertip impressions along vessel rims and around the neck and/or shoulder. Other surface treatment is represented by scoring, the latter invariably occurring on middle Iron Age vessels in Bedfordshire, although usually only representing a small proportion of a site assemblage. One vessel is decorated with clusters of circular, stamped 'dimples' (Fig. 4; P5), which may originally have been filled with a white calcareous inlay, for decorative effect (Knight 1984, 25).

Animal Bone
Stephanie Vann

The Iron Age assemblage comprises 1,067 fragments, mostly from pits [335] and [341], of which 151 (14%) are identifiable (Table 3). The species present are cattle, sheep/goat, horse, pig, rodent and bird (most likely domestic fowl), with no evidence of fish remains. Whilst there are also no dog remains, the canid gnawing of several elements confirms their presence.

Tooth wear data from both cattle and sheep/goat mandibles show the presence of animals ranging from immature to adult. Both cattle mandibles still have the deciduous premolar present, which suggests that these animals were slaughtered before reaching full maturity, perhaps for their meat,

	Method of recovery	
	Hand-collected	Sieved
Cattle (Bos)	25	7
Sheep/Goat (Ovicaprid)	40	4
Horse (Equus)	1	
Pig (Sus)	8	4
Rodent	3	
Bird	1	
Large mammal	21	1
Medium mammal	36	
Unid.	367	549

Table 3: Number of fragments per species from Iron Age deposits

whereas one sheep/goat mandible shows advanced wear of a permanent molar, indicating an adult animal. Sheep were also reared for their secondary products such as wool, which may explain the presence of adult animals within the assemblage.

Epiphyseal fusion data also show a range of ages. An unfused distal humerus in pit [341] shows the presence of cattle no more than 12–18 months old (Reitz and Wing 1999, table 3.5), while an intermediate phalanx from pit [335] comes from a sheep/goat that was no more than 5–7 months old. In contrast, a sheep/goat's fused vertebral centrum from pit [341] attests to an animal that was at least 48–60 months old when it died. An unfused distal tibia and distal metatarsal from [335] are the only ageing evidence for pigs, revealing the presence of animals that were no more than 24–27 months old. The single bird bone, most likely from domestic fowl, also comes from an immature individual. Only limited data are available on chicken long-bone growth; however, osteometric analysis of immature chicken bones from the Romano-British ritual complex at Uley in Gloucestershire suggests that adult dimensions are not achieved before 15–20 weeks (Brothwell 1997, 331). The presence of the immature individual may indicate that domestic fowl were bred at the site.

Medieval and post-medieval landscape (Fig. 5)

Following abandonment of the Iron Age settlement, there is no evidence of further activity until the medieval period. An ENE–WSW alignment, followed by trackway G5, furrow G6 and enclosure ditch G7, was introduced to the landscape at that point.

Trackway G5 comprised two outer ditches (up to 1m wide and 0.4m deep) that were 3.5–5m apart, with a slight trampled hollow in the middle that was caused by the passage of people and animals. What appeared to be very ephemeral wheel ruts were observed during the evaluation, but no further sign of them was subsequently detected.

The date of the trackway is problematic. Its ditches produced seventeen sherds of pottery (122g) representing fifteen vessels, which range from late Bronze Age/early Iron Age to late medieval in date. All but two of the sherds are Iron Age, and it is possible that this is the date of the trackway; however, the stratigraphic relationship between the northern trackway ditch and two of the Iron Age post-holes was very distinct, suggesting a greater temporal separation. For this reason, and because of its similarity in alignment with furrow G6 and post-medieval ditch G7, the trackway is more likely to be contemporary with the late medieval pottery sherd that was recovered from it — the Iron Age pottery probably derived from the settlement features through which the trackway ditches were dug. The Bedfordshire Historic Environment Record's pre-enclosure map suggests that the trackway followed the boundary between Upper Field to the south, and Tree Field / Wigney Field to the north, leading down into Milton Ernest to the south-west (Fig. 6).

Ditch G7, which was up to 2.6m wide and 0.9m deep, is shown by the pre-enclosure map to have defined the southern limit of an area of land referred to as Mock Beggar Close (Fig. 6). Although it cut the northern ditch of the trackway, this need not imply that the trackway was no longer in use; it is more likely that the course of the trackway became more clearly defined where it ran along the edge of the close. Perpendicular to G7 was a smaller ditch, which may have formed a subdivision within the close. A large amount of post-medieval tile recovered from an adjacent pit suggests that an outbuilding used to exist nearby.

DISCUSSION

Character of the Iron Age settlement

The homogeneity of the pottery assemblage recovered from the Iron Age settlement suggests that the site enjoyed a relatively short period of occupation. However, the exact date at which the site was occupied is difficult to pinpoint, due to imprecision in the ceramic dating sequence for the

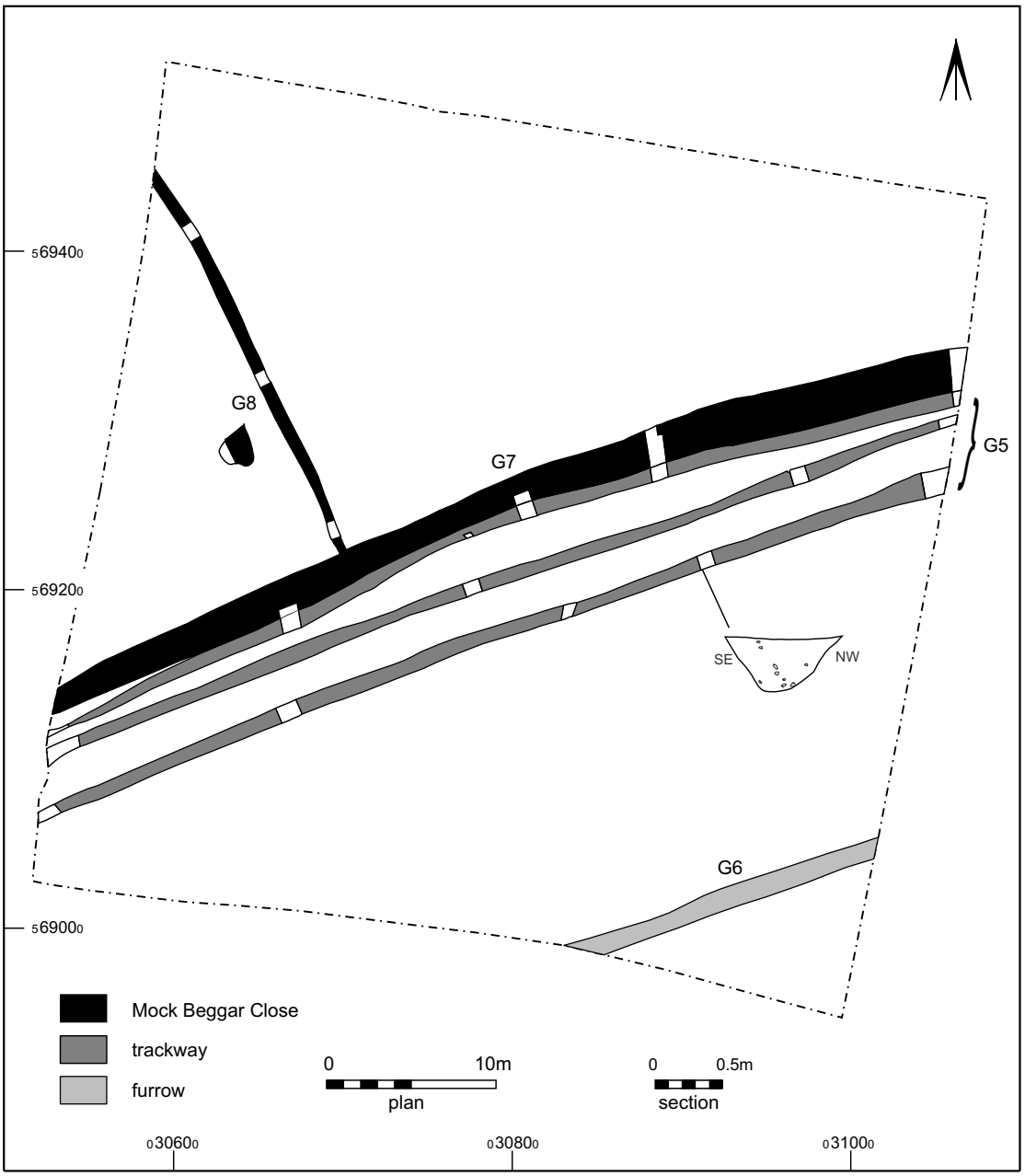


Figure 5: Plan of medieval and post-medieval remains

middle to late Iron Age. Pottery production in Bedfordshire during this period was primarily a localised practice, with fabrics usually dependent on the composition of the local clay (Webley 2007, 224); ceramic dating alone is consequently unable to refine the date beyond the period of *c*. 400–150 BC. The unenclosed nature of the settlement suggests a date nearer the beginning of this period, yet new settlements of this type continued to appear throughout the middle Iron Age (Dawson 2007, 64), and an early date cannot be assumed.

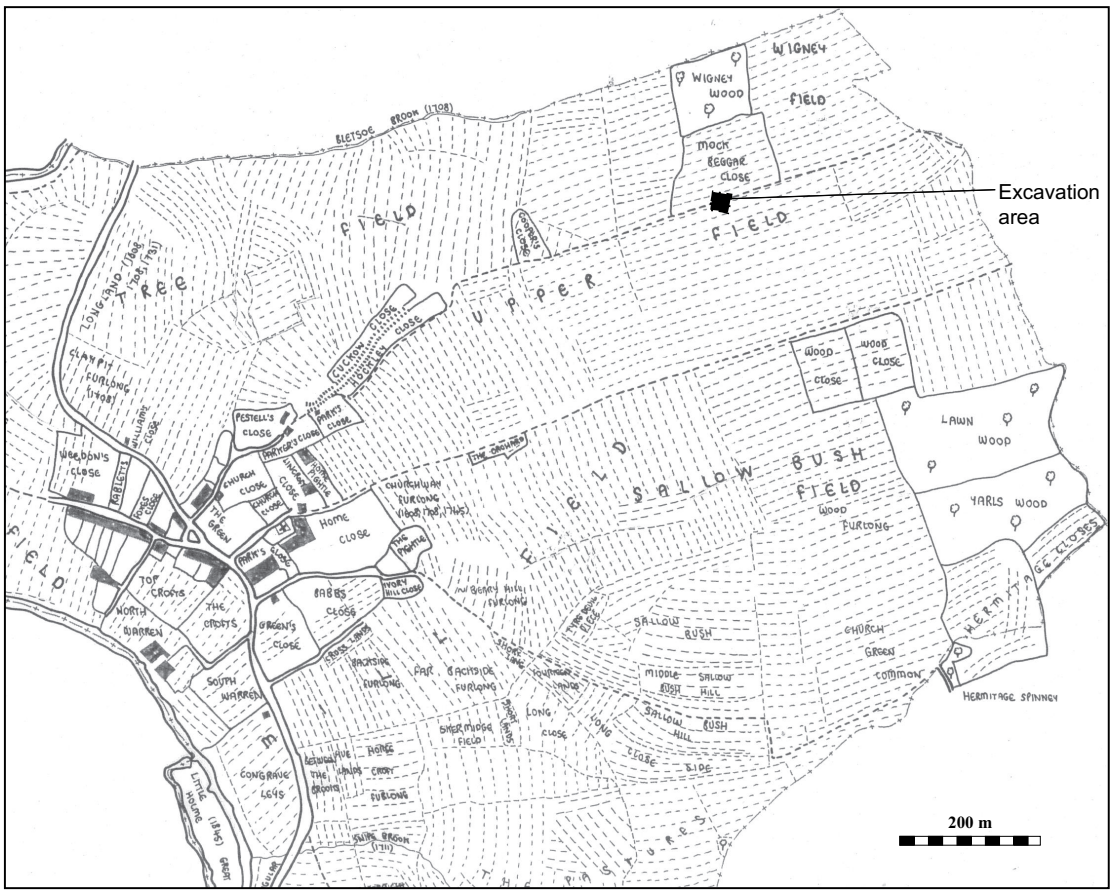


Figure 6: Pre-enclosure map of Milton Ernest (from the Bedfordshire Historic Environment Record)

The overall size of the settlement is uncertain. The site was unknown prior to trial trenching in 2008, and even that largely missed the Iron Age remains — the settlement only became readily apparent once the whole area had been stripped. It is therefore possible that the excavated features comprise only a small part of the overall settlement, although trial trenching to the south of the site at least revealed no apparent continuation of the settlement in that direction (Albion Archaeology 2004). The concentration of features to the south and west of beam slot G3 (Fig. 2), however, represents a focus of activity; this may therefore have been the centre of a small settlement, with pits [335], [338] and [341] occupying a marginal location on the boundary, where the disposal of rubbish primarily took place.

The focus of activity in the vicinity of G3 suggests that it held a ground beam for the main structure on the site. Some of the post-holes in G4 may also have been associated with minor structures, such as the two-post ones postulated for the nearby site at Yarl's Wood (Luke 2004). However, the evidence for this is conjectural — they may just as likely have been tethering posts for animals. There is certainly no clear evidence for the presence of a domestic roundhouse within the site, and it is possible that the site did not in fact contain any substantial buildings — there is only definitive evidence that people were active here, not that they dwelt within the excavated area. The primarily domestic nature of most industrial or craft activities in the Iron Age can make it difficult to distinguish between a site where people lived, and one where they just worked. The loom weight found in one of the post-holes west of the beam slot, and the hammerstone or pestle and the smoothing/burnishing stone from pit [341] are all signs of

industrial activity, but this may have been carried out on a domestic level. The degree of burning evident in the pits and post-holes to the west of the beam slot makes it clear that a considerable amount of heat was generated at times, but the source of this burnt material, all of which was redeposited, is unknown. It is more likely, however, to have derived from a domestic hearth than from an industrial structure such as a kiln — the burnt animal bone and the 'pot-boilers' are suggestive of domestic activity, although it is equally possible that the clay extracted from quarry pit [335] was intended for the manufacture of pottery. Even if people did not dwell within the excavated area, the volume of domestic debris that was recovered makes it probable that they at least lived within close proximity.

The faunal evidence suggests that the people who used the site were involved in breeding animals, with bones recovered from immature cattle and sheep/goats, along with the remains of a young domestic fowl — the assemblage generally tends towards younger rather than older animals. The site may have been used by pastoralists who were only present in this area on a seasonal basis; the negligible volume of charred plant remains that were recovered gives no indication that crops were being grown or processed nearby, though this may simply be the result of poor preservation. The intercutting nature of some of the pits implies that the site was occupied for several seasons, at least. The size of the finds assemblage, however, suggests more than occasional use by a few people on a seasonal basis. The volume of pottery compares well with that recovered from broadly contemporary sites (*e.g.* Timby *et al.* 2007, 22–4; Abrams and Ingham 2008, 20–33), some of which were occupied for several generations. Most of the material, however, came from pits [335] and [341], and may not be a straightforward indicator of the duration or intensity of occupation; the derivation of cultural material from Iron Age features is often linked to examples of structured deposition, and these are considered below.

Ritual activity

The concept of deliberate deposition in relation to ritual activities is a widely discussed topic in prehistoric archaeology, and one that it is tempting to invoke as a catch-all explanation of anomalies that are not otherwise easily explicable (Haselgrove *et al.* 2001, 18–9). However, the volume of finds within several of the features on this site suggests the deliberate deposition of these items, as does the type of feature from which some of the artefacts were recovered.

Most of the pottery and animal bone came from pits [335] and [341] at the southern edge of the site, along with a hammerstone or pestle and a smoothing/burnishing stone from the latter. The distribution of pottery within the lower fills of [341] suggests rapid infilling, probably from a nearby midden; such burial of domestic refuse may have been done to encourage fertility (Parker Pearson 1996, 125–7). Pit [335] was probably a quarry pit, and the ritual burial of domestic debris within quarry pits, in order to give thanks for the material extracted from them, has been suggested elsewhere (Abrams and Ingham 2008, 33).

The assemblage of nine pieces of worked flint from the western pit in G1 is surely also an instance of structured deposition, particularly in view of the absence of worked flint from elsewhere on the site. The late Neolithic or early Bronze Age character of the material, with several broken pieces, suggests that this might have been a set of tools that had been handed down through generations. Its deposition may signify that the old tools had been replaced by new ones, but were valued too highly just to be thrown away, or it may be symbolic of a shift away from the hunting of animals — the capacity to breed animals, as demonstrated by the immature examples in the faunal assemblage, may have reduced or negated previous reliance on wild species.

Two further instances of structured deposition were recorded in the focal area of the site, to the west of beam slot G3 (Fig. 2). More than a dozen 'pot-boiler' stones were recovered from pit [300], and part of a loom weight was found in a nearby post-hole. The burial of the stones may simply have had a utilitarian function: the people who occupied the site on a seasonal basis were moving on, and wished to leave them somewhere safe for use when they returned the following year, rather than taking the stones with them. The insertion of the broken loom weight into a post-hole, however, has very different connotations: the post would have to have been removed before it could be inserted, suggesting closure or abandonment rather than an intention to return. Perhaps the level of burning in this part of the site relates not to the settlement's use, but to its destruction — did the deposition of the loom weight constitute the final act prior to abandonment of the site?

Iron Age settlement on the north Bedfordshire clays

Despite the explosion of information regarding settlement in the clay areas of eastern Bedfordshire and western Cambridgeshire following an aerial photographic survey in 1996 (Palmer 2007), relatively little is still known about the claylands of north Bedfordshire. This area has been subject to less development than the rest of the county, and has therefore seen little of the development-led fieldwork that has revolutionised our understanding of southern and central Bedfordshire in the past 15–20 years. The site near Milton Ernest therefore makes an important contribution to our understanding of the archaeological landscape in north Bedfordshire, both in demonstrating the presence of Iron Age settlement away from the river valleys and in shedding light on the early colonisation of the clays.

The number of settlements in Bedfordshire began to grow in the early Iron Age (Timby *et al*. 2007, 409). However, the settlements from that period that have so far been identified are primarily located on gravel terraces, or at least on boulder clay that overlies permeable solid geology. Milton Ernest, however, is located on a band of boulder clay where settlement densities do not seem to have risen until the middle Iron Age (*cf*. Timby *et al*. 2007; Abrams and Ingham 2008), perhaps due to the tendency towards heavy, waterlogged soils caused by the underlying geology. Some ephemeral remains that were excavated nearby at Yarl's Wood, Clapham have been postulated as the remains of earlier settlement (Luke 2004), but the evidence for this is doubtful (Mike Luke pers. comm.).

Although numerous middle Iron Age sites are known from the nearby Great Ouse Valley, there are few contemporary sites on the neighbouring claylands, and certainly few open settlements, with which the site near Milton Ernest can be compared. The closest example is High Barns Road (Site 2) on the route of the Great Barford bypass (Timby *et al*. 2007, 22–4), which contained an unenclosed concentration of pits, post-holes and gullies next to a contemporary enclosure. The presence of at least one building is inferred, though only one very small, post-built structure could be identified. A similar distribution of artefacts was observed, with most of the assemblage coming from a relatively small number of deposits.

The paucity of Iron Age open settlements in north Bedfordshire is at least partly due to the difficulties involved in detecting them. Despite the success of the 1996 survey, settlements are still more difficult to detect in areas of clay geology than on many other types, and open settlements are much harder to identify from crop-marks than enclosed ones (Bryant 2000, 14). The lack of linear elements makes them harder to detect, even by trial trenching (Hey and Lacey 2001, 30–1); indeed, the trenches at Milton Ernest managed to miss all of the Iron Age pits and post-holes (Fig. 1), identifying only ditch G2, which may essentially have been unrelated to the settlement. A variety of survey techniques were employed as part of the Raunds Area Survey, yet served more to highlight the likely presence of Iron Age open settlements than to identify them (Parry 2006, 61; 65).

Judging by the evidence elsewhere in Bedfordshire, Northamptonshire and Cambridgeshire, it is reasonable to propose that settlement densities on the north Bedfordshire clays are significantly higher than is currently apparent. Although the land may not have been an ideal location for settlement, due primarily to the impermeability of the underlying geology, excavations elsewhere have shown that settlements do exist in reasonable numbers on the clay, particularly in the later Iron Age and the Roman period. Many of the undated cropmarks known in north Bedfordshire may relate to Iron Age sites; open settlements, however, are much more difficult to detect without the benefit of open-area excavations such as this.

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and Adam Williams. Soil samples were processed and scanned by Sharon Gerber-Parfitt. Analysis of the pottery and other artefacts was undertaken by Jackie Wells, whilst the animal bone was analysed by Stephanie Vann of the University of Leicester Archaeology Service. Illustrations are by Cecily Marshall.

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Iron Age, Roman and Saxo-Norman settlement on the Oxford Clay at Luton Road, Wilstead

Mike Luke and Tracy Preece

With major contributions by
Jackie Wells (artefacts), Ellen Hambleton (animal bone) and Jenny Robinson (ecofacts)
and other contributions by
Felicity Wild (samian), Peter Guest (coins) and Christopher Mallows (human bone)

Illustrations by Cecily Marshall

SUMMARY

Between May and September 2001 Albion Archaeology undertook archaeological investigations in advance of housing development at Luton Road, Wilstead, Bedfordshire. Evidence for settlement from the early–middle Iron Age, the late Iron Age/Romano-British period and the Saxo-Norman period was located.

Early–middle Iron Age

The early–middle Iron Age settlement was unenclosed, but restricted in extent. It comprised clusters of pits, postholes and a single ditch of uncertain function. A relatively large contemporary pottery assemblage was recovered along with a small quantity of charred cereal remains.

Late Iron Age/early Romano-British

Prior to the Roman Conquest a new farmstead was established at a different location to the early–middle Iron Age settlement, possibly fitting a regional trend of settlement shift during this period. Two distinct domestic foci were identified, both containing structural remains, a water pit and smaller pits. Both were located to the south of a contemporary boundary ditch but it is unclear if this was part of an enclosure. Possibly from the late 1st century AD a rectangular ditched enclosure system which incorporated the earlier boundary ditch was established in the same area as the earlier farmstead. Every enclosure contained settlement-type features, which included clusters of pits and postholes along with a roundhouse that was securely dated to this period.

Later Roman

At some point in the later Roman period a single, new enclosure was established in the same area as the earlier enclosures, but on a different alignment. This clearly represents a major change in settlement layout, possibly associated with a break in occupation. The enclosure contained only a handful of settlement-type features and, with one exception, a small finds assemblage. However, a centrally positioned depression produced a large and unusual finds assemblage, including a 'special' deposit associated with ritual sheep sacrifice. This evidence may suggest that the site took on a more religious function during this period.

Saxo-Norman

The Saxo-Norman settlement was established away from the earlier Iron Age and Roman farmsteads. It comprised two domestic foci, separated by a boundary ditch. It probably lay on the periphery of a larger, dispersed settlement, associated with the Domesday Manor of Wilshamstead.

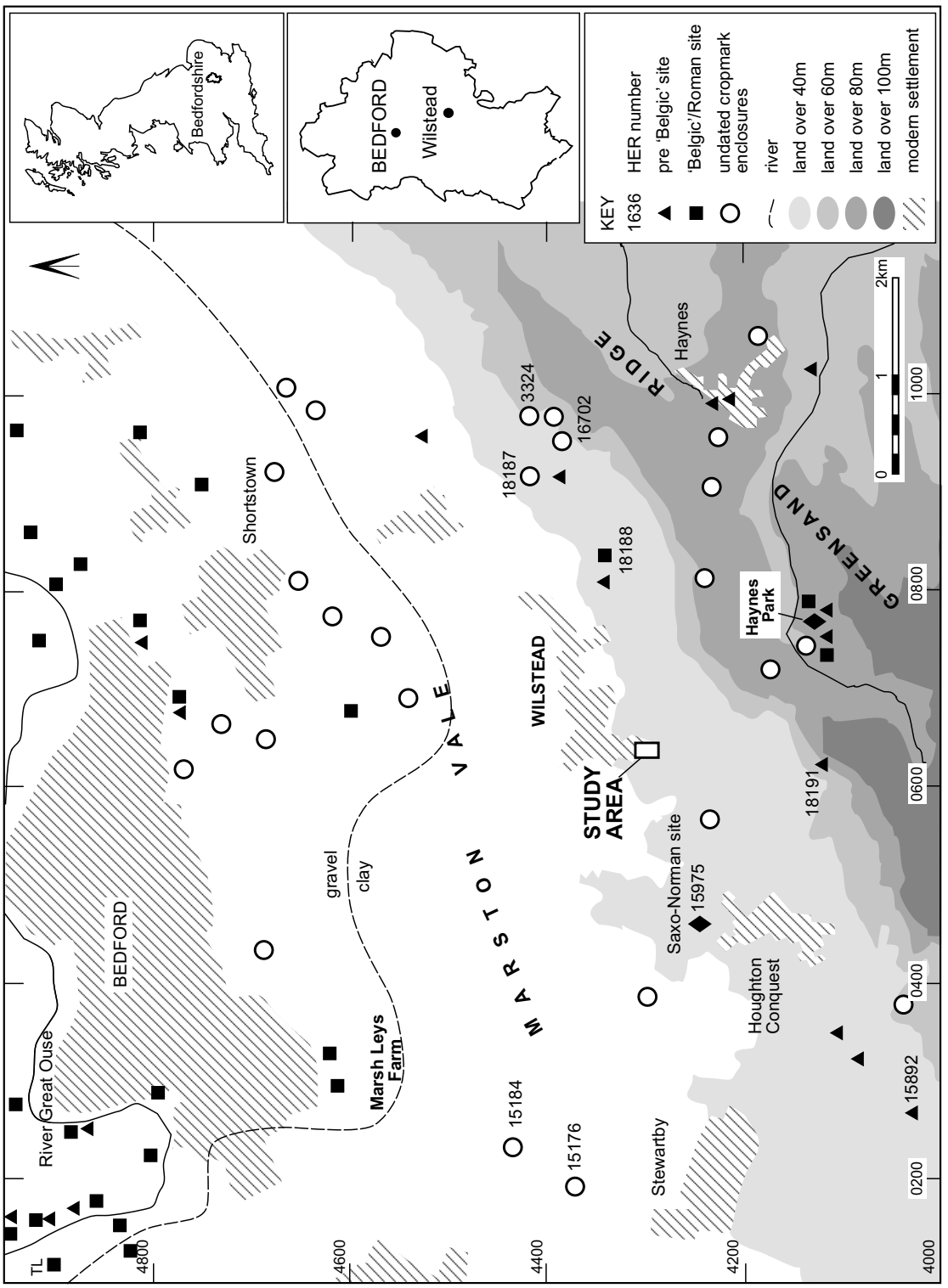


Figure 1: Site location

INTRODUCTION

In 1999 Westbury Homes (Holdings) Ltd was granted planning permission (99/00980/FUL) by Bedford Borough Council for the residential development of an area of land off Luton Road, Wilstead, Bedfordshire (Fig. 1). On the advice of the County Archaeological Officer (CAO) of Bedfordshire County Council, a condition was placed on the planning permission, requiring a programme of archaeological work in advance of development. This was in line with local planning policy and the guidelines in the Department of the Environment's *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG 16). An evaluation located significant archaeological remains over part of the development area. Subsequent open area archaeological excavation was undertaken within those areas where remains would be unavoidably destroyed by the development.

Bedfordshire County Archaeology Service (BCAS) (renamed Albion Archaeology during the project) undertook the work on behalf of Westbury Homes (Holdings) Ltd. This report presents the evidence for Iron Age, Roman and Saxo-Norman settlement from all stages of the work.

SITE LOCATION AND DESCRIPTION (Fig. 1)

The site was located at the southern tip of the village of Wilstead, *c.* 5km southeast of Bedford, centred at TL 0625 4310. It covered an area of *c.* 7 hectares.

Topographically, the site lay on the southern edge of the Marston Vale, a low lying and relatively flat clay vale, bordered by the Greensand Ridge to the south. It sloped down from northeast to southwest, between 45m and 40m OD. The site was bounded to the west by the A6, to the east by Luton Road, and to the north by fields. The underlying geology was Oxford Clay and the land was under pasture prior to the archaeological investigations.

ARCHAEOLOGICAL BACKGROUND (Fig. 1)

At the time of the investigations the County Council's Historic Environment Record (HER) contained little evidence for archaeological sites around Wilstead. The only recorded archaeological remains within the development area itself were ridge and furrow earthworks, indicating that it had once been under arable cultivation.

Until recently, archaeological evidence for pre-medieval activity in the Marston Vale was relatively sparse (Dawson forthcoming). Few intrusive investigations had been undertaken and the majority of the evidence was in the form of cropmarks, which are inherently difficult to date. There are several quite complex cropmarks in the Marston Vale within 5km of Wilstead, *e.g.* HER 15176 and 15184 to the west and HER 3324, 16702 and 18187 to the east. The majority of these appear to represent ditched enclosure systems and are mostly presumed to be Iron Age/Romano-British in date.

The manor of Wilstead was recorded in Domesday Book under its Old English name, Wilshamstead, indicating the existence of late Saxon occupation in the area. However, apart from villages and moated sites, the only possible evidence until recently for early medieval activity in the vicinity was the discovery of Saxo-Norman pottery *c.* 1km to the southwest (HER 15975) of the site.

Over the last ten years there has been an increase in the quantity of intrusive fieldwork within the Marston Vale. This has produced far more evidence for Iron Age, Roman and Saxon settlement than had previously been expected. A number of investigations have been undertaken near Marston Mortaine, *c.* 6.5km to the west, *e.g.* Beancroft Road (Shotliff and Crick 1999), Church End Lower School (Edmondson and Steadman 2001) and Stewartby Millennium Park (BCAS 1998). More recently, and later than the investigations reported in this article, a number of Iron Age and Romano-British settlement sites (HER 18188 and 18191) were located during archaeological investigations undertaken in advance of pipeline construction through the Marston Vale to the east of Wilstead (Network Archaeology 2004). The previous scarcity of archaeological evidence for settlement in the vale is probably the result of several factors which are discussed in the conclusion.

THE ARCHAEOLOGICAL INVESTIGATIONS (Fig. 2)

A staged programme of archaeological work was undertaken, with each stage building on the results of the earlier stages. The integrated results form the main section of this report.

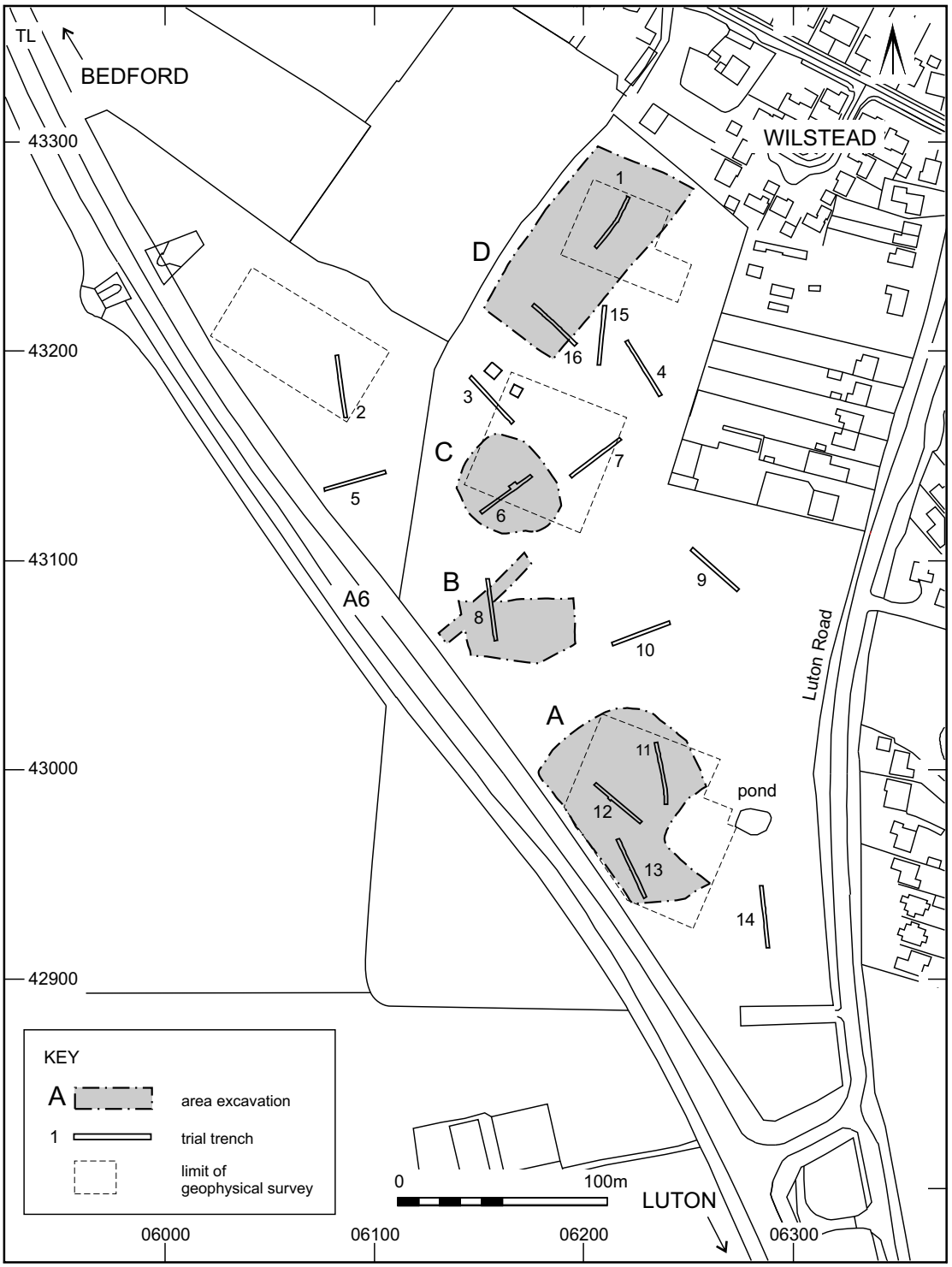


Figure 2: Areas of different types of archaeological investigation within Study Area

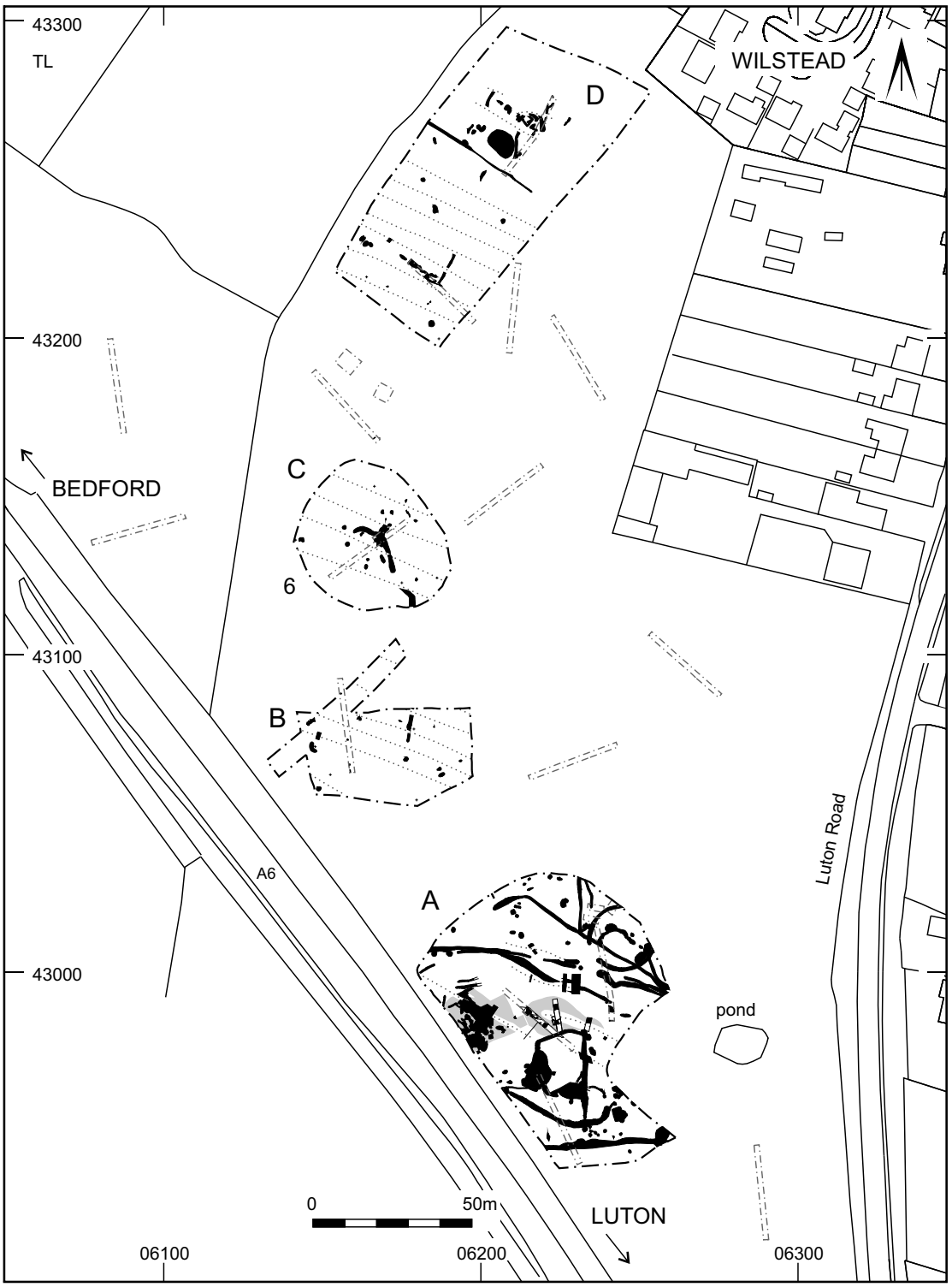


Figure 3: All features within excavation areas and evaluation trenches

Briefs were issued by the CAO for each element of the work, stipulating methodology and extent. These, along with the BCAS Project Design and reports on each stage, are in the project archive.

Non-intrusive evaluation

A summary of the results of the preliminary non-intrusive evaluation, coordinated by Countryside, Planning and Management (CPM), is presented below.

A desk-based archaeological assessment concluded that archaeological remains were likely to be present within the development area (CPM 1999).

A magnetometry survey was carried out by GSB Prospection (1999). The entire site was scanned along traverses spaced at *c*. 10m intervals but the results were "negative". Following discussions between GSB, CPM and the CAO, four areas, *c*. 1.4ha in total, were chosen for detailed survey to test the results of the scanning (Fig. 2). Ditch- and pit-type anomalies were identified in the two southern areas only. They were magnetically weak explaining why they were not detected during scanning.

An earthwork survey of the entire site recorded the denuded ridge and furrow earthworks. These were aligned approximately northwest–southeast, *c*. 6m apart, with no obvious breaks suggestive of settlement or trackways.

Intrusive evaluation

Sixteen trial trenches, with a combined length of 480m, were excavated by BCAS (1999). Seven were targeted on geophysical anomalies, many of which proved to be of human origin and were dated by pottery to the Romano-British period. Three main foci of archaeological features were identified: around Trenches 1 and 16 to the north, Trench 6 in the centre of the site, and Trenches 11, 12 and 13 to the south. Elsewhere, Trench 8 contained a small number of late Iron Age and post-medieval features. Several trenches contained the bases of medieval furrows, although no finds of this period were recovered.

The remains were suggestive of low status, Romano-British rural settlement. However, it was suggested that the two fragments of *tegulae* recovered may indicate that a fairly substantial dwelling was located in the vicinity (BCAS 1999, 17).

Open area excavation (Fig. 3)

Although the evaluation identified significant archaeological remains, they did not, *per se*, warrant preservation *in situ*. It was agreed by the CAO and Westbury Homes (Holdings) Ltd that they could be dealt with by detailed archaeological investigation in advance of construction. A Brief was issued by the CAO for this work (BCC 2000). Following discussions between the CAO, Westbury Homes (Holdings) Ltd and BCAS it was agreed the investigation be divided into four areas (A–D), *c*. 1.4ha in total. The extent and shape of these reflected the development plan and with regard the eastern edge of Area A respected the newt habitat.

Work began in May 2001 while construction commenced on adjacent land. All hand excavation and recording was carried out in accordance with the BCAS *Procedures Manual* (BCAS 2000) and the Project Design (BCAS 2001). The identification of features following machining was difficult due to the dry and hard ground conditions at the time of the investigation. However, where identified, all isolated archaeological features were half-sectioned and ditches were subject to segment excavation.

Post-excavation assessment and analysis

On completion of the fieldwork, a combined Assessment Report and Updated Project Design (Albion 2002a) was produced. This summarised the results, set out a research framework and methodological basis for the post-excavation analysis.

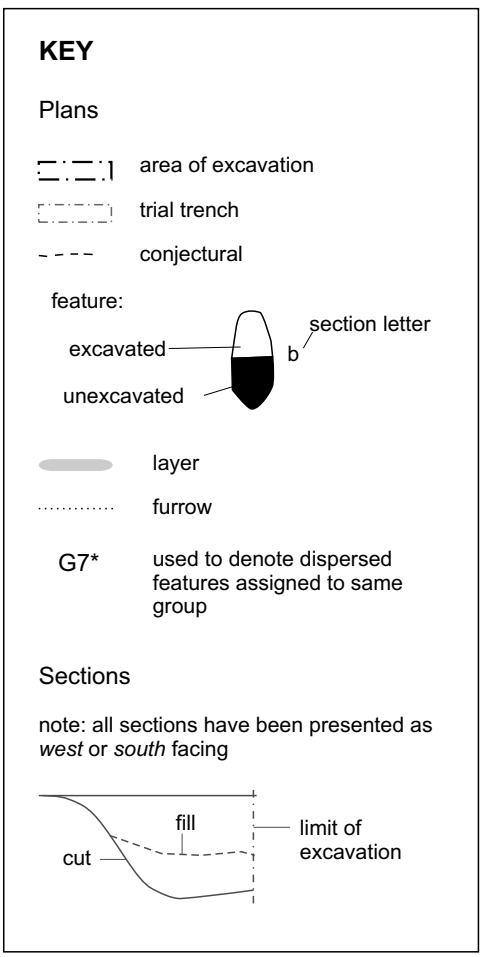
During analysis, the evidence recorded on site was organised into a hierarchy, comprising:

- G (*group*) numbers: interpretative entities, *e.g.* buildings, ditch lengths, concentrations of pits;
- L (*landscape*) numbers: collections of broadly contemporary and spatially coherent G numbers, *e.g.* a settlement focus, a field system;
- Phases: broad, chronological divisions, *e.g.* early–middle Iron Age, late Iron Age/early Roman.

STRUCTURE OF THIS REPORT

Following these introductory sections, the results of the investigations are presented within a phased chronological framework, the site narrative. This is further sub-divided by the hierarchical L and G numbers (see above). A decimal suffix is used to indicate major fills within L and G numbers.

Summary artefactual and ecofactual evidence is integrated into the site narrative. Pottery described as "contemporary" in the site narrative is dated to the same chronological period as the phase. It is also presented and discussed in more detailed, individual sections. The report concludes with a discussion of the results of the investigations. Appendices contain more technical data on the artefactual and ecofactual evidence.



Key to plans and sections

RESULTS OF THE INVESTIGATIONS

PHASE 1: EARLIER PREHISTORIC ACTIVITY

Although a small lithic artefact assemblage of possible Neolithic and early Bronze Age date was identified, it is entirely residual within later features. This prehistoric evidence is, therefore, only briefly described in the artefacts section.

PHASE 2: EARLY–MIDDLE IRON AGE SETTLEMENT (Fig. 4)

The earliest firm evidence for settlement was in Area C. It comprised a segmented ditch L1, a gully and an adjacent cluster of pits and postholes L2. The precise relationship between these two elements of the settlement is unclear. The ditch truncated three of the pits, suggesting it was later in date. However, its pottery assemblage was similar to that of the pits, suggesting they were broadly contemporary. Although only a few structural features survived, the artefactual and ecofactual assemblages and the clustered nature of the pits are suggestive of an unenclosed farmstead.

The settlement can be only broadly dated to the early–middle Iron Age by an assemblage of 254 sherds of pottery. Recognisable forms, typical of a domestic context, include round shouldered and ovoid jars or bowls and large storage jars. The small quantity of plant remains recovered from ecofactual sampling indicate that the inhabitants were growing cereals, including spelt wheat and barley. Dry, open conditions are indicated by an assemblage of land snails from the ditch. Small amounts of fired clay and animal bone were also recovered.

Boundary L1

Curvilinear ditch L1 (G61) ran for at least 27m on a northwest–southeast alignment. It terminated to the northwest and continued beyond the limit of excavation to the south. It was in two segments, separated by a *c*. 5.5m gap. It truncated three of the pits in L2 but the other pits appeared to be clustered around the ditch rather than being divided by it. There was no evidence for an associated bank and the function of the ditch remains uncertain.

Its primary fill (L1) was relatively sterile. However, its secondary (L1.1) and tertiary (L1.2) fills produced a significant proportion of the early–middle Iron Age artefactual and ecofactual

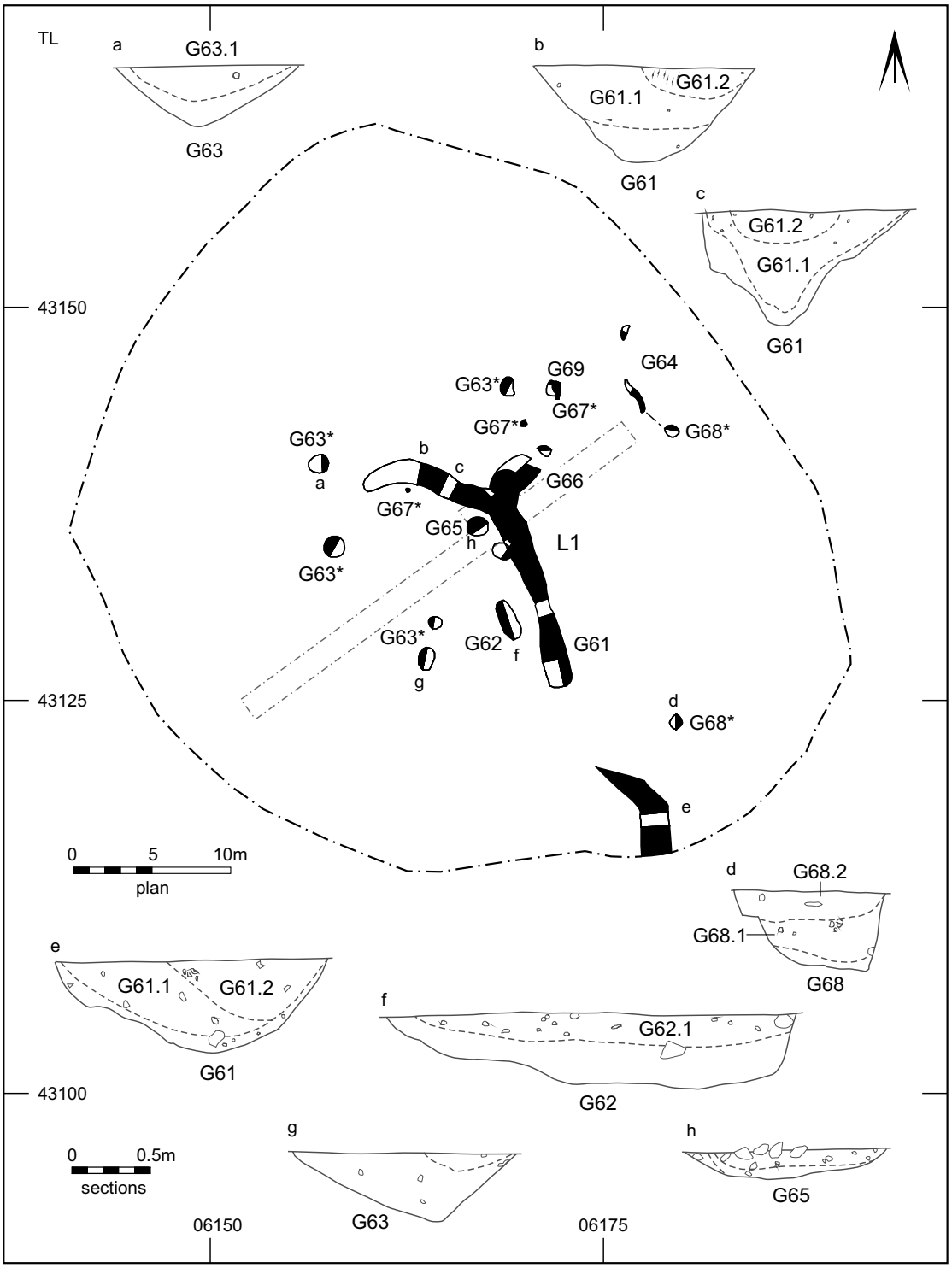


Figure 4: Phase 2: Early–middle Iron Age plan and sections of ditch L1 and pits and postholes L2

assemblages, suggesting it remained open while the settlement was in use. This is reinforced by the presence in its fill of the shells of snails which live in stagnant water.

Ditch G61

Ditch G61 was *c*. 1.6m wide and *c*. 0.7m deep. It had a steep-sided, irregular, U-shaped profile (Fig. 4c) that became more concave in profile towards the northwest (Fig. 4b) and south (Fig. 4e).

A primary fill was present in all of the excavated segments; it varied from mid orange brown to mid orange grey silty clay. The majority of artefacts, 18 fragments of animal bone and a fragment of fired clay, were recovered from the southernmost segment. The secondary fill (G61.1) comprised a mix of natural infilling and a mid to dark grey brown silty clay with inclusions of occasional small to medium stones, charcoal flecks and numerous mollusc shells (ecofactual sample 35). It produced 24 sherds of contemporary pottery (Fig. 15: P1 and P2), 5 fragments of fired clay, an iron annular ring (RA 95) and 25 fragments of animal bone. The tertiary fill of the ditch (G61.2) contained charcoal flecks along with a total of 43 sherds of contemporary pottery (Fig. 15: P3), 2 fragments of fired clay and 35 fragments of animal bone.

Pits, postholes and gully L2

A cluster of seventeen pits (G62, G63, G65, G66, G68 and G69), three postholes (G67) and one gully (G64) were spread over an area *c*. 26m in diameter. For the purpose of analysis the pits were initially divided into two types: scoops (gentle profiles, usually under 0.27m deep); or basin-type pits (steeper profiles, often with a flat base and usually over 0.27m deep) (see Table 1). However, in the following discussion the pits are separated into six groups on the basis of their diameter and spatial distribution.

Although artefacts and animal bone were present in the primary fills (L2) of these features, the secondary (L2.1) and tertiary fills (L2.2) produced the majority of the Phase 2 assemblages. The pits were extensively sampled for ecofacts but only small quantities of charred grain and wood were recovered.

Pits G62, G63 and G65

Pits G62, G63 and G65 all lay to the southwest of ditch L1 and were slightly larger than the pits to the northeast of the ditch. Circular pits G65 were located next to ditch L1, which truncated one of them. Oval pit G62 was also next to the ditch, but two smaller circular and four sub-circular pits G63 were slightly further from it.

The pits' primary fills comprised a dark grey black silt with frequent charcoal flecks (G62), a light yellow (G65) or a mid orange grey (G63) silty clay. Artefacts retrieved included 2 sherds of contemporary pottery, 13 fragments of fired clay and 54 fragments of animal bone. The majority of these artefacts came from pit G62 which also contained small quantities of charred cereal grain and wood (ecofactual sample 34).

The secondary fills comprised light yellow brown sandy clay (G62.1) and mid grey brown clay silt (G63.1, G65.1) with medium to large stones. Fills G63.1 and G65.1 contained 36 sherds of contemporary pottery, 10 fragments of fired clay, 75 fragments of animal bone, along with quantities of cereal grain and sloe (ecofactual samples 39 and 40).

Pits G68 and G69

Two sub-circular pits G68 and three intercutting sub-circular pits G69 lay to the northeast of ditch L1. Pits G68 were *c*. 17m apart. Pit G69 was re-dug on two occasions.

The pits' fills (G68.1, G69.1 and G69.3) comprised mid grey brown silty clay with occasional small to medium stones and charcoal flecks. A total of 68 sherds of contemporary pottery and 34 fragments of animal bone were recovered. The fills of pit G69 contained small quantities of charred cereal grain and wood from thorn scrubs, oak and ash (ecofactual samples 36, 37 and 38).

Pit G66

Large, sub-oval pit G66 was re-dug on at least two occasions. It lay to the northeast of ditch L1, which truncated both re-cuts.

Two of the pits contained sterile light yellow or light brown grey silty clay primary fills. The secondary (G66.2) and tertiary fills (G66.3) comprised dark grey black clay that contained occasional small to medium stones, tiny quantities of charred plant remains and charred wood (ecofactual sample 41). The secondary fill (G66.2) also contained 58 sherds of contemporary pottery, 3 fragments of fired clay and 80 fragments of animal bone.

Postholes G67

Three circular postholes G67 were located *c*. 8m and 2.5m apart, forming a tentative northeast–southwest alignment on either side of ditch L1. They contained no evidence for post-pipes or packing material.

They were filled (G67.1) either by a mid brown grey silty clay or a dark grey clay silt with occasional charcoal flecks, but no artefacts.

Gully G64

A northwest–southeast aligned gully G64 was located on the apparent northeast limit of the pit cluster; it may have served as a boundary. It was at least 3.3m long, 0.4m wide and 0.10m–0.25m deep with an asymmetrical, U-shaped profile.

It was infilled with a dark grey silty clay that contained occasional small to medium stones and two fragments of fired clay.

PHASE 3: LATE IRON AGE/EARLY ROMAN SETTLEMENT (Fig. 5)

A new settlement was established on previously unoccupied land, *c*. 100m to the south of the early–middle Iron Age farmstead. Four discrete foci were identified: L3 (Area B), L4, L5 and L6 (Area A). These may represent one or more farmsteads.

L5 and L6 lay to the south, near boundary ditch G13/17; they were *c*. 33m apart. They contained a small number of pits, mainly clustered together,

G No.	No. of features	Distribution	Form	Profile	Pit type	Length/ diameter (m)	Depth (m)	Section No.	Pottery sherds	Animal bone	Charred plant remains	Other
G62	1 pit		Oval	Concave	Basin	2.60	0.50	4f	4 EMIA	54	Cereal grain (sample 34)	Burnt clay Charcoal
G63	6 pits	Dispersed over 15m	Sub-circular	U-shaped	Basin	1.18	0.20		4 EMIA	—	Cereal grain	Fired clay
			Sub-circular	U-shaped	Basin	1.16	0.38	4a	1 EMIA	—	and sloe	
			Sub-circular	U-shaped	Basin	1.43	0.43	4g	5 EMIA	—	(sample 40)	
			Circular	Concave	Scoop	0.83	0.12		—	35		
			Circular	Concave	Basin	1.42	0.51		4 LIA	40		
			Sub-circular	U-shaped	Scoop	0.60	0.16		3 EMIA	—		
G65	2 pits	1m apart	Circular	Concave	Scoop	1.35	0.20	4h	23 EMIA	—	Cereal grain	Fired clay
			Sub-circular	Concave	Scoop	0.76	0.25		—	—	(sample 39)	
G66	3 pits	Intercutting	Sub-oval	Concave	Basin	2.65	0.53		68 EMIA	80	Chaff	Fired clay
			Sub-oval	Concave	Basin	1.80	0.66		—	—	(sample 41)	
			Sub-oval	—	—	0.80	—		—	—		
G67	3 postholes	8m and 2.50m apart	Sub-circular	Concave		0.25	0.07		—	—		
			Circular	U-shaped		0.10	0.10		—	—		
			Circular	U-shaped		0.25	0.25					
G68	2 pits	17m apart	Sub-circular	U-shaped	Scoop	0.90	0.27		1 EMIA	14		
			Sub-circular	U-shaped	Basin	0.95	0.50	4d				
G69	3 pits	Intercutting	Sub-circular	Concave	Scoop	0.60	0.25		62 EMIA	20	Cereal grain	Charcoal
			Sub-circular	Concave	Scoop	0.80	0.15		3 EMIA	7	(samples 36, 37	
			Sub-circular	U-shaped	Basin	0.75	0.25		2 EMIA		and 38	

Table 1: Summary of Phase 2 pits and postholes by G number

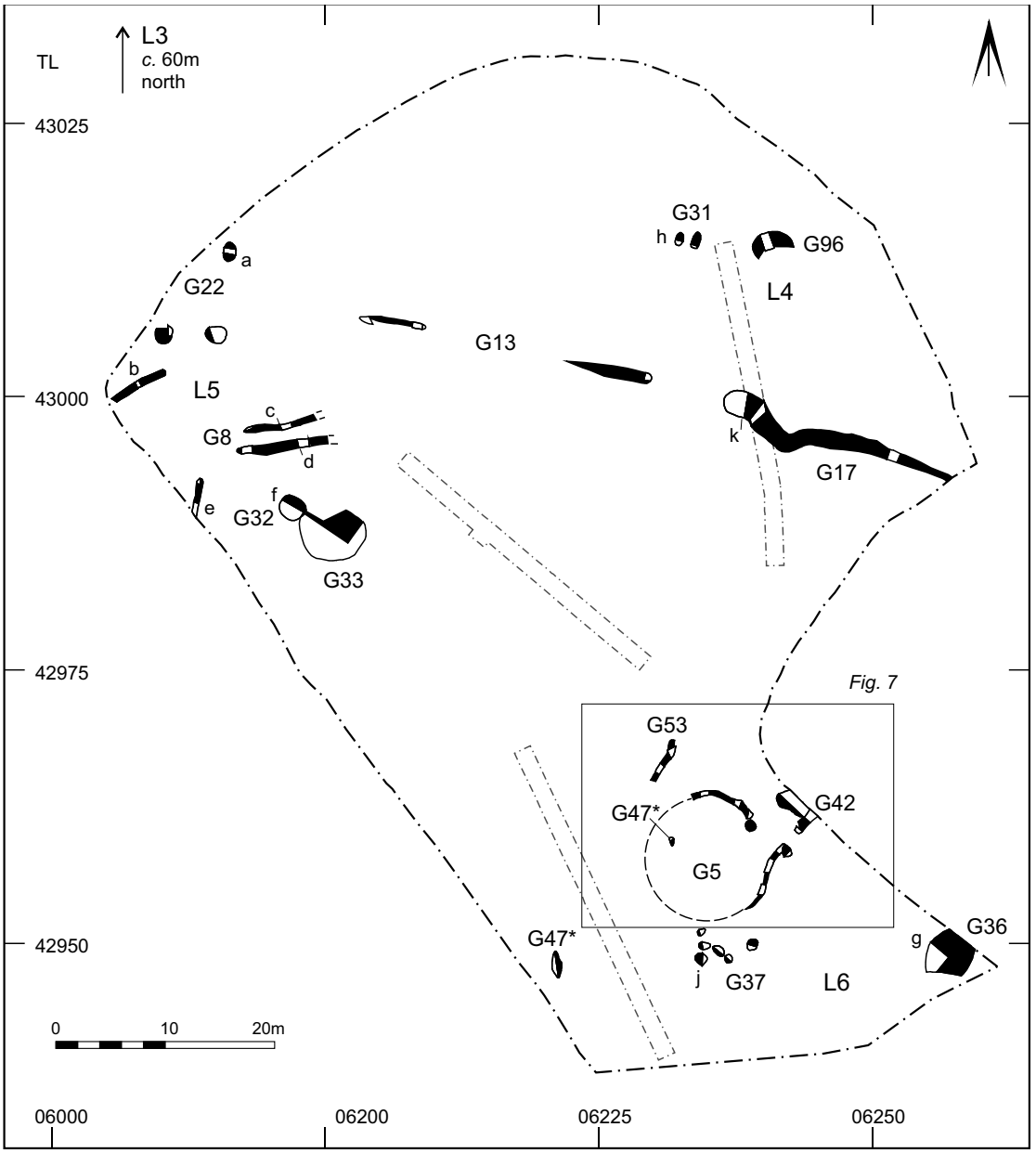


Figure 5: Phase 3: Late Iron Age/early Roman plan

with some evidence for buildings or structures. L5 contained a water pit. L4 comprised a small pit cluster, to the northeast of the boundary ditch. L3 was located 60m north of L5 (in Area B); it comprised three small pits G60 and two postholes G59. The pottery dating is not sufficiently refined to determine whether the foci were contemporary or, especially in the case of L5 and L6, sequential.

These more extensive settlement remains produced an assemblage of pottery roughly twice as big as the Phase 2 early–middle Iron Age assemblage. Again, the late Iron Age/early Roman, 'Belgic' assemblage is typical of a rural farmstead, characterised by tablewares, storage vessels and cooking pots. Larger quantities of fired clay fragments, including handmade slabs, were also

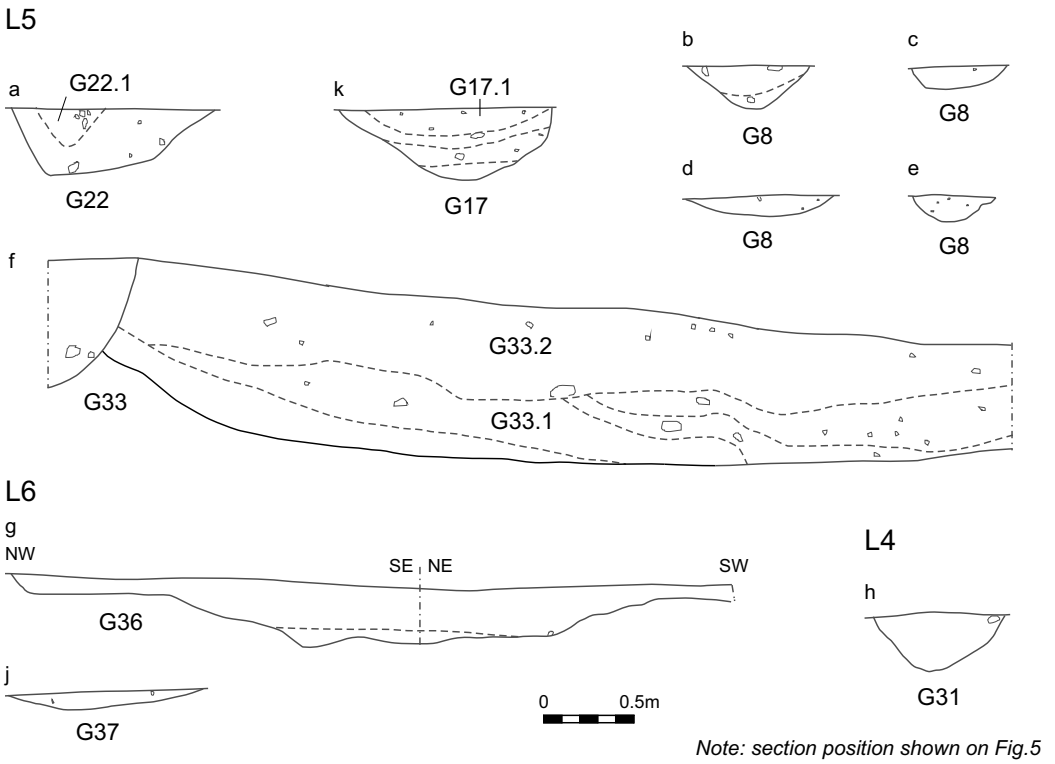


Figure 6: Phase 3: Late Iron Age/early Roman sections

recovered. By contrast, very little animal bone and no charred plant remains were recovered.

Boundary ditch G13/17

An east–west aligned boundary ditch crossed the northern half of Area A. It comprised two segmented lengths G13 and G17, visible for *c*. 55m, with a *c*. 7m wide entrance. Both the primary and secondary fills produced late Iron Age/early Roman pottery; the largest finds assemblage came from G17's substantial terminal.

Ditch G13/17

East–west boundary ditch G13/17 was 0.45m to 0.70m wide with an asymmetrical U-shaped profile and slightly concave base (Fig. 6k). It deepened from west (0.1m) to east (0.7m). Its *c*. 0.2m thick primary fill comprised mid grey brown silty clay with occasional small to medium stones. It contained 14 sherds of contemporary pottery.

The main infilling of the ditch (G13.1 and G17.1) comprised a mid grey clay and a dark black brown clay silt which appeared to be a combination of natural infilling with some domestic debris. Only the terminal of G17 contained any finds: 16 sherds of contemporary pottery, 7 unidentifiable fragments of fired clay and a single fragment of animal bone.

Domestic Focus L5

Domestic focus L5 was located to the southwest of boundary ditch G13/17. It extended over an area of *c*.30m and may have continued beyond the limit of excavation. It comprised four structural slots G8, a water pit G33, a single large pit G32 and a cluster of smaller pits G22. The upper fills of the water pit produced the greatest assemblage of finds from these features, including twelve fragments of handmade fired clay slabs.

Structural slots G8

Four slots G8 were grouped within *c*. 5m of one another. Their nature, dimensions and proximity suggest a structural function. Although they varied in length from *c*. 3m to 7m, they were typically *c*. 0.6m wide. They had similar, shallow, concave profiles, flattish bases and were *c*. 0.3m deep (Fig. 6b, c, d and e). Two were parallel, only 1m apart on an east–west alignment. One was aligned northeast–southwest, and one north–south. The ends of the slots were shallow and ephemeral; they are not considered to be genuine terminals.

The slots were filled (G8.1 and G8.2) with mid grey brown and dark black brown silty clay with moderate small to medium stones. They produced 14 contemporary pottery sherds, 5 fragments of fired clay and 5 fragments of animal bone. A late 3rd/4th century coin (RA 10) is considered to be intrusive.

Water pit G33
Pit G33 was sub-circular in plan, *c*. 6m in diameter with a concave profile and a flat, slightly uneven base (Fig. 6f). Its large size and the organic nature of its primary fills suggest that it was a water pit.

The primary and secondary fills (G33.1) were all dark and organic in composition. However, the tertiary fill (G33.2) comprised a dark orange grey sandy clay with occasional small stones. The secondary and tertiary fills produced a large assemblage of finds: 259 sherds of contemporary pottery (Fig. 15: P4, P6–P9 and Fig. 16: P10–P13), 12 pieces of fired clay slabs, 6 other fragments of fired clay and 36 fragments of animal bone. Thirty-four of the pottery sherds were from a necked jar; the significance of this is uncertain as it was not recognised as a semi-complete vessel during excavation.

Large pit G32
Large, sub-circular pit G32 was located to the south of structural slots G8. It was *c*. 2m in diameter and *c*. 0.75m deep with an asymmetrical, concave profile. Its original function is unknown. It may be associated with water pit G33, although, on excavation, it appeared to be stratigrapically later. Its light brown grey silty clay fill (G32.1) contained 34 sherds of contemporary pottery, 17 fragments of fired clay and 8 fragments of animal bone.

Pits G22
Three circular pits G22 to the north of structural slots G8 were *c*. 1.5m in diameter and *c*. 0.4m deep, with asymmetrical, U-shaped profiles and flattish bases (Fig. 6a). Their mid orange grey clay silt fills (G22.1) contained 14 sherds of contemporary pottery and 4 fragments of animal bone.

Domestic Focus L6

A similar concentration of features L6 lay 33m to the southeast of L5. It comprised a possible roundhouse G5, a structural slot G53, a cluster of small pits G37, along with individual and paired pits G36, G40, G42 and G47. The fills of these features (L6.1) produced a small assemblage of contemporary pottery, the majority of which came from a single vessel in the roundhouse gully.

Possible roundhouse G5 (Fig. 7)
The curvilinear features G5 appear to be the truncated remains of a drainage gully around a roundhouse, which would have had an internal diameter of *c*. 10m. A *c*. 4m gap between the two gullies may indicate an entrance to the northeast. The gullies were *c*. 0.9m wide and *c*. 0.3m deep, with shallow, concave, U-shaped profiles (Fig. 7c).

The gully fills comprised a mid orange brown silty clay (G5.1) and a mid brown black silt (G5.2) with occasional small stones. Twelve sherds from a single jar (weighing 145g) and a fragment of fired clay were found in G5.2.

Structural slot G53 (Fig. 7)
A short, northeast–southwest aligned slot G53 lay *c*. 4m to the northeast of possible roundhouse G5. It was comparable to the structural slots in domestic focus L5. Its northeast end was a genuine terminal, but it was truncated to the southwest by later features. Although shallower, its profile was comparable to the roundhouse drainage gully (Fig. 7a).

Its light yellow grey silty clay fill (G53.1) contained occasional small stones and charcoal flecks but no artefacts.

Pits G40 (Fig. 7)
Two sub-circular pits G40, *c*. 3.3m apart, were located on the northeast side of possible roundhouse G5. Although one appeared to truncate the drainage gully, their proximity to the postulated entranceway is intriguing. Both were *c*. 1m in diameter and *c*. 0.1m deep, with shallow, concave profiles.

Their mid orange brown clay fill (G40.1) contained occasional small to medium stones but no artefacts.

Scoop G42 (Fig. 7)
To the northeast of the possible roundhouse entrance was an irregular scoop-like feature G42. It is difficult to interpret because it continued beyond the limit of excavation. It was *c*. 3.7m long, *c*. 1.5m wide and only *c*. 0.3m deep, with a symmetrical profile. Its slightly W-shaped profile suggests it may actually have been more than one feature (Fig. 7b). It may represent a shallow quarry, although its proximity to the possible roundhouse entrance may suggest a relationship with that building.

Its mid orange grey sandy clay fill (G42.1) contained occasional medium stones but no artefacts.

Pit group G37
A cluster of six pits G37 lay next to the postulated south side of possible roundhouse G5. Three were oval in plan, one was circular and two were sub-circular. All were *c*. 1m in diameter and no more than 0.15m deep, with concave profiles and fairly flat bases (Fig. 6j).

Their fills (G37.1) varied from mid grey brown to mid yellow grey silty clay with inclusions of small to medium stones but no artefacts.

Pits G47
G47 comprises two sub-oval pits, located *c*. 14m apart. The more easterly of the two lay within possible roundhouse G5. It was *c*. 0.8m long, 0.4m wide and 0.1m deep. The other pit was *c*. 2m long, 0.90m wide and 0.15m deep. Both had asymmetrical concave profiles and bases. Their fills (G47.1) comprised a mid grey silty clay with occasional small stones, containing 5 sherds of contemporary pottery.

Pit G36
A large, partially truncated, probably oval pit G36 was located *c*. 15m southeast of possible roundhouse G5 in the corner of Area A. It was *c*. 4m in diameter and 0.35m deep, with an irregular concave profile and an uneven base (Fig. 6g).

Its fill (G36.1) comprised a mid orange grey sandy clay with occasional medium stones but no artefacts.

Pit cluster L4

A small pit cluster L4 was located *c*.13m north of the opening in boundary ditch G13/17. It comprised a pair of pits G31 and a single pit G96, *c*.5m apart.

Their fills (L4 and L4.1) produced a sizable assemblage of contemporary pottery (the majority from a single jar) and a small quantity of animal bone.

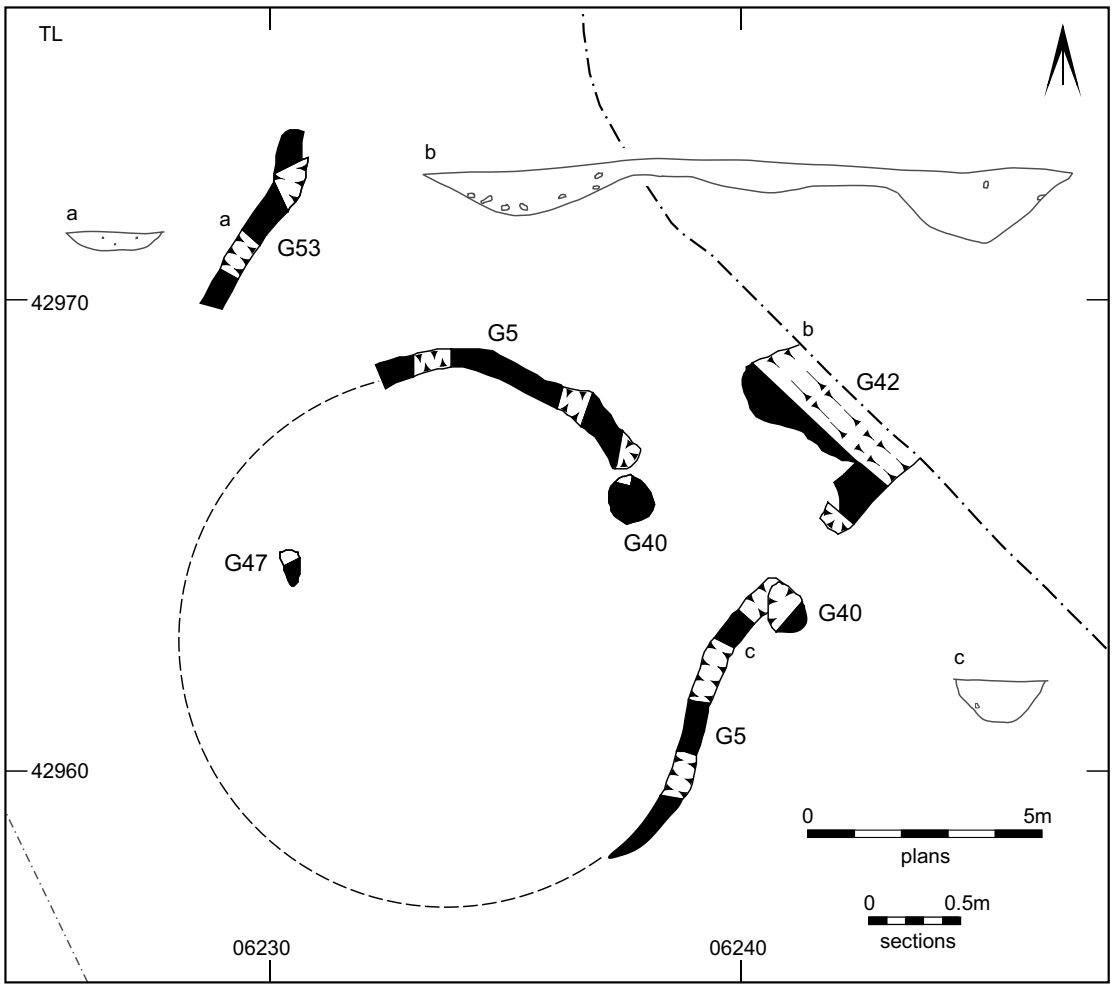


Figure 7: Phase 3: Close-up of roundhouse G5 and sections

Pits G31 and G96

G31 comprised two oval pits, *c*. 0.8m apart. Both were *c*. 1.5m by 0.6m and less than 0.3m deep, with concave profiles and concave bases (Fig. 6h). With a diameter of *c*. 3m, pit G96 to the east was larger. It was truncated by a later ditch but was probably circular in plan. It had a concave, U-shaped profile, a flat base and was 0.25m deep.

The pits were filled with either a mid orange grey clay or a mid red brown clay (G31.1 and G96.1) with occasional small to medium stones. Fill G96.1 contained 83 sherds of contemporary pottery, 79 of which derived from the same jar. Pit fill G31.1 contained 6 fragments of animal bone.

Activity focus L3

L3 was situated within Area B *c*. 60m northwest of the main focus of late Iron Age/early Roman activity. It comprised two postholes G59 and three small, intercutting pits G60. The fills of these features (L3.1) produced a small quantity of domestic refuse.

Postholes G59

Circular postholes G59 were *c*. 7.5m apart. They were *c*. 0.4m in diameter and *c*. 0.25m deep with steep-sided, U-shaped profiles.

Their sole fill (G59.1) comprised a mid orange brown silty clay with occasional charcoal flecks. A single sherd of contemporary pottery was recovered.

Pits G60

Three intercutting, ovoid pits G60 were located *c*. 10m NW of postholes G59. They were *c*. 0.6m to 0.80m in diameter and *c*. 0.1m to 0.35m deep, with concave profiles.

The pits' fills (G60.1) varied from a dark grey sandy silt to a dark brown silty clay. They contained 8 sherds of contemporary pottery, 4 fragments of fired clay and 2 fragments of animal bone.

PHASE 4: ROMANO-BRITISH SETTLEMENT (FIG. 8)

A rectilinear enclosure system L7 was established possibly in the late 1st century AD in the same location as the Phase 3 settlement, with some evidence for continuity. For example, the earlier boundary ditch G13/G17 was re-dug and incorporated into the new system. It is also possible that the Phase 3 domestic focus L5 continued in use because, unlike L6, it was not truncated by the new enclosure system. Several separate enclosures or sub-enclosures were identified. Domestic activity L8/L9 and L10/L11 was concentrated in the southern parts of all three. This included a single roundhouse L8 in the southwest corner of one of the enclosures, although the majority of the surviving features were pits.

With the exception of a relatively large assemblage from L10 and a semi-complete vessel from L7, the majority of the recovered artefacts came from pits and ditches close to the roundhouse. A range of pottery types were recovered, although the majority of the assemblage comprises early–middle Roman sand-tempered greywares and shelly coarse wares. Again, it is essentially low status and utilitarian in nature, with very few regional or continental imports. Compared to the earlier phases of settlement, a greater variety of artefact types were recovered, although they are still typical of a rural farmstead. New types include brick, tile, and a range of metal objects. Spelt wheat continued to be grown at the site, with evidence for both processing and malting. The small assemblage of animal bone is also typical of domestic refuse.

Enclosure system L7

A series of rectangular enclosures L7 were established on an east–west alignment. They continued beyond the limit of excavation, so their full extent and dimensions are unknown. However, ditches G9/16 and G2 defined an enclosure measuring *c.* 55m north-south. The relatively substantial east–west ditch G2 was re-dug at least once. This significant boundary may even have defined the southern limit of the enclosure system. The other ditches were less substantial and contained a number of gaps, *c.* 6-8m wide, which probably represent entrances.

The ditches in this enclosure system produced a considerable assemblage of finds, including charred cereal remains, from both primary and, in particular, later fills. Interestingly, the substantial southern ditch G2 produced very little material. In contrast, the ditches in the northern half of Area A appear to have accumulated quantities of domestic refuse from roundhouse L8. The rectangular array of ditches G6/G20/G21 also produced a large assemblage of material, perhaps supporting the suggestion that they enclosed a domestic structure.

Ditch G2

East–west boundary ditch G2 was located towards the southern end of Area A; it may have defined the southern limit of the enclosure system. It was over 40m long, continuing beyond the limits of excavation, with no discernable breaks. Overall, it was *c.* 2m wide and 0.6m deep, with a concave, U-shaped profile (Fig. 8h). Towards the east it had been re-dug on its northern side as a more substantial ditch (Fig. 8j). There was no evidence for an associated bank.

Its mid orange grey clay fill (G2.1) contained occasional small stones and produced 4 sherds of contemporary pottery.

Ditches G9/G14 and G16

East–west aligned ditches G9/G14 represent two lengths of the same ditch, truncated by later activity. They terminated to the east and, after a *c.* 14m gap, ditch G16 continued the alignment. The boundary was at least 75m long, continuing beyond the limit of excavation to both east and W. Ditch G9/G14 was *c.* 1m wide and *c.* 0.4m deep, with a steep-sided profile and flattish base (Fig. 8a). It shallowed to the east where it was only 0.1m deep (Fig. 8c). Ditch G16 was *c.* 0.7m wide and *c.* 0.2m deep, with an asymmetrical, concave profile and irregular base.

From east to west, the colour of the ditches' fills changed from mid brown grey to dark grey brown silty clay. Only the western segments of ditch G9 contained a primary and secondary fill (G9.1). The latter produced 84 sherds of contemporary pottery, 11 fragments of fired clay, a 1st-2nd century coin (RA 32), a nail (RA 81) and 13 fragments of animal bone. The only fill (G14.1) of ditch G14 produced 24 sherds of mainly 1st-2nd century pottery, 22 fragments of fired clay slabs and a single fragment of animal bone. Ditch G16 also contained only one fill (G16.1) and this contained 169 sherds of contemporary pottery, of which 157 came from a semi-complete cordoned jar. This fragmentary vessel was found towards the bottom of the ditch and is likely to have been broken prior to deposition. In addition, 2 fired clay slabs, 2 other fragments of fired clay, a single fragment of tegula and 49 fragments of animal bone were recovered.

Ditches G11 and G19

Two north–south enclosure ditches G11 and G19, *c.* 2.5m apart, were identified in the northern part of Area A. They were both *c.* 18m long and continued beyond the limit of excavation to the N. To the S, they both terminated in similar locations. Ditch G11 was *c.* 1.35m wide and *c.* 0.4m deep, with an irregular, concave profile (Fig. 8d); it shallowed to a depth of 0.20m at its terminal. The two segmented lengths of ditch G19 were *c.* 1m wide and *c.* 0.25m deep, with an asymmetrical, concave profile (Fig. 8e). It shallowed to a depth of 0.15m at its terminal. There was no evidence for an associated bank in either ditch's fills. Although stratigrapically possible, these ditches are unlikely to have been contemporary but they clearly served a similar purpose.

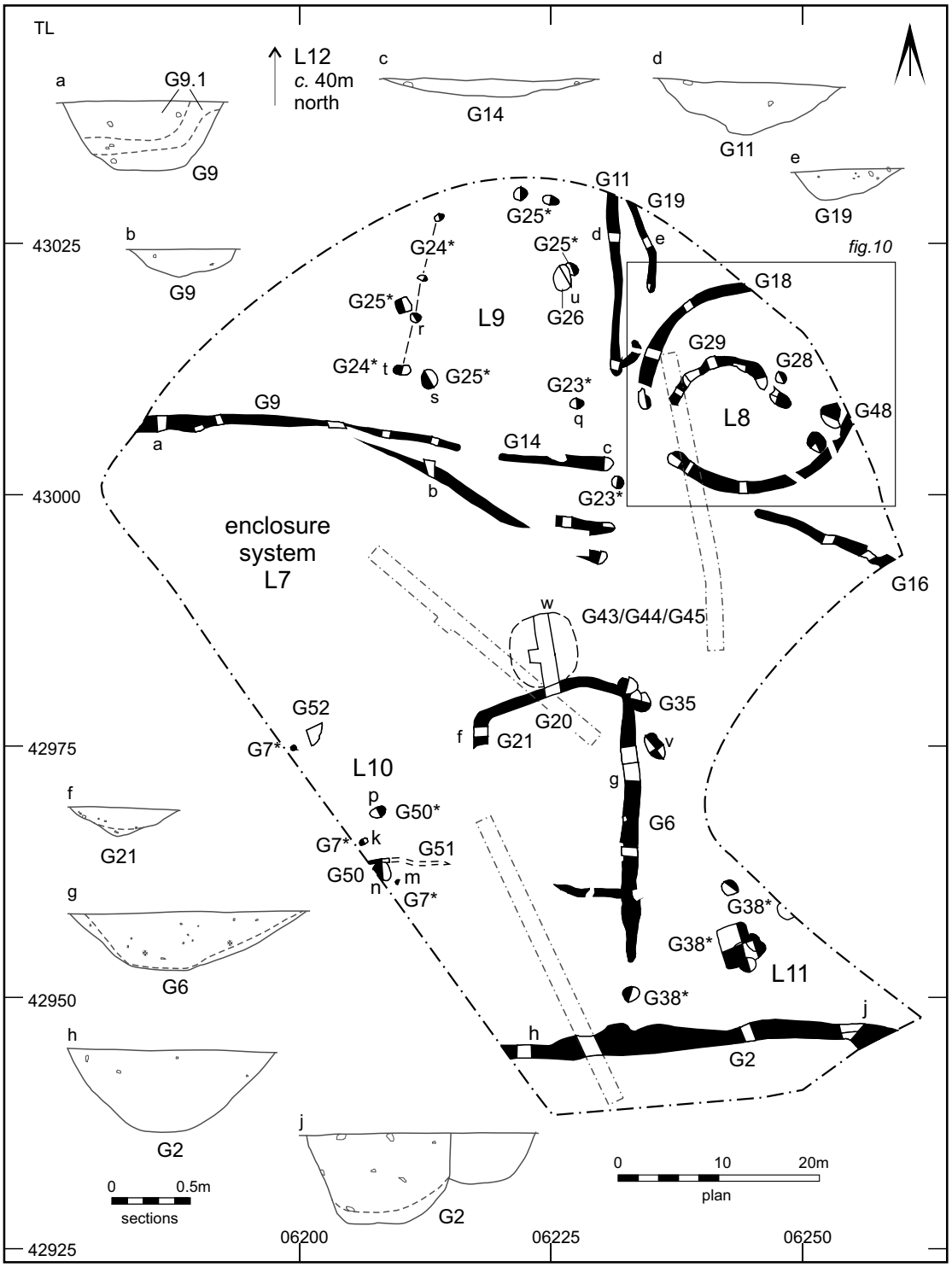


Figure 8: Phase 4: Early Roman plan and boundary ditch sections

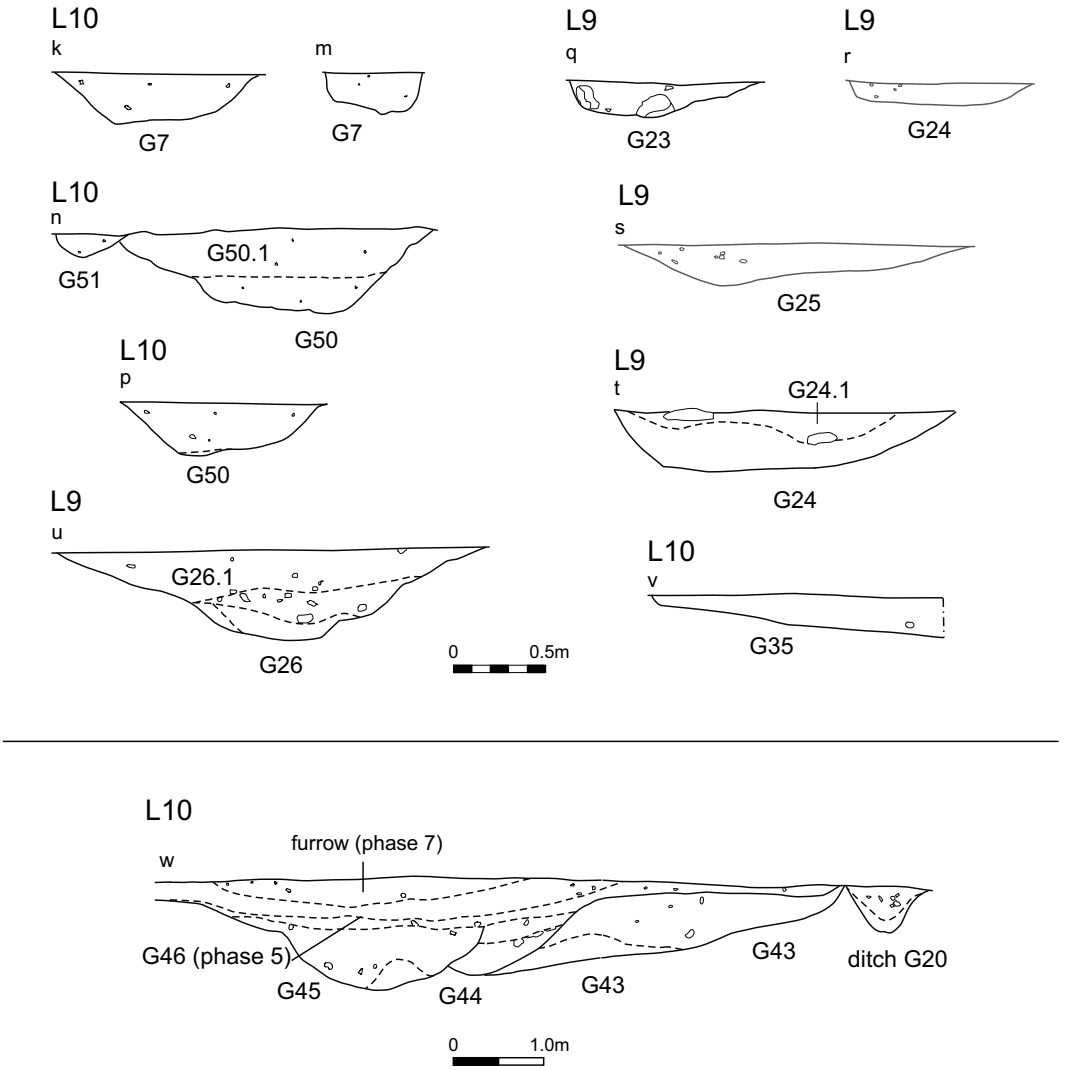


Figure 9: Phase 4: Early Roman boundary ditch sections

The primary fill of ditch G11comprised mid yellow grey silty clay with occasional small stones and charcoal flecks. It was 0.30m thick. It contained 33 sherds of contemporary pottery, including a hemispherical decorated samian bowl from Central Gaul (Fig. 17: P20). The secondary fill (G11.1) comprised a mid grey brown silty clay with occasional small to large stones. It produced a number of artefacts, including 22 sherds of contemporary pottery, 428 fragments of fired clay and a small quantity of vitrified clay.

The main infilling of ditch G19 (G19.1) comprised a light yellow brown silty clay with occasional small to large stones. It produced 22 sherds of contemporary pottery and a hobnail (RA 90).

Ditches G6/G20/G21

Three continuous ditches G6/G20/G21 appeared to define an area, *c*. 27m by 13m, between east–west ditches G2 and G9/14/16. North–south ditch G6 terminated to the south, *c*. 7m from ditch G2. It was *c*. 1.0m wide and *c*. 0.4m deep, with an asymmetrical, concave profile and a flat base (Fig. 8g). East–west ditch G20 was contiguous with G6; it was *c*. 0.9m wide and *c*. 0.5m deep, with a concave, U-shaped profile (Fig. 9w). North–south ditch G21 was contiguous with G20; it was *c*. 1.35m wide and *c*. 0.35m deep, with a wide, V-shaped profile (Fig. 8f). North–south ditch G6 is on the same alignment as boundary ditch G11 to the north, suggesting it too was an enclosure boundary. However, in combination with G20 and G21, it may form a small, rectangular enclosure, which could have held a rectangular building.

The ditches' primary fill comprised a *c*. 0.1m thick, mid yellow brown sandy clay, with occasional small to medium stones.

It produced 17 sherds of contemporary pottery and 13 fragments of animal bone.

The secondary fills ranged from dark black grey to mid brown grey silty clay. Fill G6.1 contained 99 sherds of contemporary pottery, 29 fragments of fired clay and 17 fragments of animal bone. Ecofactual sample 3 contained a high concentration of glumes of spelt wheat. Fill G20.1 contained 148 sherds of contemporary pottery, a single fragment of *tegula*, 3 brick fragments, 4 fragments of fired clay, a possible iron shears blade (RA 77) and 31 fragments of animal bone. Part of an iron wheel hub (RA 47) was found in the unexcavated upper ditch fill during metal detecting.

Roundhouse L8 (Fig. 10)

A pennanular ditch G18, *c*. 18m in diameter, is presumed to have served as a drain around roundhouse L8. The only gap in the ditch lay to the southwest, suggesting an entrance on this side of the building. Although it is unclear if they are contemporary, a number of other features in the vicinity may have been associated with the roundhouse. They comprise a curvilinear ditch G29 and several large pits G28 and G48 situated within the bounds of the pennanular ditch. Both the primary (L8) and secondary (L8.1) fills of these features produced a range of domestic refuse, including part of a rotary quern (RA 89).

It is not possible to assign a precise date to the construction and use of the roundhouse. However, the majority of the pottery comprised Romanised fabrics and forms, with only seven sherds of late Iron Age material. This suggests that the building was occupied during the Roman period.

Drainage ditch G18

Pennanular ditch G18 continued beyond the limit of excavation. However, sufficient was present to demonstrate that it enclosed an area *c*. 18m in diameter. Its exposed length was continuous except to the southwest, where a gap of 5m suggests an entranceway. It was generally *c*. 1.2m wide, increasing slightly towards its terminals. It was *c*. 0.2m to 0.4m deep, with a concave profile and flat base (Fig. 10a, g and h).

Its primary fill comprised light grey orange silty clay with occasional charcoal flecks and medium to large stones. This produced 12 sherds of contemporary pottery, one fragment of daub and one fragment of fired clay.

The secondary fills (G18.1 and G18.2) ranged from mid red brown to dark grey brown silty clay with occasional small to large stones. Recovered artefacts included 41 sherds of contemporary pottery, 11 fragments of fired clay, part of a rotary quern (RA 89) and 19 fragments of animal bone.

Ditch G29

Curvilinear ditch G29 was located within the circumference of ditch G18. It is, therefore, uncertain if it was contemporary. However, its western terminal appeared to respect the entrance to the roundhouse. The ditch was *c*. 1.1m wide and *c*. 0.3m deep with a concave, U-shaped profile and base (Fig. 10b and c).

Its *c*. 0.15m thick primary fill comprised mid yellow grey clay with occasional small to large stones. Fifteen sherds of contemporary pottery (including 5 of 1st–2nd century types), 5 fragments of fired clay and 3 fragments of animal bone were recovered.

The secondary fill (G29.1) comprised dark brown grey sandy clay with occasional medium stones and charcoal flecks. It contained 5 sherds of contemporary pottery (including two of 2nd century types) and 12 fragments of fired clay.

Pits G28

One sub-circular and two oval pits G28 were situated to the east of ditch G29 within the circumference of ditch G18. The sub-circular pit was 1.2m in diameter. The intercutting, oval pits were *c*. 2m by 0.6m. All had asymmetrical, concave profiles with slightly irregular, flat bases; they were *c*. 0.25m deep (Fig. 10d and e).

They were filled (G28.1) with a mid yellow grey sandy clay with occasional small to large stones. Artefacts recovered from them included 23 sherds of contemporary pottery (including 4 sherds of 2nd century types), a tiny quantity of vitrified clay and 6 fragments of fired clay.

Pits G48

Two large sub-oval pits G48 were adjacent to, but within, the circumference of ditch G18. They both measured *c*. 2m by 1.5m; they had U-shaped profiles with flattish bases and were 0.40m and 0.85m deep (Fig. 10f).

A 0.3m thick primary fill in the northern pits comprised a dark orange grey sandy clay with occasional large stones.

The secondary fills (G48.1) varied from a mid orange grey sandy clay to a dark grey brown silty clay with occasional small to medium stones. They contained a total of 18 sherds of contemporary pottery (including a single sherd of a 2nd century type) and 3 fragments of animal bone.

Domestic focus L9 west of roundhouse L8

Domestic focus L9 was located in the southeast corner of the enclosure defined by ditches G9/G14 and G11/G19, to the west of roundhouse L8. The features were distributed over an area *c*. 25m in diameter and were separated into four groups, G23, G24, G25 and G26, based on size and spatial location. Most of the features produced small quantities of domestic refuse. Pit G26 was exceptional; its fill comprised a series of rubbish deposits, presumably derived from the roundhouse.

Pits G23

Two circular pits G23, 5m from roundhouse L8, appeared to mirror its entrance; the significance of this is uncertain. They were *c*. 1m in diameter and *c*. 0.2m deep, with asymmetrical concave profiles and flattish bases (Fig. 9q).

Their mid grey brown silty clay fill (G23.1) contained occasional medium to large stones. It also produced 4 sherds of contemporary pottery and 6 fragments of fired clay.

Pits G24

Four sub-circular pits G24, on *c*. 4m spacings, may have formed an approximate north–south alignment extending for

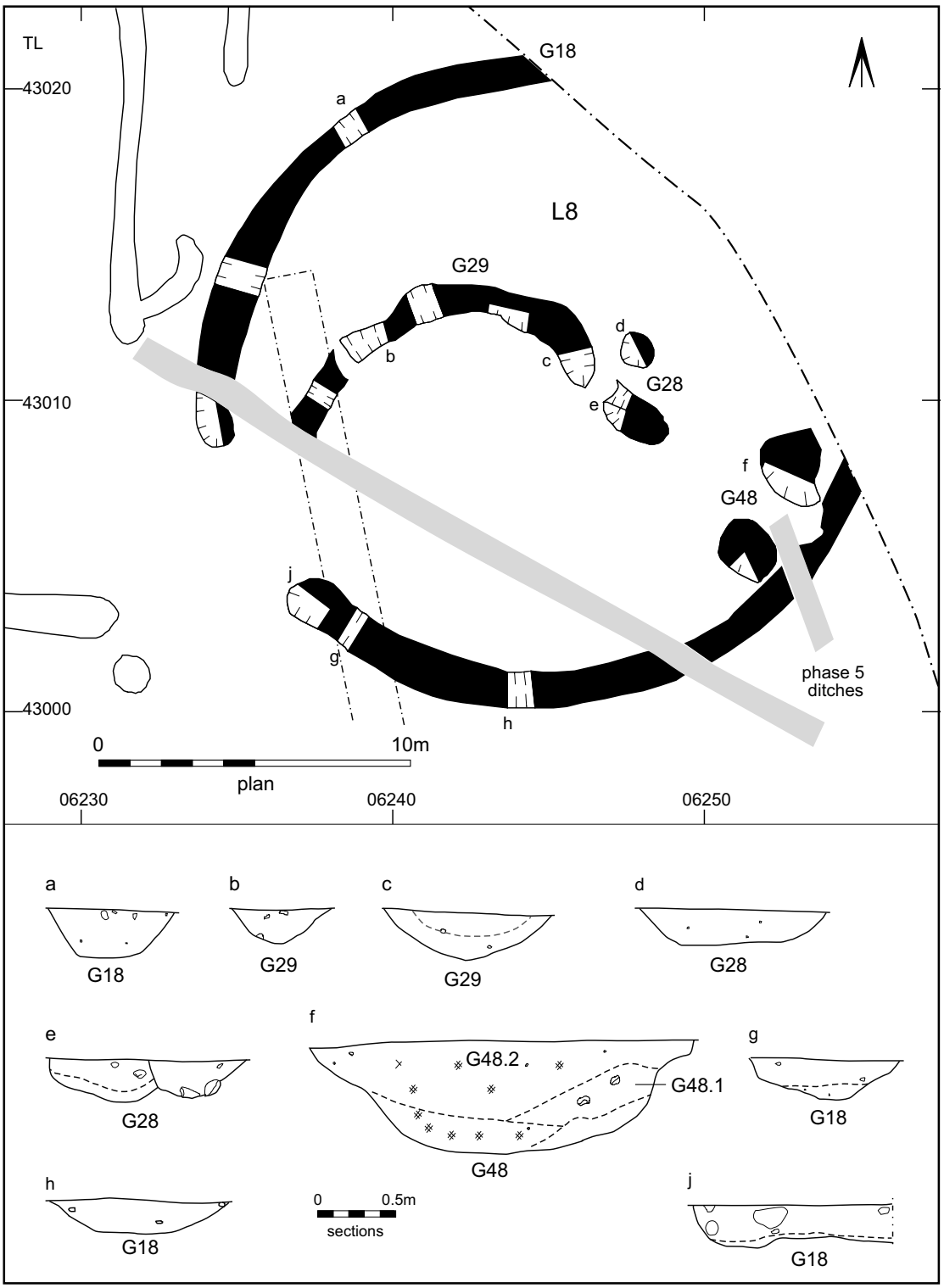


Figure 10: Phase 4: Close-up of roundhouse G18 and sections



Plate 1: Investigation of pottery within Phase 4 pit G26



Plate 2: Archaeological recording in Phase 4 water pit G43/44/45

16m. They were *c.* 1m in diameter and 0.2m deep, with similar asymmetrical concave profiles (Fig. 9r and t).

A primary fill of mid yellow brown clay in one pit produced three sherds of contemporary Roman pottery. The secondary fills (G24.1) ranged from a mid grey brown silty clay with moderate large stones in the southern pits, to a dark grey brown clay with moderate small to medium stones in the northern pits.

Pit G26 (Plate 1)

Pit G26, located next to enclosure ditch G11, was the largest of the features in domestic focus L9. It measured 2.35m by 1.8m, was 0.50m deep, and had a stepped, U-shaped profile (Fig. 9u). It was fully excavated because it contained a series of dumps of domestic debris.

The primary fill, a mid yellow orange silty clay, contained 10 sherds of contemporary pottery (including a single sherd of 2nd century type), 11 hobnails (RA 87), 6 fragments of fired clay and 72g of vitrified clay.

The secondary fill (G26.1) of dark orange grey silty clay contained a large quantity of domestic debris, including 130 sherds of contemporary pottery (Fig. 17: P15, P17 and P18). Amongst the latter were 41 sherds from the same jar (Fig. 17: P18) and 8 sherds of 2nd century types. In addition, 4 fragments of daub, 23 fragments of fired clay, 199g of vitrified clay, a fragment of a glass vessel (RA 88) and 2 nails (RA 85 and RA 86) were also recovered. The relatively large animal bone assemblage (372 fragments) was analysed in detail. It is typical of dumped domestic refuse; cattle, sheep/goat, horse and pig were identified. Charred spelt wheat, much of which had germinated, was also recovered; it may represent grain that was accidentally burnt in the process of being malted.

Pits G25

The remaining five pits in this area have been assigned to G25. They were similar in size and profile; three were circular, one was square and one was oval. They were 1.4m to 1.8m in diameter and less than 0.20m deep, with concave asymmetrical profiles and uneven bases (Fig. 9s).

The pits' fills (G25.1) varied from mid grey yellow clay to mid blue grey clay with occasional small to medium stones and charcoal flecks. Only two produced any finds: 6 sherds of contemporary pottery, 12 fragments of fired clay, 139g of vitrified clay and 6 fragments of animal bone.

Activity Focus L10

Located in the enclosure defined by ditches G2 and G9/14/16, this group of features comprised postholes G7, possible structural slot G51, a water pit G43, and pits G35, G50 and G52. This activity focus lay to the west and north of the rectangular array of ditches G6/G20/G21, with which it may have been associated. Although the features were broadly contemporary, some of the pits were intercutting and the water pit had been re-dug at least twice (G44/G45).

Again, as with domestic focus L9, most of these features produced small quantities of domestic refuse, with two features producing much larger assemblages. Perhaps surprisingly, these did not include the water pit, although this did produce the earliest example of human bone from the site: four small, disarticulated fragments. The larger assemblages of finds came from the two smaller pits G50, immediately to the west of enclosure G6/G20/G21. This may represent further supporting evidence for the suggestion that this rectangular array of ditches enclosed a domestic structure (see above).

Postholes G7

Three postholes G7, at 4m and 11m spacings, have been tentatively interpreted as forming a northwest–southeast alignment that extended for *c.* 16m. They were *c.* 0.5m in diameter and 0.1m to 0.25m deep, with concave, U-shaped profiles and uneven bases (Fig. 9k and m). None contained evidence for a postpipe or associated packing.

Their fills (G7.1) ranged from mid yellow grey silty clay to mid grey brown silty clay with occasional small stones. Two produced a total of 10 sherds of contemporary pottery and 2 fragments of fired clay.

Possible structural slot G51

East–west slot G51was only visible for 2m; it continued beyond the limit of excavation to the west and was truncated to the east. It was 0.4m wide and 0.15m deep, with a gentle, asymmetrical, V-shaped profile (Fig. 9n).

Its fill (G51.1) comprised a mid grey brown clay with occasional small stones. It produced 10 sherds of contemporary pottery, 3 fragments of fired clay, a nail (RA 93) and 3 fragments of animal bone.

Water pit G43/G44/G45 (Plate 2)

Water pit G43 was located in the centre of the enclosure defined by ditches G2 and G9/14/16, immediately north of sub-enclosure G6/20/21. It had been re-dug at least twice (G44/G45).

The original water pit G43 was *c.* 4m in diameter and 0.6m deep, with gently sloping sides and a concave base (Fig. 9w). Its northern end was later re-dug as G44, which was 2.50m in diameter and 0.40m deep, with a concave U-shaped profile and a concave base. This was again re-dug at its northern end as G45, which was at least 3m in diameter and 0.65m deep, with an asymmetrical, concave, U-shaped profile.

All of the pits contained some primary infilling, either a grey orange or a mid yellow orange sandy clay. This was 0.25m to 0.35m thick and appeared to be derived from the sides of the pits. Only the primary fill of the latest water pit produced artefacts (see below).

The secondary fill of the original water pit (G43.1) was a mid orange yellow sandy clay with occasional small to large stones. It contained 23 sherds of contemporary pottery (Fig. 17: P16), 7 fragments of fired clay, 4 fragments of human bone and 16 fragments of animal bone.

The fills of the first re-cut (G44.1/G44.2) comprised a mid green grey sandy clay with occasional flecks of charcoal. This produced 2 sherds of contemporary pottery (Fig. 17: P14), 58 fragments of fired clay, a Roman bone hairpin (RA 75) and a fragment of animal bone.

Finds from the primary fill of the latest re-cut G45 include 29 sherds of contemporary pottery, 4 fragments of fired clay and 8 fragments of animal bone. The secondary fill (G45.1) consisted of mid grey silty clay with occasional small to medium stones but no artefacts.

Pits G50
Two sub-circular pits G50 were located 4m apart. They were up to 1.6m in diameter and up to 0.45m deep, with U-shaped concave profiles and flat bases (Fig. 9n and p).

Their fill (G50.1) was a mid grey brown silty clay with moderate small to medium stones and charcoal flecks. Both produced large assemblages of artefacts, which include 239 sherds of contemporary pottery, 4 fragments of fired clay, a nail (RA 58) and 38 fragments of animal bone.

Pit G52
Pit G52 was probably sub-circular in plan but had been truncated by later activity. It was *c*. 1.7m in diameter and 0.3m deep, with an irregular U-shaped profile and uneven base.

Its 0.10m thick primary fill comprised a mid brown orange silty clay with occasional large stones. It contained no artefacts. The secondary fill (G52.1) comprised a dark grey silty clay with occasional large stones that contained 5 sherds of contemporary pottery.

Pits G35
Four pits G35 were located close to one another at the northeast corner of sub-enclosure/structure G6/20/21; two were truncated by the ditch. Three of the pits were intercutting, while the other pit was located 2m to the south. All of them were up to 1.5m in diameter and up to 0.35m deep, with concave profiles and uneven bases (Fig. 9v).

They were filled (G35.1) with a dark black brown clay silt with occasional small stones. This produced 54 sherds of contemporary pottery (Fig. 17: P19), 21 fragments of fired clay, a fragment of *tegula* and 8 fragments of animal bone.

Pit cluster L11

A cluster of pits G38, covering an area *c*. 15m in diameter, lay close to enclosure ditch G2. Several of the pits were intercutting and were therefore only broadly contemporary. They were relatively large, but quite shallow, and may originally have been dug to extract clay. They produced a small assemblage of pottery.

Pits G38
An arrangement of eight pits G38 lay 5m north of southern enclosure ditch G2. One pit was rectangular in plan and 4m long; the remainder were either circular or oval and *c*. 1.8m in diameter. Five of the pits were intercutting, with the rectangular pit being the earliest. All were less than 0.3m deep, with concave, U-shaped profiles and flat bases.

One pit contained a primary fill, a 0.2m thick mid yellow grey sandy clay with occasional small stones. It produced 2 sherds of contemporary pottery. The secondary fills (G38.1) varied from mid yellow brown to light brown grey clay; they produced 9 sherds of contemporary pottery.

Pits L12

L12 comprised three pits G57 and G58, located in Area B. They produced a relatively small assemblage of pottery and animal bone, probably reflecting their distance from the main settlement area.

Pits G57
The two oval pits G57 were 6m apart. They were 0.9m to 2m long, 0.6m and 1m wide, and *c*. 0.2m deep, with asymmetrical, concave profiles.

Their fills (G57.1) comprised dark grey brown to mid yellow grey silty clay and produced a single sherd of contemporary pottery.

Pit G58
Circular pit G58 was located 37m to the west of pits G57. It was *c*. 0.5m in diameter and 0.4m deep, with a stepped, concave profile and irregular, concave base.

The primary fill comprised a 0.15m thick, light yellow grey sandy clay with occasional small stones and charcoal flecks. The secondary fill (G58.1) comprised a mid brown grey sandy clay with occasional small stones and moderate charcoal flecks. It produced 8 sherds of contemporary pottery and 9 fragments of animal bone.

PHASE 5: LATER ROMANO-BRITISH ACTIVITY (Fig. 11)

The earlier east–west settlement enclosure system was replaced by a single northwest–southeast rectangular enclosure L13. This was defined, in part, by ditches, and also featured an internal, ditched sub-division. Evidence for activity within the interior (L15) was limited to a single water pit, a large central depression and a small cluster of pits. A number of other pits L14 lay beyond the enclosure's northern boundary. The distribution of both finds and features within the enclosure suggests that its southern half was the main focus of activity.

The Phase 5 pottery assemblage is characterised by a greater quantity of late Roman fine wares, imported from regional production centres such as Oxfordshire and the Nene valley. Vessel forms of later Roman date are also present amongst the ubiquitous shell- and sand-tempered coarse wares. The presence of possible kiln furniture suggests that the latter may have been produced within the settlement. Amongst a wide range of everyday objects were four late 3rd to early 4th century coins; six more of the same date were residual in later contexts. Although the evidence is limited, the charred plant remains (dominated by wheat chaff) and the animal bone assemblage suggest that the economic basis of the settlement remained largely unchanged. A slight increase in the relative abundance of sheep may be significant and is complemented by the recovery of a wool comb.

The depression at the centre of the enclosure produced the majority of the Phase 5 finds. These include a number of sheep skulls, which represent

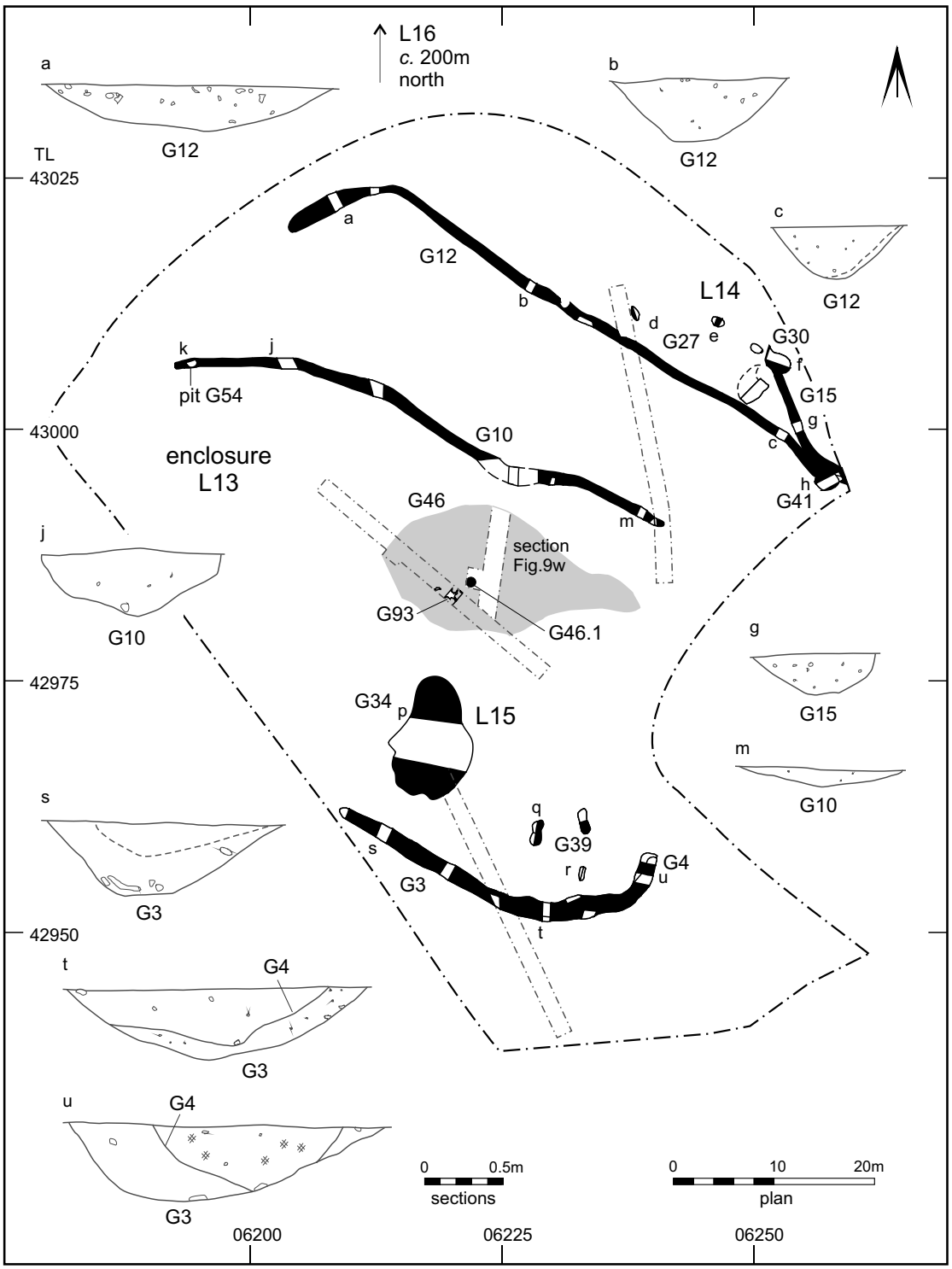


Figure 11: Phase 5: Later Roman plan and boundary ditch sections

sacrificial remains, several fragments of a human skull, and a number of unusual artefacts. Interestingly, no buildings or structures were identified, and the majority of the features were either on the periphery of, or outside, the enclosure. Taken together, this evidence may suggest that this area was no longer used for habitation but had taken on a more religious function.

Enclosure L13

Northwest–southeast enclosure L13 was defined by ditches on its southwest (G3/4) and northeast (G12) sides. The silting patterns in the eastern part of ditch G12 suggest the presence of an internal bank along the northeast side of the enclosure.

No ditch was identified to the northwest. However, the change in alignment at the northwestern end of ditch G12 suggests some form of physical boundary did exist on this side of the enclosure. A similar arrangement was repeated at the southeastern end of ditch G3/4, which also changed alignment and terminated. It is uncertain whether the southeast side of the enclosure was also unditched because it lay beyond the limit of excavation. Ditch G10 was roughly parallel to the northeast side of the enclosure; it appears to represent an internal partition.

Renewal of the enclosure ditches is demonstrated by the re-cutting G4 of its southwest ditch. A short length of ditch G15, to the north of the enclosure, may represent minor remodelling of its northeast side.

As with the Phase 4 enclosure system, these ditches produced a considerable quantity of domestic debris, particularly pottery, fired clay, animal bone, and charred wheat (both chaff and grain). The great majority of this material came from ditches G3/G4 and ditch G10, suggesting that the southern half of the enclosure was the main focus of activity. The distribution of internal features supports such an interpretation.

Ditch G3/G4

The 33m curvilinear ditch G3 formed the southwest boundary of the enclosure. It terminated to the northwest and to the southeast. It was *c.* 1.4m wide and 0.4m deep, with a concave, U-shaped profile (Fig. 11s, t and u). The southeast part of the ditch was re-cut by G4, which had an asymmetrical, concave profile (Fig. 11t and u). There was no evidence in the fills of either ditch to suggest the presence of an associated bank.

The 0.25m thick primary fill (G3.1) varied from a light yellow grey silty clay with occasional stones and flecks of burnt clay to a mid black grey clay with occasional medium sized stones. It produced 49 sherds of contemporary pottery (Fig. 18: P25 and P26), 9 fragments of animal bone, 4 nails (RA 59, 60, 63 and 64), an iron tack (RA 62) and a fragment of iron bar (RA 61).

The secondary fill (G3.2) comprised mid grey brown clay silt with occasional stones. It produced 44 sherds of contemporary pottery (Fig. 18: P24), including 2 sherds of 3rd–4th century types, a fragment of fired clay and 166 fragments of animal bone. The fills of the terminals (G3.3) comprised a yellow grey silty clay with occasional small stones; they produced a single contemporary pottery sherd.

The secondary fill (G4.1) of the re-cut G4 comprised a dark brown silty clay. It produced 23 sherds of 3rd–4th century pottery, 3 fragments of fired clay, a brick fragment and 12 fragments of animal bone. Ecofactual sample 7 contained charred plant remains dominated by wheat chaff.

Ditch G12

Ditch G12 formed the northern boundary of the enclosure; it was at least 55m long. It terminated to the northwest and continued beyond the limit of excavation to the southeast. It was *c.* 1.5m wide and 0.40m deep, with a concave, U-shaped profile (Fig. 11a and b). The southwest side of one excavated segment contained a 0.1m thick primary fill of light brown grey clay with occasional flint nodules, suggesting the presence of an internal bank (Fig. 11c).

The secondary fill (G12.1) varied from a light grey brown silty clay with occasional small stones in the northwestern part of the ditch to a mid yellow grey clay towards the southeast. It produced 9 sherds of contemporary pottery, a fragment of fired clay slab and 25 other fragments of fired clay.

Ditch G10

Internal ditch G10 was located *c.* 13m south of, and parallel to, enclosure ditch G12. It was 50m long and terminated to the northwest and the southeast. It was 0.9m wide and 0.30 deep to the northwest (Fig. 11j), but shallowed to 0.1m to the southeast (Fig. 11m). It had a concave, symmetrical profile.

Its fill (G10.1) comprised a mid brown grey silty clay with occasional small to large stones and charcoal flecks. It produced a relatively large assemblage of finds, consisting of 75 sherds of contemporary pottery, including 13 sherds of 3rd–4th century types, a brick fragment, 87 fragments of fired clay and 13 fragments of animal bone.

Ditch G15

The position and alignment of ditch G15 indicates that it was not contemporary with the original enclosure. It largely lay to the north of the enclosure but, for part of its length, appeared to truncate and follow the same alignment as ditch G12. It was visible for 12m. To the north it had been truncated; to the south it continued beyond the limit of excavation. It was *c.* 0.8m wide and 0.35m deep, with a concave, U-shaped profile (Fig. 11g).

Its fill (G15.1) comprised a mid brown grey sandy clay with occasional small stones.

Activity Focus L15

Evidence for activity in the southern half of enclosure L13 comprised a water pit G34, a small cluster of pits G39, depression G46 and a single pit G93 (dug into the depression).

Collectively, these features produced the single greatest assemblage of domestic debris from the site, emphasising that activity within enclosure

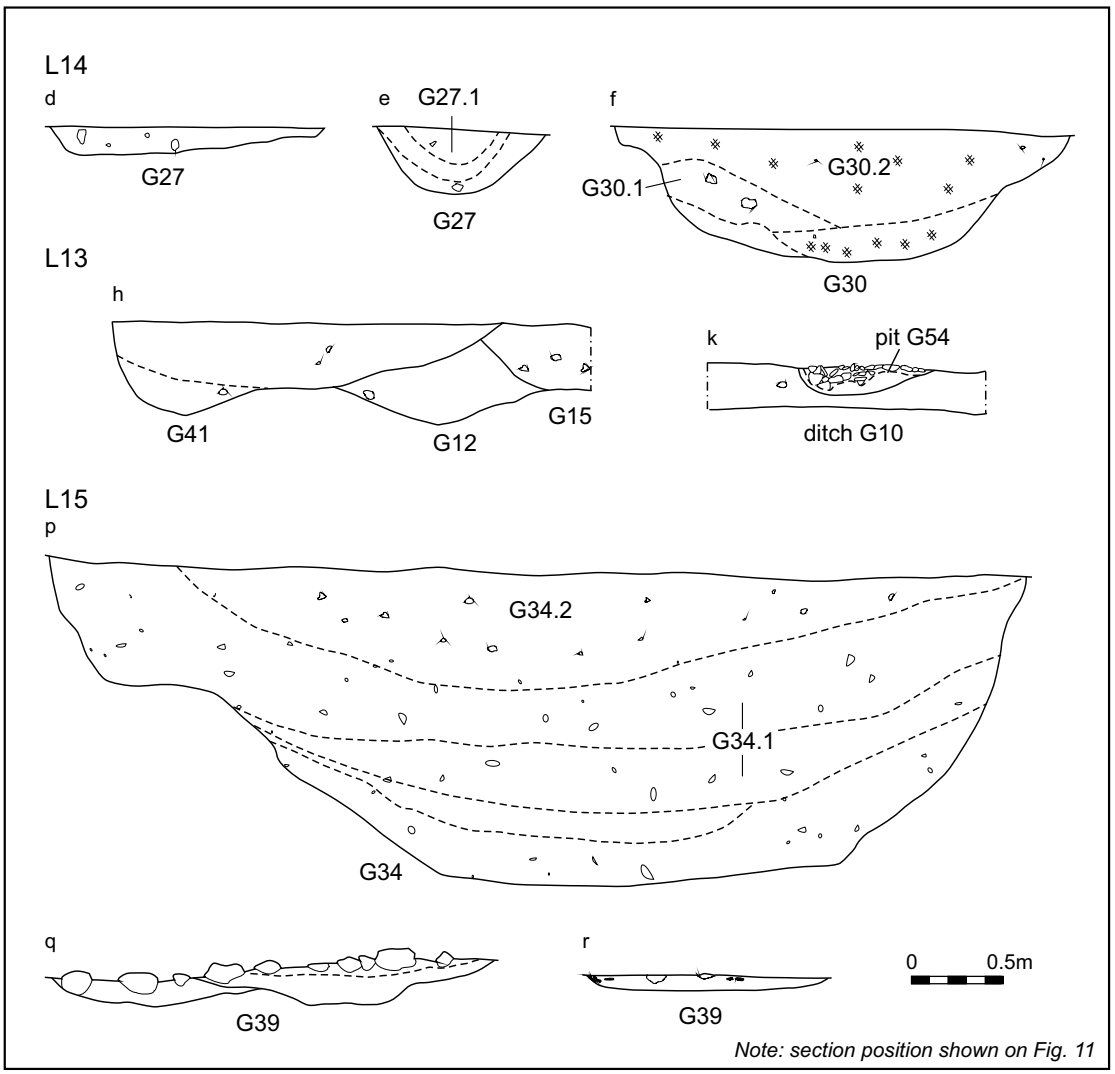


Figure 12: Phase 5: Later Roman sections

L13 was centred on its southern half. Once again, pottery, animal bone, fired clay fragments and charred crop remains predominate. A wide range of other everyday objects were also recovered, including the remains of a hobnail shoe, a whetstone, a mixing palette for cosmetics or medicines, and an iron comb for untangling wool prior to spinning. The presence of sheep skulls, apparently from sacrificed animals, and fragments of a human skull hint at more unusual activities.

Water pit G34

A large, pear-shaped water pit G34 was located 4m north of enclosure ditch G3/G4. It was *c.* 12m by 7.5m in extent and 1.7m deep, with a steep-sided, asymmetrical, U-shaped profile and flat base (Fig. 12p).

Its 0.4m thick primary fill comprised a waterlogged mid blue grey clay deposit, which produced 2 sherds of contemporary pottery (Fig. 18: P28). Waterlogged seeds from ecofactual sample 22 were dominated by duckweed, which would have grown on the surface of the water, and stinging nettle and hemlock, which must have been growing within the settlement.

The secondary fill (G34.1) comprised a mid green grey clay, which produced 81 sherds from 40 contemporary pottery vessels (Fig. 18: P21, P23 and P27), including 2 sherds of 3rd–4th century types. It also contained a fragment of fired clay slab, 8 other fragments of fired clay, a single piece of *tegula*, a nail (RA 102) and 24 fragments of animal bone.

Tertiary fill (G34.2) comprised a dark grey clay with occasional small stones and charcoal flecks. It produced 41 sherds of contemporary pottery (Fig. 18: P22), including 7 sherds of 3rd–4th century types. It also contained 4 fragments of fired clay, 2 fragments of *tegula*, a copper finger ring (RA 2), a nail (RA 67) and 3 fragments of animal bone. The presence in both



Plate 3: Phase 5 'special' deposit G46.1 of sheep skulls--

the secondary and tertiary fills of sherds from the same vessel could suggest that water pit was rapidly infilled.

Pit cluster G39

Four sub-oval pits G39 all lay within *c.* 5m of one another, close to the eastern terminal of enclosure ditch G3/4. They were 1.1m to 2.5m long and 0.5m to 1.2m wide with irregular concave profiles. All were less than 0.25m deep (Fig. 12q and r). Two were intercutting and three truncated earlier Phase 4 features.

The pits were filled by deposits that varied from a dark black grey silty clay with occasional small to medium stones (G39.1) to a mid brown grey silty clay with inclusions of red clay and occasional small stones (G39.2). They produced 83 sherds of contemporary pottery including 4 sherds of 3rd–4th century types, 6 fragments of fired clay, a nail (RA 91), 70 hobnails, indicating the presence of at least one shoe (RA 92 and 104), and 3 fragments of animal bone. Ecofactual sample 16 contained significant quantities of spelt or emmer wheat chaff.

A layer of sandstone fragments, 0.10m to 0.30m in size, had been laid over the infilled pits, with their flatter, smoother surface facing upwards.

Central depression G46

The depression was at least 30m by 12m in extent and sealed the disused Phase 4 water pits within the centre of enclosure L13. It was filled by 2 dark grey brown sandy clay layers *c.* 0.4m thick (Fig. 9w). The lower layer contained slightly more stones but was otherwise indistinguishable during hand excavation. They contained 'special' deposit G46.1 (see below).

The layers produced a relatively large quantity of material, including 499 sherds of pottery, 89 fragments of fired clay, 12 fragments of *tegula*, a fragment of brick and 3 fragments of brick/tile. They also produced a bone hairpin (RA 82), a whetstone (RA 83), 3 coins dated to AD270–340 (RA 34, 52, 57), a wool comb (RA 35) (Fig. 21), two other metallic objects (RA 39, 44, 45), 13 nails (RA 37, 38, 40, 46, 48, 49, 50, 78, 84, 100 and 101) and a mixing palette (RA 76) (Fig. 21). Also recovered were 280 fragments of animal bone and 26 fragments of a human skull.

'Special' deposit G46.1 (Plate 3)

A 'special' deposit G46.1 was identified towards the centre of depression G46. It comprised the deliberate deposition of at least three sheep skulls. The three identified during hand excavation had been carefully placed together (presumably at the same time), on their sides but facing in different directions. No artefacts were found with them and they do not appear to have been placed in a purpose-dug pit. They appear to represent the remains of a ritual act, involving sheep sacrifice (for further discussion, see below).

Pit G93

A possible pit G93, identified in a trial trench, was dug into the infilled depression G46. It was 1.1m in diameter and at least 0.55m deep, although it's full extent and profile are unknown as it was only partially excavated.

The lowest excavated fill comprised a mid orange brown clay with occasional small to large stones. It produced 141 sherds of contemporary pottery, including 5 sherds of 3rd–4th

century types, and 11 fragments of animal bone. The dark grey brown silty clay upper fill (G93.1) contained a layer of large stones and produced 7 fragments of fired clay, 2 fragments of *tegula*, a coin dated to AD268–270 (RA 1), a nail (RA 105) and 50 fragments of animal bone.

Activity Focus L14

The remaining evidence for activity in this Phase comprised pits, the majority of which (G27 and G30) lay to the northeast of northern enclosure ditch G12. In addition, two pits G41 and G54 truncated ditches associated with the enclosure.

A relatively small assemblage of domestic debris was recovered from these features. Wholly exceptional was pit G54; it produced a large assemblage of fired clay bricks, slabs and plates which must have derived from a nearby oven or kiln.

Pits G27

Three oval pits G27, in close proximity, were all *c.* 1.2m by 0.8m in extent and less than 0.35m deep, with asymmetrical, concave profiles (Fig. 12d). One pit contained a 0.1m thick primary fill (Fig. 12e) of mid grey yellow clay with occasional flecks of charcoal. It produced seven sherds of contemporary pottery.

The main pit fills (G27.1) comprised mid yellow grey silty clay with occasional charcoal flecks. They produced 8 sherds of contemporary pottery, 2 fragments of fired clay and a fragment of daub.

Pits G30

Two large sub-oval pits G30 were located to the southeast of pits G27. They were *c.* 3m by 1.5m in extent and 0.25m to 0.5m deep, with concave, U-shaped profiles and flattish bases (Fig. 12f). Their 0.1m to 0.35m thick primary fill consisted of a mid orange grey sandy clay with occasional small to large stones.

The secondary fills (G30.1) varied from dark orange grey to light grey orange sandy clay. They produced 25 sherds of contemporary pottery, 2 fragments of fired clay, 2 fragments of daub and 21 fragments of animal bone. The tertiary fills (G30.2) ranged from mid yellow grey sandy clay to dark black brown silty clay with occasional small to large stones. They contained a single sherd of 3rd–4th century pottery and 2 fragments of animal bone.

Later pit G41

Large sub-circular pit G41 truncated the infilled ditches G12 and G15. It was *c.* 2.1m in diameter and 0.5m deep, with an asymmetrical, concave profile and an irregular, concave base (Fig. 12h). Its 0.2m thick primary fill comprised a dark blue grey clay with occasional small stones and charcoal flecks. It produced no artefacts.

The secondary fill (G41.1) comprised a dark yellow grey clay with occasional small stones and charcoal flecks. It produced a 6 sherd of contemporary pottery, a fragment of fired clay and 6 fragments of animal bone.

Later pit G54

Circular pit G54 was dug into the fill of internal enclosure ditch G10 towards its west end. It was 0.7m in diameter and 0.15m deep, with an asymmetrical, concave profile and flat base (Fig. 12k).

Its 0.1m thick primary fill comprised mid brown silty clay with occasional charcoal flecks and small to medium stones. It produced a single sherd of contemporary pottery and 16 fragments of fired clay. Overlying this was a mid grey brown silty clay with mottling of red, black and orange clay, along with charcoal flecks. This produced over 11kg of fired clay fragments, including slabs (Fig. 20: FC2 and FC3), perforated and circular plates (Fig. 20: FC4 and FC5), a large brick fragment (Fig. 20: FC1) and a large number of unidentifiable pieces. The absence of any evidence for *in situ* burning suggests that this material was derived from a nearby oven or kiln. Three fragments of animal bone were also recovered.

Pits L16 (not illustrated)

Two pits G74 were located within Area D, *c.* 200m north of enclosure L13. Only a small pottery assemblage was recovered from them.

Pits G74

The two pits G74 were located 26m apart. One was circular in plan, 1.15m in diameter and 0.15m deep, with an asymmetrical concave profile. The other was sub-circular in plan, 2m in diameter and 0.25m deep, with a concave profile.

Their fills (G74.1) comprised a mid black brown clay silt with occasional small to large stones and charcoal flecks. This produced 4 sherds of contemporary pottery, including a single sherd of 3rd–4th century type.

PHASE 6: SAXO-NORMAN SETTLEMENT (Fig. 13)

Settlement during this phase was concentrated on previously unoccupied land in Area D. It comprised two domestic foci L17 and L18, separated by ditch L21, which is the only evidence that the settlement may have been enclosed. The domestic foci contained possible structures, a water pit and a number of smaller pits. A more dispersed spread of features L19 lay *c.* 115m to the south in Area B.

Utilitarian jars and bowls in the St Neots-type tradition dominated the small pottery assemblage, although Stamford fine wares are also present. The remainder of the finds assemblage is also domestic in nature: fired clay, iron objects, fragments of quern, animal bone and charred wheat grains. The majority of this material had accumulated in the water pit.

Boundary L21

Boundary ditch L21 was at least 40m long; it continued beyond the limit of excavation to the northwest and was truncated to the southeast. Although it clearly separated domestic foci L17 and L18, it is unclear if it was part of a larger enclosure system. It is dated by a large sherd of Saxo-Norman pottery from its primary fill.

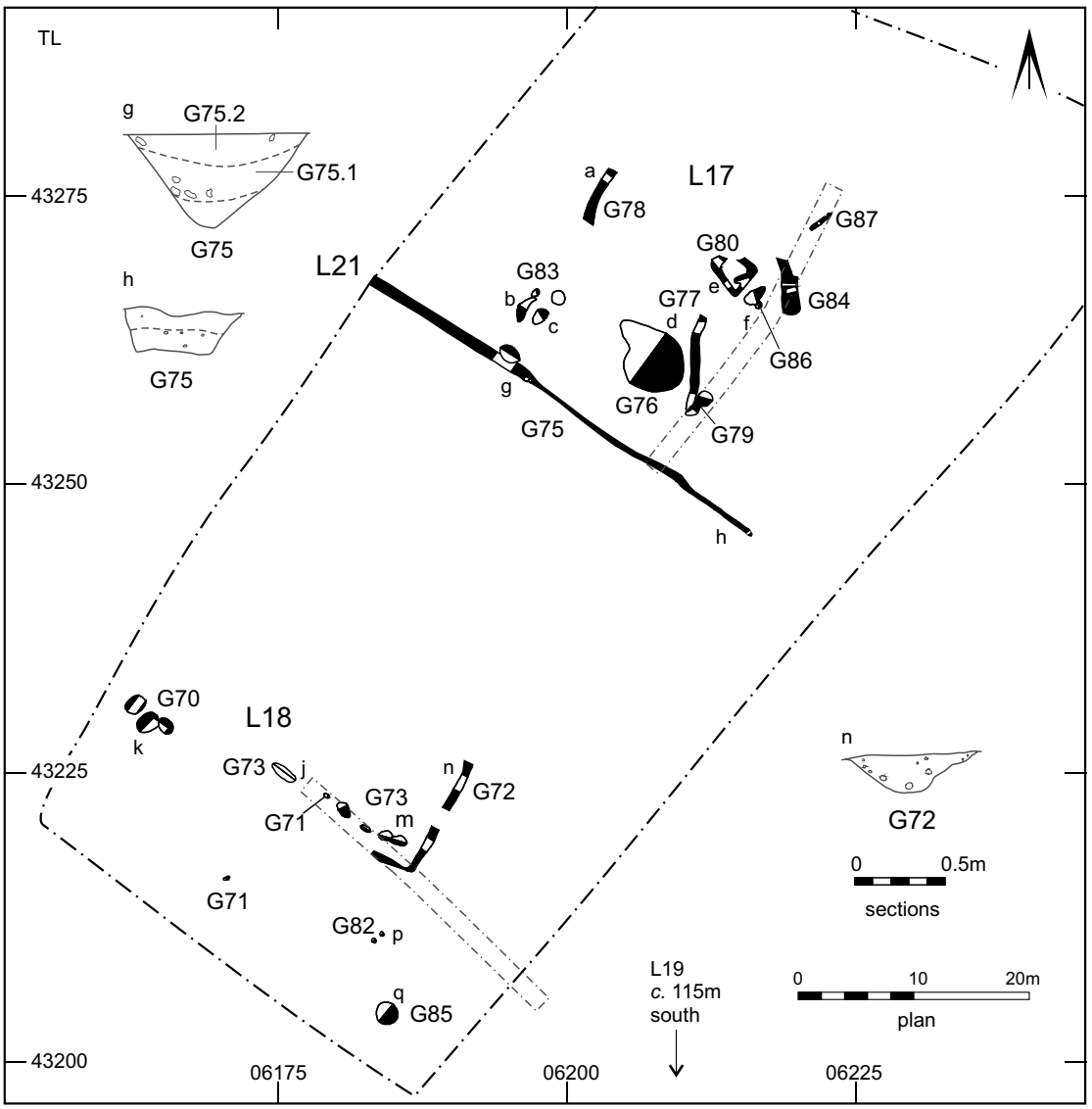


Figure 13: Phase 6: Saxo-Norman plan and boundary ditch sections

Ditch G75

Boundary ditch G75 was generally *c.* 1m wide and 0.55m deep, with a V-shaped profile (Fig. 13g). However, to the southeast it narrowed to 0.55m, was flat based and only 0.2m deep (Fig. 13h). It did not terminate to the southeast, but had been more heavily truncated by deeper ploughing.

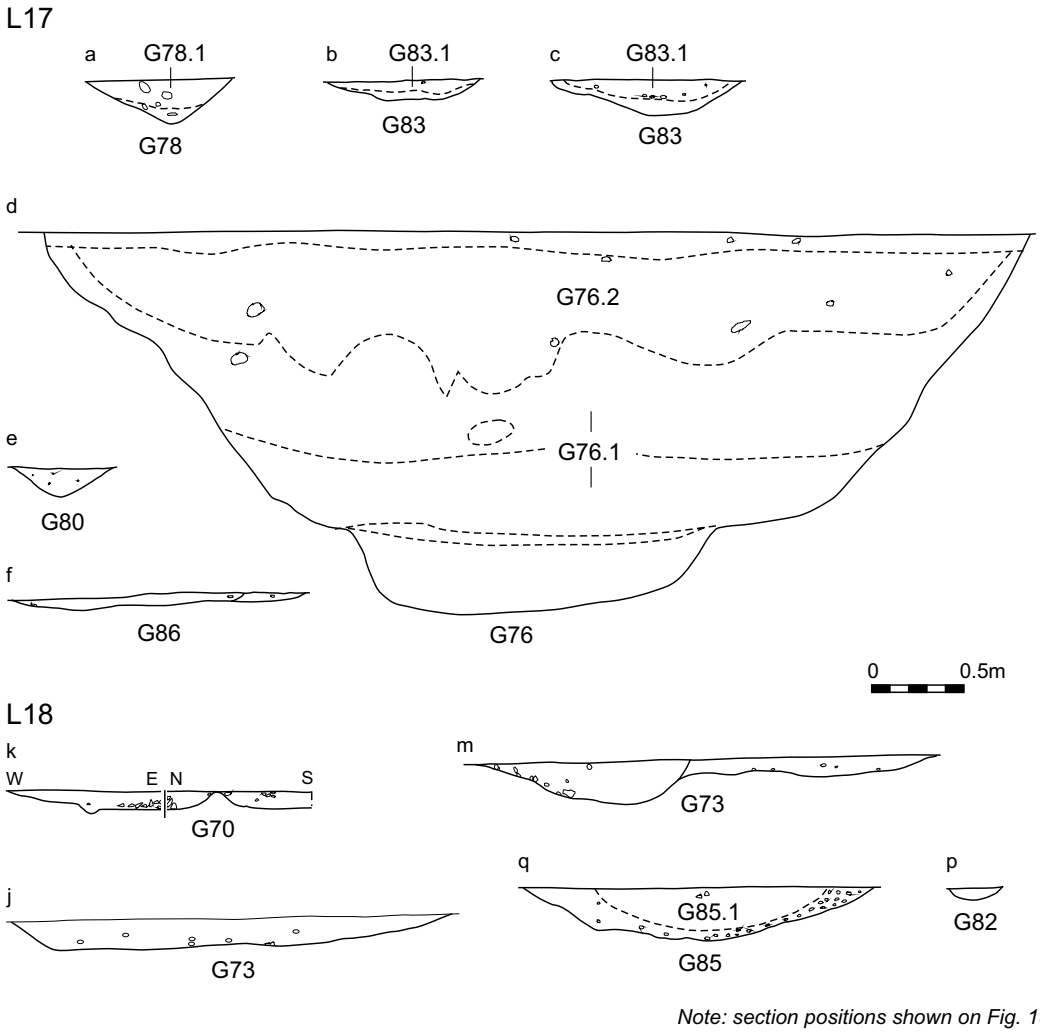
The 0.1m to 0.35m thick primary fill comprised a mid yellow brown clay silt. It produced a large sherd of contemporary pottery and 2 fragments of fired clay.

The secondary fill (G75.1) varied from a mid grey black silty clay with occasional medium stones and charcoal flecks in the northwest to a light yellow brown silty clay with occasional small stones to the southeast.

Domestic focus L17

Domestic focus L17 was located to the northeast of the boundary ditch L21. It comprised a possible rectangular structure G80, a further four possible structural slots G77, G78, G84 and G87, a water pit G76 and three areas of pitting G79, G83 and G86.

These features produced a small assemblage of domestic debris, comprising pottery, fragments of fired clay, animal bone and charred grain. Most of this material came from the fills (primary, secondary and tertiary) of the water pit.



Note: section positions shown on Fig. 13

Figure 14: Phase 6: Saxo-Norman sections

Possible rectangular structure G80

Slot G80 enclosed a rectangular area, approximately 2m by 2.5m in extent. The slot was 0.50m to 1m wide and less than 0.15m deep, with a concave profile (Fig. 14e). There were no internal features and the function of this structure is unknown.

Its fill of dark black brown clay silt (G80.1) contained moderate small to medium stones and frequent charcoal flecks. It produced three sherds of contemporary pottery.

Structural slots G77, G78, G84 and G87

Four slots G77, G78, G84 and G87 of similar size and profile were located close to structure G80. They were aligned approximately north–south and were 5m to 8m long; their full extent is uncertain due to truncation by later features. Overall, they were *c*. 0.8m wide and less than 0.25m deep, with asymmetrical, concave profiles (Fig. 14a).

Their fills varied from mid grey silty clay with charcoal flecks and moderate quantities of small stones to dark grey brown clay silt with occasional small to medium stones. Fill G84.1 produced a fragment of fired clay.

Water pit G76

Water pit G76 was excavated partly by hand and partly by machine. It measured 7.2m by 5.3m and was 2.1m deep, with an irregular, concave profile (Fig. 14d). The gently sloping NW side may have provided access to its base.

Its two waterlogged primary fills comprised light blue grey organic silty clays, with a combined thickness of *c*. 0.45m. Both fills were horizontal and probably accumulated in standing water. They produced 30 sherds of contemporary pottery (Fig. 19: P29 and P34), 10 fragments of fired clay and 64 fragments of animal bone. Ecofactual sample 51 contained poorly preserved organic remains from a variety of trees and plants that would have been growing within the settlement.

The water pits secondary fill (G76.1) was a light yellow grey silty clay with occasional charcoal flecks and small stones. It

also contained lenses of dark grey humic silty material, which produced small quantities of charred wheat and oat grains (ecofactual sample 49). Among the 23 sherds of contemporary pottery were some from the same vessel as sherds recovered from the primary fills, suggesting relatively rapid infilling. The secondary fill also produced 22 fragments of fired clay and 21 fragments of animal bone.

The tertiary fill (G76.2) comprised a mid grey orange silty clay with frequent charcoal flecks. It produced 10 sherds of contemporary pottery, 15 fragments of fired clay and 2 fragments of animal bone. Ecofactual sample 47 was dominated by charred free-threshing wheat grains.

Pits G83

A cluster of five pits G83 lay to the northwest of water pit G76. One was circular, three were sub-oval and the fifth was more irregular in shape. They varied in size and profile but were all less than 0.20m deep (Fig. 14b and c). Where present, the 0.05m and 0.1m thick primary fill was a grey brown silty clay. It produced 5 sherds of contemporary pottery and 14 fragments of fired clay.

The main fill (G83.1) was a dark grey silty clay with occasional small to medium sized stones. It produced 8 sherds of contemporary pottery and 3 fragments of fired clay.

Pits G79

Two intercutting, sub-circular pits G79 lay at the south end of slot G77; one truncated the slot. They were *c*. 1.5m in diameter and 0.15m deep, with U-shaped profiles and flat bases. One pit contained a 0.15m thick primary fill of light grey brown silty clay with occasional small stones and charcoal flecks.

The main fill (G79.1) comprised light yellow brown silty clay with moderate small to medium stones and charcoal flecks. It produced 5 sherds of contemporary pottery.

Pits G86

Two intercutting pits G86 lay next to possible structure G80. A larger sub-oval pit, 2.1m by 1.1m, truncated a smaller sub-circular pit that was 0.6m in diameter. Both had asymmetrical, concave profiles with flat bases and were less than 0.1m deep (Fig. 14f). Their fill (G86.1) comprised a mid grey silty clay with occasional medium stones and charcoal flecks.

Domestic focus L18

Domestic focus L18 lay *c*. 40m southwest of boundary ditch L21. It comprised an alignment of pits G73, a two-post structure G82, two postholes G71, a cluster of pits G70, an individual pit G85 and a ditch G72. Some of these settlement elements appear to articulate with one another, *e.g*. pits G73 and ditch G72. Overall, however, it is difficult to discern any pattern in their distribution. Their domestic status is confirmed by a small assemblage of pottery, fired clay, animal bone and other everyday objects.

Short alignment of pits G73

A northwest–southeast alignment of five shallow pits G73 ran for a distance of 13m, parallel to ditch G72. The pits were either oval or sub-circular in plan; two were intercutting. With the exception of a larger pit to the northwest, they were typically *c*. 1.2m in diameter. All had asymmetrical, concave profiles and were less than 0.25m deep (Fig. 14j and m).

Their fills (G73.1) varied from dark grey black to mid grey silty clay with occasional inclusions of small to large stones and charcoal flecks. They produced 44 sherds of contemporary pottery (Fig. 19: P30-P33), 6 fragments of fired clay and 27 fragments of animal bone, the majority of which came from the pit to the northwest.

Two-post structure G82

Two postholes, *c*. 0.5m apart, may represent a two-post structure G82. They were 0.3m in diameter and 0.1m deep, with shallow concave profiles (Fig. 14p). Their fills (G82.1) comprised dark black brown clay silt with no inclusions or artefacts.

Postholes G71

Two further postholes G71, 11m apart, lay to the northwest of the two-post structure. They were sub-oval in plan, *c*. 0.6m by 0.3m and 0.1m deep, with concave profiles. Their fills (G71.1) comprised mid grey silty clay with occasional small stones. They produced 5 sherds of contemporary pottery and part of an iron box fitting (RA 97).

Pit cluster G70

Three sub-circular pits G70 lay on the northwest limit of excavation. They were *c*. 1.45m to 2.05m in diameter and less than 0.25m deep, with asymmetrical concave profiles and flat bases (Fig. 14k). Their fills (G70.1) varied from dark black brown clay silt with occasional small stones to mid black brown sandy clay with moderate medium to large stones. They produced 11 sherds of contemporary pottery, 2 fragments of animal bone, a fragment of fired clay and a nail (RA 98).

Pit G85

An isolated pit G85 lay *c*. 8m southeast of the possible two-post structure G82. It was *c*. 1.9m in diameter and 0.3m deep, with a concave profile and slightly uneven base (Fig. 14q). Its 0.25m thick primary fill comprised a mid orange brown clay silt with frequent small and medium sized stones.

The secondary fill (G85.1) comprised mid black brown clay silt with occasional medium sized stones and charcoal flecks. It produced 14 sherds of contemporary pottery and quern fragments (RA 103).

Ditch G72

Northeast–southwest aligned ditch G72 survived for a length of 15m, although no genuine terminals were identified. To the south it turned to the northwest. It was *c*. 0.7m wide and 0.2m deep, with an irregular concave profile (Fig. 14n). It appeared to be associated with the short alignment of pits G73, although is function is uncertain.

Its fill (G72.1) comprised dark grey brown silty clay with moderate small stones and frequent charcoal flecks. This produced 6 sherds of contemporary pottery, 5 fragments of fired clay and 8 fragments of animal bone.

Other contemporary activity L19 (not illustrated)

A small group of features L19 lay *c*. 115m south of domestic foci L17 and L18 in Area B. They comprised a ditch G55, an adjacent posthole and pit

G56, and another pit G81. Only the ditch produced Saxo-Norman pottery but given the absence of activity in this area from other periods it is tentatively suggested that pits and posthole are contemporary with the ditch. A small quantity of fired clay and animal bone were also recovered.

Ditch G55

Ditch G55 was visible for 10m, terminating to the south and continuing beyond the limit of excavation to the north. It was generally 1.3m wide and 0.45m deep, with a U-shaped profile, stepped sides and a flat base.

Its fill (G55.1) comprised dark grey brown sandy clay with occasional small to medium sized stones and frequent charcoal flecks. It produced a total of 36 sherds of contemporary pottery, the majority of which came from the terminal, 43 fragments of animal bone and 41 fragments of fired clay.

Pit and posthole G56

Pit and posthole G56 are discussed together purely because of their proximity to ditch G55. The pit was oval in plan, *c*. 0.65m by 0.4m in extent and 0.2m deep, with a concave, U-shaped profile and flat base. The posthole was *c*. 0.3m in diameter and 0.05m deep, with a concave profile.

The main fill of the pit (G56.2) comprised a mid grey silty clay with occasional small stones. The fill of the posthole (G56.1) was much darker with frequent charcoal flecks and one large stone which might have been used for packing the post.

Pit G81

An isolated, sub-circular pit G81 lay 4.5m south of ditch G55. It was 1.1m in diameter and 0.25m deep, with a concave profile. Its fill (G81.1) comprised dark brown grey silty clay with occasional small stones. It produced 4 fragments of animal bone.

Phase 7: Medieval

Prior to the open area excavation, ridge and furrow earthworks L20 survived within the development area, although they were less distinct to the north in the vicinity of Area D. They were aligned northwest–southeast on regular, *c*. 6m spacings. Sub-surface linear features, corresponding with the earthwork furrows, were identified in the trial trenches and open area excavations.

No direct dating evidence was recovered for the setting out of this field system. However, the furrows truncated the remains of the Saxo-Norman settlement in Area D (see Fig. 3). Their fills L20.1 produced 153 sherds of pottery of widely ranging date, but most of which was residual Roman material, as well as 4 Roman coins (RA 11, 15, 31 and 79) and 21 fragments of animal bone. Although small in number the 12th–13th century sand-tempered sherds probably give the best indication of the date of the establishment and use of the field system.

Phase 8: Subsoil and topsoil

Topsoil and subsoil layers yielded 23 sherds of pottery from all periods, 12 post-medieval roof tile fragments and 19 fragments of animal bone. A range of metal objects were also recovered: an iron double-spiked loop (RA 9); an iron loop-headed spike (RA 16); a hobnail (RA 18); an iron latch lifter (RA 21); two coins dated to the late 3rd–4th century AD (RA 24 and 28); a copper toilet spoon (RA 30) and an iron tack (RA 54).

POTTERY

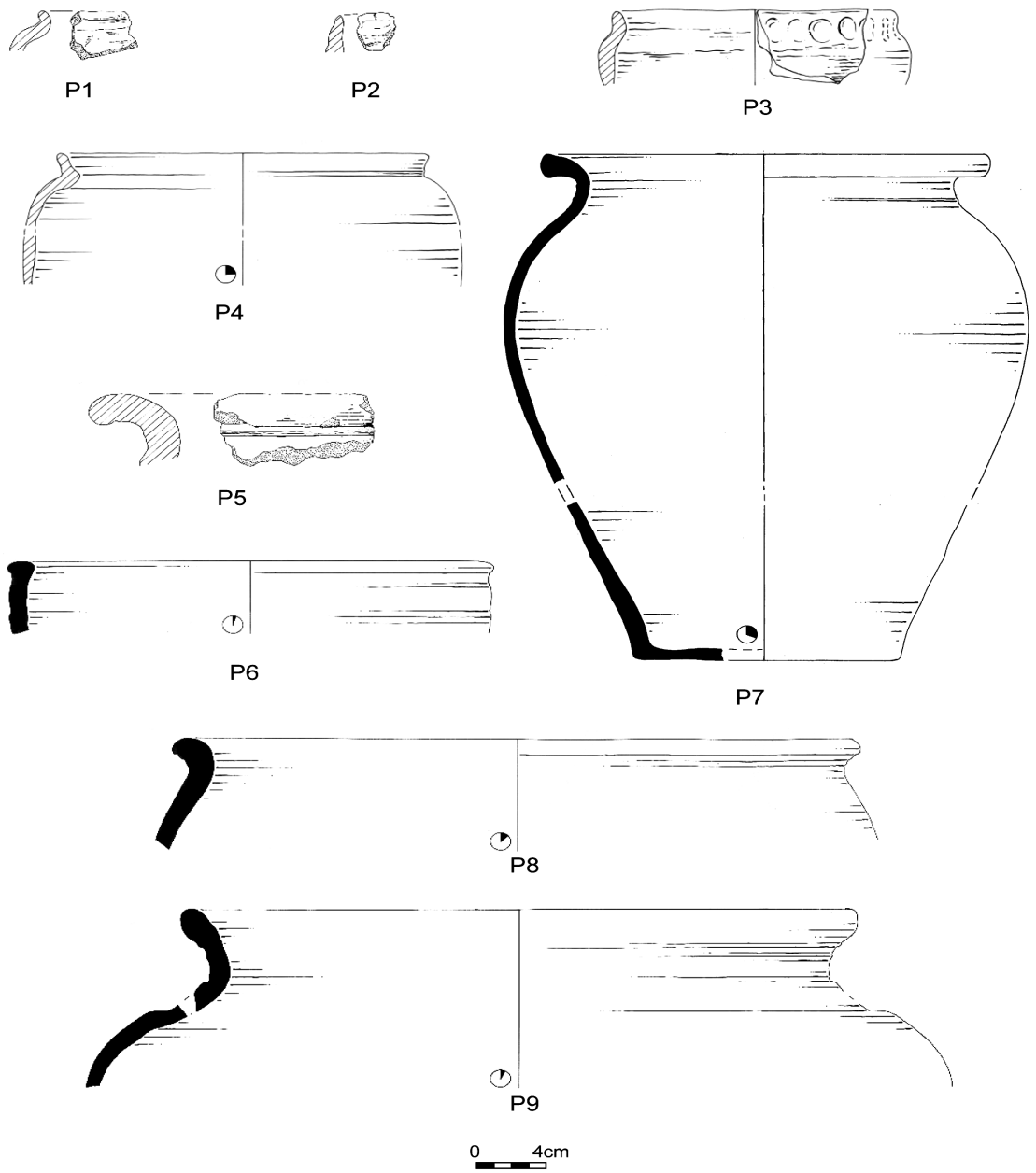
Jackie Wells, incorporating report by Felicity Wild (samian)

Introduction and methodology

Excavation produced 4,031 pottery sherds, representing 1,747 individual vessels, weighing 49.4kg. The pottery was examined by context and seventy-seven fabric types (defined either by type and quantity of inclusions, or by finish) were identified (see Appendix 1) in accordance with the Bedfordshire Ceramic Type Series, maintained by Albion Archaeology on behalf of Bedfordshire County Council. Form codes were assigned and catalogued within fabric type. Quantification was by minimum vessel and sherd count, and weight. Sherds belonging to the same vessel, but deriving from separate contexts, were quantified as a single vessel.

Attributes including decoration, manufacturing techniques, levels of abrasion, and evidence of use, such as the presence of residues, sooting and wear marks, were recorded.

A representative sample of the pottery has been illustrated (Figs 15–19). Standard drawing conventions have been used, with vessels shown at one-quarter size, external view on the right and a section and internal view on the left. Handmade vessels are illustrated with hatched sections and wheel-thrown vessels with solid sections. The pie diagram at the base of each illustration indicates the proportion of the vessel recovered. Omission of the pie diagram indicates illustration of all surviving sherds.



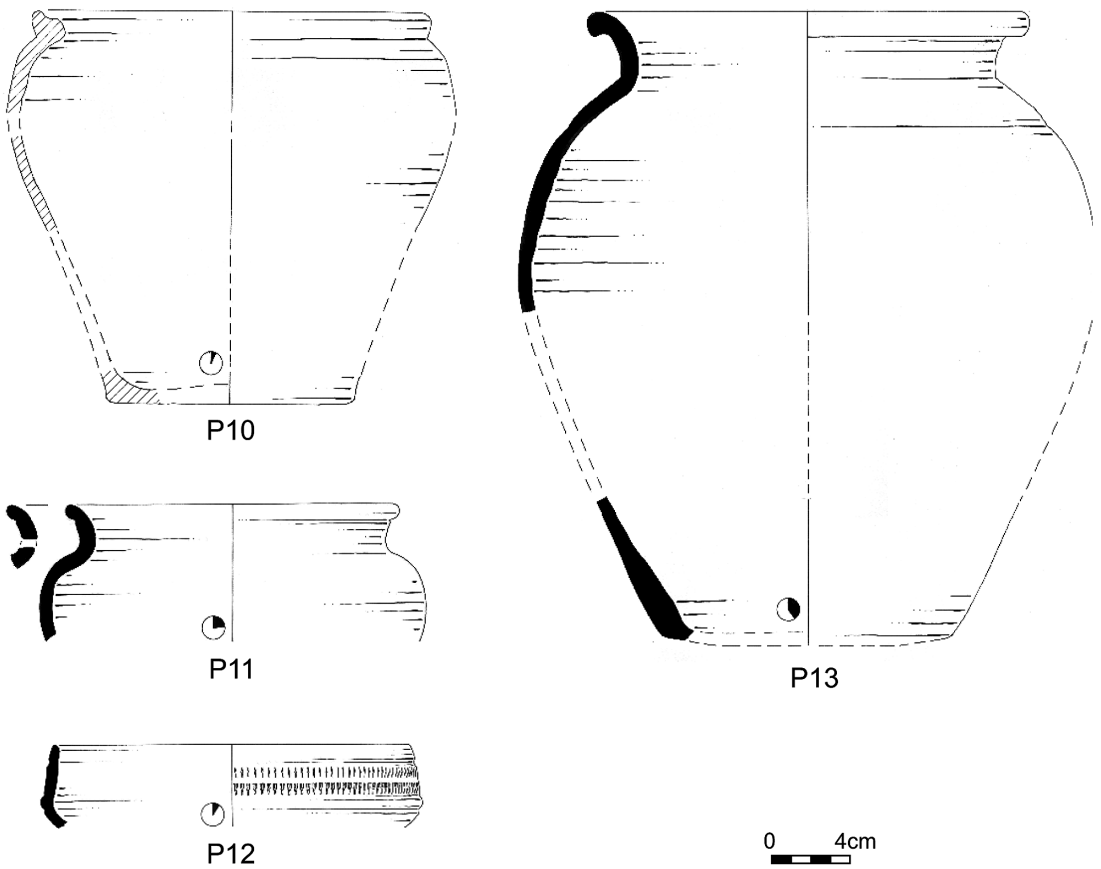
Illust.	Fabric type	Description	L No.	G No.	Context
P1	F15	Round-shouldered vessel	L1.1	G61.1	605
P2	F19	Upright rim vessel	L1.1	G61.1	605
P3	F16	Round-shouldered vessel	L1.2	G61.2	2603
P4	F05	Lid-seated jar	L5.2	G33.2	2469
P5	F06C	Storage jar	L20.1	G89.1	2647
P6	F05	Bead rim bowl	L5.2	G33.2	2469
P7	F06C	Large jar	L5.2	G33.2	2469
P8	F06C	Large jar	L5.2	G33.2	2469
P9	F06C	Large jar	L5.2	G33.2	2469

Figure 15: Selected Phase 2 pottery (P1–P3) and Phase 3 pottery (P4–P9)

	Fabric Type*														
L No.	F28	F29	F16	F17	F19	F27	F30	F35	F03	F14	F15	F06	F07	R06	Total
L1													1:1		1:1
L1.1	4:9		1:5		2:2	1:5				1:1	2:2		1:1	1:1	13:26
L1.2	1:2	1:8	7:13	1:3	3:6	1:1	1:3	1:4	1:2		1:1			1:1	19:44
L2										1:1	1:1	2:2			4:4
L2.1	10:76	1:3	2:13		1:1		1:2	1:1				1:4			17:100
L2.2	2:3		5:41	1:1	5:13		1:8								14:66
	17:90	2:11	15:72	2:4	11:22	2:6	3:13	2:5	1:2	2:2	4:4	3:6	2:2	2:2	68:241

* Excludes miscellaneous unidentified fabrics. NB: Shaded area indicates contemporary ceramics.

Table 2: Phase 2 pottery fabric types by Landscape (vessel:sherd count)

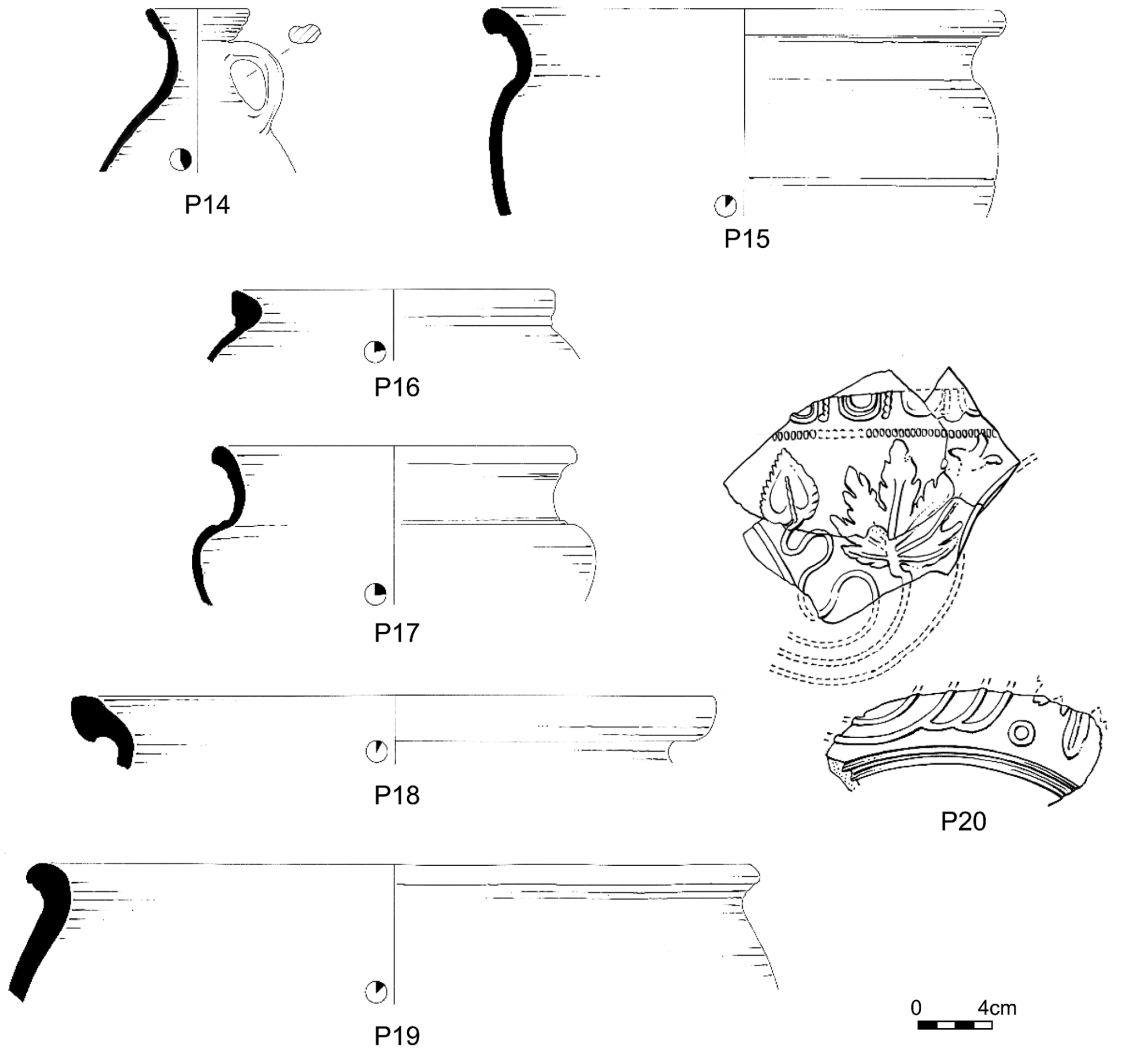


Illust.	Fabric type	Description	L No.	G No.	Context
P10	F07	Lid-seated jar	L5.2	G33.2	2469
P11	F34	Necked bowl	L5.2	G33.2	2469
P12	F34	Necked jar	L5.2	G33.2	2469
P13	R06G	Rouletted bowl	L5.2	G33.2	2469

Figure 16: Selected Phase 3 pottery (P10–P13)

Discussion

The proportions of fabric types within each Phase and Landscape are presented in Tables 2–6. For clarity, fabric type divisions have been amalgamated where appropriate, and are tabulated using a generic type code. The pottery is discussed below by chronological period, with reference to the structural hierarchy (Phases, L and G numbers) where appropriate. Approximately 11% of the assemblage derives from unphased or modern features, and is not considered in the following discussion.



Illust.	Fabric type	Description	L No.	G No.	Context
P14	R03B	Ring-necked flagon	L10.2	G44.2	2140
P15	R06C	Necked jar	L9.1	G26.1	2256
P16	R13	Developed lid-seated jar	L10.1	G43.1	2137
P17	R06E	Cordoned jar	L9.1	G26.1	2291
P18	R13	Large jar	L9.1	G26.1	2290/2291
P19	R13	Jar with triangular rim	L10.1	G35.1	2273
P20	R01A	Hemispherical decorated bowl	L7	G11	2382

Scale 1:4, except no. 20 scale 1:2

Figure 17: Selected Phase 4 pottery (P14–P20)

Early–middle Iron Age (Phase 2) (6% of total sherd count) (Table 2 and Fig. 15)

The early–middle Iron Age assemblage comprises 254 sherds from 50 vessels, weighing 2.5kg. The material is fairly fragmented, with an average sherd weight of 9g and a vessel:sherd ratio of 1:3. The pottery is generally abraded, and leaching is evident on sherds tempered with shell and organic matter.

Vessels are predominantly sand- or shell-tempered, characteristic of the period. Diagnostic forms comprise round shouldered and ovoid jars or bowls and large storage jars (Fig. 15: P1–P3). The latter are comparable with examples recovered from Biddenham Loop, Bedfordshire (Luke forthcoming). Rims are inturned, rounded or flat, and a single example of a pinched-out base was recorded. Decoration is restricted to occasional finger-tip impressions on body sherds.

Provenance of the pottery assemblage

All the early–middle Iron Age pottery was recovered from Area C. The majority of the assemblage derives from the upper fills of features associated with L2, in particular the secondary and tertiary fills (G66.2) of pits G66, which yielded 1.6kg pottery. Sherds from a single coarse shell-tempered (type F16) storage jar were recovered from the tertiary fills of ditch G61, L1.2, and from two nearby pits G66, L2.2 (G61.2 and G66.2 respectively), suggesting their infilling may have occurred at the same time.

Late Iron Age (Phase 3) (12% of total sherd count) (Table 3 and Fig. 16)

Late Iron Age pottery comprises 479 sherds from 159 vessels, weighing 7.3kg. Sherds are larger (average weight 16g) and less abraded than the earlier material, although the vessel:sherd ratio (1:3) is comparable.

Approximately 42% of this assemblage comprises sherds tempered with grog or grog/sand. Shell/grog- or shell-tempered sherds constitute 55% of the material, and entirely sand-tempered types the remainder. Given that the local Oxford Clay does not contain significant shell inclusions, the clay source for the shelly types is likely to lie at some distance from the site. Potential kilns for this type of pottery include Clapham or Stagsden (Tilson 1973; Slowikowski 2000), both approximately 10km northwest of Wilstead.

The vessels are in the 'Belgic' tradition, and represent a standard range of domestic pottery characteristic of the region, as defined in Thompson's Zones 7 and 8 (1982, 15–16). The majority of the vessels are wheel-thrown; a small proportion are handmade with a wheel-finished shoulder and rim, and approximately 38% are entirely handmade. The latter are mainly shelly lid-seated jars and storage vessels, and large coarse grog tempered vessels (types F07 and F06C respectively). Other forms are narrow-necked, cordoned, and neckless jars, bead rim and lid-seated bowls, and platters. The forms recorded represent tablewares, storage vessels and cooking pots (Fig. 15: P4-P9 and Fig. 16: P10-P12). Use of the latter for this purpose is indicated by the presence of external and lid-sooting (79 sherds). One neck sherd has been modified by the addition of a post-firing perforation. Decoration is rare and includes horizontal and vertical combing, cordons and incised motifs.

Provenance of the pottery assemblage

The majority of the late Iron Age pottery was recovered from Area A. Over 70% of the assemblage derived from the upper fills of features associated with domestic focus L5, in particular the tertiary fill (G33.2) of water pit G33, which yielded 5.5kg of pottery. The water pit assemblage comprises several individual vessels represented by more than one sherd, including 34 sherds (weighing 1.4kg) from a 'Belgic' (type 34) necked jar. Sizable assemblages were also recovered from pits G32 (L5) and G96 (L4), which contained 796g and 882g pottery respectively. The majority of the assemblage from the latter (79 sherds weighing 873g) was derived from the same lid-seated jar (R07B).

Roman (Phase 4/5) (76% of total sherd count) (Table 4, Figs 17 and 18)

Pottery datable to the Roman period comprises 3,054 sherds, from 925 vessels, weighing 38.6kg. Despite constituting the majority of the ceramic material, the pottery is fairly fragmented, with an average sherd weight of 13g and a vessel:sherd ratio of 1:2.

The pottery spans the entire Roman period. However, most is datable to the 2nd and early 3rd centuries, with only a small group of later Roman fine wares and coarse wares present. The assemblage is dominated by sand-tempered reduced coarse wares (fabric groups R06, R07 and R14), and shelly coarse wares (fabric R13), which constitute 45% and 33% of the pottery respectively. The prevalence of the former is likely to reflect the exploitation of raw materials deriving from the

	Fabric Type*																				
L No.	F04	F05	F06	F07	F09	F34	R02	R03	R32A	R07B	R01	R13	R06A	R05	R06	R07	R09A	R14	R34	R36	R22A	Total
L3.1	1:4	1:2		1:7																		3:13
L4			1:1	1:1					1:1	1:1		3:3	1:1		2:7							10:15
L4.1		2:2								1:79	1:1	4:4		1:1	7:13						1:6	17:106
L5.1		2:2	5:5	3:6	6:22			2:2		2:2		9:9		1:1	7:7	2:6		1:1				40:63
L5.2		4:23	8:46	6:59	6:11	4:41	1:1	4:9		1:1		6:7		2:2	17:25	1:1	1:1	4:23	1:6	1:3		67:259
L6.1					1:2							1:12			1:1					1:2		4:17
	1:4	9:29	14:52	11:73	13:35	4:41	1:1	6:11	1:1	5:83	1:1	23:35	1:1	4:4	34:53	3:7	1:1	5:24	1:6	2:5	1:6	141:473

* Excludes miscellaneous unidentified fabrics. NB: Shaded area indicates contemporary ceramics.

Table 3: Phase 3 pottery fabric types by Landscape (vessel:sherd count)

	Fabric Type*																								
L No.	F05	F06	F07	F09	R03	R08	R10B	R19	R07B	R01	R13	R03D	R06A	R18	R03E	R05	R06	R07	R09A	R14	R33	R35	R36	R38	R11	R12	Total
L7									1:1	2:27	11:19						6:6			1:1						1:1	22:55
L7.1	2:2	1:1	4:13	3:5	8:33				6:17	8:11	43:80		2:2		1:3	3:4	39:67	7:26		9:18			1:1			1:1	138:288
L7.2		1:1	3:109	1:1	2:2				1:2	1:1	12:103					1:1	13:28	2:3	1:1	1:163					1:4	3:4	43:424
L8						1:5					2:9						4:13									1:12	8:27
L8.1		3:6		1:1	5:9					2:2	12:23					1:1	19:51			1:1							44:94
L9					1:1				2:2		2:7					1:1	2:2										8:13
L9.1	2:3	8:8			3:8				2:6		15:126					1:1	12:25	1:1			1:2						45:179
L10										1:1	4:4						16:23							1:1		1:2	23:31
L10.1		2:2		2:2	3:3		1:1	1:1	6:93	8:11	37:58	1:1		2:2		7:7	49:118	2:4		3:41	1:1				1:1	2:2	128:348
L10.2					1:1						1:1																2:2
L11															2:2												2:2
L11.1							1:1			1:1				1:1		1:1	5:5										9:9
L12.1											4:9																4:9
	4:5	15:18	7:122	7:9	23:57	1:5	2:2	1:1	18:121	23:54	143:439	1:1	2:2	3:3	3:5	15:16	165:338	12:34	1:1	15:224	1:1	1:2	1:1	1:1	2:5	9:22	475:1481

* Excludes miscellaneous unidentified fabrics. NB: Shaded area indicates contemporary ceramics.

Table 4: Phase 4 pottery fabric types by Landscape (vessel:sherd count)

	Fabric Type*																											
L No.	F28	F17	F05	F06	F07	F09	F34	R02	R03	R08	R19	R07B	R01	R13	R04A	R06A	R09B	R18	R03E	R05	R06	R07C	R09A	R14	R33	R28	R38	R22A	R11	R12	Total
L13													1:2	2:23						2:2	2:24										7:51
L13.1				5:7	2:6	2:2	3:4		2:2			6:7	5:5	24:28	1:1					2:6	40:51	2:2	1:1	9:10	1:1				2:2	10:18	117:153
L13.2														5:23							4:8									1:1	10:31
L14	2:2	1:3												2:8																	5:13
L14.1				1:1		2:2			1:1				1:2	6:28							5:5			1:2							17:41
L15				2:3	1:1				6:7			7:8		39:60							1:4	44:62	5:7			2:2			3:4	6:7	116:165
L15.1			1:1		2:2			0:7		1:1			2:2	18:49				0:3			1:13	25:85	0:1				1:8		3:5	1:1	55:180
L15.2			1:1	4:4	5:6	1:1		1:1	4:5	2:2	1:9	11:25	7:10	148:212		1:1	1:1	2:2	1:2	13:16	156:237	24:41	1:11	14:19	1:1		1:3	1:1	21:29	27:33	431:673
L16.1														1:1							2:2								1:1		6:10
	2:2	1:3	2:2	12:15	10:15	5:5	3:4	1:8	13:17	3:3	1:9	24:40	16:21	244:431	1:1	1:1	1:1	2:5	1:2	19:41	276:474	31:51	2:12	24:31	2:2	2:2	2:11	1:1	30:41	45:60	765:1318

* Excludes miscellaneous unidentified fabrics. NB: Shaded area indicates contemporary ceramics.

Table 5: Phase 5 pottery fabric types by Landscape (vessel:sherd count)

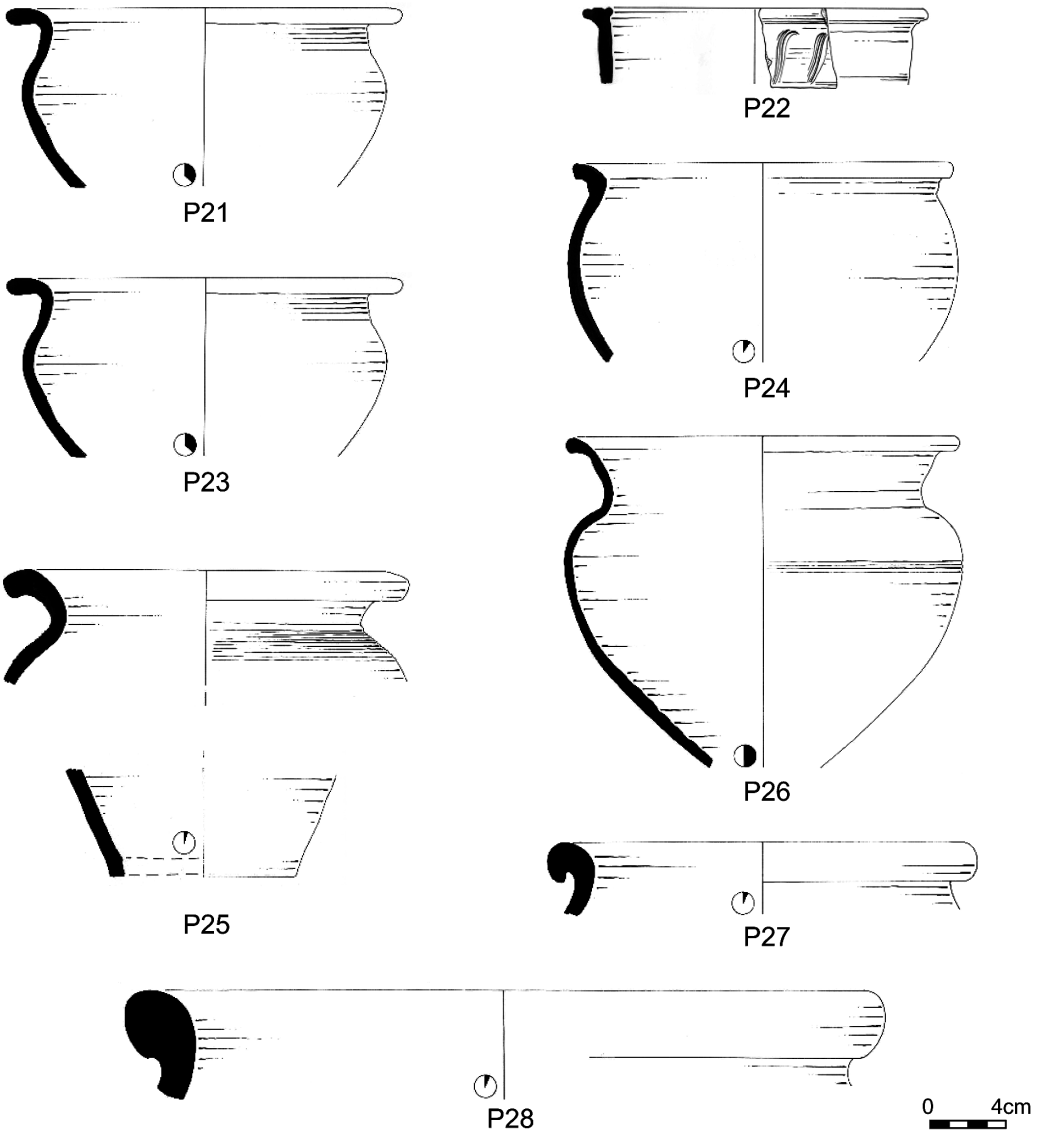


Table 5: Phase 5 pottery fabric types by Landscape (vessel:sherd count)

Illust.	Fabric type	Description	L No.	G No.	Context
P21	R06D	Flanged bowl	L15.1	G34.1	2465
P22	R06D	Reeded-rim bowl	L15.2	G34.2	2464
P23	R06C	Everted rim bowl	L15.1	G34.1	2465
P24	R07B	Bowl	L13.1	G3.2	2295
P25	R13	Rilled jar	L13	G3.1	2011
P26	R06C	Necked jar	L13/13.2	G3.1/3.4	2010/2011
P27	R13	Jar with undercut rim	L15.1	G34.1	2465
P28	R13	Roll rim storage jar	L15	G34	2468

Figure 18: Selected Phase 5 pottery (P21–P28)

Greensand Ridge. Numerous sources are likely for these types, especially during the earlier Roman period, when small-scale, localised manufacture would have been the main means of production. A proportion of the shell-tempered vessels may be products of the Harrold kilns (Brown 1994), located approximately 12km to the northwest of Wilstead.

Vessel forms date predominantly to the early Roman period, and are representative of a low-status utilitarian assemblage, comprising a range of storage, kitchen and table wares (Fig. 16: P13 and Fig. 17: P17 and P18). Early forms include lid-seated jars and bowls, flanged and plain rim bowls, dog-dishes, storage jars, ring-necked flagons, reed-rim bowls, *mortaria*, *amphorae*, and platters. Later forms include rectangular rim bowls, jars with triangular, undercut, bead and everted rims, narrow-necked jars, and folded and plain-rim beakers. The incidence of sooting is restricted to the shelly vessels, indicating their specialised use as cooking pots/kitchen wares. The unsooted sandy reduced wares suggest a primary use as table wares.

Three sherds, including one from a shell-tempered storage jar, have thick internal white residues, possibly representing an accumulation of limescale. Thirty-six shell-tempered sherds have pitted internal surfaces, resulting from long-term use, and wear marks are present on seven base sherds in varying fabric types.

Decorated pottery, although occurring more frequently than during the late Iron Age, is still rare. It comprises incised wavy lines, lattice motifs, rouletting, stabbing, combing, rilling and burnishing. It is possible that some forms of surface treatment, such as slips or painted decoration, may have been lost due to post-depositional abrasion.

The incidence of regional and continental imports is low, constituting 8% and 3% of the assemblage respectively. The former include 2nd century products of the Verulamium region industries, black-burnished wares, Nene Valley grey wares and pink grogged vessels, the latter likely to derive from Caldecotte, Buckinghamshire. Later Roman regional imports of late 3rd to 4th century date include vessels (mainly fine wares) from Oxfordshire, Hertfordshire and the Nene valley.

Continental imports are of early Roman date and are represented by samian ware, *amphorae*, and single sherds of Rhenish and lead-glazed ware. Samian includes plain and decorated ware of central, southern and eastern Gaulish origin (sixty-eight, eight, and three sherds respectively), and a single sherd of British 'imitation' samian of unknown source (decorated samian is described in Appendix 1). The samian assemblage ranges in date from the late 1st to the late 2nd century. The presence of south Gaulish ware suggests that samian ware was first reaching the site in small quantities during the Flavian period (AD 69–96).

The samian from Phase 4 features is probably all Hadrianic to mid-Antonine in date (AD 117– *c.* 180). The central Gaulish pieces of undoubtedly late 2nd century date and the east Gaulish pieces were from features attributed to Phase 5. Forms are restricted to bowls (forms 18, 18/31, 18/31R, 31, 31R, and 37), cups (forms 27, 33 and ?35) and dishes (form 36). One central Gaulish form 33 cup, of mid-late Antonine date, is stamped **I.IONO**.

Provenance of the pottery assemblage

Roman pottery derives almost entirely from features within Area A. A negligible number of sherds were residual within Saxo-Norman features in Areas B and D.

Phase 4 (Table 4)

The Phase 4 assemblage is generally more fragmented and dispersed than that from Phase 5. Only pits G50 (L10.1) and G26 (L9.1), and ditch G16 (L7), contained over 1kg of pottery, the majority (3.1kg) deriving from the secondary fill (G26.1) of pit G26. The assemblage from G16 comprises several individual vessels represented by more than one sherd, including 157 sherds (1.4kg) from a sand-tempered (type R14) cordoned jar.

One hundred and thirty-three sherds representing fifty-two vessels (897g) derived from the drainage ditch and internal features associated with roundhouse L8. The pottery ranges from late Iron Age to late Roman in date. However, the majority of the assemblage comprises early–middle Roman sand-tempered grey wares and shelly coarse wares (types R06 and R13 respectively). Sherds are small (average weight 6g) and the fragmented nature of the material is attested by a low vessel to sherd ratio of 1:2. The quantity of pre-Roman material (seven sherds) is tiny when compared to the large Roman assemblage. This strongly suggests that the former is residual and that the roundhouse was built and lived in during the Roman period.

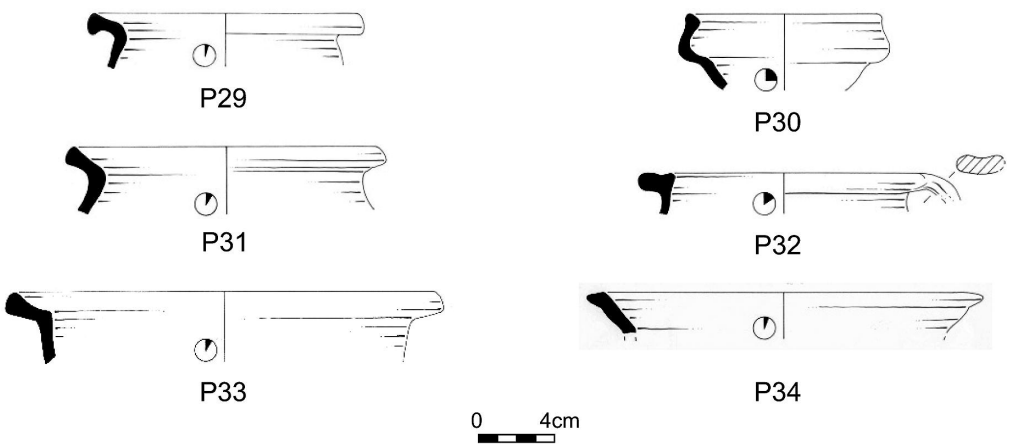
Phase 5 (Table 5)

The Phase 5 assemblage is characterised by a greater quantity of late Roman regional imported fine wares, and the presence of later forms among

	Fabric Type*													
L No.	F03	F05	F06	F07	F09	R05	R06	B01	B01A	B01C	C12	C01	C04	Total
L17							2:2	7:22		1:13			1:2	11:39
L17.1	1:2	1:5		1:6	2:2			8:39	4:10				1:1	18:65
L18.1						1:1		22:76	1:3		1:1	1:1		26:82
L19.1								8:18	5:18					13:36
L21			1:1							1:1				2:2
	1:2	1:5	1:1	1:6	2:2	1:1	2:2	45:155	10:31	2:14	1:1	1:1	2:3	70:224

* Excludes miscellaneous unidentified fabrics. NB: Shaded area indicates contemporary ceramics.

Table 6: Phase 6 pottery fabric types by Landscape (vessel:sherd count)



Illust.	Fabric type	Description	L No.	G No.	Context
P29	B01	Everted rim jar	L17	G76	2743
P30	B01	Bowl with inturned rim	L18.1	G73.1	2640
P31	B01	Everted rim jar	L18.1	G73.1	2632
P32	C12	Pitcher	L18.1	G73.1	2640
P33	B01	Everted rim bowl	L18.1	G73.1	2640
P34	C04	Jar	L17	G76	2743

Figure 19: Selected Phase 6 pottery (P29–P34)

the ubiquitous shell- and reduced sand-tempered coarse wares. The majority of the assemblage was recovered from the upper fills of features in activity focus L15, in particular depression G46 and water pit G34, which produced 9.4kg and 2.4kg pottery respectively. Although the depression produced a large quantity of pottery, the material was highly fragmented, with a low vessel to sherd ratio of 1:2. The occurrence of six sherds from the same vessel within the secondary and tertiary fills (G34.1 and G34.2 respectively) of water pit G34 suggests rapid infilling of the feature. Only five other groups, pits G39 and G93, boundary ditches G3 and G10, and depression G46, contained between 1.0kg and 1.5kg of pottery.

Saxo-Norman (Phase 6) (6% of total sherd count) (Table 6 and Fig. 19)

The Saxo-Norman assemblage comprises 231 sherds from 44 vessels, weighing 868kg. The material is highly fragmented (vessel:sherd ratio 1:3): most sherds are very small (average sherd weight 3g) and highly abraded, and those containing shell inclusions are leached.

The majority of the assemblage comprises shell-tempered wheel-thrown vessels in the St Neots-type tradition, datable from the 9th–11th centuries. Forms include bowls with inturned rims of pre-conquest date, and everted rim jars and 'top hat' vessels of the conquest period. Fine wares are restricted to two sherds of 10th–12th century

Stamford ware, one from a spouted pitcher (Fig. 19: P32).

Provenance of the pottery assemblage
Pottery of Saxo-Norman date was only found in Areas B and D. Only pit G73 (L18.1), water pit G76 (L17), and boundary ditch G55 (L19.1) contained over 100g of pottery; no group contained in excess of 500g. Sherds from a single shell-tempered (type B01) vessel were recovered from the primary and secondary fills of water pit G76, L17/17.1, suggesting the feature may have become infilled over a short period of time.

CERAMIC BUILDING MATERIAL
Jackie Wells

Introduction and methodology

The ceramic building material comprises a small quantity of roof tile and brick, and a sizable assemblage of daub, fired clay, handmade slabs and portable kiln/oven furniture. Quantification of all material was by fragment count and weight, and unless otherwise stated, quantitative data in the text are based on the latter.

Brick and Tile

The assemblage comprises fifty-three fragments (weighing 2.5kg) of Roman brick and tile, and twelve roof tile fragments (403g) of late/post-medieval date. The latter are mainly unstratified, and have not been included in the following discussion.

Two Roman fabric types were identified and are detailed in Appendix 2. Sixty-two percent of the material is shell-tempered; the remainder is sand-tempered. The majority of the assemblage comprises small, abraded fragments (average weight 34g). Diagnostic forms are brick and *tegulae*. Although of probable Roman date, it is unclear whether the undiagnostic fragments represent thick tegulae or thin bricks, and for this reason they have been recorded as unidentifiable.

Most of the brick and tile derives from the upper fills of features assigned to Phases 4 and 5, in particular depression G46 (Phase 5), which yielded over 62% of the total assemblage (Table 7). The small quantity of brick and tile suggests than any substantial structures were located some distance from the excavated area.

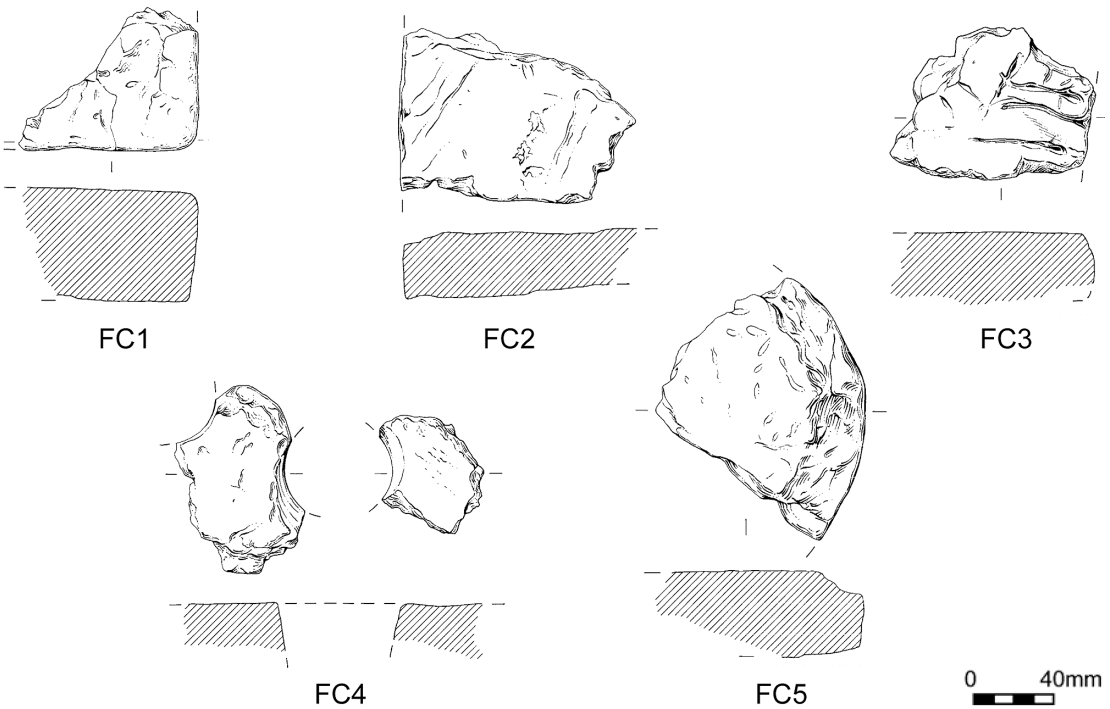
Daub, fired clay, slabs and kiln/oven furniture

Over 1,700 fragments, weighing 17.3kg, were collected. Three fabric types were identified and are described in Appendix 3. Daub and fired clay fragments are mainly sand-tempered, either reflecting the exploitation of local resources, or suggesting the unsuitability of other temper for structural use. A number of the larger daub fragments retain impressions of circular wattles, ranging in diameter from 13–25mm. Most have one finished surface – the oxidised external wall face, with wattle impressions on the reduced sides and reverse. Fragment thicknesses range from 15–40mm, with some pieces exceeding 50mm. The majority of the fired clay assemblage comprises amorphous and abraded fragments, some of which may represent degraded daub.

Phase	L No.	G No.	G No. description	Tegula	Brick	Frag	Total
6	L17	G83	Pit group			1:8	1:8
5	L13.1	G4.1	Fill of boundary ditch G4		1:46		1:46
	L13.1	G10.1	Fill of boundary ditch G10		1:51		1:51
	L15	G93.1	Disuse fill of pits G93	2:85			2:85
	L15.1	G34.1	Secondary fill of water pit G34	1:78			1:78
	L15.2	G34.2	Tertiary fill of water pit G34	2:67			2:67
	L15.2	G46	Depression	12:919	1:594	3:25	16:1538
4	L7.1	G9.1	Secondary/tertiary fills of boundary ditch G9			6:74	6:74
	L7.1	G16.1	Secondary fill of boundary ditch G16	1:33			1:33
	L7.2	G20.1	Disuse fill of ditch G19	1:10	3:73		4:83
	L10.1	G35.1	Fill of pits G35	1:90			1:90
			Total	20:1282	6:764	10:107	36:2153

NB: Excludes unstratified material.

Table 7: Brick and tile by Phase, L and G numbers



Illust.	Description	L No.	G No.	Context
FC1	Large brick fragment	L14.1	G54.1	2486
FC2	Slab	L14.1	G54.1	2486
FC3	Slab	L14.1	G54.1	2486
FC4	Perforated plate	L14.1	G54.1	2486
FC5	Circular plate	L14.1	G54.1	2486

Figure 20: Selected Phase 5 oven/kiln furniture (FC1–FC5)

Handmade clay slabs occur in both sand and organic fabrics. They range in thickness from 25–45mm and have finger-smoothed surfaces and edges. Although relatively common finds from sites of late Iron Age and Roman date, their precise function remains unclear. Suggested uses include pre-fabricated components for structures such as hearths, ovens or kilns, and salt-licks for cattle (Rigby and Foster 1986, 187–8).

Approximately 76% of the total assemblage derives from Phase 5 features, in particular the secondary fill G54.1 of pit G54 (L14.1), which contained over 11kg of structural debris and portable furniture deriving from either an oven or a kiln. The material from G54.1 includes fragments of a large handmade brick (55mm thick), two rectangular slabs (27–30mm thick), three perforated plates (25mm thick) and a circular plate (30mm thick) (Fig. 20: FC1–FC5). Fourteen percent of the assemblage derives from Phase 4 features, including 288g associated with roundhouse L8, while negligible quantities were recovered from features assigned to Phases 2, 3 and 6 (Table 8).

Vitrified clay

A small quantity (478g) of vitrified clay was recovered. It was not associated with any industrial residues and is, therefore, likely to derive from the linings of domestic hearths. All fragments were redeposited within features assigned to Phase 4, the majority (339g) deriving from the upper fills of pits G26 and G50 (L9.1).

Phase	L No.	Landscape description (with G No.)	Daub/fired clay	Slab
6	L17	Area of domestic activity (G76, 83)	24:108	
	L17.1	Deliberate infilling of features in L17 (G76.1, 76.2, 83.1, 84.1)	41:177	
	L18	Area of domestic activity (G70)	1:1	
	L18.1	Deliberate infilling of features in L18 (G72.1, 73.1)	11:30	
	L19.1	Deliberate infilling of boundary ditch L19 (G55.1)	41:82	
	L21	Boundary ditch (G75)	2:2	
5	L13.1	Natural infilling of enclosure ditches L13 (G3.2, 4.1, 10.1, 12.1)	116:783	1:27
	L14	Pits (G54)	16:10	
	L14.1	Infilling of pits L14 (G27.1, 30.1, 41.1, 54.1)	68:331	511:10742*
	L15	Pit group (G93, 93.1)	9:86	
	L15.1	Secondary fills of pits L15 (G34.1, 39.1)	14:165	1:28
	L15.2	Tertiary fills of water pit, other pits and depression (G34.2, 39.3, 46)	104:1157	
4	L7.1	Secondary fills of enclosure ditches L7 (G6.2, 9.1, 11.1, 14.1, 16.1)	479:1535	24:84
	L7.2	Tertiary fills of enclosure ditches L7 (G16.2, 20.1)	6:14	
	L8	Roundhouse (G18, 29)	7:76	
	L8.1	Disuse fills of roundhouse L8 (G18.1, 18.2, 28.1, 29.1)	29:212	
	L9	Rubbish pits (G26)	6:151	
	L9.1	Secondary fills of pits L9 (G23.1, 25.1, 26.1)	50:167	
	L10	Pits (G44, 45)	4:3	
	L10.1	Deliberate infilling of pits L10 (G7.1, 35.1, 43.1, 50.1, 51.1)	36:192	
	L10.2	Tertiary fill of pit L10 (G44)	58:60	
3	L3.1	Fill of pits L3 (G60.1)	3:24	
	L4.1	Disuse fills of boundary ditch L4 (G17.1)	7:99	
	L5.1	Secondary fill of features in activity area L5 (G8.2, 32.1)	22:430	
	L5.2	Tertiary fill of water pit L5 (G33.2)	6:22	12:458
	L6.1	Natural infilling of roundhouse and pits L6 (G5.2)	1:3	
2	L1	Enclosure ditch (G61)	1:3	
	L1.1	Secondary fill of enclosure ditch L1 (G61.1)	5:35	
	L1.2	Tertiary fill of enclosure ditch L1 (G61.2)	2:8	
	L2	Pit group (G62, 63)	13:9	
	L2.1	Secondary fills of pits L2 (G64.1, 65.1)	12:11	
	L2.2	Tertiary fills of pits L2 (G66.2)	3:46	
		Total	1197:6010	549:11339

* Includes kiln/oven furniture. NB: Excludes unstratified material.

Table 8: Summary of daub and fired clay by Phase and L number

REGISTERED AND NON-CERAMIC ARTEFACTS

Jackie Wells, incorporating report by Peter Guest (coins)

Introduction and methodology

Registered artefacts (*i.e.* excavated objects requiring more detailed recording and description than bulk finds such as pottery) are described in this section. All iron objects and seventeen copper alloy artefacts (158 in total) were submitted for x-radiography; the x-ray plates form part of the site archive. Each object was assigned a broad term or simple name, and a related functional category, in accordance with the Bedfordshire Artefacts Typology. Objects are discussed below by functional category and summarised in Table 9. For detailed catalogue entries see Appendix 4.

Discussion

Fasteners and fittings

Twenty-eight iron timber nails and nail fragments were recovered. The majority derive from Phase 5 features, particularly depression G46, which produced thirteen nails. Only eleven examples were sufficiently complete for full classification (after Manning 1985, 134–137), the majority being examples of Type 1B (Table 10). This is consistent with the incidence of nail types on other sites of Romano-British date where this form is prevalent, reflecting its general usefulness. All nails have square- or rectangular-sectioned shanks, tapering to a predominantly rounded tip, although two wedge-shaped examples were noted. Only one nail is clenched, indicating use.

Phase	L No.	G No	G No. description	Artefact Summary
8	L22	G91	Subsoil	Fe double-spiked loop (RA 9), Fe hobnail (RA 18), Fe loop-headed spike (RA 16), Fe latch lifter (RA 21), CA coin (RA 24, 28), CA toilet spoon (RA 30), Fe tack (RA 54)
7	L20.1	G89.1	Fill of furrows G89	CA coin (RA 11, 15, 31, 79)
6	L18.1	G70.1	Fill of pits G70	Fe nail (RA 98)
	L18.1	G71.1	Fill of postholes G71	Fe box fitting (RA 97)
	L18.1	G85.1	Secondary fill of pit G85	Lava quern fragments (RA 103)
5	L13	G3	Primary fill of enclosure ditch G3	Fe nails (RA 59, 60, 63, 64); Fe bar fragment (RA 61); Fe tack (RA 62)
	L15	G93.1	Main fill of pits G93	CA coin (RA 1); Fe nail (RA 105)
	L15.1	G39.1	Secondary fill of pits G39	Fe hobnails (RA 92 & 104); Fe nail (RA 91)
	L15.1	G34.1	Secondary fill of water pit G34	Fe nail (RA 102)
	L15.2	G34.2	Tertiary fill of water pit G34	Fe nail (RA 67); CA finger ring (RA 2)
	L15.2	G46	Central depression within enclosure L13	CA bell (RA 45); CA coin (RA 34, 52, 57); Fe nail (RA 37, 38, 40, 46, 48, 49, 50, 78, 84, 100, 101); Fe wool comb (RA 35); Pb strip (RA 39); Fe strip (RA 44); mixing palette (RA 76); bone hairpin (RA 82); whetstone (RA 83)
4	L7.1	G9.1	Secondary fills of enclosure ditch G9	CA coin (RA 32); Fe nail (RA 81)
	L7.1	G11.1	Secondary fill of enclosure ditch G11	Vitrified clay (29g)
	L7.1	G19.1	Main fill of enclosure ditch G19	Fe hobnail (RA 90)
	L7.2	G20.1	Main fill of enclosure ditch G19	Fe hub or nave lining fragment (RA 47); Fe shears blade (RA 77)
	L8.1	G18.1	Secondary fill of roundhouse Ditch G18	Quern fragment (RA 89)
	L8.1	G28.1	Upper fill of pits G28	Vitrified clay (2g)
	L9	G26	Primary fill of pit G26	Fe hobnails (RA 87); vitrified clay (72g)
	L9.1	G25.1	Fill of pits G25	Vitrified clay/fuel ash (140g); burnt flint (11g); flint flake
	L9.1	G26.1	Secondary fill of pit G26	Fe nail (RA 85. RA 86); vessel glass (RA 88); vitrified clay (199g)
	L10.1	G50.1	Secondary fill of pits G50	Fe nail (RA 58)
	L10.1	G51.1	Fill of slot G51	Fe nail (RA 93)
	L10.2	G44.2	Tertiary fill of water pit G44	Bone hairpin (RA 75)
	L11.1	G38.1	Fill of pits G38	Flint flake
3	L5.1	G8.2	Secondary fills of ditches G8	CA coin (RA 10)
2	L1.1	G61.1	Secondary fill of ditch G61	Fe annular ring (RA 95)
	L2.1	G64.1	Fill of gully G64	Flint flake
	L2.1	G65.1	Secondary fill of pits G65	Flint flake

NB: Fe = iron, Pb = lead, CA = copper alloy.

Table 9: Summary of non-artefacts by Phase, L and G number

Nail type	Description	Quantity
1B	Flat rectangular head	7
2	Triangular head	2
3	T-shaped head	2
Unclassified	Shanks only	17
	Total	28

Table 10: Nail types, quantity and form

Latch lifter

Locking mechanisms are represented by an incomplete iron latch lifter RA 21, recovered from subsoil, Phase 8 (*cf.* Crummy 1983, fig. 138). This class of artefact represents a very simple form of key, probably operating a lock made otherwise entirely of wood. The earliest examples known from Britain are late Iron Age in date but, in this country, the type remains in use throughout the Roman period (Manning 1985, 88).

Double-spiked loop and loop-headed spike

Single examples of a double-spiked loop RA 9 and a loop-headed spike RA 16 occurred in subsoil, Phase 8. Both forms are ubiquitous on most types of Roman site (Manning 1985, pl 59, 61; Crummy 1983, figs 125 and 126) and functioned by providing a ring or loop for attachment to woodwork or masonry (Manning 1985, 129).

Tacks

Two incomplete iron tacks RA 54 and 62 were recovered from subsoil, Phase 8 and boundary ditch G3, Phase 5, respectively. Both are common forms, in use throughout the Roman period, the

former, with its domed, hollow head, functioning specifically as an upholstery stud (Manning 1985, 136; pl 63, R101 & R102).

Household items

Quernstones
Fragments of two querns RA 89 and 103 were recovered from Phases 4 (G18.1) and 6 (G 85.1) respectively. The former is an incomplete, flat rotary quern upper stone made from millstone grit, likely to derive from Derbyshire or Yorkshire. The latter comprises abraded, undiagnostic rotary quern fragments manufactured from imported lava, originating from either the Mayen quarries of Germany or from French lava outcrops found near Volvic (King 1986, 94).

Vessel glass
RA 88 is a small fragment of blue-green glass deriving from a vessel of indeterminate form. During the Roman period most glass containers and tableware were blue-green in colour (Price and Cottam 1998, 15). The fragment derives from the secondary fill of pit G26, Phase 4.

Crafts and industry

Wool comb
Depression G46, Phase 5, yielded an iron wool comb RA 35 (Fig. 21), used to untangle fibres and ensure that they lay parallel prior to spinning. The object is double-sided, with a central cross-piece with fine teeth extending to one side and coarse teeth to the other. This differentiation of fine and coarse teeth appears to be an unusual feature. Most Roman iron wool combs were made from a forged plate either in the shape of an H with a broad central bar, the end teeth formed from the uprights of the H, or a rectangular plate. Short slots were cut, by chisel, into the cross bar and a tooth welded in each slot. Where combs were made from rectangular plates, the end teeth are L-shaped, with the short arm set in a wider slot cut in the side of the plate (Manning 1985, 33). The x-ray of RA 35 shows that two of the fine teeth are clearly constructed in this manner, and two possible slots in the side of the plate may have accommodated the end teeth. None of the remaining teeth exhibit slots for welding in position, but this may be due to a high degree of concretion. Combs possessing teeth at both ends are known from Worth, Kent; Great Chesterford, Essex; Baydon, Wiltshire; Ewell, Surrey; and London (Manning 1985, 34).

Multi-purpose implements

Shears
Shears were used for a variety of tasks, and for this reason can rarely be assigned a precise function, although division into three groups by size (Manning 1985, 34) is an accepted criteria for determining use. Although incomplete, RA 77 may be a blade from medium shears (type 2), suitable

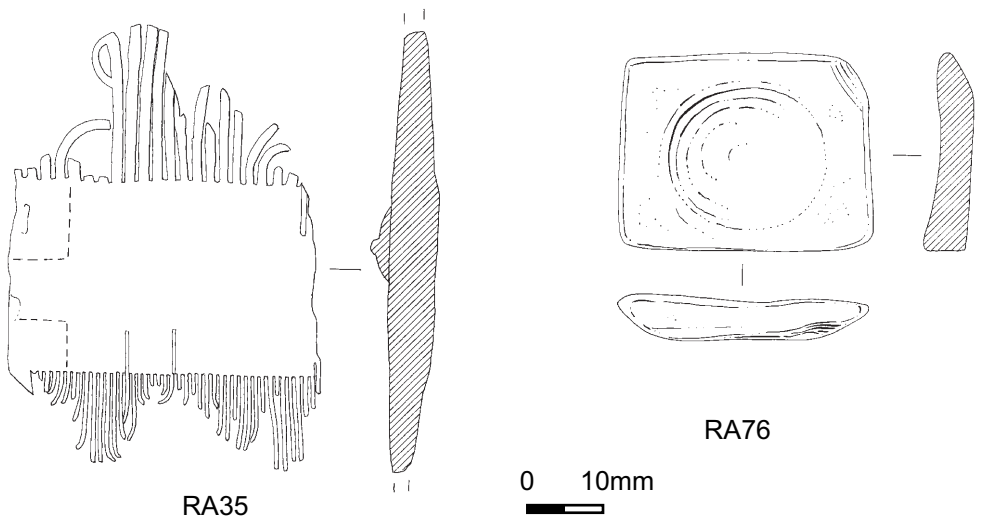


Figure 21: Selected artefacts: wool comb (RA 35) and mixing palette (RA 76)

for shearing sheep or cutting cloth, but too large for personal use. It was recovered from the secondary fill G20.1 of ditch G20, Phase 4.

Whetstone
Whestone fragment RA 83 is an example of a primary hone, fashioned from Kentish Ragstone (a glauconitic quartz-bearing limestone), and deliberately quarried and traded from Kent. Although originally rectangular, wear through use has modified the object to a rounded, bar-like shape of circular cross-section. The whetstone was recovered from depression G46, Phase 5.

Personal items

Finger Ring
A small portion of a possible intaglio finger ring RA 2, made of copper alloy, was recovered from the tertiary fill of water pit G34, Phase 5. The object survives in very poor condition; recognisable elements are part of a shoulder and hoop junction, and the edge of a setting for an intaglio. A 2nd–3rd century date is probable.

Hairpins
Two incomplete bone hairpins RA 75 and 82 were recovered from Phases 4 (G44.2) and 5 (G46) respectively. RA 82 has a flattened globular head and swelling shank characteristic of type 3 pins (Crummy 1983, 21; fig. 19/300) dating from *c*. AD 200 to the late 4th/early 5th century. RA 75 comprises a portion of shank decorated with either a cordon or incised groove, and is unclassifiable. Such items functioned primarily as decorative hairpins, although some may also have been used as garment fasteners.

Hobnails
Eighty-three iron hobnails were recovered. Although undatable, hobnails generally occur on rural sites in 2nd century and later deposits. All are Manning type 10 forms (1985, 135), with short, narrow, square-sectioned shanks and small pyramidal heads, and a length which varies between 15mm and 17mm. Where complete, the tips of the shanks are clenched over. Single examples were recovered from subsoil, Phase 8, and from the upper fills of ditch G19, Phase 4. A small group of eleven nails derive from pit G26, Phase 4. A collection of seventy nails representing the remains of a hobnailed shoe were recovered from the secondary fill of pit G39, Phase 5. Although twenty-one nails were excavated prior to recognition of the full extent of the remains, forty-nine were lifted and x-rayed within the soil matrix. Of these, seventeen were concentrated in the heel area, whilst thirty-two studded the upper sole, largely on the right-hand side of the shoe, suggesting it may have been for the left foot. No decorative pattern could be discerned in the nailing.

Toilet spoon
Subsoil, Phase 8, yielded a cast copper alloy toilet spoon RA 30 with a small round, flat scoop. Simple spoons such as this may have been used to extract and mix cosmetics, or in manicure, to push back the cuticle (Crummy 1983, 59). Toilet spoons appear to have been made throughout the Roman period; similar examples are known from Colchester (Crummy 1983, fig. 64/1898) and Bancroft, Milton Keynes (Williams and Zeepvat 1994, fig. 145/119).

Mixing palette
A complete quartzite mixing palette RA 76 (Fig. 21) was recovered depression G46, Phase 5. Small slabs of stone were used as palettes on which to mix cosmetics or medicines. Comparable examples are known from Gorhambury, Herts (Neal *et al*. 1990, fig. 146/1051), Colchester (Crummy 1983, fig. 61) and Castleford, W Yorks, (Clarke 1998, fig. 112/84).

Coins
Peter Guest

Twelve copper alloy coins, mainly of late Roman date were identified (Table 11). Although the assemblage is small it shows a 'normal' Romano-British concentration of coins from the late third and fourth centuries.

Miscellaneous objects

Hub or nave lining
The main fill of ditch G20, Phase 4, contained a curving rectangular iron strip of V-shaped section, identified as a possible hub or nave lining fragment RA 47. The act of lining the outer end of the hub with an iron ring reduced the wear caused by its rotation on the axle. Complete hub linings normally comprise a split iron band that could be slightly compressed as it was inserted, although complete cylinders are also known. All hub linings tend to be V-shaped in section, the wider edge

Phase	L. No.	G. No.	RA	Denom.	Date range	Obverse	Reverse
8	L22	G91	24	AE3 fragment	late 3rd/4th C	Illeg.	Illeg.
	L22	G91	28	AE3 fragment	late 3rd/4th C	Illeg.	Illeg.
7	L20.1	G89.1	11	AE3	330–335	Constantinopolis	Victory on prow
	L20.1	G89.1	15	Denarius	218–226	Julia Maesa	Illeg.
	L20.1	G89.1	31	AE3	330–340	Constantinopolis	[Victory on prow]
	L20.1	G89.1	79	AE3/4	330+	Illeg.	Illeg.
5	L15	G93.1	1	Radiate	268–270	Claudius II	Illeg.
	L15.2	G46	34	Barb. radiate	270–290	As Divo Claudio	As Consecratio
	L15.2	G46	52	Barb. radiate	270–290	Illeg.	Illeg.
	L15.2	G46	57	AE3	330–340	Helmeted bust left	Illeg.
4	L7.1	G9.1	32	AE1	1st–early 3rd C	Illeg.	Illeg.
3	L5.1	G8.2	10	AE3/4	late 3rd/4th C	Illeg.	Illeg.

Table 11: Coins by Phase, L and G number

being on the outside. The external diameters on British examples tend to vary from slightly under 100mm to almost 140mm – the internal diameter (wheel size) is about 20mm less in each case (Manning 1985, 72).

Bell
Depression G46, Phase 5, yielded a conical sheet copper alloy bell RA 45. The object is perforated for attachment of a clapper and suspension ring, neither of which survive. Such items may have been attached to the halters or collars of livestock or domestic pets, although some may have been used as personal ornaments (*cf.* bell on armlet from Colchester (Crummy 1983, fig. 41/1808) and unattached bell (fig. 54/1811)). Although the form was in use throughout the Roman and medieval periods, its association with securely dated Roman material suggests it may be of similar date.

Box fitting
An incomplete iron object identified as the possible remains of a small chest or casket hinge RA 97 was recovered from the fill of posthole G71, Phase 6. The poor condition of the object makes it impossible to determine whether the hinge is of drop or loop form, and precludes certainty as to whether the spiralled wire which runs down the back of the main body is a decorative feature or is corroded in position post-deposition.

Ring
An incomplete annular iron ring RA 95 was recovered from the secondary fill of ditch G61, Phase 2. The object is sub-rectangular in section, with a diameter of 45mm, and may have functioned as a harness or cart ring, or a ring handle on furnishings. It is typologically undatable.

Unidentified objects
Unidentified iron and lead objects derive from Phase 5, and comprise two tapering rectangular strip fragments RA 39 and 44 and a rectangular-sectioned iron bar RA 61. The latter tapers sharply in thickness at the break, and may represent the remains of a chisel or punch head.

Flint artefacts
The flint assemblage comprises six struck flakes (29g) fashioned from poor quality raw material, and a piece of burnt flint (11g). The flakes retain a high proportion of cortex and have sustained post-depositional damage. All are residual within pits assigned to Phases 2 (L2.1) and 4 (L9.1, L11.1), and Phase 7 furrows (L20.1).

ANIMAL BONE
Ellen Hambleton

Introduction

All the animal bone was examined as part of the post-fieldwork assessment (Albion 2002a). The small size of the assemblage from each Phase severely limits the potential for meaningful and reliable conclusions concerning the role of animal species at the site. The relatively high proportion of unidentifiable fragments is a reflection of the overall state of preservation of the assemblage, which is generally quite poor. The fragmentation and surface erosion of the bone has undoubtedly resulted in the loss of ageing, metrical, butchery and gnawing data. With the exception of the assemblages from pit G26, Phase 4 and depression G46, Phase 5, there was little potential for analysis beyond that undertaken as part of the

	Phase 2: Early–middle Iron Age	Phase 3: Late Iron Age/early Roman	Phase 4: Roman	Phase 5: Later Roman	Phase 6: Saxo-Norman
Cattle	13	15	46	34	18
Sheep/goat	5	9	43	54	8
Horse	5	4	10	10	3
Pig	1	—	8	5	6
Roe deer	—	—	—	—	1
Hare	—	—	—	1	—
Bird	—	—	—	1	—
Unidentified	91	30	287	318	50
Total count	115	58	394	423	86

* Excludes unassigned material and material from phases 7 and 8.

Table 12: Animal species by Phase (fragment count)

assessment. The following discussion is, therefore, in part based on the assessment report.

Quantification and discussion of species

A total of 1,154 fragments were recovered by hand during excavation, only 28% of which could be identified to species. A further 342 fragments were recovered from sieved ecofactual samples, from which only fifteen fragments were identified to species.

Species present include cattle, sheep/goat, horse, pig, roe deer, hare and bird (Table 12). Among the fragments identified to species, cattle remains are the most abundant (42%) followed closely by sheep/goat (39%), with horse the next most abundant species (12%), then pig (7%). Wild mammals and birds are very poorly represented in the assemblage. However, the assemblage is too small to provide reliable information concerning the relative economic importance of different species at the site and any conclusions drawn must be treated with caution.

Provenance

Animal bone was recovered from Phase 2 (early–middle Iron Age) through to Phase 8 (post-medieval). The bulk of this material is of Romano-British date with the majority (423 fragments) coming from Phase 5 (later Roman) deposits and a slightly smaller sample (394 fragments) from Phase 4 (Roman) (Table 12). There does appear to have been some increase in the relative abundance of sheep in Phase 5 compared to earlier Phases. However, this may simply reflect the presence of the sheep-rich deposit G46.1, which contained several sheep skulls, mandibles and a cervical vertebra. Horse was recovered from all Phases and is consistently the third most common species in the Romano-British Phases, while pig is generally less common. The pattern of species representation described above is fairly typical of Romano-British rural settlements, which are usually dominated by sheep/goat and cattle with a low incidence of pigs (King 1999) and tend to have horse occurring more commonly than on urban settlements (Maltby 1994). The relative species abundance in the Romano-British phases (4 and 5) is similar to other assemblages of this date from the region *e.g.* Milton Keynes (Mynard 1987, 180–191) and, in particular Marsh Leys Farm, Bedfordshire (Albion in prep.).

Assemblage from G26

The material from pit fill G26.1 (Phase 4) was subject to further analysis because the assemblage was relatively large (372 fragments) and because cranial elements were observed during the assessment. However, only a small number of fragments were identifiable to species: sixteen cattle, twenty-one sheep/goat, two horse and five pig. These include several loose teeth and skull fragments, demonstrating that cranial elements of several different species were present in the deposit. However, there is no indication that these represent the deliberate deposition of complete crania, and postcranial elements are also present. On balance, there is nothing in this faunal assemblage to suggest it differs significantly from what one might expect to find in a general accumulated deposit of domestic refuse.

Assemblage from G46.1: 'Special' deposit of sheep skulls

Introduction

During excavation, three complete sheep skulls (G46.1, Phase 5) were identified within the depression at the centre of enclosure L13. They were placed close together on their sides, facing different directions and were suggestive of a 'special' deposit. Therefore, following assessment, all bone from this deposit was examined in detail. In addition to the three skulls noted during excavation, the assemblage also contains an additional two fragmentary sheep skulls, two mandible/maxilla pairs, one radius/ulna and one atlas vertebra (butchered), giving a minimum number of five individuals. All the skulls were positively identified as belonging to sheep of a hornless variety commonly found in later Romano-British assemblages.

Age at death

Based on the state of tooth eruption and wear on the five pairs of mandibles, it is possible to estimate the age at death of the sheep from this deposit (Grant 1982; Hambleton 2001; Payne 1973). Of the three skulls found in close association, Skull 1, had a Grant (1982) Mandible Wear Stage (MWS) of 39 which places it towards the younger end of Payne's (1973) Wear Stage of G (equivalent to 4–6 years), suggesting an age of approximately 4 years. Skull 2 was at MWS 35, which is towards the start of Payne stage F (3–4 years), suggesting an age of approximately three years. Skull 3 was at MWS 25, which places it towards the older end of Payne stage D (1-2 years), and had 3rd mandibular molars that had erupted through the bone, although they were not at full occlusal height. Silver (1969) suggests an age of 1.5–2 years for eruption of the M3, which combined with the toothwear data, could suggest an age of approximately 2 years at death. Of the other two individuals represented, one mandible pair was of a similar age to Skull 2 and had MWS of 34 (*c.* 3 years at death). The other mandible pair was of a similar age to Skull 1 and showed a slight variation in levels of wear with the right side having a MWS of 37 and the left side a MWS of 39 (equivalent to *c.* 4 years at death).

Absolute ages assigned to archaeological sheep mandibles based on modern comparative data may vary in accuracy and precision, particularly amongst adult animals where rate of toothwear may vary within and between populations. However, despite these caveats, the three closely associated skulls and two additional mandible pairs do appear to represent individuals of three age cohorts (2, 3 and 4 years old), each roughly a year apart in age at death. This pattern of age at death would seem to be consistent with all five individuals' being killed and deposited together in a single event. Based on the assumption that sheep births were concentrated in March to April (Hamilton 2000, 61), it is suggested that individuals killed at approximately 24, 36 and 48 months (2, 3 and 4 years respectively) represent animals killed in the spring months.

Butchery marks

Four of the sheep displayed evidence of having been butchered. Each of the three skulls found in close association had fine horizontal knife cuts across the central region of the occipital bone on, or slightly below, the pronounced ridge of muscle attachments at the back of the skull. These marks almost certainly resulted from cutting through the top of the neck muscle at the back of the skull in order to detach the head from the rest of the body. The technique used to remove the heads of these three individuals, cutting from the dorsal side, is somewhat unusual among faunal assemblages of this date (Maltby, pers. comm.). More commonly, cut marks are seen on the cervical vertebra where the head has been disarticulated from the post-cranial skeleton slightly further down the neck, and the skull removed, often with the upper cervical vertebrae still attached. This latter technique was evident on one of the other individuals from deposit G46.1; there were no marks on the skull, while the associated atlas vertebra displayed horizontal knife marks on the ventral surface consistent with disarticulation of the head at the first and second cervical vertebral joint.

Conclusion

It is clear from the careful placing of at least three of the skulls, and the almost complete absence of any other sheep post-cranial material, that this deposit does not represent the casual discard of domestic refuse or primary butchery waste. The fine cut marks on the occipitals of the three skulls found in close association were virtually identical, and displayed such a consistent technique that one could argue that the same practitioner was responsible for the butchery of all three animals. This, together with the ageing evidence, suggests that these three individuals were all killed at the same

time of year, and the close association and apparent deliberate placement of the skulls supports the hypothesis that these three skulls were deposited together in a single event. It is difficult to determine whether the additional two sheep skulls represented were part of the same careful arrangement as the group of three closely associated skulls. However, the use of two different butchery techniques perhaps indicates that not all of the individuals represented were dispatched by the same person. The group of three skulls and the additional two crania and mandible/maxilla groups might, therefore, represent two or more discrete depositions of sheep heads, albeit occurring at roughly the same time.

HUMAN BONE

Christopher Mallows

A small amount of human bone, all from Roman deposits, was recovered. Water pit G43 (L10, Phase 4) produced four fragments, and a partial cranium was discovered in the central depression G46 within enclosure L13 (Phase 5).

Two left heads of metacarpals, a left medial hand phalanx and a left mandibular fragment were recovered from water pit G43. All were very poorly preserved, with considerable erosion and loss of surface detail.

The partial adult cranium recovered from depression G46 also exhibited poor preservation, including post-mortem fracturing. The surviving elements were from the frontal, parietal and nasal regions. Not all the fragments join, but they do appear to be from the same individual. Sex could not be determined. Porous periosteal bone deposition was noted, primarily above the orbital roof. The individual appears to have suffered from anaemia at some point before, but not at the time of, death.

CHARRED AND WATERLOGGED PLANT REMAINS

Jenny Robinson

Introduction

On site, very few deposits appeared to have the potential to preserve charred plant remains. However, thirty-four ecofactual samples were taken from a range of feature types and spatial/chronological locations. In addition, a further six samples were taken from waterlogged deposits. Following assessment, fourteen samples, including two from waterlogged deposits, were subject to further analysis.

Methodology

Samples were processed by bulk flotation onto a 0.25 mm sieve and scanned under a binocular microscope. The non-waterlogged flots were sorted dry under a binocular microscope and the waterlogged flots were sorted in water. Macroscopic plant remains other than charcoal were identified at up to x50 magnifications. The results are presented in Table 13, nomenclature following Clapham *et al*. (1987). Charcoal from these samples was broken transversely and examined at up to x50 magnifications. If necessary, it was also sectioned radially and tangentially and examined at up to x40 magnifications using a petrological microscope. The results are given in Table 14. The results from the two waterlogged samples are given in Table 15.

Discussion

Early–middle Iron Age (Phase 2)

Seven samples 34, 36, 37, 38, 39, 40 and 41, all from pits G62, G63, G65, G66 and G69, were analysed in detail. They contained small quantities of cereal grain, including both *Triticum spelta* (spelt wheat) and hulled *Hordeum* sp. (barley). Chaff was not well represented, but included *Triticum spelta*. Occasional seeds of arable weeds were present including *Bromus secalinus* (brome grass). Sample 40, from one of the pits in G63, also contained two stones of *Prunus spinosa* (sloe) and two unidentified tubers.

These remains show that cereals were being cultivated in the vicinity during the early–middle Iron Age, but do not indicate large-scale crop processing. It is uncertain whether or not the sloes and tubers in sample 40 were food remains.

The charcoal from these samples was mostly from thorn scrub, particularly *Prunus* sp. (probably *P. spinosa*, sloe), but Pomoideae (hawthorn *etc*.) was present in most samples and *Rhamnus catharticus* (purging buckthorn) was identified in two samples. There was also a slight presence of *Quercus* sp. (oak) charcoal in some of the samples

		Phase 2: Early–middle Iron Age							Phase 4: Roman		Phase 5: Later Roman		Phase 6: Saxo-Norman
	Sample	34	36	37	38	39	40	41	15	3	7	16	47
	G nb.	G62	G69.1	G69.3	G69.3	G65.1	G63.1	G66.2	G26.1	G6.1	G4.1	G39.1	G76.2
	L nb.	L2	L2	L2	L2	L2	L2	L2	L9	L7	L13	L15	L17
	Sample volume (litres)	20	45	10	10	10	10	20	10	10	10	20	20
GRAIN													
Triticum spelta L.	spelt wheat	—	3	—	—	—	1	—	13	16	—	6	—
T. spelta L. - sprouted	spelt wheat	—	—	—	—	—	—	—	7	—	—	—	—
T. dicoccum Schübl. or *spelta* L.	emmer or spelt	1	3	1	—	—	2	—	25	40	5	13	—
T. dicoccum Schübl. or *spelta* L. – sprouted	emmer or spelt	—	—	—	—	—	—	—	8	—	—	—	—
Triticum sp. - free threshing	rivet or bread wheat	—	—	—	—	—	—	—	—	—	—	—	51
Triticum sp.	wheat	—	1	—	—	—	—	—	1	11	—	1	4
Hordeum sp. – hulled	hulled barley	4	—	—	—	1	—	—	—	—	—	—	1
Hordeum sp.	barley	1	—	—	—	—	—	—	—	—	2	—	1
cereal indet.		1	2	2	1	—	1	—	11	25	9	12	5
Total grain		7	9	3	1	1	4	0	65	92	16	32	62
CHAFF													
Triticum spelta L. – glume	spelt wheat	1	—	—	—	—	—	1	1	328	53	55	—
T. dicoccum Schübl. or *spelta* L. – glume	emmer or spelt	—	—	—	—	—	—	—	—	596	220	379	—
Triticum sp. – awns	wheat	—	—	—	—	—	—	—	—	—	18	3	—
Avena sp. – awns	oats	—	—	—	—	—	—	—	—	—	2	—	—
Total chaff (excluding awns)		1	0	0	0	0	0	1	1	924	273	434	0
FRUIT AND NUTS													
Prunus spinosa L.	sloe	—	—	—	—	—	2	—	—	—	—	—	—
WEED SEEDS													
Ranunculus Sect. *Ranunculus* sp.	buttercup	—	—	—	—	—	—	—	—	—	—	—	1
Papaver sp. (not *somniferum* L.)	poppy	—	—	—	—	—	—	—	—	2	—	—	—
Atriplex sp.	orache	—	—	—	—	—	—	—	—	1	—	—	—
Chenopodiaceae indet.		—	—	—	—	—	—	—	—	—	1	—	—
Vicia or *Lathyrus* sp.	vetch or tare	—	1	—	—	—	—	—	—	1	—	—	1
cf. *Trifolium* sp.	clover	—	—	—	—	—	—	—	—	—	—	—	1
Polygonum aviculare agg.	knotgrass	—	—	—	—	—	2	—	—	1	—	—	2
Rumex sp.	dock	—	—	—	—	—	—	—	—	19	—	—	7
Tripleurospermum inodorum (L.) Schul. B.	scentless mayweed	—	—	—	—	—	—	—	—	1	—	—	—
Carex sp.	sedge	—	—	—	—	—	—	1	—	—	—	—	—
Bromus cf. *secalinus* L.	brome grass	—	1	—	—	—	2	1	—	12	—	—	—
Avena sp.	wild oats	—	—	—	—	—	—	1	—	—	—	—	3
cf. *Avena* sp.	wild oats	—	—	—	—	—	—	—	—	—	—	—	2
Gramineae indet.	grass	1	3	—	—	—	—	—	—	5	4	3	3
Weed indet.		—	—	—	—	—	1	1	2	7	3	1	4
Total Weed seeds		1	5	0	0	0	5	4	2	49	8	4	24
VEGETATIVE PLANT REMAINS													
Tuber indet.		—	—	—	—	—	2	—	—	—	—	—	—

Table 13: Charred plant remains by Phase, L, G and sample number

		Phase 2: Early–middle Iron Age							Phase 4: Roman		Phase 5: Later Roman	Phase 6: Saxo-Norman
	Sample	34	36	37	38	39	40	41	15	3	16	47
	G Nb.	G62	G69.1	G69.3	G69.3	G65.1	G63.1	G66.2	G26.1	G6.1	G39.1	G76.2
	L Nb.	L2	L2	L2	L2	L2	L2	L2	L9	L7	L15	L17
	Sample volume (litres)	20	45	10	10	10	10	20	10	10	20	20
Rhamnus catharticus L.	purging buckthorn	—	+	—	—	—	+	—	—	—	—	—
Prunus sp.	sloe	+	+	++	—	—	+	++	—	—	—	+
Pomoideae indet.	hawthorn, apple *etc.*	+	+	+	—	+	+	+	—	+	—	+
Quercus sp.	oak	—	—	—	+	—	+	+	+	—	+	—
Fraxinus excelsior L.	ash	—	—	—	++	—	+	—	—	—	—	—

+ present, ++ abundant

Table 14: Charcoal by Phase, L, G and sample number

		Phase 5: Later Roman	Phase 6: Saxo-Norman
	Sample	22	51
	G Nb.	34	76
	L Nb.	15	17
	Sample volume (litres)	10	20
Ranunculus cf. *repens* L.	creeping buttercup	—	+
Ranunculus S. *Batrachium* sp.	water crowfoot	+	—
Brassica sp.	wild turnip, black mustard etc.	—	+
Coronopus squamatus (Forst.) Asch.	swine-cress	+	—
Atriplex sp.	orache	+	—
Potentilla cf. *reptans*	creeping cinquefoil	+	—
Pomoideae indet. - wood	apple, hawthorn *etc.*	—	+
Conium maculatum L.	hemlock	++	—
Torilis sp.	hedge-parsley	—	+
Rumex sp.	dock	—	++
Urtica dioica L.	stinging nettle	++	—
Corylus avellana L.	hazel	—	+
Quercus sp. - wood	oak	—	+
Cirsium sp.	thistle	—	+
Lapsana communis L.	nipplewort	—	+
Sonchus asper (L.) Hill	sow thistle	—	+
Juncus sp.	rush	+	—
Lemna sp.	duckweed	+++	—
	leaf fragment	—	++
	woody fragment	—	+++

— absent, + present, ++ abundant, +++ most plentiful

Table 15: Waterlogged plant remains by Phase, L, G and sample number (seeds unless stated)

and charcoal of *Fraxinus excelsior* (ash) was found in sample 38 from a pit in G69. The results suggest that fuel was mostly obtained from scrub or hedgerow sources, but that some woodland timber was also available.

Romano-British (Phase 4)

Two samples were analysed in detail for charred remains. Sample 15 from the fill of pit G26 was comprised predominantly of wheat grain with very few weed seeds or chaff fragments. Some of the grain could be identified more closely to *Triticum spelta* (spelt wheat). A significant proportion of the grain showed signs of germination. It is possible that this deposit represents grain which was being malted and had been accidentally burnt.

Sample 3 from the fill of ditch G6 contained a very high concentration of glumes of *T. spelta*. The glumes outnumbered grain by a factor of 10:1. Given that chaff is more vulnerable to complete

combustion than grain, the remains clearly represent material that was very rich in chaff. Arable weed seeds were also present, the most numerous being *Rumex* sp. (dock) and *Bromus cf. secalinus* (brome grass). The remains probably represent the waste product from the de-husking and cleaning of spelt wheat. Similar species and ratios of chaff to grain were observed in contemporary deposits at Haynes Park (Robinson 2004, 102).

Later Romano-British (Phase 5)
Two samples were analysed in detail for charred remains: sample 7 from ditch G4 and sample 16 from pit G39. The results were very similar to those from sample 3 in the previous Phase. Chaff of spelt wheat predominated in both samples, although the proportion of weed seeds was much lower than in sample 3. Most of the grain was probably spelt wheat, although there was also a slight presence of *Hordeum* sp. (barley). The remains in these samples likewise represent debris from the de-husking of spelt.

In addition, sample 22 from the lowest fill of water pit G34 was analysed in detail. It contained rather poorly preserved waterlogged seeds predominately of *Lemna* sp. (duckweed), a minute floating plant which probably covered the surface of the water. The other seeds were mostly from the vegetation growing on the settlement, such as *Conium maculatum* (hemlock) and *Urtica dioica* (stinging nettle).

Saxo-Norman (Phase 6)
Two samples from water pit G76 were analysed in detail for plant remains. In sample 47 (from the upper fill), charred grains of free threshing *Triticum* sp. (rivet or bread wheat) predominated (in the absence of chaff it was not possible to determine which species was present). Small quantities of *Avena* sp. (wild oats), which was likely to have been a crop by this date, and hulled *Hordeum* sp. (hulled barley), along with some weed seeds, were also present. The range of species and quantity of material is comparable to those from Haynes Park (Robinson 2004, table 9). This material may represent grain that was being parched in order to harden it prior to hand milling. Grains of free-threshing wheat and oats were also present in sample 49 (not subjected to full analysis) taken from the secondary fill of the water pit.

Ecofactual sample 51 derived from the lowest fill of the water pit, but only contained poorly preserved organic remains. Seeds of aquatic plants were absent but the sample contained many leaf and wood fragments, including Pomoideae (hawthorn, apple etc.) and *Quercus* sp. (oak). It is possible that the water pit was situated alongside a hedge or a clump of trees and bushes. The other seeds were from plants of disturbed ground or hedgerow habitats, such as *Torilis* sp. (hedge parsley) and *Rumex* sp. (dock).

Three further samples (45 from a pit in G83 and 27 and 28 from ditch G55) were only subject to assessment. They contained assemblages of charred remains very similar in character to those from water pit G76. Grains of free-threshing wheat predominated; sample 28 also contained a rachis fragment of *Secale cereale* (rye), another cereal characteristic of this period.

MOLLUSCS
Jenny Robinson

Mollusc shells were very sparse or absent from the majority of the ecofactual samples. The only notable concentration was found in sample 35, which was taken from the fill of ditch G61, Phase 2. The most numerous shells were of *Lymnaea truncatula*, which probably lived in temporary bodies of stagnant water in the ditch bottom. The remaining shells were of terrestrial species such as *Vertigo pygmaea* and *Vallonia excentrica* that had probably entered the ditch from the surrounding ground surface, and suggest dry, open conditions.

DISCUSSION

Despite the relatively limited extent of the excavated areas, evidence for six Phases of activity was recovered. The earliest (Phase 1) comprised Neolithic/early Bronze Age worked flint. However, this material was entirely residual within later features and is not indicative of settlement at this date. The first farmstead was established in the early–middle Iron Age (Phase 2). The majority of the evidence for settlement relates to the late Iron Age/Romano-British period (Phases 3, 4 and 5), although the Saxo-Norman period (Phase 6) is also represented. The following chronological discussion highlights particularly significant aspects of the evidence for each period.

Early–middle Iron Age (c. 800 to 300 BC)

Introduction

The investigations located a previously unknown early–middle Iron Age farmstead (Phase 2). Its location on the Oxford Clay of the Marston Vale is of particular interest because settlements of this period in the Eastern Counties are often believed to have been concentrated on lighter soils and along river valleys (Bryant 1997, 25; Dawson forthcoming). The Luton Road, Wilstead settlement can be added to a small, but increasing, number of sites of this period situated on clay soils (see Bryant 1995, 22–4).

The evidence comprises a ditch, pits, postholes and a gully. The presence of a segmented ditch L1 is perplexing because it did not obviously enclose the settlement features and even truncated some of the pits. However, it produced a similar pottery assemblage to many of the pits and is, therefore, believed to have been broadly contemporary. Despite the presence of the ditch, the settlement is considered to have been 'open' or unenclosed. At the time of Knight's (1984, 223) survey this class (Group 4) was considered to be relatively uncommon. However, since then an increasing number of unenclosed settlements have been located, such as Bancroft, Milton Keynes (Williams and Zeepvat 1994, 55), Hinksley Road, Flitwick (Luke 1999, 81) and Biddenham Loop (Luke forthcoming), suggesting that they may actually have been relatively common.

The earlier view that unenclosed settlements were relatively uncommon is probably a reflection of their very nature: they are difficult to detect by anything other than open area excavation. For example, it is striking that while evaluation Trench 6 located ditch L1 and produced early–middle Iron Age pottery, it did not identify many of the pits or postholes.

The dating of the farmstead is based solely on the pottery assemblage, which predominantly comprises sand- or shell-tempered fabrics characteristic of the period.

Components of the settlement

A small number of features, characteristic of settlement, were identified. They comprised seventeen pits, three postholes and a gully, covering an area *c*. 26m in diameter.

The pits were generally small and concave in profile. They were certainly not 'classic' Iron Age storage pits. They may be classified as either basin- or scoop-shaped, on the basis of their size and profile. The basin-shaped pits could have served a storage function, while the scoop-shaped pits are more likely to be the result of clay extraction. Clusters of similar pits dating to the middle Iron Age were excavated at East Stagsden, in association with a roundhouse (Dawson 2000, 21–27 and fig. 17). However, the Luton Road, Wilstead pits are also comparable to the late Bronze Age/early Iron Age pits at Aldermaston Wharf, Berks (Bradley *et al*. 1980, 221) and Biddenham Loop (Luke forthcoming).

No buildings or structures could be identified within the remaining features in this settlement, postholes G67 and gully G64. Although it is possible that the curving segmented ditch was associated in some way with a roundhouse. It is likely that the more ephemeral evidence for buildings and structures may simply have been destroyed by plough truncation., although the presence of small postholes would suggest this was not universally the case.

Economy

Limited mollusc evidence points to dry, open conditions around the settlement. Spelt wheat and barley were being grown, although the charred plant remains do not suggest large-scale crop processing. The charred wood species indicate that fuel was obtained from scrub and hedgerow sources, but that some woodland timber was also available. The animal bone is dominated by cattle, but the assemblage is too small and in too poor a condition to provide any significant insight into animal husbandry. Although it is likely that mixed farming, the norm for this period (Hill 1995a, 60), provided the economic basis for the settlement, the recovered assemblages are too small to allow the relative importance of plants and animals to be assessed.

Late Iron Age and Romano-British (c. 50 BC to AD 410)

The overall settlement sequence

During the late Iron Age/early Roman period (Phase 3), a new settlement was established *c*. 100m to the south of its early–middle Iron Age predecessor. Two discrete domestic foci were identified to the south of a boundary ditch. The dating evidence is not sufficiently refined to determine whether both were occupied simultaneously. The

'Belgic' pottery assemblage is characterised by wheel-thrown vessels with shell/grog, shell or sand inclusions. A standard range of domestic vessel forms, typical of the region, is present.

At some point, possibly in the late 1st century AD, a rectilinear system of ditched enclosures (Phase 4) was established in the same area as the 'Belgic' settlement. The new system mirrored the alignments of the earlier boundary ditch, suggesting no significant break in occupation. Features characteristic of settlement were identified in all three of the investigated enclosures. None were present to the south of the southernmost enclosure ditch G2, which may have defined the limit of the settlement. The pottery assemblage spans the entire Roman period, although most is datable to the 2nd and early 3rd centuries. It is again characterised by domestic, utilitarian types and forms.

It seems likely that a change in use of this part of the settlement occurred sometime during the late Roman period (Phase 5). A single, new enclosure L13 was laid out on a different alignment to the earlier system. It contained less evidence for buildings or structures than the enclosures it replaced. The pottery assemblage is characterised by a greater quantity of imported late Roman regional fine wares and the presence of characteristically later forms amongst the coarse wares. The recovery of ten late 3rd–early 4th century coins, including three from the depression at the centre of enclosure L13, may provide a date for this phase of activity. The absence of late 4th century coins may indicate that the settlement was abandoned at some point before the middle of the 4th century.

Settlement shift

The early–middle Iron Age and the 'Belgic' Iron Age/early Romano-British settlements at Luton Road, Wilstead lay nearly 100m apart. This fits a regional trend, first noted in the 1970s (Simco 1973, fig. 1), whereby surprisingly few early–middle Iron Age settlements are directly overlain by 'Belgic' replacements (see Luke and Shotliff 2004, 118).

Another significant change in settlement layout, possibly associated with a break in occupation, was seen in the later Roman period. A new enclosure was laid out on the site of earlier enclosures, but on a different alignment. Similar, possibly contemporary changes towards the end of a period of Roman occupation have been observed at Marsh Leys Farm (Albion 2002b, 93) and Shefford Lower School (Albion 2005, 38).

Nature of the enclosure system

Because it continued beyond the limit of excavation, the full extent of the Romano-British rectilinear enclosure system at Luton Road, Wilstead is unknown. However, the presence of a possible southern boundary (*cf.* Wavendon Gate, Milton Keynes (Williams *et al.* 1996, 83)) and the absence of any ditches in Area B suggest it is likely to have covered at least one hectare. Williams *et al.* (1996, 83) have suggested that the creation of large enclosed areas was common practice in lowland Roman Britain during the second half of the 1st century AD. This dating would be broadly compatible with the establishment of enclosure systems at Luton Road, Wilstead and other sites in the area, *e.g.* Haynes Park (Luke and Shotliff 2004, 119) and Hinksley Road, Flitwick (Luke 1999, 83).

Settlement components

In terms of their constituent parts, the three phases of late Iron Age/Romano-British settlement showed both similarities and variation. The two principal Phase 3 domestic foci L5 and L6 were *c.* 33m apart. Both contained a similar range of features, including possible buildings or structures, large pits (including a water pit) and numerous smaller pits.

The majority of the features in the Phase 4 settlement were also small pits. Again, buildings were represented in the form of a definite roundhouse L8. The presence of a rectangular, domestic structure is also hinted at by an arrangement of ditches and other features which all produced significant quantities of finds. A large water pit was re-dug on at least two occasions.

In contrast to the earlier phases, the later Romano-British enclosure (Phase 5) did not contain evidence for either buildings or other structures. It did, however, again contain a large water pit and a number of smaller pits. At the centre of the enclosure was a shallow depression G46, filled with layers containing an exceptional range of finds. These are discussed in more detail below.

Buildings

Both of the main domestic foci within the Phase 3 settlement contained possible structural features. In L6, the curving nature of the gullies G5 is suggestive of drainage features associated with a roundhouse. The gap in the gullies to the northeast, the paired pits G40, and the position of scoop G42 suggest a possible doorway on this side. By

contrast, Hill (1995a, 54) has suggested that houses, like settlements as a whole, would normally have been entered from the direction of the rising sun, *i.e.* east to southeast. With a projected diameter of *c.* 10m, the size and nature of this roundhouse make it comparable to buildings G19 and G60 at Hinksley Road, Flitwick (Luke 1999, 48 and fig. 3).

Slots G8, in domestic focus L5, were comparable to those associated with buildings F181 and F182 at Ivy Chimneys, Essex (Turner 1999, 26–29). However, they were not associated with postholes and did not have the characteristics of beam slots. Nevertheless, their relative proximity and uniqueness on the site suggest that they probably served a structural function. However, they did not form a pattern that can be easily interpreted as a building.

The evidence for the Phase 4 roundhouse L8 was much more substantial. The building was defined by a drainage ditch *c.* 18m in diameter, with a gap for an entrance to the southwest. The function of internal gully G29 and pits G48 is uncertain; they may not have been contemporary with the building. The majority of the sizable pottery assemblage from the roundhouse is of 2nd–4th century AD date. It is, therefore, securely dated to the Romano-British period and may have been constructed sometime in the 2nd century AD. Hingley (1989, 31) believes that roundhouses may have been very common throughout lowland Britain during the 1st and 2nd centuries AD. The Luton Road Wilstead roundhouse was probably occupied into the 3rd century. Hingley has observed that at some sites, *e.g.* Odell, Beds. (1989, 33) and Somersham, Cambs. (1989, 172) they continued in use into the 3rd/4th century. This has been demonstrated more recently at Wavendon Gate, Milton Keynes, where roundhouses occur throughout the Roman period (Williams *et al.* 1996, 86).

As with so many excavated Roman settlements in the region, for example Wavendon Gate, Milton Keynes (Williams *et al.* 1996, 86), there is no direct evidence for rectangular buildings. Although highly speculative, the Phase 4 rectangular arrangement of ditches G6/G20/G21, which encloses an area *c.* 27m by 13m, may indicate the position of such a building, for which no other evidence survived. A similar arrangement of ditches F3203 at Ivy Chimneys, Essex (Turner 1999, 41 and fig. 37) had comparable dimensions and was also interpreted as defining a rectangular building.

Pits

A large feature, interpreted as a water pit, was present within each of the three phases of settlement. They were *c.* 4m to *c.* 11m in diameter and 0.8m to 1.7m deep. The original Phase 4 water pit G43 was re-dug at least twice. The presence of water pits on Romano-British farmsteads is quite common, *e.g.* G29 and G58 at Hinksley Road, Flitwick (Luke 1999, 57–59), G11 at East Stagsden (Dawson 2000, 50–51) and pit 835 at Wavendon Gate (Williams *et al.* 1996, 64–66). Alternative interpretations, such as quarry pit or ritual pit, were considered for pit 835 at Wavendon Gate. However, it was concluded that a water pit, which may have developed ritual significance, was the best interpretation of the evidence (Williams *et al.* 1996, 69-70). As at Wavendon Gate, the depth and steep sides of the Luton Road Wilstead water pits, suggest that water would have been bucketed out of them, with no direct access for animals.

The function of the small pits that are ubiquitous on late Iron Age/Romano-British rural sites is uncertain. At Luton Road Wilstead, it is interesting to note that, although many occur as isolated features, there are several instances where pits or parts of pits have been re-dug *e.g.* G35 and G38 (Phase 4). It is possible that such features originated as intermittent, small quarry pits for clay to use in buildings and other structures. Many of the pits were subsequently filled with domestic debris. Pit G54 (Phase 5) was exceptional, in that it contained the dumped remains of a nearby oven or a kiln.

Economy

The charred plant remains from late Iron Age/Romano-British deposits were generally sparse. However, the presence of grain and chaff in many of the samples is suggestive of de-husking and cleaning of spelt wheat. A significant proportion of the grain in sample 15 show signs of germination suggesting that it was possibly being malted when it was accidentally burnt. Other evidence for crop processing on the site is the discovery of a large fragment of a rotary quern from the ditch around roundhouse L8.

The majority of the animal bone from the site derived from Romano-British deposits, particularly Phases 4 and 5. However, the assemblage is too small and fragmentary to permit reliable inferences about animal husbandry to be drawn. Cattle and sheep/goat predominate, with horse and pig present in smaller numbers. Such a species

proportion is typical of a Romano-British farmstead. Artefacts probably associated with livestock included a copper alloy bell, an iron wool comb and iron shears.

Ritual and Religion

A 'special' deposit of sheep skulls G46.1 was discovered within depression G46 at the centre of the Phase 5 enclosure L13. Three complete skulls were recorded during fieldwork; they had been placed close together on their sides, facing in different directions. During analysis of the animal bone from this feature, two more fragmentary skulls were identified. All were from a hornless variety of sheep commonly found in the later Romano-British period.

The five sheep appear to have been either 2, 3 or 4 years old when they were killed, probably in the spring months. Butchery marks on four of the skulls indicate how the head was removed from the rest of the body. The cut marks on the three skulls found close together were so similar that it is likely that these sheep were butchered by the same person. The skull of one of the other sheep had been detached from the body by a different technique, perhaps by a different butcher.

Virtually no other sheep bone was recovered from the depression, confirming that the skulls were not part of a casual dump of domestic rubbish. The butchery evidence, the consistent season of death and the careful placing of at least three of the skulls suggest that this material was associated with a ritual act or religious event, involving sheep sacrifice in the spring.

The use of animals as sacrificial offerings and their associations with particular deities or festivals throughout the year was a feature of Romano-British ritual and religion (Henig 1984, 22-35). It appears to represent the continuation of the widespread Iron Age custom of burying whole or partial animal caracasses, presumably after sacrifice (Woodward 1992, 78). There is evidence for seasonal votive deposits of butchered sheep/goat remains at several Romano-British temples/shrines, *e.g*. Hayling Island, Hants. (Downey *et al*. 1979), Harlow, Essex (Legge & Dorrington 1985), Uley, Gloucs. (Levitan 1993) and Brigstock, Northants. (Woodward 1992, 79).

The deposition of whole or partial animal carcasses is also known from Romano-British rural settlements. A partial sheep skeleton and two dog skeletons in a pit at East Stagsden, Beds. were described as having 'ritual meaning' (Roberts 2000, 122), although there was little else about the deposit that would support such an interpretation. An apparently carefully arranged, mature sheep burial was identified at Wavendon Gate, Milton Keynes (Williams *et al*. 1996, 63-4 and plate 8; Dobney and Jaques 1996, 226). Only a few metres away, placed in the upper fill of a 3rd century ditch, were two horse skulls, one of which had been butchered (Dobney and Jaques 1996, 225 and pl. 7). The latter example is probably the closest regional published parallel to the deposit of skulls at Luton Road, Wilstead, which otherwise appears, so far, to be unique.

The three sheep skulls G46.1 were not found in a purpose-dug pit. Beyond that, their precise relationship with the much more extensive depression G46 could not be elucidated. However, the latter clearly sealed the earlier, Phase 4 water pits. The three coins found within it dated to AD 270–340, and provide the only firm dating evidence. In addition to the coins, it also produced a significant number of artefacts, including a copper finger ring, nails, a whetstone, a bone hairpin, a wool comb and a mixing palette, along with a considerable quantity of pottery and animal bone. Part of an adult human skull was also recovered. Adult cranial fragments were found in a late Iron Age/early Roman depression F4502 at Ivy Chimneys, Witham, Essex where it was suggested they could be associated with votive activity (Turner 1999, 237).

It is clear that the Luton Road Wilstead material does represent something more than the accumulation of domestic refuse in a convenient hollow; it has some characteristics of a votive deposit placed in a 'special' depression. 'Ritual rubbish' is a common phenomenon in pits and wells in south-eastern England in the late Iron Age/early Roman period (Ross 1968; Hill 1995b). At Ivy Chimneys, a number of depressions and ponds were in use throughout the Romano-British period, for example F2409, F2747, F3321 assigned to the later 3rd century, which were interpreted as serving a votive purpose (Turner 1999). Explaining his interpretation, the excavator says: 'this has partly been due to the presence of unequivocal later votive activity, and partly because of the presence of unusual features and finds' (Turner 1999, 238-9). However, some ponds and depressions are known to have been associated with religious sites for example the later phases at Ivy Chimneys (Turner 1999) and Farley Heath, Surrey (Winbolt 1927, fig. 2), sometimes having integral paved or gravelled

surfaces. With this in mind, the depression's central position within the late enclosure at Luton Road, Wilstead is striking. Bird has suggested that the occurrence of off central temples within sacred enclosures implies the presence of 'something more important in the middle' (Bird 2004, 80). He speculates that this may have been a sacred tree although a natural pond or depression, like at Luton Road, Wilstead is another possibility.

The recovery of a number of semi-complete pottery vessels from the settlement may be significant. However, they were not associated with any other unusual finds and therefore it is unclear whether they represent 'special' deposits or simply the disposal of unusable vessels in convenient hollows. Hill has discussed the significance of apparent rubbish in Iron Age Wessex (1995b), and the Luton Road, Wilstead evidence hints that this may have continued into the Roman period.

No formal human burials were identified within the settlement. However, in addition to the skull fragments described above, water pit G43 (Phase 4) also produced poorly preserved fragments of human bone. These discoveries are unusual because in the Roman period, even on rural settlements, burials tend to be located on the periphery of domestic areas, *e.g.* Wavendon Gate, Milton Keynes (Williams *et al.* 1996, 80–82). The human bone fragments from Luton Road, Wilstead may derive from disturbed, earlier burials. Alternatively, and given their provenance from the same part of the site, it is possible that they were associated with the same activities that led to the ritual deposition of the sacrificed sheep.

Status of the settlement

Throughout its history, the late Iron Age/Romano-British settlement appears to have been essentially low-status. The pottery assemblage remains utilitarian in nature. It predominantly comprises locally made types with few regional or continental imports. A wide range of other everyday objects were recovered, including coins associated with the latest phase of settlement. Again, none of these are exceptional, confirming that the inhabitants of the settlement were probably fairly low-status farmers.

It is clear that ritual and religious activities were taking place on the site, specifically in the later Romano-British period. Comparable votive deposits within depressions do occur on what are unequivocally religious sites like Ivy Chimneys, Essex (Turner 1999). However, complete and partial animal burials along with the presence of wooden and bronze wheel symbols (possibly associated with a solar cult) were identified at Wavendon Gate, Milton Keynes (Williams *et al.* 1996, 62, 68, 69-70), a site that was nonetheless still considered to have been primarily a farmstead (Williams *et al.* 1996, 61). A similar interpretation could be placed on the evidence from Luton Road, Wilstead. However, it is intriguing that the depression was right at the centre of the later Roman enclosure and that, other than from this feature, there was very little evidence for domestic occupation.

Saxo-Norman (c. AD 900 to 1150)

Introduction

The majority of the evidence for Saxo-Norman settlement was situated on previously unoccupied land to the north of the Iron Age and Romano-British settlements. It comprised a boundary ditch, a water pit and a range of other settlement-type features, but no firm evidence for buildings. The majority of the pottery assemblage comprises shell-tempered, wheel-thrown vessels in the St Neots-type tradition. The manor of Wilstead was recorded in Domesday Book under its Old English name, Wilshamstead (Morris 1977), confirming late Saxon occupation in the area.

Nature of the settlement

Most of the settlement-type features were in two concentrations, L17 and L18, *c.* 30m apart and separated by a boundary ditch. They are interpreted as discrete, though probably contemporary, domestic foci. Pits, including one larger water pit, were the commonest feature type. No firm evidence for buildings was identified, although a small number of short gullies and slots may represent the remains of structures. A smaller group of similar features was also found *c.* 115m to the south.

It is presumed that these domestic foci were associated with the manor recorded in Domesday Book (Morris 1977, 53, 3). All Saints' Church, located *c.* 200m to the north, may also have originated during this period when nearby Elstow Abbey held the patronage (Papworth and Ripa 2002, 11). It is possible, therefore, that the remains within the excavation area represent the southern extent of a larger, dispersed settlement. Such settlements, rather than nucleated villages, appear to have been the norm at this time (Astill 1988, 37).

A number of comparable examples of the partial investigation of extensive settlements exist in the locality, *e.g.* Marston Moretaine (Edmondson and Steadman 2001, 54) and Haynes Park (Luke and Shotliff 2004, 121–124).

Domestic occupation of the site appears to have given way to arable cultivation by the 12th/13th century. A similar date for settlement abandonment or shift was suggested at Marston Morrtaine (Crick 1999, 133; Edmondson and Steadman 2001, 52). This would appear to contrast to the national picture where the appearance of new settlements has been noted from around the 13th century (Astill 1988, 37). However, within the confines of restricted sites like Luton Road, Wilstead, it is always difficult to determine whether excavation results are representative. In particularly it is impossible to know whether whole settlements were abandoned or just certain parts of them.

Economy

In Domesday Book, Wilstead manor is valued as 3 hides, with land for 6 ploughs and meadow for ½ plough. The recorded population suggests that the manor could have supported as many as one hundred inhabitants. Perhaps surprisingly, given the proximity of the well-wooded Greensand Ridge, no woodland is recorded (*cf.* the adjacent manor of Haynes (Luke and Shotliff 2004, 123–4)). The significance of this is uncertain; it may simply reflect the unevenness of the Domesday record of woodland in Bedfordshire (Darby and Campbell 1962, 33).

Although the animal bone assemblage from this phase is fairly small, it indicates that cattle were the predominant species, as at Haynes Park (Luke and Shotliff 2004, 123–4). Sheep and pigs were also present in small quantities.

Sampling for charred plant remains showed that wheat, barley, oats and rye were all likely to have been cultivated during this period. Comparable evidence was again obtained from Haynes Park (ibid.). It is also clear that the spelt wheat of earlier periods had been replaced by free-threshing wheat. The fragments of lava quern (RA 103) recovered from pit G85 are indicative of crop processing.

MEDIEVAL (C. AD 1150 TO 1500)

The presence of ridge and furrow earthworks over the entire investigation area suggests the land was turned over to arable cultivation after this part of the Saxo-Norman settlement was abandoned.

CONCLUSION: SETTLEMENT DENSITY AND DISTRIBUTION ON THE OXFORD CLAY

The evidence from Luton Road, Wilstead can be added to a growing body of data for Iron Age, Romano-British and Saxo-Norman settlement on the Oxford Clay. Previously it had been considered that 'the Oxford Clay areas of the county really were largely unsettled in the Roman period' (Simco 1984, 21).

Several reasons can be adduced for the previous lack of settlement evidence on the Oxford Clay. Firstly, the heavy clay soils of the Marston Vale have tended to be under pasture rather than arable cultivation, as was the case with Luton Road, Wilstead. Therefore, the identification of archaeological sites on the basis of cropmarks has not been possible. Secondly, even where the clay land has been under arable cultivation, cropmarks have proved extremely difficult to detect unlike on the more conducive geologies such as the gravel terraces of the Great Ouse. Thirdly, much of the modern development and quarrying (and therefore the archaeological investigations) within Bedfordshire has been concentrated on the river valleys.

Over the last ten years, however, there has been a moderate increase in the number of excavations and cropmarks on the Bedfordshire Clays (see Fig. 1). Sites such as Marston Moretaine (Crick 1999, 133; Edmondson and Steadman 2001, 52), Toplers Hill (Luke 2004), and now Luton Road Wilstead, are changing our perception of settlement patterns on the clay. These sites, combined with the more recent evidence from work on a gas pipeline between Stepplingley and Willington (Network Archaeology 2002, 189), are beginning to indicate a high settlement density during the Iron Age, Romano-British and Saxo-Norman periods on the Oxford Clay of Bedfordshire.

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APPENDIX 1: POTTERY TYPE SERIES

Fabrics are summarised below by chronological periods, using type codes and common names in accordance with the Bedfordshire Ceramic Type Series, currently held by Albion Archaeology. Full fabric descriptions are given only for those types not previously published. Bracketed figures after each fabric type denote a percentage (by weight) of the total excavated assemblage. Percentages are only noted for fabric types constituting over 1% of the total assemblage.

Early–middle Iron Age
Type F03 Grog and sand
Fabric: Slowikowski (2000, 61)
Forms: undiagnostic handmade body sherds.
Comments: originating in the early–middle Iron Age and continuing into the late Iron Age contemporaneously with wheel-thrown 'Belgic' pottery.

Type F04 Organic
Fabric: Slowikowski (2000, 62)
Forms: undiagnostic handmade body sherds

Type F14 Fine mixed inclusions
Fabric: Slowikowski (2000, 62-3)
Forms: undiagnostic handmade body sherds
Comments: originating in the middle Iron Age and continuing into the late Iron Age contemporaneously with wheel-thrown 'Belgic' pottery

Type F15 Coarse mixed inclusions
Fabric: Slowikowski (2000, 63)
Forms: handmade round shouldered vessel
Comments: originating in the middle Iron Age and continuing into the late Iron Age contemporaneously with wheel-thrown 'Belgic' pottery.
Illustration: Fig. 15: P1.

Type F16 Coarse shell (1.7%)
Fabric: Slowikowski (2000, 63)
Forms: handmade storage jars, an ovoid vessel, flat rim vessel and pinched out base sherd.
Illustration: Fig. 15: P3.

Type F17 Grog
Fabric: Slowikowski (2000, 63)
Forms: undiagnostic handmade body sherds
Comments: originating in the middle Iron Age and continuing into the late 'Belgic' Iron Age

Type F19 Sand and organic
Fabric: Slowikowski (2000, 63)
Forms: vessel with inturned rim, upright rim and bifid rim vessel with finger-tip impressions.
Illustration: Fig. 15: P2.

Type F27 Shell and grog
Fabric: Slowikowski (2000, 64)
Forms: undiagnostic handmade body sherds
Comments: originating in the late Bronze Age/early Iron Age and continuing into the middle Iron Age

Type F28 Fine sand (2.2%)
Fabric: hard-medium fired, sandy or occasionally harsh to feel with even fracture. Colour varies; can be dark-grey throughout, or have mid brown or reddish brown surfaces. Contains abundant, well-sorted, rounded or sub-rounded, clear or milky-white quartz 0.1–0.4mm (occasionally up to 0.8mm); sparse, well-sorted, rounded, black and red iron ore 0.2–0.5mm. Additionally matrix may contain sparse, greenish glauconite inclusions 0.1–0.2mm
Forms: undiagnostic handmade body sherds
Comments: originating in the late Bronze Age/early Iron Age and continuing into the middle Iron Age

Type F29 Coarse sand
Fabric: hard-medium fired, harsh to feel with uneven fracture. Colour variable; may be dark grey throughout, or may have mid-brown or reddish brown surfaces. Contains abundant, moderate-poorly-sorted, rounded or sub-rounded, clear or milky-white quartz 0.5–1mm (occasionally very coarse-up to 3.5mm); sparse, well-sorted, rounded, black and red iron ore 0.2–0.5mm. Additionally matrix may contain sparse, greenish glauconite inclusions 0.1–0.2mm
Forms: undiagnostic handmade body sherds
Comments: originating in the late Bronze Age/early Iron Age and continuing into the middle Iron Age

Type F30 Sand and Calcareous inclusions
Fabric: medium-hard fired sandy fabric, usually with reddish-brown surfaces and dark grey core, although may be dark grey or brown throughout. Contains abundant, well-sorted, rounded or sub-rounded, clear or milky-white quartz 0.2–0.4mm and well-sorted rounded calcareous inclusions 0.4–0.7mm. May also contain sparse quantities of fine black or red iron ore.
Forms: everted rim vessel

F35 Micaceous
Fabric: fairly hard fired with smooth surfaces, reduced dark grey-black throughout. Characterised by the presence of abundant fine white mica, particularly visible on the external surface. Contains abundant, well-sorted sub-rounded fine quartz, 0.1–0.5mm, and occasional elongated voids, up to 1.5mm in size, where organic matter has burnt out.
Forms: undiagnostic handmade body sherds

Late Belgic Iron Age
Type F05 Grog and shell (1.0%)
Fabric: Slowikowski (2000, 62)
Forms: lid-seated and everted rim jars, storage jars, cordoned vessels, and a bead rim bowl.
Illustrations: Fig. 15: P4, P6.

Type F06 Grog (3.0%)
Fabric: Slowikowski (2000, 62); three sub-divisions of this type have been defined, based on the size and frequency of the grog inclusions. All occur at Luton Road Wilstead.
Forms: F06A: (fine): undiagnostic body sherds, with incised horizontal grooves,
F06B: (medium): lid-seated vessels with rilling and incised horizontal grooves,
F06C: (coarse): storage jars, roll rim jars, a neckless jar and a lid-seated bowl. Decoration comprises vertical combing and incised horizontal grooves. Predominantly wheel-made, although handmade examples are known.
Illustrations: Fig. 15: P5, P7-9.

Type F07 Shell (5.5%)
Fabric: Slowikowski (2000, 62)
Forms: handmade, sometimes wheel-finished, lid-seated vessels, with vertical and/or horizontal combing.
Illustration: Fig. 16: P10.

Type F09 Sand and grog (1.3%)
Fabric: Slowikowski (2000, 62), *cf*. also Milton Keynes fabric group 47 (Marney 1989, 193–4).
Forms: storage jars, bead rim jars and cordoned vessels. Decoration comprises wavy incised lines, combing, and incised horizontal grooves.

Type F34 Sand (1.0%)
Fabric: Fine, hard-fired fabric with buff-orange surfaces and variable grey core. Contains sparse, well-sorted, sub-rounded quartz 0.1–0.5mm, and occasional mica.
Forms: narrow necked jars, a platter and a necked bowl. The latter has been modified by the addition of a post-firing hole in the neck. Decoration comprises cordons and incised horizontal and vertical designs.
Illustrations: Fig. 16: P11, P12.

Type F Non-specific Iron Age (12 sherds)
Sherds which could not be assigned a fabric type, but whose form or context suggests an Iron Age date. These are described in the site archive.

Roman
Samian identifications by Felicity Wild.

T*ype R01A Central Gaulish samian ware*
Fabric: Tomber and Dore (1998, 30–32)
Forms: bowls (forms 18/31, 31, 18/31R, 31R), conical cup (form 33; one stamped I.IONO), cup (form 35), dish (form 36) and hemispherical decorated bowl (form 37, see below).
Decorated ware: Figure types quoted from Oswald 1936–37 (O.) and central Gaulish decorative motifs from Rogers (1974).
1. Form 37, shows a leaf scroll in the style of Cinnamus, with his ovolo (Rogers B223) and the leaves (Rogers J15 and H13) and bird (O. 2315) in the upper concavities of the scroll. The features all occur together on a stamped bowl from London (Stanfield and Simpson 1958, pl. 161, 53). Unlike the London bowl, leaves are also present in the lower concavities. *c*. AD 150–175.
Date: 2nd century
Illustration: Fig. 17: P20.

Type R01B South Gaulish samian ware
Fabric: Tomber and Dore (1998, 28-29)
Forms: bowl (form 18 or 18/31), cup (form 27?) and hemispherical decorated bowl (form 37, see below).
Decorated ware: Figure types quoted from Oswald 1936–37 (O.)
1. Form 37, joining fragments showing a poorly impressed and damaged ovolo with narrow core and indistinct rosette tongue. The decoration beneath the ovolo appears to be zonal, with part of an animal, probably the hound (O. 1923). The ovolo is well known from La Graufesenque, although it is not associated with any named potters. Its occurrence on sites in Scotland suggests a Flavian date, *c*. AD 75–95.
Date: late 1st–early 2nd century

Type R01C East Gaulish samian ware
Fabric: Suggested origin at the potteries of the Argonne, or perhaps La Madeleine (Tomber and Dore 1998, 34–41).
Forms: bowl (form 31 or variant) and dish (form 36).
Date: mid 2nd century

Type R01D Romano-British samian ware
Fabric: hard granular, glossy fabric of unknown source.
Forms: bowl (form 31)
Date: *c*. 2nd century

Type R02 Mica gilded wares
Fabric: Slowikowski (2000, 64); Marney (1989, 185: fabric 34c).
Forms: undiagnostic body sherds.
Date: late 1st–2nd century.

Type R03A Verulamium region whiteware
Fabric : Tomber and Dore (1998, 154)
Forms: reed rim bowl, necked jar, flagon, bifurcated rim jar.
Date: late 1st–2nd century.

Type R03B Gritty whiteware
Fabric: Slowikowski (2000, 64)
Forms: ring-necked flagon, necked jar with horizontal groove.
Date: late 1st–2nd century
Illustration: Fig. 17: P14.

Type R03C Smooth whiteware
Fabric: Hard fired smooth fabric, cream-buff throughout. Contains common, well-sorted, sub-rounded clear or opaque quartz, 0.1–0.5mm, and occasional red iron ore.
Forms: undiagnostic fine walled, rouletted vessel.
Date: late 1st–2nd century.

Type R03D Whiteware with fine shell
Fabric: Hard fired smooth fabric, cream-buff throughout. Contains frequent poorly sorted subangular multi-coloured quartz 0.1–0.3mm, moderate, poorly sorted fine shell (some subrounded and others linear), sparse poorly-sorted mica, visible on the surfaces.
Forms: undiagnostic body sherds.
Date: 2nd–3rd century.

Type R03E Fine whiteware
Fabric: Hard fired soapy fabric, cream-buff throughout. Contains common, well-sorted, sub-rounded clear or opaque quartz, 0.1–0.5mm. Similar to type R03C, but less smooth.
Forms: reed rim bowl, flagon.
Date: 2nd century+.

Type R04A Rhenish ware
Fabric: Symonds 1992.

Form: fine walled beaker.
Date: 2nd–3rd century.

Type R05A Orange sandy (1.2%)
Fabric: hard fired fabric, orange-buff throughout, although surfaces are often slipped white. Contains frequent to abundant subangular quartz inclusions, 0.5–1.0mm.
Forms: flanged bowl, flagon, everted rim jar, lid, miscellaneous cordoned vessel.
Date: 2nd–late 3rd century.

Type R05B Fine orange sandy
Fabric: hard fired fabric with buff-orange surfaces (often slipped white) and variable pale grey core. A finer version of type R05A, containing frequent, well-sorted subangular quartz inclusions, 0.1–0.5mm.
Forms: undiagnostic fine walled vessels.
Date: 2nd–late 3rd century+.

Type R06A Nene Valley Greyware
Fabric: Marney (1989, 179: fabric group 14)
Forms: plain rim bowl, triangular rim bowl, 'dog' bowl with rounded rim.
Date: 2nd–3rd century.

Type R06B Coarse greyware (6.5%)
Fabric: Harsh gritty fabric, with variable reduced core and surfaces, the latter often smoothed and/or burnished. Contains abundant, ill-sorted, sub-rounded quartz, 0.5–1.0mm.
Forms: plain rim and triangular rim bowls, 'dog' bowls with rounded and upright rims, dishes, everted and triangular rim jars, lid-seated and neckless jars. Decoration includes horizontal grooves, overall burnishing and burnished lattice motifs.
Date: 2nd century+.

Type R06C Fine grey ware (13.2%)
Fabric: Hard fired, smooth fabric with variable reduced surfaces and paler core. Contains frequent, well-sorted fine quartz, 0.1-0.5mm.
Forms: plain and everted rim beakers, folded beakers, reed rim bowls, bead and triangular rim bowls, flanged and lid-seated bowls, dished, 'dog' bowls with rounded and upright rims, cordoned jars, narrow-necked and lid-seated jars, everted and triangular rim jars, and a lid. Decoration comprises horizontal grooves, wavy incised lines, burnished horizontal lines, overall and external black slip, burnished and incised lattice, cordons, and overall burnishing.
Date: 2nd century+.
Illustrations: Fig. 17: P15, Fig. 18: P23, P26.

Type R06D Micaceous grey ware (1.5%)
Fabric: Soft fired fabric with mid-grey surfaces and paler core. Contains common, well-sorted, sub-rounded fine quartz, 0.1–0.5mm, and sparse inclusions of larger grains. Also rare red iron ore.
Forms: single examples of a plain rim beaker, reed rim bowl, flanged bowl, 'dog' bowl with rounded rim, everted rim and narrow-necked jar, and a platter. Decoration comprises horizontal grooves, external black slip, cordons, burnishing and combed patterns.
Date: 2nd century+.
Illustrations: Fig. 18: P21, P22.

Type R06E Calcareous grey ware (1.7%)
Fabric: Hard fired fabric with variable reduced surfaces and core, characterised by a vesicular appearance resulting from the leaching or burning out of calcareous inclusions, up to 0.5mm in size. Also contains abundant clear or opaque white quartz, 0.1–0.5mm.
Forms: frilled rim bowl, 'dog' bowl with upright rim, dish, everted and triangular rim jars, narrow necked jar and a platter or lid. Decoration is restricted to burnished horizontal lines and cordons.
Date: 2nd century+.
Illustration: Fig. 17: P17.

Type R06F Grog and sand grey ware
Fabric: Hard fired, dense fabric, smooth to the touch, with variable grey-brown surfaces and core. Contains frequent well-sorted subangular quartz, 0.1–0.3mm, powdery buff grog particles, 0.5–1.0mm, and sparse black iron ore.
Forms: cordoned jar with horizontal grooves.
Date: ?2nd century+.

Type R06G Silty greyware
Fabric: soft fired dense fabric, smooth and soapy to the touch, with mid-dark grey surfaces and paler core giving a characteristic sandwich appearance in break. Contains sparse, moderately sorted, clear rounded quartz 0.5–1.0mm (some up to 3.0mm), sparse, moderately sorted subangular shell 0.5–1.0mm and sparse, moderately sorted red iron oxide.
Forms: cordoned bowl with rouletting.
Date: ?2nd century+.
Illustration: Fig. 16: P13.

Type R06H White-slipped greyware
Fabric: hard fired fabric, mid-dark grey throughout. Two groups have been defined a) coarse - abundant well-sorted, well-rounded white quartz; average size <0.1mm with sparser incidence of larger quartz <0.5–0.6mm, and b) fine - sparse to common clear and white quartz inclusions 0.1–0.3mm. Both groups contain sparse iron ore and rare shell inclusions.
Forms: undiagnostic wheel-made body sherd.
Date: ?2nd century+.

Type R07A Black burnished ware
Fabric: Tomber and Dore (1998, 127)
Forms: flanged bowls
Date: late 2nd century+.

Type R07B Sandy blackware (6.4%)
Fabric: Hard fired fabric, with black surfaces and grey-black core, often with red margins. Contains frequent well-sorted, sub-rounded fine quartz, 0.1–0.5mm, and sparse inclusions of larger grains.
Forms: bowls with plain, undercut and triangular rims, jars with everted and undercut rims, 'dog' bowls with rounded and upright rims, cordoned, lid-seated, neckless and narrow-necked jars. Decoration comprises horizontal combing, wavy incised lines, horizontal grooves and burnished lattice designs.
Date: late 1st century+.
Illustration: Fig. 18: P24.

*Type R07C Gritty blackwar*e (2.1%)
Fabric: Coarse, hard fired fabric with black, often burnished surfaces and grey-black core. Contains abundant, ill-sorted, sub-rounded quartz, 0.1–1.0mm.
Forms: flanged bowls, 'dog' bowls with rounded and upright

rims, plain rim bowls, jars with everted and triangular rims, and a lid. Decoration is restricted to burnishing.
Date: 2nd century+.

Type R08 Black micaceous
Fabric: Fine, hard fired black fabric, with soft smoothed micaceous surfaces. Also contains sparse poorly-sorted quartz 0.1–0.4mm.
Forms: burnished 'dog' bowl with rounded rim.
Date: ?late 1st–2nd century.

Type R09A Pink Grogged
Fabric: Marney (1989, 174: fabric 2a)
Forms:storage jars.
Date: late 2nd century+.

Type R09B Pink grogged with shell
Fabric: Marney (1989, 175: fabric 2c)
Forms: undiagnostic body sherds.
Date: mid/late 2nd–early 3rd century.

Type R10B Fine buff gritty
Fabric: fine smooth fabric with soft, often micaceous surfaces, generally buff throughout. Contains moderate, poorly sorted sub-angular quartz *c*. 0.1–0.3mm. Some vessels retain traces of a dark slip.
Forms: undiagnostic body sherds.
Date: late 1st–late 2nd century.

Type R11 Oxford oxidised ware
Fabric: Young (1977, 185).
Forms: bowl.
Date: manufactured from the late 1st century onwards.

*Type R11D Oxford colour coa*t
Fabric: Young (1977, 123).
Forms: bead rim and flanged bowls, 'dog' bowl with rounded rim, miscellaneous jar base with incised 'O' in the centre.
Date: mid 3rd–4th century.

Type R11E Oxford white mortaria
Fabric: Young (1977, 56).
Forms: wheel-made flanged mortaria.
Date: mid 3rd–4th century.

Type R12A Nene Valley mortaria
Fabric: Tomber and Dore (1998, 119).
Forms: wheel-made body sherds.
Date: mid 3rd–4th century.

Type R12B Nene Valley colour coat (2.0%)
Fabric: Tomber and Dore (1998, 118), Marney (1989, 176: fabric 6)
Forms: plain, cornice and everted rim beakers, folded beakers, a bottle, 'dog' dish and everted rim jar. Decoration includes rouletting, painting, horizontal grooves, applied scales, barbotine and trailed slip.
Date: late 3rd–4th century.

Type R13 Shell tempered (24.0%)
Fabric: Brown (1994) for products of the Harrold kilns. Also includes a 'soapy' variant, which may derive from an unknown source.
Forms: range from the first century, with lid-seated, narrow-necked and square rim jars, to the fourth century, represented by jars with everted, triangular and undercut rims, large storage jars, small and large bowl forms, with flanged and rectangular rims, and dishes. All are wheel-made. Surface finishes range from simple smoothing or wiping, to combing or rilling, the latter being more common on vessels of later date. Decoration is rare, and comprises rilling, vertical combing, and horizontal grooves.
Date: 1st–4th century.
Illustrations: Fig. 17: P16, P18, P19, Fig. 18: P25, P27, P28.

Type R14 Sand tempered (red-brown harsh) (7.1%)
Fabric: Harsh, hard fired fabric with variable orange-grey-brown surfaces and core. Contains abundant, fine, clear or opaque quartz, 0.3–1.0mm, and sparse red iron ore.
Forms: plain rim beaker, dish and bowl, cordoned and neckless jars, and a jar with developed lid-seating.
Date: ?2nd–4th century.

Type R18A Pink Gritty
Fabric: Slowikowski (2000, 66)
Forms: undiagnostic body sherd.
Date: ?late 1st–2nd century.

Type R18B Pink fine
Fabric: fairly hard fired, although soft-fired examples occur with powdery surfaces. Variable pale to dark pink throughout. Contains frequent, well sorted subrounded multi-coloured quartz 0.1–0.2mm, frequent black iron ore, up to 1.0mm, and sparse red iron ore, up to 1.0mm.
Forms: undiagnostic body sherds
Date: ?2nd century+.

Type R19 Unsourced amphora
Fabric: hard fired fabric, pale buff-orange throughout. Contains frequent well-sorted, sub-angular quartz, 0.1–0.5mm, and white mica visible on the surfaces.
Forms: amphorae body sherds.
Date: ?1st–3rd century.

Type R22A Hadham oxidised
Fabric: Tomber and Dore (1998, 151), Marney (1989, 186: fabric 37)
Forms: folded beaker
Date: mid to late 2nd century+, with the widest distribution occurring in the 4th century.

Type R28 Gritty calcareous
Fabric: hard fired fabric with buff-white surfaces and a buff-pink to orange core. Characterised by moderate, rounded calcareous inclusions, 0.3–1.5mm. Some voids occur where these inclusions have leached out. Also contains moderate, poorly-sorted, sub-rounded, clear, opaque and pink quartz, 0.2–0.5mm, occasional red iron ore, 0.5mm and rare fine mica.
Forms: everted rim jar
Date: 2nd–4th century.

TypeR32A Lead glazed ware
Fabric: Arthur (1978)
Forms: undiagnostic green-glazed body sherd.
Date: 1st–early 2nd century.

Type R33 Verulamium region mortaria
Fabric: Tomber and Dore (1998, 154)
Forms: wheel-made body sherds.

Date: late 1st–2nd century.

Type R34 Cream / Orange ware
Fabric: Marney (1989, 186: fabric group 40)
Forms: flagon.
Date: 2nd century+.

Type R35 Grog
Fabric: hard fired, smooth fabric with hackly/laminated fracture, with pink-grey surfaces and red-brown core. Contains frequent poorly sorted angular grey/white/pink grog, average size 0.5–3.0mm, and black and red/brown iron ore pellets in varying frequencies.
Forms: undiagnostic body sherds
Date: 2nd century+

Type R36 Orange gritty
Fabric: rough, gritty fabric with pale buff-orange surfaces and an orange laminated core. Contains abundant opaque sub-rounded milky quartz 0.1–0.2mm, with sparse larger pieces up to 0.5mm. Also sparse red iron ore, some small voids and mica.
Forms: narrow-necked jar
Date: 2nd century+.

Type R38 Unsourced colour coat
Fabric: separately described in the site archive
Forms: folded beaker and ?samian bowl copy (Dr 31?)
Date: unknown.

Type R Non-specific Roman (23 sherds)
Sherds which could not be assigned a fabric type, but whose form or context suggest a Roman date. These are described in the site archive.

Post-Roman
Type B01 St Neots-type (4.5%)
Fabric: described by Hurst (1956) and Denham (1985). A number of subgroups have been identified within the St Neots tradition (Baker and Hassall 1979, 165).
Forms: bowls with inturned rims, everted rim and 'top hat' vessels.
Date: 9th–11th century.
Illustrations: Fig. 19: P29-31, P33.

The following sub-groups of Type B01 were identified:
Type B01A St Neots-type (orange)
Fabric: fairly hard, smooth but not soapy. Characterised by at least one bright orange surface, and a grey core. Inclusions are abundant finely pounded shell; sparse subrounded red iron ore, approx.0.5mm; sparse subangular light grey limestone fragments, approx.2.0mm; sparse subrounded clear quartz, approx.1.0mm.
Forms: jars with everted and upright rims.
Date: 10th–11th century.

Type B01C St Neots-type (mixed)
Fabric: fairly hard fired with orange-brown-grey surfaces and medium to dark grey core. Contains frequent to abundant, poorly sorted shell, 0.5–3.5mm; frequent, poorly sorted, sub-rounded-subangular clear quartz, 0.2-1.5mm, with the ocasional larger grain, up to 2.5mm; moderate amounts of poorly sorted soft, rounded orange-brown (?grog) inclusions, sparse subrounded fragments of limestone, approx.1.0mm, but examples can be as large as 5.0mm; sparse, rounded, red iron ore, up to 3.0mm, but usually 0.3–1.0mm; a background of very fine white mica, less than 0.1mm.
Forms: everted rim jar.
Date: 10th–11th century.

Type C01 Sand
Fabric: Moderately fired, harsh fabric with an oxidised buff-orange exterior surface, variable buff-orange to grey-brown internal surface, and grey core. Contains frequent, moderately sorted, clear, subrounded, quartz 0.2–0.6mm and sparse rounded, red and black inclusions, possibly iron ore, 0.2–0.5mm.
Forms: undiagnostic body sherd.
Date: 12th–13th century.

Type C04 Coarse sand
Fabric: Hard fired, rough fabric, mid-dark grey throughout, occasionally with buff-brown margins. Contains frequent, ill-sorted, sub-rounded medium to coarse quartz 0.3–1.2mm and sparse, ill-sorted organic matter 0.3–1.2mm.
Forms: everted rim jar.
Date: 12th–14th century.
Illustration: Fig. 19: P34.

Type C05 Sandy (red margins)
Fabric: Distinctive, hard-fired, fairly rough fabric with dark-grey-black surfaces, grey core and characteristic brick-red margins. Contains frequent, well-sorted, sub-angular to sub-rounded quartz 0.3–0.5mm. Also sparse red ?iron ore 0.5mm.
Forms: undiagnostic body sherds.
Date: 12th–15th century.

Type C12 Stamford ware
Fabric: Kilmurray (1980, 8–12).
Forms: wheel-made spouted pitcher.
Date: 10th–12th century.
Illustration: Fig. 19: P32.

Type C Non-specific medieval (4 sherds)
Sherds which could not be assigned a fabric type, but whose form or context suggests a medieval date. These are described in the site archive.

Type P Non-specific post-medieval (1 sherd)
Described in the site archive.

APPENDIX 2: BRICK AND TILE TYPE SERIES

Fabrics are summarised below using common names in accordance with the Bedfordshire Ceramic Type Series, currently held by Albion Archaeology. Bracketed figures after each fabric type denote a percentage (by weight) of the total excavated assemblage.

Sand (38%)
Fabric: fine and hard-fired, orange throughout, turning to brick-red where over-fired. Generally finely tempered, although some fragments are coarsely made and contain angular quartz up to 6.0mm in size. Contains frequent, well-sorted, sub-angular multi-coloured quartz *c.* 0.2–0.5mm and dark red and black iron ore *c.* 0.1–0.3mm. Also rare angular flint inclusions of up to 5mm in size.
Forms: *tegulae* and brick.

Source: although no production centres are known in the immediate vicinity, it is likely that quartz inclusions found in sandy types derive from the Greensand ridge.

Shell (62%)
Fabric: Brown (1994).
Forms: *tegulae* and brick.
Source: Uncertain. However, the fabric is comparable to those from kilns at Harrold Lodge, Beds. Although these are *c.* 13km to the NW of Wilstead, this kiln complex is known to have exported its shell-tempered building material and pottery widely within the Ouse Valley and its tributaries (Brown 1994, 104–5). Shell-tempered vessels within the Luton Road Wilstead pottery assemblage are also in a fabric comparable to those from the Harrold kilns.

APPENDIX 3: DAUB AND FIRED CLAY TYPE SERIES

Three fabric types were identified: all are likely to have derived from locally extracted clay. Bracketed figures after each fabric type denote a percentage (by weight) of the total excavated assemblage.

Type A Sand (69%)
Coarse, friable mid to dark orange-red fabric with variable dark grey-black patches where reduced. Inclusions are abundant sub-rounded and sub-angular quartz *c.* 0.1–0.5 mm and rare -red iron ore *c.* 0.5mm. Some larger fragments contain sub-angular/ angular flint or chert pebbles ranging in size between 10–20mm.

Type B Organic and sand (25%)
Buff-orange-brown fabric, dark blue-grey where reduced, with semi-soapy texture. Inclusions are moderate, poorly sorted, sub-angular, multi-coloured quartz *c.* 0.1–0.5 mm, occasionally ranging to 1.0mm; and frequent, poorly-sorted organic material (?straw), evidenced by elongated voids where the latter has burnt out. Also rare, poorly-sorted red iron ore *c.* 0.2 mm. Mainly used for the manufacture of slabs and / or handmade bricks

Type C Sand and calcareous inclusions (6%)
Coarse, friable pink-orange-buff fabric with variable dark grey-black patches where reduced. Inclusions are as type A, but the fabric is also characterised by the addition of moderate sub-rounded calcareous (?chalk) pieces *c.* 0.5–1.0 mm. Some larger fragments contain sub-angular/ angular flint or chert pebbles ranging in size between 10–20mm.

APPENDIX 4: REGISTERED ARTEFACT CATALOGUE

The catalogue is organised by Registered Artefact (RA) number. Only those objects relevant to the publication are listed, although individual descriptions are omitted for the 83 hobnails, 28 iron carpentry nails, and 12 coins, which are discussed above. Full details of unstratified finds and those artefacts whose date range places them beyond the scope of this article are contained within the site archive.

The coding which prefixes each catalogue entry contains the following information:

RA 10	G8.2	L5.1	Phase 3	Fig. 21
Registered Artefact no.	G. No.	L. No.	Phase	Illustration

In all cases measurements denote the maximum surviving artefact length unless otherwise stated.

RA 2 G34.2, L15.2, Phase 5. *Copper alloy finger ring*. Portion of intaglio(?) finger ring consisting of edge of setting for intaglio and part of shoulder and hoop junction. Slight shoulder on ring. Length 12.8mm. 2nd–3rd century.

RA 9 G91, L22, Phase 8. *Iron double-spiked loop*. Incomplete, square-sectioned with out-turned arms indicating it was driven through wood with a thickness of *c.* 8mm. Height 51mm; width of loop *c.* 32mm; thickness of loop 12mm. Roman.

RA 16 G91, L22, Phase 8. *Iron loop-headed spike*. Incomplete, with looped-over head, and square-sectioned shank tapering to a wedge-shaped point, tip damaged. Length 95mm; width 11mm; thickness 11mm.

RA 21 G91, L22, Phase 8. *Iron latch lifter*. Incomplete flat rectangular-sectioned handle with rounded end and portion of curved square-sectioned stem, now slightly out of alignment. Half of stem, including tip, not surviving. Length *c.* 230mm. Late Iron Age – Roman.

RA 30 G91, L22, Phase 8. *Copper alloy toilet spoon*. Incomplete, tapering circular shaft, with missing point. Opposing end flattening into circular shape at break. Shaft bent. Length (straightened) 73mm.

RA 35 G46.1, L15.2, Phase 5, Fig. 21. *Iron wool comb*. Incomplete double-sided comb comprising a central cross-piece (81mm wide; 50mm deep) with coarse teeth (2mm wide) extending to one side and fine teeth (1mm wide) to the other. Surviving length of coarse teeth 40mm, and of fine teeth 25mm. Only the right hand side has possible remains of end teeth. Roman.

RA 39 G46, L15.2, Phase 5. *Lead strip fragment*. Thin, rectangular in section, tapering in width towards one end; both ends broken. Length 23mm.

RA 44 G46, L15.2, Phase 5. *Iron strip fragment*. Rectangular in shape with relatively thick rectangular section tapering towards one end. Length 57.6mm; width 29.5mm; thickness 7.9mm.

RA 45 G46, L15.2, Phase 5. *Sheet copper alloy bell*. Conical with flattened point, perforated for attachment of clapper and suspension ring. The base of the bell is broken off. Hollow interior, clapper does not survive. Surviving height 20.7mm; thickness 1.7mm (*cf.* Crummy 1983, fig. 143/4168). Not closely datable: Roman through to medieval.

RA 47 G20.1, L7.2, Phase 4. *Iron hub or nave lining fragment*. Incomplete curving rectangular strip, V-shaped in section with one thicker edge. Estimated internal diameter 120mm; height 41mm; thickness 10mm. ?Roman.

RA 54 G91, L22, Phase 8. *Iron tack*. Incomplete, Manning type 8 tack with a domed hollow head and short portion of square-sectioned shank. Length 11.4mm.

RA 61 G3, L13, Phase 5. *Iron bar fragment*. Rectangular in shape and section, tapering in thickness; possibly remains of a tool head (chisel or punch?). Length 28.2mm, width 17.8mm, thickness 16mm.

RA 62 G3, L13, Phase 5. *Iron tack*. Incomplete, small tack with damaged flat head, tapering shank with clenched tip. Length *c.* 15mm.

RA 75 G44.2, L10.2, Phase 4. *Bone hairpin*. Tapering shank, tip missing and head broken off. Remains of an incised groove or cordon visible adjacent to the 'head' break. Length 58.6mm; diameter 4.5mm.

RA 76 G46, L 15.2, Phase 5, Fig. 21. *Quartzite mixing palette*. Rectangular, upper face worn very smooth, with central circular indentation, stained a darker colour from pulverizing or mixing. Three bevelled edges on the underside which also show signs of extensive wear. Length 67mm; width 52mm; thickness 12mm.

RA 77 G20.1, L7.2, Phase 4. *Iron ?shears blade*. Four pieces (three joining). A short portion of arm survives, blade back continues the line of handle and is more or less straight. The edge is straight, both back and edge rise to form tip. Manning type 2. Length 215mm; blade length *c.* 185mm.

RA 82 G46, L15.2, Phase 5. *Bone hairpin*. Incomplete flattened globular type. Head rectangular in cross-section, and sub-square (with rounded corners) in plan. Shank tapering oval to circular in section, diameter 4.8mm. Two joining pieces. Surviving length 59.5mm. Roman.

RA 83 G46, L15.2, Phase 5. *Kentish Ragstone primary hone*. Incomplete, rounded, bar-like in shape with rounded cross-section, originally rectangular but worn through use. Surfaces worn smooth, with some dishing evident. One end missing. Length 122mm; diameter 25.3mm. Roman.

RA 88 G26.1, L9.1, Phase 4. *Glass vessel fragment*. Small, curving fragment of blue-green glass. Thickness 2.7mm. Roman.

RA 89 G18.1, L8.1, Phase 4. *Millstone grit rotary quern fragment*. Approximately one quarter of an upper stone with straight side edges and vertical lines pecked around circumference. Portion of central feeder hole survives. Grinding surface worn from use. Diameter 350mm; thickness 59.6mm.

RA 95 G61.1, L1.1, Phase 2. *Iron annular ring*. Rounded rectangular in section, broken in two pieces. Estimated diameter 45mm.

RA 97 G71.1, L18.1, Phase 6. *Iron box fitting*. Flat rectangular-shaped piece of iron, width 10mm, tapering slightly towards one end which has broken off. The opposing end narrows abruptly to form a squared extension which curves upwards before the break. A fragment of spiralled wire runs down the back of the main body. The latter is pierced by an iron rivet just before the narrowed extension, possibly representing the remains of a small drop or loop hinge from a casket or chest. The object's poor condition makes it impossible to determine whether the spiralled wire is a decorative feature or has corroded in position post-deposition. Length 60mm.

RA 103 G85.1, L18.1, Phase 6. *Lava rotary quern fragments*. Thirteen pieces retaining no diagnostic traits or surfaces. Weight 37g.

Farming at Hill Field, Wilshamstead in the first millennium AD

David Ingham

with contributions by
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Illustrations by Cecily Marshall

SUMMARY

Excavations by Albion Archaeology in 2007 and 2008 at Hill Field, Wilshamstead, revealed the remains of a low-status late Iron Age to Roman enclosed farmstead. Ceramic evidence indicates that occupation was principally restricted to the 1st and 2nd centuries AD, during which the farmstead had a pastoral basis. With an increase in the number of water-holes, the enclosures remained in use through to the mid-Saxon period, serving perhaps as a temporary camp for shepherds and drovers. One of the water-holes was maintained over a long period before being transformed into a well; this was in use during the 9th to 11th centuries, probably on a seasonal basis.

INTRODUCTION

Gallagher Estates was granted planning permission for the creation of four garden villages at Wixams, near Elstow, Bedfordshire. A programme of archaeological evaluation including fieldwalking, geophysical survey and trial trenching was undertaken in 1999 (RPS Planning and Development 1999) as part of an Environmental Statement (National Power and Gallagher 1999). The evaluation identified several areas of archaeological sensitivity, the main one of which was located at Hill Field (Area 4). As a result of this, Bedfordshire County Council's Archaeological Officer specified a programme of archaeological work that would be required as a condition of planning permission.

An Archaeological Project Strategy and Research Design for the overall project (RPS Planning and Development 2006) provided the basis for the programme of archaeological work. In addition, site-specific Written Schemes of Investigation were prepared by RPS Panning and Development, in association with Albion Archaeology, and were agreed with the County Archaeological Officer. Albion Archaeology was commissioned by RPS Planning and Development on behalf of Gallagher Estates to undertake the work between 2007 and 2008. Only the excavation at Hill Field produced substantial archaeological remains, which form the subject of this report; the remainder are briefly summarised below. The parameters for this report were set out following assessment of the Hill Field remains and production of an Updated Project Design (Albion Archaeology 2009).

Hill Field, located in the north-western part of the parish of Wilshamstead (or Wilstead), is one of the highest points of very gently rolling topography within the Marston Vale (Fig. 1). Its name is shown by the Bedfordshire Historic Environment Record's parish survey to date back to at least 1607. An area of *c*. 1.5ha was excavated there, centred at TL 054438; it was situated just below the top of the hill at a height of 37–41m OD, on land that slopes gently down towards the south-east. The area was arable farmland prior to the excavation.

The geology of the Marston Vale is Lower Oxford Clay overlain by a variable layer of Head Deposits, which manifest themselves as stiff, gravelly clay with thin spreads of flint-gravel at Hill

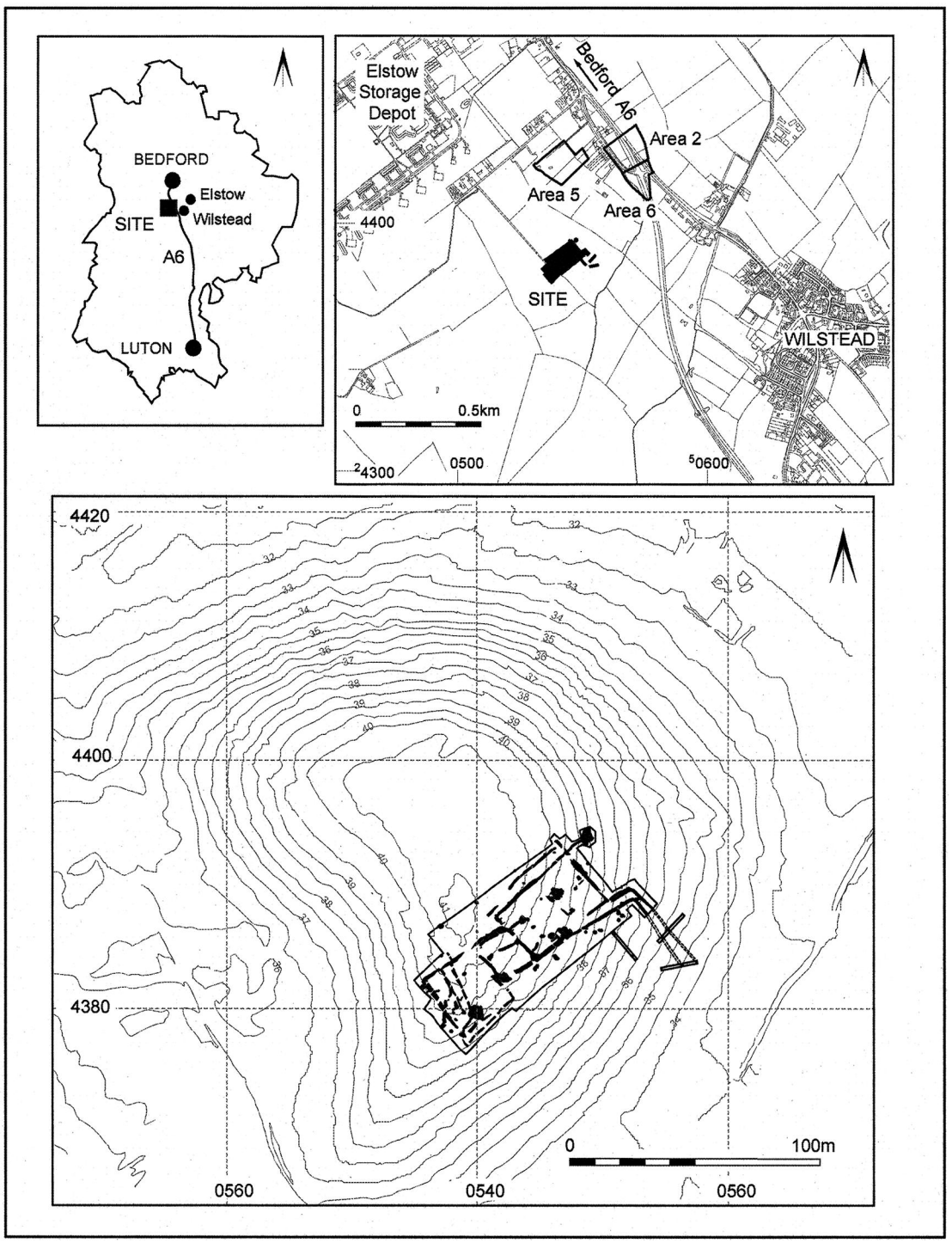


Figure 1: Site location and contour plan

Field. This area of mostly low-lying and poorly drained clay is situated between the gravel terraces of the River Great Ouse to the north, and the Greensand Ridge several kilometres to the south.

Little information was previously known about the area immediately surrounding the site at Hill Field before the geophysical surveying and trial trenching (RPS Planning and Development 1999). The nearest excavated site was at Luton Road, Wilstead, where a late Iron Age to late Roman farmstead was revealed, along with traces of Saxo-Norman settlement (Luke and Preece 2010). Excavations in advance of the Willington to Steppingley gas pipeline identified several other sites on the clay to the west and south of Hill Field, the nearest ones revealing remains that mostly dated to the Iron Age (Network Archaeology in prep.). The Historic Environment Record for this area is dominated by entries for the post-medieval period, with little definite evidence for pre-medieval activity; crop-marks are known just over 1km away to the south (HER 14759) and west (HER 3280), with earthworks to the east (HER 7142), but all these remains are undated. In contrast, the gravel terraces of the Great Ouse to the north have been widely excavated, producing evidence for intense human activity from the early prehistoric period onwards (Dawson 2000b).

As part of the Wixams project, archaeological fieldwork was also undertaken on areas to the north and north-east of Hill Field (Albion Archaeology 2007, Areas 2, 5, 6 and 9). All areas contained the remnants of ridge and furrow earthworks, but other features were only revealed in Areas 2 and 5 (Fig. 1), and were undated in the case of the latter. Area 2 contained a sparse array of six ditches and seven pits, broadly datable to the 2nd–4th centuries AD; they produced 215 sherds (2,465g) of Roman pottery, 456g of animal bone and some iron hobnails. The repeated NE–SW and NW–SE alignments of the ditches suggests that they formed an enclosure system, but the remains were too heavily truncated to verify this, with only one feature more than 0.35m deep.

Structure of the report

Analysis of the contextual data recorded during the course of excavation enabled the site to be broken down into a series of chronological Phases. To assist the discussion of each Phase, the features within it were assigned to Groups, *e.g.* G25. An intermediate level of Land-use area (*e.g.* L4) was used to enhance spatial analysis of the larger dataset for Phase 2. Groups may contain just one feature or a collection of several; in the latter case, the feature numbers recorded on site, *e.g.* [5288], are occasionally used to clarify references to a specific feature within a Group.

The results of the excavations are presented below by Phase, split up by Land-use area in the case of Phase 2. For each Phase, the contextual evidence is presented first, followed by a description of the artefactual and ecofactual assemblages. The site is then discussed as a whole, with broad conclusions presented at the end. Two appendices contain information on the Bedfordshire Ceramic Type Series, and the methodologies used in examining the assemblages of artefacts and ecofacts.

THE EXCAVATION AT HILL FIELD

Although the excavation at Hill Field revealed evidence of human activity in the early Iron Age (Phase 1), significant colonisation of the area did not take place until the end of the Iron Age (Phase 2). Low-level occupation of the farmstead that was established there continued throughout the early and mid-Roman periods, after which the intensity of activity decreased. The site remained in use for livestock throughout the late Roman, Saxon and Saxo-Norman periods (Phases 3–4), during which time a number of pits, water-holes and wells were dug. The presence of ridge and furrow cultivation indicates that Hill Field continued to be used for agricultural purposes in the medieval and post-medieval periods (Phase 5).

The presence of furrows across the site has led to many features' appearing disjointed in plan. For this reason, the truncated features have been reconstructed for figures on which furrows are not shown. Solid lines have been used in the reconstructions where little doubt exists about a feature's original course, whereas dashed lines represent the presumed course of features that were more extensively truncated.

Phase 1: early Iron Age

The only feature that could be dated to the early Iron Age was an oval pit G1 (Fig. 2), which was 1.7m long, 1.1m wide and 0.1m deep. It yielded forty-nine handmade sherds of late Bronze

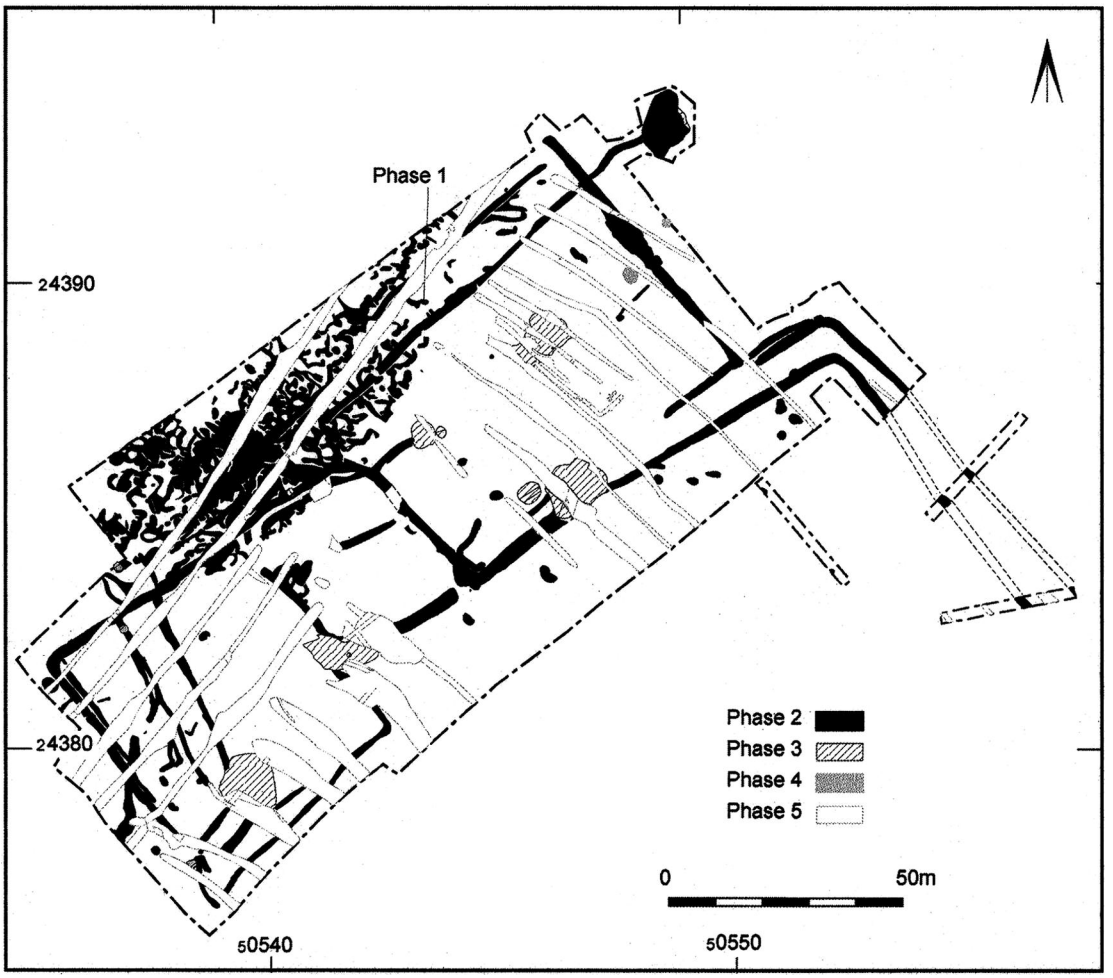


Figure 2: All-features plan

Age/early Iron Age pottery (510g), representing eight vessels in fabric types F01C, F02 and F22 (Appendix 1). Diagnostic elements include a rounded, slightly tapering rim, and a rim with an internal bevel (*cf*. Knight 1984, 21). Decoration comprises fingernail ornament along vessel rims, and fingertip impressions on vessel bodies. The pit also contained a small amount of very fragmented charcoal, and an unidentifiable cereal grain.

Phase 2: late Iron Age to mid-Roman

Most of the excavated ditches and pits relate to a farmstead that was established at Hill Field in the late Iron Age (Fig. 2). The volume of finds recovered and the paucity of structural remains suggest that the farmstead was not intensively occupied, but the artefactual dating evidence does at least indicate that it continued to be occupied until the mid-Roman period.

At its greatest extent, the farmstead comprised three subdivided enclosures with a combined area of 0.75 hectares, the eastern one of which had a long, narrow subsidiary enclosure to the north and a drove-way to the south. However, it is uncertain how many of these were present when the farmstead was first established. The ditches that defined them were, in at least some cases, re-cuts of earlier ones; it is clear that the layout of the enclosures varied slightly over time, but it is unclear whether these alterations represent the redefinition of existing boundaries or the imposition of additional ones. There is also difficulty in determining how

long any of the boundaries remained in use; the continued use of the site through to the Saxo-Norman period suggests that at least the outline of the farmstead survived, but individual boundaries may have fallen out of use at any time before then. Ordinarily, the finds assemblages could be used to help date the changes to the farmstead's layout, but mixing of the deposits has made such dating evidence unreliable — late Iron Age pottery was frequently retrieved alongside Roman artefacts, often in comparable quantities. Although an approximate date range can be given for the lifespan of the farmstead, only the sequence of changes to its layout, not the date of each change, can be given within that period (Fig. 3). Equally, it is hard to determine which of the pits, structural slots and other features associated with this main phase of the farmstead correspond with which part of the sequence, or indeed were contemporary with each other. It is even difficult to be certain that some of these features belonged to this phase, rather than a later one; this problem is discussed below in Phase 3.

Contextual evidence

The following text describes each area of the enclosed farmstead in more detail, while also examining the features that lay primarily beyond its northern and southern limits.

Western enclosure (L2, Fig. 4)

The earliest potential evidence for an enclosure at the western end of the site is G9, a sinuous ditch which continued beyond the limit of excavation. There was a break of 4m in the ditch, to the south of which it was appreciably wider, though only *c*. 0.3m deep. However, the function of this ditch is unclear. The pottery recovered from it was

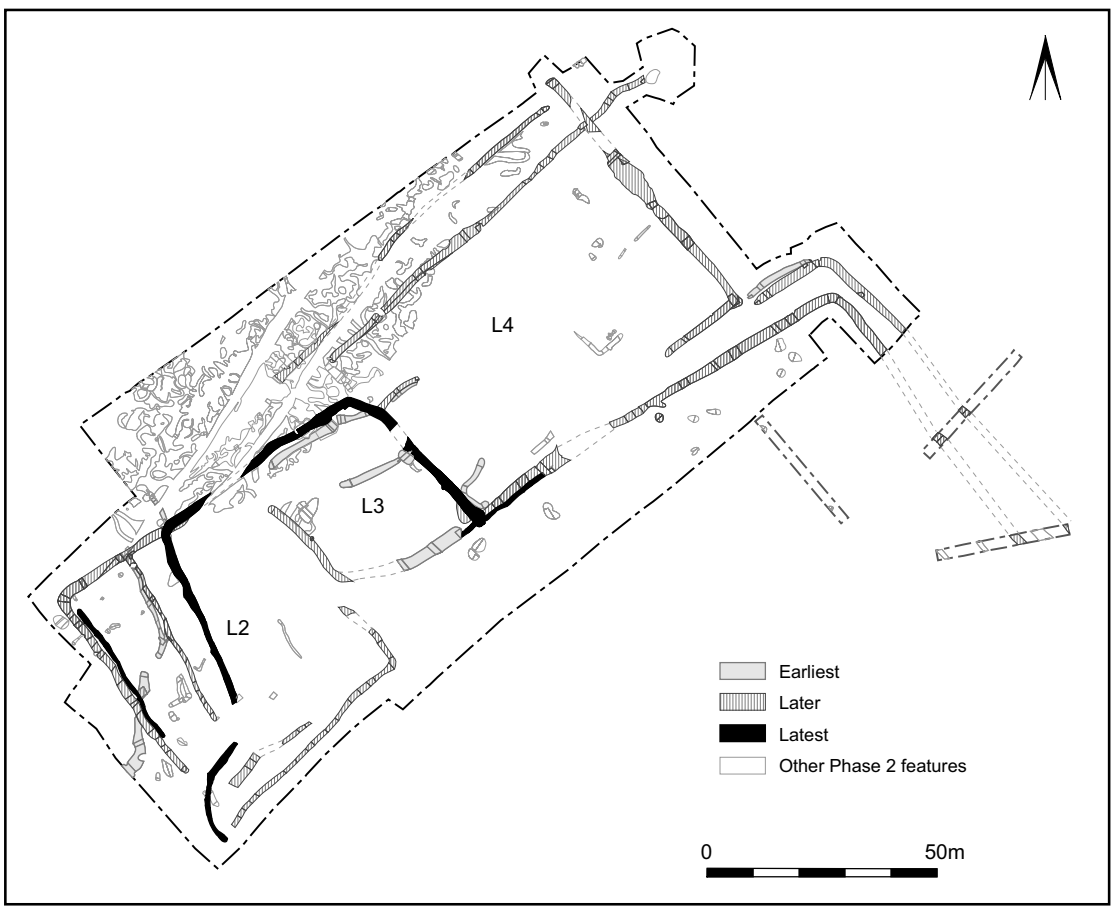


Figure 3: Sequential development of Phase 2 enclosures

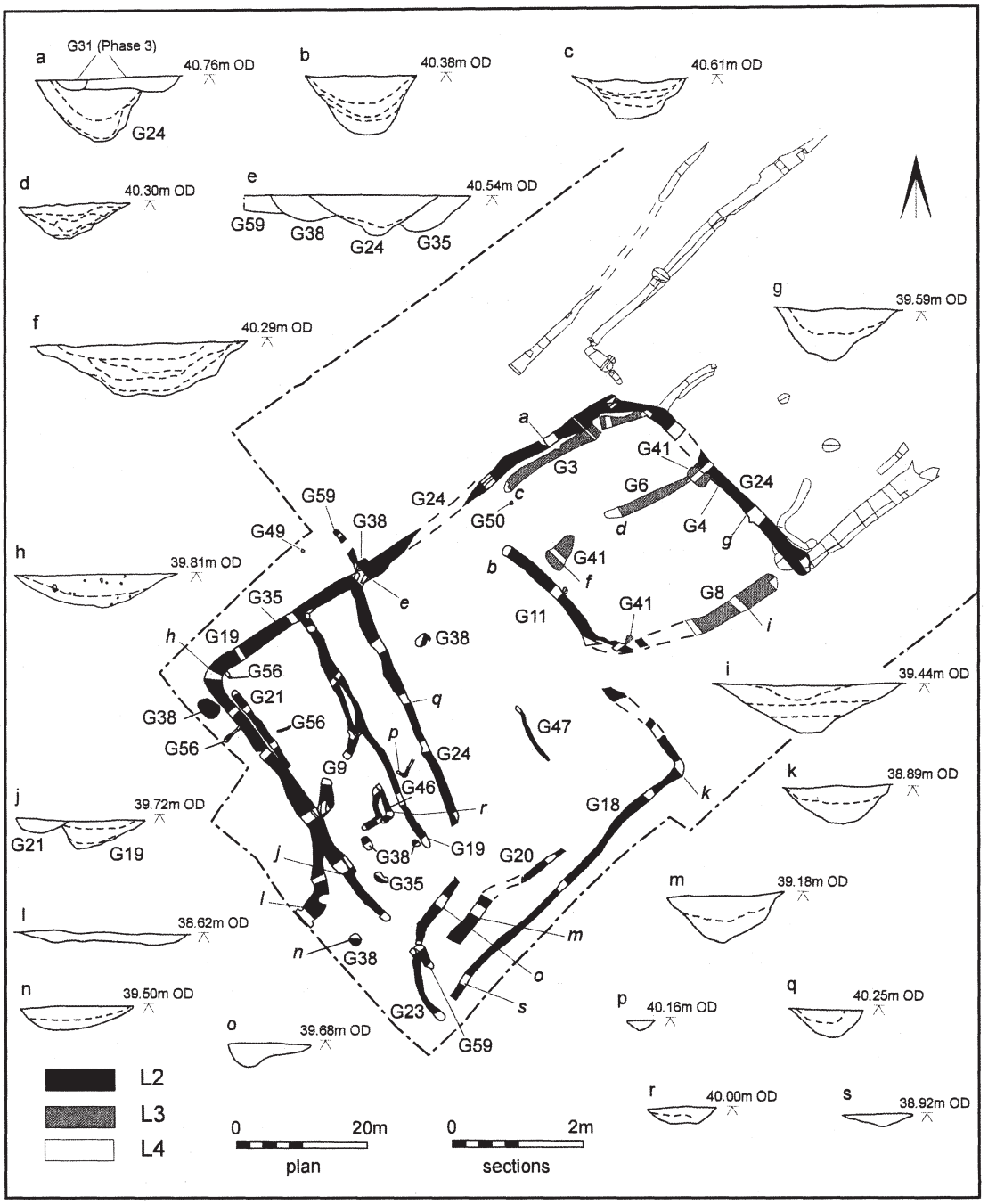


Figure 4: Plan of L2 and L3 (Phase 2)

nearly all late Iron Age/early Roman, suggesting it was earlier than the other ditches within L2 and therefore unconnected with them; this makes its interpretation as an enclosure ditch problematic, as the length of it that was revealed did not enclose anything on its own. It is possible that the ditch was related to other features that lay beyond the site's western limit, but a more likely explanation

is that it was a precursor to ditch G19 (and possibly G11/G18 as well). G19 was a larger ditch, up to 2.5m wide and 0.5m deep, and may have removed all trace of its predecessor — little remained of ditch G14 in the eastern enclosure after it was re-cut by G15 (Fig. 6).

More tangible evidence for a western enclosure is provided by ditches G11, G18 and G19, which formed a roughly square enclosure that was *c*. 55m wide, cutting across the line of the earlier ditch G9. The enclosure's perimeter ditch ranged in width from 1.1m to 2.2m but remained mostly constant in depth at *c*. 0.6m, varying only at the western end of G18 (0.2m) and the northern end of G11 (0.9m). Ditch G19 also subdivided the western end of the enclosure, partitioning off an 11–15m wide area that tapered towards the south. A second subdivision along the southern edge of the enclosure, formed by ditch G20, was less than 4m wide, and is likely to have been an internal funnel for separating off stock. The enclosure had at least two entry or exit points: a *c*. 9m wide opening at the northern corner, which led into the central enclosure L3; and a 15m wide one at the southern corner. A later water-hole on the eastern side of the enclosure may have obscured evidence of a third. The southern opening appears to have been subdivided by a short length of ditch in the middle (G59), forming two separate entry or exit points, each *c*. 5m wide, that would have helped to control stock movement. The northern of the two short ditches represented by G59 may also have been used to help control stock movement; its position suggests that it may have marked the western side of an entrance to the enclosure, evidence for which was subsequently erased by ditch G24.

The western enclosure was subsequently redefined by ditch G24, which also re-cut the northern and eastern sides of the central enclosure L3. This ditch was similar in width to G19 which it re-cut, but was 0.45–1m deep, generally becoming shallower towards the south (Fig. 4, a, e, g and q; Pl. 1). Its eastern terminus was enlarged, possibly to act as a sump. Ditch G23 was also dug at this point, further controlling access through the southern entrance; it may have been a continuation of G24, but truncation by a later water-hole makes the point uncertain.

Consideration of the western enclosure's layout at the time when ditches G23 and G24 were dug is complicated by uncertainty regarding how many of the earlier boundaries and subdivisions were still in use. It is possible, for example, that G11 had silted up by this point, meaning that the western



Plate 1: Ditch G24 and potential sunken-featured building G31, looking south-west. Scale 1m

and central enclosures had merged into one. However, the absence of a new southern boundary ditch suggests either that the earlier ditches were still in use, or that the boundaries continued to be defined by an archaeologically invisible feature such as a hedgerow. It is clear that at least some of the ditches in the western enclosure had silted up by this point, hence the need to re-cut the western boundary; yet the comparatively small size of this re-cut G21 — no more than 1.1m wide and 0.25m deep — and the fact that it only re-cut part of the boundary to the west of G24 suggest that the boundary was principally defined by a hedgerow, with the ditch serving only a drainage function.

The structural features associated with the western enclosure were mostly concentrated in its western half. Three L-shaped features G46 appear to constitute the remains of buildings (Fig. 5), the larger two representing different phases of the same structure. The latter may have held ground beams — the base of each was flat and *c*. 0.4m wide, although the western one may have been too sinuous for this purpose — or alternatively they may have been drainage gullies along two sides of a building. The smallest of the three L-shaped features was only 0.4m wide in total, and its V-shaped profile (unsuited to holding ground beams) suggests a drainage gully as the more likely interpretation. The potential remains of three further structures G56 were excavated near the western corner of the enclosure, the most convincing of which was a 2.2m long slot that was 0.3m wide and 0.1m deep, with two adjacent post-holes. A similar, slightly larger feature to the west and a shorter one to the north were truncated by the enclosure ditch G19. These are unlikely to have been substantial structures, and may have been associated with animal pens. G47 in the eastern half of the enclosure may also have had a structural function, or it may represent the heavily truncated remains of a further subdivision to the enclosure.

The nine Phase 2 pits that were associated with the western enclosure (G35 and G38) varied considerably in size. The smallest was only 0.8m in diameter and 0.2m deep, whereas the largest was 3.4m long, 2.5m wide and 0.5m deep. Although a large amount of animal bone was recovered from the irregularly shaped southern pit in G35, the volume of finds from the others is relatively small, and there are no obvious indications of what any of the pits were used for. Phase 3 water-hole G26 might have had its origins in Phase 2, however; even though it clearly truncated some of the Phase 2 ditches, this may be the result of later expansion.

The other feature associated with the western enclosure in Phase 2 was cremation G49, one of three cremations recorded across the site (the others were in the central and eastern enclosures). The cremated bone was contained within an urn, accompanied by two other ceramic vessels, which had been placed within a pit that was 0.4m in diameter.

Central enclosure (L3, Fig. 4)

The central enclosure was initially defined to the north, east and south by ditches G3, G4 and G8 respectively. It is assumed that the western boundary was also ditched, but that all trace of the original ditch was destroyed when it was re-cut by G11, which also defined the eastern boundary of the western enclosure. The ditches that defined the central enclosure were mostly similar in size to those of the western one, although the southern ditch G8 was larger, measuring 3m wide and 0.75m deep. The enclosure was 28m wide and 33m long overall, though the presence of ditch G6 indicates that it was partitioned. An 8m-wide opening linked the central enclosure to the western one, whilst there was also a narrower opening at its eastern corner.

As stated above, the northern and eastern boundaries of the central enclosure were later redefined by ditch G24; it is possible that the central and western enclosures merged into one, but perhaps more likely that the southern and western boundaries of the central enclosure were defined only by hedges at this point. It is at least clear that the southern ditch G8 had silted up by the time that the northern and eastern boundaries were redefined; the pottery recovered from G8 is nearly all late Iron Age/early Roman in date, whereas the assemblage from G24 includes later Roman material.

Despite the comparatively high amount of finds recovered from the ditches that defined the central enclosure, no structural remains were found within it, although this may simply be the result of plough-truncation. Three pits G41 were located around the inner edge of the enclosure, the southern and eastern ones truncating the original boundary ditches. The southern pit was too heavily truncated by a later water-hole to determine its full extent, but the other two were 3.6–5.5m long, *c*. 2.6m wide and 0.7–0.9m deep. In addition, an

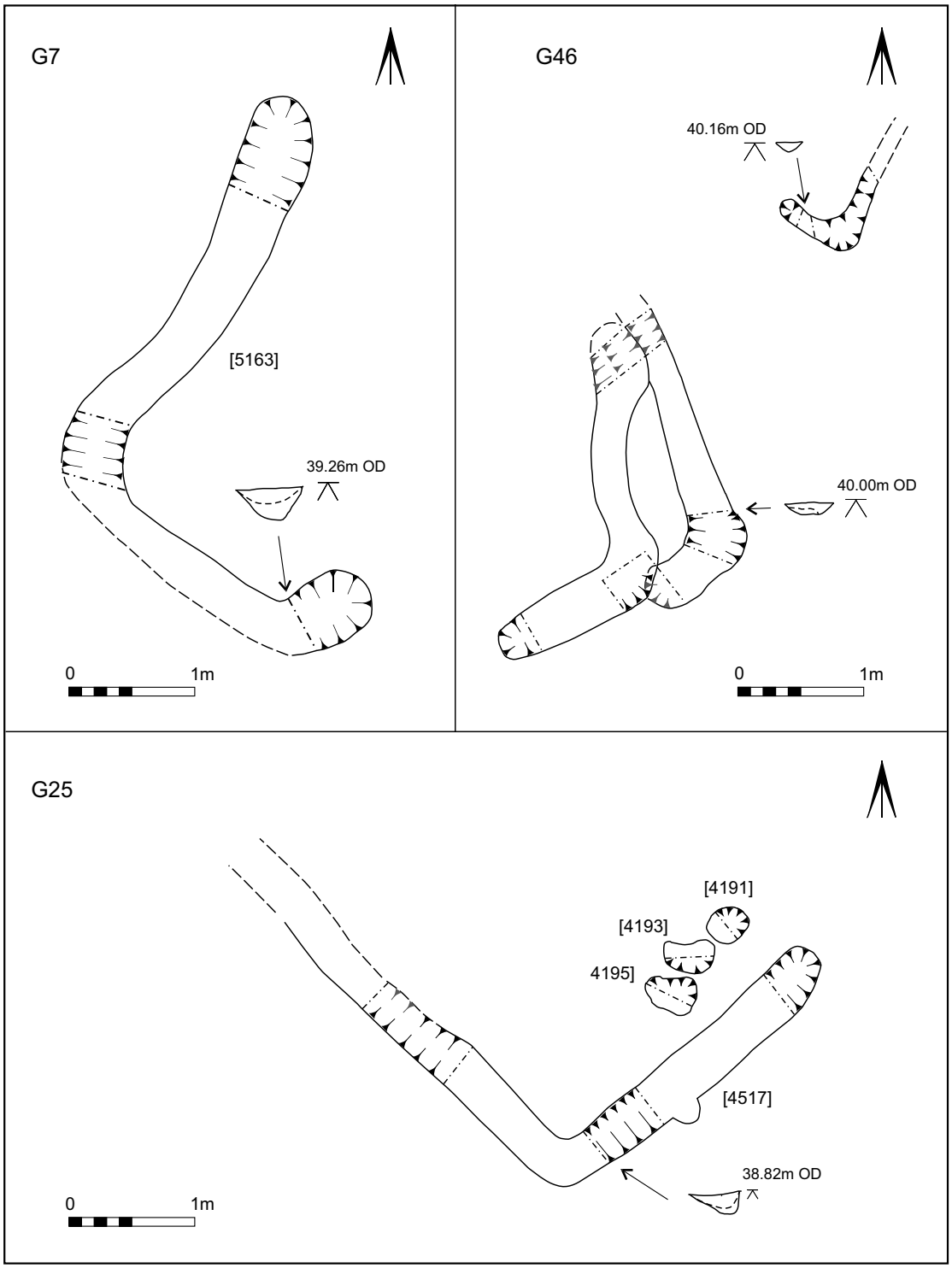


Figure 5: Detailed plans of possible building remains from Phase 2

urned cremation G50 was located in the northern corner of the enclosure; it had been placed alongside a grey ware platter and a rouletted beaker within a pit that was 0.55m in diameter.

Eastern enclosure (L4, Fig. 6)

At its greatest extent, the eastern enclosure was similar in size to the western one, though rectangular rather than square, measuring *c*. 70m by *c*. 45m. However, it is unclear how much of its layout was established at the same time as the initial development of the central and western enclosures. Its western edge G4 was a shared boundary with the original central enclosure L3, and the assemblage of exclusively late Iron Age/early Roman pottery within its fill indicates that G5 was broadly contemporary with it. The only other boundary ditch that can be dated by its pottery assemblage to this initial phase, and then only by a few sherds, is drove-way ditch G10. In view of how mixed the deposits were across the site, with a widespread distribution of late Iron Age/early Roman pottery in deposits of all ages, the dating evidence for G10 is potentially unreliable; this would leave little evidence for activity to the east of the central enclosure when the farmstead was established. However, if the dating evidence for G10 can be believed, then the drove-way was also part of the eastern enclosure's initial layout; furthermore, the spatial relationship between G10 and eastern boundary ditch G15 suggests contemporaneity, or at least that G10 was not the earlier of the two. Although the infill of G15 can confidently be dated to the Roman period, its predecessor G14 could have been established in the late Iron Age; even though 11% (by weight) of its pottery assemblage is Roman, this came mostly from its upper fill, and could partly result from a mixing of deposits after the ditch was re-cut. It seems more likely, therefore, that the layout of L4 was largely established in the early stages of the farmstead, its form almost entirely unchanged by the subsequent cleaning out and re-cutting of its ditches.

Little survived of the original ditch G14 that defined the enclosure; its re-cut G15 appears to have followed its predecessor very closely, removing all trace of it except for a short stretch along the northern side of the enclosure. G15 was 0.35–0.55m deep and mostly *c*. 1.1m wide, although its width increased to as much as 2.3m to the east, where its upper edge splayed out due to erosion on either side. It is unknown how far west G15 continued along the southern edge of the enclosure: the apparent terminus in fact marks the point where the ditch became completely truncated by ploughing, although it is possible that G55 represents a continuation of it. Some of the southern boundary and perhaps the western boundary as well — re-cutting by G24 (L2) obscures this point — may have been defined instead by G13, which was 1.7–2.5m wide and 0.3–0.6m deep. Part of the ditch was re-cut by G22, which was much smaller. The north-eastward continuation of G15 beyond the northern corner of the enclosure is likely to have been for drainage, leading towards water-hole G60.

Both the drove-way to the south, defined by ditches G13 and G15/G17, and the subsidiary enclosure to the north, defined by G15 and G16, ranged from *c*. 3m wide at their narrowest up to 8.5m. G16 and G17 were both similar in size to their partners, although G10, the predecessor to G17, was smaller than its replacement. The drove-way led from the interior of the enclosure down the hill (Fig. 1), while there was also a narrow opening in the drove-way by the eastern corner of the enclosure, perhaps used for stock-sorting purposes. The corner of the ditch had splayed out in this entrance, perhaps due to erosion caused by the repeated passage of people and animals, prompting the insertion of a rough cobbled surface that had partially slumped into the ditch. The subsidiary enclosure ran along the northern edge of the main one, with a 3m-wide entrance at its eastern end and a wider one to the west, the location of which corresponded approximately with the entrance to the main enclosure.

The western side of the enclosure was partially partitioned by ditch G5, which was re-cut by G12. This subdivision may have been defined further by an archaeologically invisible boundary such as a hedgerow or hurdles. The Phase 2 pits that were associated with the eastern enclosure were mostly located along its margins, and it is possible that the two pits in G42 were on the line of a boundary of which there is otherwise no trace. The function of G7 within this partitioned area is uncertain, although its shape in plan suggests a structural association (Fig. 5); at 0.7–1.3m wide and *c*. 0.5m deep, it seems too large to have been designed to hold either posts or ground beams, yet it may have acted as a rainwater gully around a small building.

Further evidence for structural remains comes from the eastern half of the enclosure (Fig. 5). The unusual profile of G25, with its vertical inner edge (Fig. 6, i), suggests it may have held ground beams; if this were so, then the building would

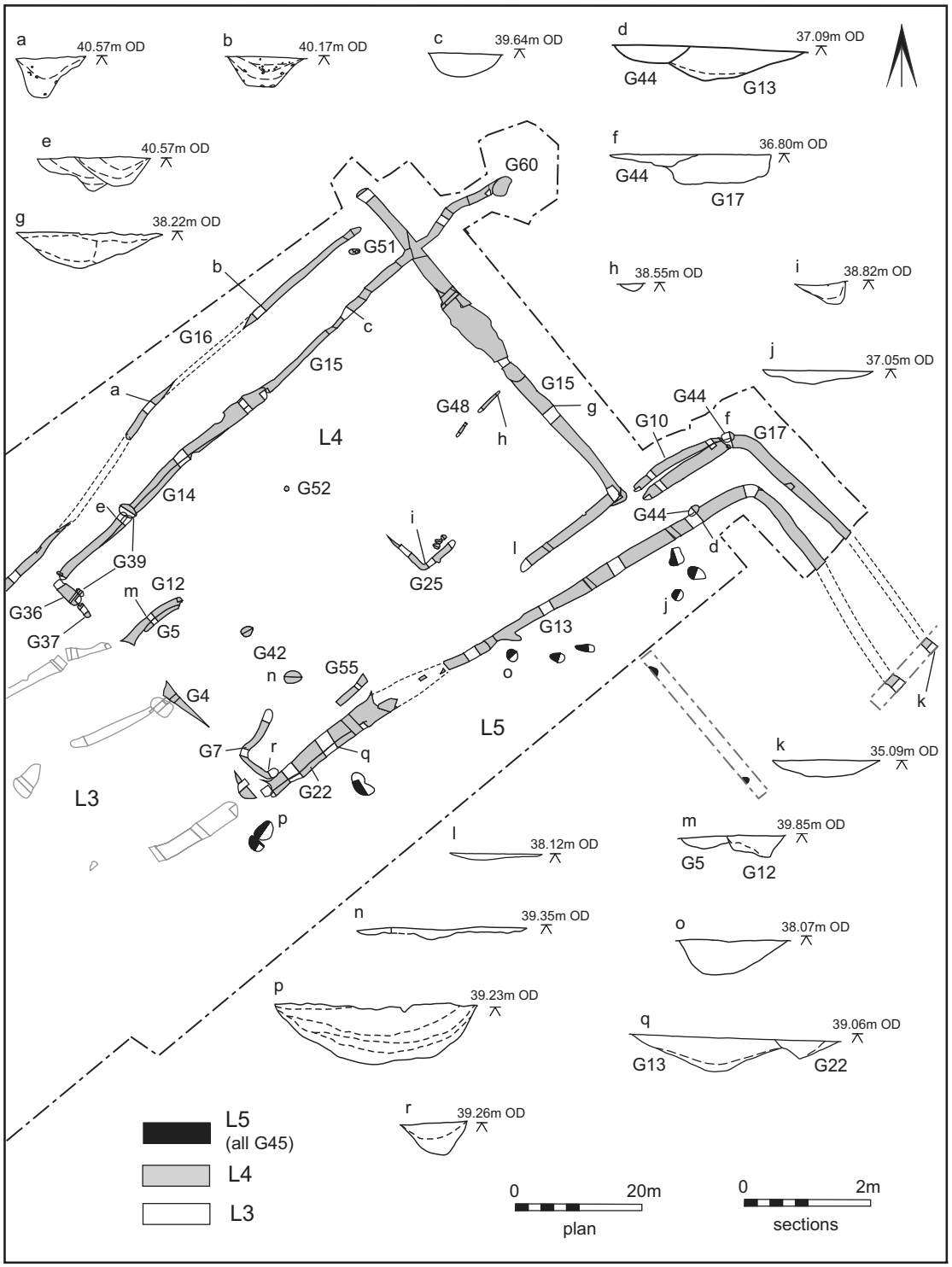


Figure 6: Plan of L4 and L5 (Phase 2)

have been approximately 6.5m by 7.5m in size. No evidence survived for how the other sides of the putative building were constructed. The three features recorded within the area of the building were all less than 0.1m deep; they may have been pits or possibly post-holes, yet the irregularity of at least one of them suggests their origin lay in bioturbation. Two further probable beam slots G48 were recorded to the north of G25; they were 2.8–4.7m long, 0.4m wide and 0.1m deep and were 2.4m apart.

Stratigraphic evidence indicates that at least half of the pits associated with the eastern enclosure were created towards the end of Phase 2. Four of these (G44) were dug through the partially infilled ditches of the drove-way, whilst two more (G39) were dug into the northern enclosure ditch. The other pits included two (G42) that were 1.6–2.7m long, 1.5–1.9m wide and 0.2m deep, and three elongated pits (G36 and G37) in the entrance to the enclosure. G36 was the largest of these, measuring 4.95m long, 1.95m wide and 0.65m deep, whereas the two pits in G37 were only 0.3m deep. The presence of G36 and the southern pit in G37 narrowed the entrance into the enclosure considerably; exactly how narrow it became depends on whether the pits were contemporary with the re-cut of the central enclosure (G24) or not. No specific function was apparent for any of these pits, but the presence of a dog skeleton and part of a glass bowl in G36 hint at a ritual deposit.

Three further pits were associated with the eastern enclosure: G52 near its centre; G51 in the subsidiary enclosure; and G60 just to the east of the main enclosure. G52 was less than 0.1m deep, but contained a concentration of charcoal and burnt clay that derived from a feature such as a hearth. It is unclear whether the material was *in situ* or had been backfilled into the pit from another feature nearby. Pit G51 was unremarkable in itself, measuring 1.7m long, 0.8m wide and 0.17m deep, but contained an urned cremation accompanied by a grey ware jar. The precise extent of water-hole G60 was difficult to determine due to re-cutting in Phases 3 and 4, but it was 0.7m deep.

Southern pits (L5, Fig. 6)

Eleven pits G45 were identified to the south of the eastern enclosure L4, two of them in a trial trench beyond the main excavation area. They were 1.1–2.3m wide, 1.8–4.4m wide and mostly 0.2–0.3m deep, although the two largest were deeper (Fig. 6, p). The pits are likely to have been associated with the activities that took place within the eastern enclosure (or possibly the central enclosure L3 in the case of the westernmost two), although there is no positive evidence for what functions they served.

Northern pits and features of natural origin (L6, Fig. 7)

Six pits were located near the northern edge of the excavated area, three at the western end (G40) and three at the eastern end (G43). The two northern ones in G40 were the largest, measuring 2.5–3.6m long, 1.5–2.9m wide and 0.6–0.95m deep, whereas the other four were much smaller. The function of these pits is uncertain, although the slightly irregular form of the two largest ones in G40 may denote that they were quarry pits.

A range of features thought to be natural in origin were revealed. They can be split into two groups: tree-throws G54, or possibly just areas of ground that had been disturbed by root action; and a spread of features G1 across the northern part of the site whose interpretation is more problematic. The possible tree-throws were spread widely across the site, but at a low density. Neither their shape in plan nor their profile were characteristic of those traditionally associated with tree-throws, and in most cases they are more likely to have been formed by small trees or bushes growing along the edges of the enclosures, than by large trees. Where stratigraphic relationships existed, these features appeared earlier than the ditches by which they were cut; however, this could be a result of the ditches' having been cleaned out or re-cut, rather than an indication of clearance prior to the establishment of the farmstead.

The origin of the features in G1 is more obscure, although it is at least clear that they predated the creation of the farmstead. Their inclusion in Phase 2 is based on the likely date of their infill, which the artefactual assemblage recovered from them suggests accumulated during the earlier part of Phase 2. It is thought to be significant that they were located almost exclusively in the area of gravelly clay along the northern side of the excavated area, rather than in the less mixed clay to the south.

The features comprised gravel lenses surrounded by darker and fine-grained sediment, forming an irregular, polygonal pattern (Pl. 2). Similar patterns can occur when cracks in permanently frozen ground become infilled with sands and silts, producing ice-wedge polygons (Lowe and Walker 1997, 102–5). However, excavation

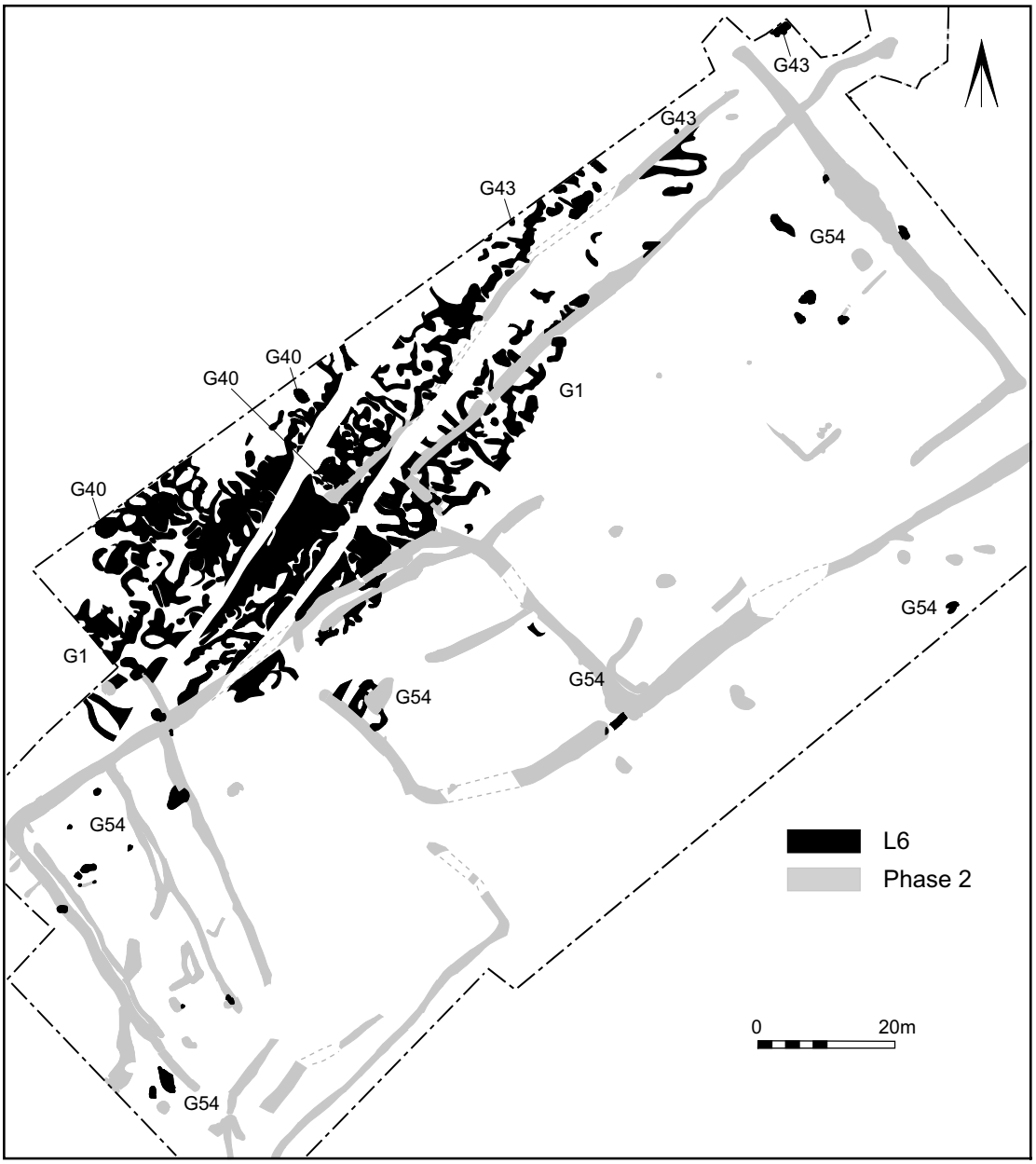


Figure 7: Plan of L6 (Phase 2)

demonstrated that the darker, fine-grained rings round the core of denser clay and/or gravel contained artefacts, including large, relatively unabraded pieces of pottery. Below the darker surface sediment, the infill of the features was difficult to differentiate from the sediment through which they cut, except that it was more weathered; it also tended to be paler in colour and contained either no pottery, or only small, abraded sherds, as did the fills excavated further away from the enclosures. The features varied considerably in depth and profile; some were less than 0.1m deep, others more than 0.5m, whilst their bases varied between flat, rounded and irregular.

Evidence for freeze-thaw activity at Hill Field is demonstrated in the contorted flares of gravel



Plate 2: Aerial view of geoarchaeological features G1, north-west of ditch G24

penetrating into the underlying clay in several exposures across the site, suggesting that these patches of gravel probably predate the last cold stage, when cryoturbation deformed the surface sediments. The evidence for cryoturbation suggests that other forms of freeze-thaw activity are likely to have occurred, and supports the interpretation of G1 as ice-wedge polygons. The elongation of the features downslope is also a characteristic of ice-wedge polygons, which tend to be more circular on level ground and elongated downslope as a result of slope processes. The bases of the gullies were not pointed as might be expected with ice-wedge features, yet this may be due to the clayey sediment in which they formed, which is likely to have different properties to silts and sands.

Although the features in G1 are almost certainly geological in origin, some may subsequently have been enhanced by quarrying. Large cobbles were frequently found across the site, presumably used for surfaces and hearth stone; the geology on the rest of the site was clay, and these exposed pockets of gravel and cobbles may gave been regarded as an important resource. The explanation behind the presence of significant numbers of artefacts in them, however, is less apparent. The ground surface in the late Iron Age is unlikely to have been level (unless ploughed flat prior to the establishment of the farmstead), and slight hollows may have characterised the gullies of the polygons. These hollows may then have been filled by upcast material from digging and cleaning out ditches nearby, perhaps in a deliberate attempt to level the ground surface; the greatest recovery of finds from these features was in the vicinity of the ditches. Bioturbation may also have contributed to the translocation of cultural material down into the features; the presence of larger sherds in the upper fills is difficult to account for by this method, but the small sherds found in the lower fills may have been transported there in this way. However, there is little direct evidence to indicate the growth of trees along the northern side of the farmstead, although the presence of hedges along the ditched boundaries is likely.

Non-ceramic artefacts
Holly Duncan, Hilary Cool (vessel glass) and Peter Guest (coins)

The assemblage recovered from Phase 2 deposits is not numerous; all items are incomplete, and, as with all phases, much of the metalwork is in poor condition. The assemblage is discussed below by the area of the farmstead from which the items were recovered.

The finds from the western enclosure L2 comprise a loop-headed spike, a possible whetstone of

fine-grained sandstone, and a penannular earring of Allason Jones type 1. This earring type has a long history, with examples known from the Bronze Age into the Roman period (Allason Jones 1989, 2–3). The central enclosure L3 produced a fragmentary strip of iron and the remains of a possible bracelet or armlet. The latter item survives in very poor condition, but appears to have been at least partially straightened prior to deposition. The D-shaped cross-section of the strip is suggestive of either a bracelet or armlet; no decoration nor terminals survive. In addition, a body sherd from a prismatic bottle, a very common form in the late 1st to the early 3rd centuries, and three nails were recovered from ditch G24. One nail survives only as a portion of shank, but two conform to Manning's type 1B general purpose nails with flat rectangular heads (Manning 1985, 134).

Eastern enclosure L4 yielded a slightly larger assemblage of artefacts, but the quantity and range is still limited. They were mostly recovered from pits or from subdivisions within the enclosure. The enclosure ditch itself produced just a small fragment of a nail shank, although its possible continuation G55 did contain what has tentatively been identified as a semi-cylindrical spring cover, with open back but closed ends, from a brooch. In addition, drove-way ditch G17 contained part of the bow and start of the head coil of a silver La Tene III or Knotenfibeln variant brooch (RA433), probably dating to the 1st century AD. The use of silver in brooches is comparatively rare when compared to copper alloy, and this would suggest the owner was of some status. Hattatt (1987, 26) has noted that amongst the Knotenfibeln, there are a surprising number of finely made silver examples.

Part of the worn grinding surface of a Hertfordshire Puddingstone quern was recovered from gully G7 in the interior of the eastern enclosure. Although not enough of the quern survives to determine if it formed part of the upper or lower stone, it is likely to have been of bun-shaped form. Hertfordshire Puddingstone quern production is thought to have started early in the 1st century AD (King 1986, 71), and current evidence suggests that production may have ceased by the mid-2nd century (Buckley and Major 1983, 76). The same feature also yielded a fragment of iron, the convex cross-section of which may indicate it derived from a ferrule or perhaps a socketed tool, as well as part of a prismatic bottle, as did probable structural gully G25. The fragment from the latter (RA442) retains part of the basal pattern. The tip of the pointed moulding preserved seems most likely to have come from a square moulding made of four concave sides, with the corners forming points. These are normally combined with other moulded patterns, as can be seen on those from Sheepen (Harden 1947, 306 no. 98f, pl. LXXXVIII) and Wroxeter (Cool 2000, 176 no. 529, fig. 4.43). The other alternative is that it came from a base with intersecting arcs of a circle forming petals in a flower design. This type of pattern, though, is normally framed by a circular moulding which the tips of the petals touch, as can be seen on several from Corbridge (Charlesworth 1959, fig. 9). In the former type of pattern, there is normally free space beyond the points, as on the fragment from this site, making that pattern more likely.

Other artefacts from the eastern enclosure include a small circular mount (RA410) with integral rivets, and two circular notches on opposing edges, forming a pelta-like shape. This mount bears some similarities to later 2nd- and 3rd-century military harness mounts, although it has a smaller diameter (Taylor 1978, 240–42).

Sixteen sherds of glass recovered from pit G36 in the entrance to the eastern enclosure are from the upper part of a large shallow bowl (RA440), which is an uncommon form in several respects. This example has obvious similarities with the shallow form of the tubular-rimmed bowl (Price and Cottam 1998, 77), but differs from that in having a fire-rounded rim edge. Shallow bowls with fire-rounded rim edges are not common from Roman Britain, and also tend to have sloping sides (see Cool and Price 1995, 103), unlike the vertical sides of this vessel. The shape appears to be a 1st-century form, and one that was going out of use during the latter part of that period; the deeper form was preferred on sites of the final third of the 1st century and into the middle of the 2nd century. Shallow tubular-rimmed bowls tend only to occur on sites occupied in the middle third of the 1st century in Britain. Finishing a rim by fire-rounding, however, is a technique that came to prominence in the later 2nd century; it did occur in the 1st century, but other techniques were often preferred. On balance, a 1st-century AD date for the manufacture of the vessel, and possibly one in the middle of the century, seems most likely. It is possible that the bowl represents an instance of structured deposition; the amount of the vessel present (*c.* 10%) is much larger than is normally found in a domestic context, whilst the fragments retain a fracturing

pattern that may have been the result of a deliberate blow. Even though the farmstead's inhabitants would probably not have seen enough glass vessels to have known that the fire-rounded rim was unusual, the vessel's presence is at least a little out of the ordinary for a low status Bedfordshire farmstead, as is that of the silver brooch.

Pits L5 to the south of enclosure L4 produced a flat, square-headed nail and a coin. The latter unfortunately survives in poor condition, and can only be dated to the 1st–2nd centuries. To the north of the enclosures, a number of features of natural origin (G1, L6) produced a very mixed assemblage, including a possible stylised snake bracelet (RA449) of 2nd- to 3rd-century date, as well as a presumably intrusive post-medieval crotal or rumbler bell and lead fishing weight.

Catalogue of illustrated items (Fig. 8)

RA442: Bottle. Glass. Base fragment from a prismatic bottle. No original edges, but retains small portion of moulded base pattern-tip of a pointed moulding. Dimensions 25mm by 18mm, thickness 8mm. G25; L2

RA410: Strap mount. Copper alloy. Poorly preserved, domed mount of circular plan with two oval notches cut out along the circumference, creating a 'pelta-like' shape. Two integral rivets on the reverse, bent over to clasp the strap or cloth. White metal plating? Diameter *c*. 15mm. G12; L4

RA433: Brooch. Silver. Incomplete, part of bow and start of head coil remaining, no foot or catch plate. Bow is of diamond- or lozenge-shaped section, with hemispherical 'button' with

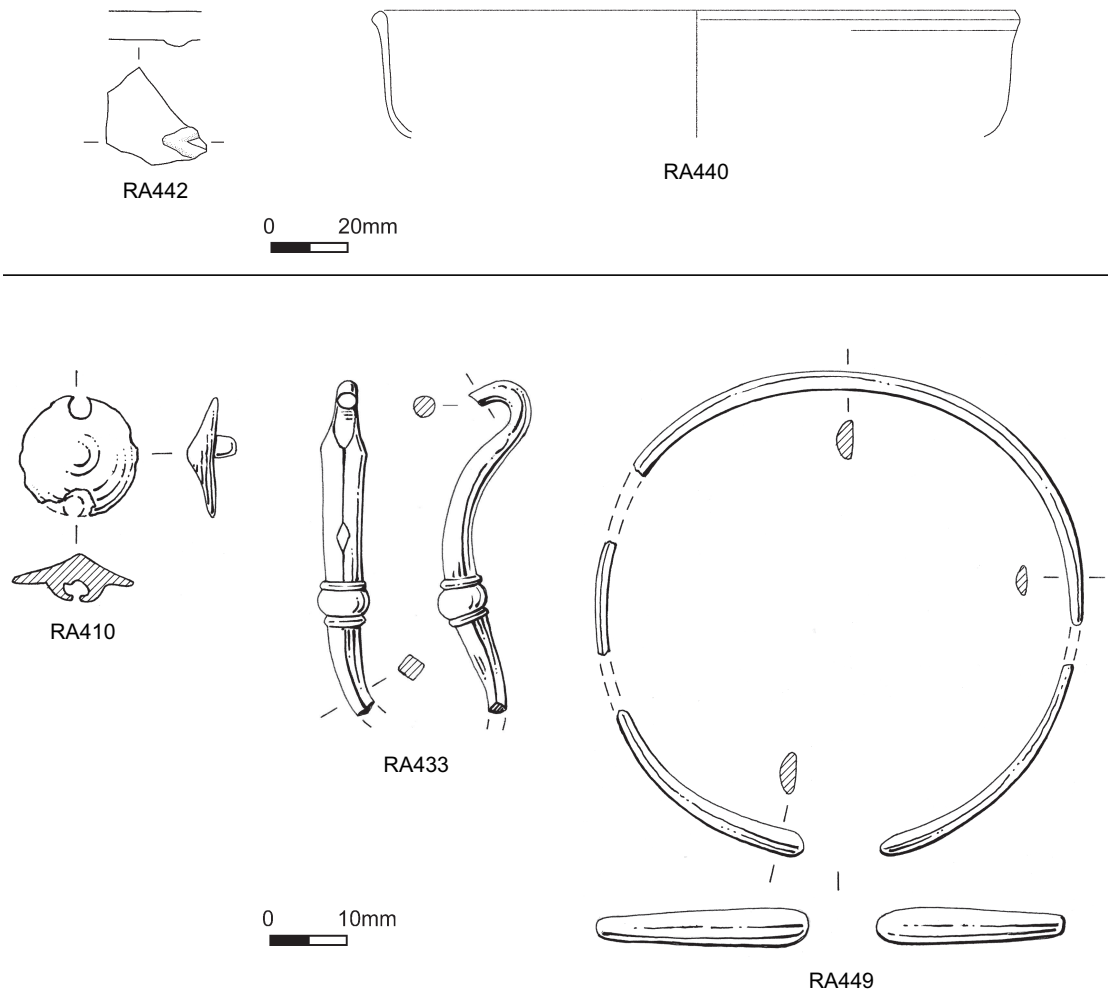


Figure 8: Selected non-ceramic artefacts from Phase 2 deposits

small neat cordon above and below. The bow widens towards the head, and thins towards where the foot would have been. The lower bow is broken and twisted out of alignment. This example has a more gentle curve approaching the head than normally seen on a Knotenfibeln. Length 44.3mm; width of bow 6mm; thickness 3.7mm. G17; L4

RA440: Shallow Bowl. Glass. Translucent blue/green glass. Three rim and thirteen body fragments, many joining in four groups. Vertical rim, edge fire-rounded with external thickening, straight side with rounded carination to lower body. Fracture pattern radiates out from blow to the carination. Lower body and base missing and thinning to either side. This could be the central part of the base but equally the features are consistent with it being a wall fragment from a small prismatic bottle. Rim diameter 170mm, wall thickness 2mm, present height 34mm. About 22% of circumference extant. G36; L4

RA449: Bracelet. Copper alloy. Stylised snake bracelet. The terminals expand in width and thickness; the hoop is D-shaped in section and narrows in width on the sides of the bracelet. Oval in plan. Surfaces and terminals may be decorated but the poor state of preservation precludes certainty. In four joining pieces. External dimensions *c*. 65mm by 54mm. Hoop varies in width from 5.3mm at the 'back' of the bracelet, to 3mm on the sides and 5.3mm on the expanded terminals; thickness varies from 2.8mm at the back of the bracelet, to 2mm on the sides and 2.6mm on the terminals. G1; L6

Pottery

Jackie Wells and Felicity Wild (samian)

Features assigned to Phase 2 yielded 4,285 sherds (50.6kg), representing 1,983 vessels and constituting 69% (by sherd count) of the total ceramic assemblage (Table 1). Although the degree of fragmentation is high, indicated by a low average sherd weight of 12g, a proportion of the late Iron Age and Romano-British vessels are represented by more than single sherds, and a number of full vessel profiles can be reconstructed. This suggests that, despite the evident mixing of deposits that was widespread across the site, much of this material occurred in or near its primary context, close to areas where the pottery was used. Both late Iron Age and Roman pottery survives in a similar condition, and their consistent association in features across the site attests the longevity of the Iron Age tradition. This is consistent with the established local pattern, where the use of late'Belgic' Iron Age wares is known, in some instances, to have extended into the early 2nd century (*cf*. Stagsden, Dawson 2000a; Biddenham Loop, Luke 2008; and Marsh Leys Farm, Luke and Preece in prep.).

Late Iron Age

The assemblage is characterised by the prevalence of late Iron Age 'Belgic' pottery forms, the appearance of which in the south-east Midlands is conventionally dated to *c*. 50 BC, although the adoption of the tradition may not have become widespread until *c*. 40–50 years later (Hill 2002). Diagnostic vessel forms constitute 27% of the pottery and are dominated by jars of varying sizes, 120–260mm in diameter, which include bead rim (type C1-1 (Fig. 9, P1), C1-4; after Thompson 1982), cordoned (type B3), everted rim (types B1-1, C2-3), lid-seated jars (types C5-1, C5-2), and large 'storage' vessels (type C6-1). Other forms are wide-mouthed bowls (type D1-4), plain or cordoned lid-seated bowls (types D3-3 and D3-4), butt beakers (types G5-1 (Fig. 9, P4), G5-6), lids (types L1, L2, L4, L6), pedestal urns (type A1), and single examples of a platter (type G1), carinated wide-mouthed cup (type E1-2; Fig. 9, P3) and strainer (type S1). Decorative elements are linear and random combing, fingernail and fingertip impressions, and burnishing. Six vessels have been modified by the drilling of post-firing holes in base and body sherds (for example Fig. 9, P5), and a number of shelly vessels are heavily sooted or have internal sooty residues, indicating their use as cooking pots.

The range of jar and bowl forms, coupled with a paucity of specialised tablewares such as cups, beakers and platters, broadly reflects the composition of contemporary assemblages in the Great Ouse Valley, such as Biddenham (Wells 2008), Great Barford (Webley 2007) and Stagsden (Slowikowski 2000). This may suggest the adoption of only a limited range of 'Belgic' vessel types by the local inhabitants.

Half of the late Iron Age assemblage comprises grog-tempered vessels (fabrics F06A/B/C and F39) which are characteristic of the period; vessels in shelly fabrics F07 and F05 total 30%, while mixed grog-tempered and/or sandy fabrics F03, F09 and F34 constitute the remainder. All are likely to be of local origin; a number of kilns producing shelly vessels during the mid-1st century AD are known in north Bedfordshire (*e.g*. Stagsden, Dawson 2000a; Bromham, Tilson 1973; Harrold, Brown 1994; Biddenham, Luke 2008), although the other fabrics' provenance remains unclear. The majority of the pottery comprises wheel-thrown vessels in fabric types F06A/B, F09, F34, and F39. Handmade coarse ware vessels mainly occur in fabric types F07, F05, F03 and F06C, and generally represent the largest vessels in the assemblage (storage jars and cooking pots).

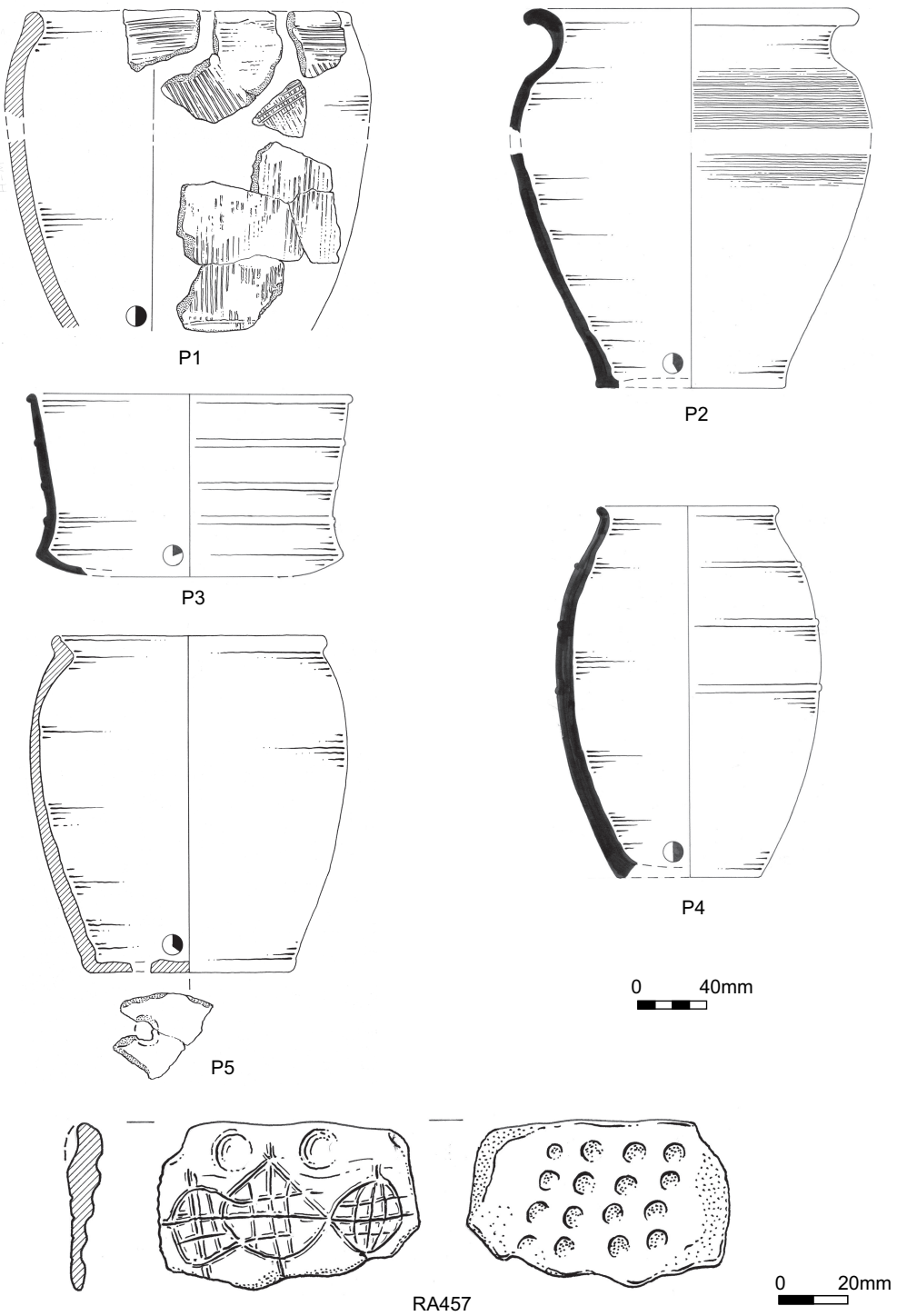


Figure 9: Selected pottery from Phase 2 deposits

Land-use area	G No.	Pottery Date			Total
		Late Iron Age	Roman	Post-Roman	
Western enclosure (L2)	9	2,120	115		2,235
and associated features	11	367	497		864
	18	246	588	2	836
	19	2,669	395		3,064
	20	88	134		222
	21	34	86		120
	23	169	50		219
	24	5,259	3,087	21	8,367
	35	489			489
	38	238	169	29	436
	46	130	241		371
	47		38		38
	49		578		578
	56	23	2		25
	59	132	24		156
Central enclosure (L3)	3	432			432
and associated features	4	65	80		145
	6	1,687	29		1,716
	8	3,586	53		3,639
	41	1,114	350		1,464
	50	125	517		642
Eastern enclosure (L4)	5	538			538
and associated features	7	136	56		192
	10	18			18
	12	567	52		619
	13	2,105	628		2,733
	14	1,176	130		1,306
	15	3,682	3,477		7,159
	16	189	573	7	769
	17		25		25
	22	140	337		477
	25	25	1,712		1,737
	36	362	281	7	650
	37	118	28		146
	39	175	605	74	854
	42	13	1,505		1,518
	44		13		13
	48		109		109
	51	3	156		159
	52		3		3
	55		20		20
Pits (L5)	45	149	1,281	50	1,48
Geoarchaeological features,	1	3,002	263		3,265
tree-throws and pits (L6)	40	78	111		189
	43	25	22		47
	54	288	224	14	526
Total		**31,762**	**18,644**	**251**	**50,657**

Table 1: Phase 2 pottery quantification, by weight (g)

G No.	Illustration No.	Ware	Comments
12	P1	F06B	C1-1; oxidised; sherds split between ditch G5 and re-cut G12
42	P2	R13	rilled
13	P3	F09	E1-2 carinated wide-mouthed cup
8	P4	F06B	G5-1 plain barrel-shaped butt beaker
6	P5	F07	ext soot; post-firing drilled hole in base
39	RA457	R13	decorated rim sherd; sail-maker's palm?

Table 2: Illustrated pottery from Phase 2 deposits

Roman

Roman pottery, the majority of which is datable to the 1st to 3rd centuries, accounts for 1,890 sherds, representing 759 vessels (18.6kg). A small quantity of late Roman sherds present in Phase 2 are considered intrusive. The assemblage comprises a comparable range of wares to those recovered from the contemporary nearby settlements at Marsh Leys Farm (Luke and Preece in prep.), Wilstead (Luke and Preece 2010), Kempston (Dawson 2004), and Great Barford (Webley 2007), and generally reflects the composition of Romano-British rural sites in the vicinity of the Great Ouse Valley. The assemblage suggests relatively low socio-economic status, with pottery mainly deriving from local sources and comprising mainly jars for storage and cooking. The small quantities of imported fabric types, however, indicate wider contacts and a certain degree of higher-status consumption.

The assemblage comprises a diverse range of fabric types, the majority of which are of local origin. Shelly ware R13 dominates, constituting 52% (by weight), followed by sand-tempered grey wares R06C and R06B, which total 10% and 8% respectively (pottery in the generic grey ware group R06 constitutes 27% of the total assemblage). A proportion of the shelly wares are recognisable products of the Harrold kilns (Brown 1994), operational throughout the entire Roman period; 4% are macroscopically similar to fabrics recovered from recently excavated early Roman kilns near Willington, although this identification remains unsubstantiated. Grey wares are known to have been produced at a series of sites to the south-east of Bedford, notably at Mile Road (Dring 1971), although other kilns have been identified at Cardington and Eastcotts (Simco 1984; Albion Archaeology 1995).

Smaller quantities of reduced (R07B, R08, R14) and oxidised (R05A/B, R10A/B) sand-tempered wares, as well as regional and continental imports, constitute the remainder of the assemblage. The imports each total less than 4% of the assemblage, with samian dominating those types occurring. Regional imports include white ware from the Verulamium (St Albans) industries (R03A–C, R18, R33); pink grogged vessels from either Caldecotte, Bucks or Towcester, Northants; Nene Valley grey wares (R06A); colour-coated wares (R12B); and small quantities of material from the Oxfordshire (R11) and Mancetter-Hartshill (R20) industries. The central and south Gaulish samian assemblage and a single Spanish amphora sherd (R19A) represent the only continental imports.

A range of vessel forms associated with the storage, preparation and consumption of food and drink are represented. Diagnostic sherds are dominated by jars of varying sizes (78%), which measure 180–220mm in diameter. Jars are cordoned, narrow-necked and neckless, and have plain everted, undercut, triangular or bead rims. Lid-seated and large storage jars occur exclusively in shelly fabric R13. Bowls constitute 8% of the assemblage, and measure 140–340mm in diameter, with shelly examples generally falling at the larger end of the range. Bowls have plain everted, flanged, or lid-seated rims. One Nene Valley colour-coated example is an imitation of samian form 36. Decoration is rare, and comprises rouletting, rilling, incised wavy lines, horizontal and vertical combing, barbotine, burnishing (overall and lattice design), and slipping. The curation of vessels is evidenced by post-firing holes drilled through neck, shoulder and body sherds, to facilitate repair. Less prevalent vessel forms are plain rim and folded beakers, 'dog' dishes, mortaria, lids, plain-necked flagons, and single examples of a platter, cup, and Dressel 20 olive oil amphora.

Samian ware (forty sherds) is predominantly of Hadrianic to Antonine date and of central Gaulish origin, with three joining sherds from east Gaul datable to the Flavian or Trajanic periods. Central Gaulish forms are conical cups (form 33) and bowls (forms 18/31, 18/31R, and 31 or R variant). Two stamps of the central Gaulish potters Aricus ii and Paterclus ii were identified. Two vessels have been repaired with lead rivets, indicating that samian may have been difficult to obtain and was, therefore, carefully curated.

The assemblage includes three modified sherds, two of which are coarse ware body sherds that have been crudely chipped to form gaming counters. The third (Fig. 9, RA457) comes from the eastern pit in G39 (the infill of which might not have accumulated until Phase 3), and was formed from a rim sherd in a shell-tempered fabric (R13). In addition to the thumbed decoration along the rim, the sherd has post-firing incised/scratched decoration comprising three roughly drawn diamonds, the interior of each diamond cross-hatched by three horizontal and three vertical lines. The interior surface of the sherd has been shaved off, and there are four rows of four circular or cup-shaped depressions; these appear to have been

created post-firing, possibly by partially drilling or grinding. The sherd is worn smooth along the edge of the rim, suggesting it was handheld in use, although what the sherd was used for remains uncertain. The series of depressions could suggest its use as a soldering plate or heating tray, yet the sherd has no metallic residues visible, nor has it been exposed to heat. Instead, it may have been a sail-maker's palm, which would have provided assistance in pushing a needle or perhaps bodkin through heavy material.

Spatial distribution

Table 1 shows the Phase 2 pottery assemblage in terms of its spatial distribution across the site. Similar densities of pottery were recovered from each of the three enclosures (Fig. 10). Although the central enclosure (the smallest of the three) superficially appears to have produced a smaller volume of material, ditch G24, which was assigned to L2 and produced the largest assemblage of any Group, straddled both the western and central enclosures.

Over 76% of the Phase 2 assemblage came from enclosure ditches, with just 13% from pits, and smaller quantities deriving from other feature types. There was no apparent variation between the distribution of different vessel forms or fabrics across different types of feature.

The pottery recovered from each enclosure is broadly comparable. All yielded late Iron Age/early Roman assemblages with similarly low average sherd weights (12g) and vessel to sherd ratios (1:2), indicating the fragmented nature of each group. The central enclosure yielded the least diagnostic assemblage, with few classifiable vessel forms (Table 3). Each assemblage is dominated by coarse ware jars, with smaller quantities of other utilitarian forms associated with the storage, preparation and consumption of food and drink. The absence of mortaria from the western and central enclosures, in contrast with the eastern enclosure, may imply some functional differences. The absence of samian and regional imports from the central enclosure supports the suggestion that the infill of the excavated features in L3 accumulated at an earlier date than those in the other enclosures, which were more subject to cleaning out and re-cutting. Samian recovered from L2 and L4 is broadly contemporary and comprises eight central Gaulish vessels. These include a form 33 cup with the stamp ARICUM of the potter Aricus ii, datable to *c*. AD 150–190 (G24, L2), and a gritted mortarium sherd (form 45), datable to *c*. AD 170–200 (G25, L4). A single sherd of 2nd-century olive oil amphora occurred within the eastern enclosure.

Three residual late Bronze Age/early Iron Age sherds (18g) were recovered from the western (G46) and eastern (G13, G15) enclosures. Pottery of Saxon and Saxo-Norman (total weight 117g) also derived from these enclosures, primarily from the eastern pit in G39, where it is thought to have accumulated in a feature that survived as an earthwork hollow after it had fallen out of use.

Single cremation burials were recovered from each enclosure, the associated vessels from which survive in poor condition due to plough damage. In the western enclosure L2, cremation G49 appeared to be contained within a grey ware jar, and was accompanied by two accessory vessels. One of the latter is a central Gaulish form 18/31 samian bowl with a partial stamp [PATER]CLOSFE of the potter Paterclus ii, datable to *c*. AD 110–125. In the central enclosure, G50 contained a grog-tempered urn and accessory

	Western enclosure L2		Central enclosure L3		Eastern enclosure L4	
Vessel form	Sherd	Wt (g)	Sherd	Wt (g)	Sherd	Wt (g)
Amphora					1	277
Beaker	30	91	41	992	70	297
Bowl	34	699			63	686
Cup					7	133
Dish	5	81			3	37
Flagon	1	10				
Jar	299	5,365	232	2,675	412	7,208
Lid	2	71			4	78
Mortaria					5	108
Platter			36	397	1	4
Pedestal urn	1	31			2	46

Table 3: Phase 2 vessel forms by enclosure



Figure 10: Distribution of pottery by date

vessels, including a grey ware platter and rouletted beaker. The base and lower portion of a Roman grey ware jar were associated with unurned cremation burial G51 to the north of eastern enclosure L4.

Pits to the south of the enclosures (L5) yielded a mixed late Iron Age and Roman assemblage weighing 1.4kg, of similar composition to those recovered from the enclosures. The pottery comprises a fragmented collection with few diagnostic vessel forms; sherds are small, and few vessels are represented by more than single sherds. Coarse ware vessels predominate. Samian ware comprises fragments of a south Gaulish form 18 of Flavian or Trajanic date, and a central Gaulish form 18/31 datable to the Hadrianic period, both with evidence for repair. Five Saxon and Saxo-Norman sherds (50g) were recovered, which are thought either to be intrusive, or to derive from deposits that accumulated after the features had fallen out of use.

A mixed and abraded late Iron Age and Roman assemblage (3.8kg) dominated by early Roman coarse wares derived from pits G40 and G43 and geoarchaeological features G1 to the north of the enclosures (L6), the majority associated with the latter. Three residual late Bronze Age/early Iron Age sherds (6g) were also identified. Tree-throws G54 yielded fifty-three late Iron Age/early Roman coarse ware sherds (526g), and a handle fragment from a late medieval/early post-medieval jug (14g). Sherds are generally small and abraded, with an average weight of 9g, consistent with their recovery from features of this type.

Ceramic building material
Jackie Wells

Five pieces of shell-tempered *tegulae* and a sand-tempered fragment of brick (total weight 550g) were recovered, the majority deriving from the eastern enclosure L4. The shelly tile fabric is similar to pottery fabric R13, and some examples may be products of the Harrold kilns (Brown 1994). Pieces have an average weight of 92g, and are generally abraded. The *tegulae* are 16–25mm thick, one with a partial flange, and the brick fragment is 30mm thick. The quantity of brick and tile is too small to imply the presence of tiled buildings, and is more likely to reflect re-use in structures such as corn driers or ovens.

The fired clay assemblage weighs 2.9kg, and derives mainly from ditch G24 and pits G38 in the western enclosure L2. 94% of the material (by weight) occurs in an oxidised sandy fabric to which organic matter has been added, five percent in an organic fabric, and the remainder in a purely sandy fabric. The assemblage is largely amorphous, although a number of pieces have finger-smoothed surfaces and/or edges. Portions of approximately twelve handmade slabs and four perforated plates, one with a curved edge, were identified; those with a complete surviving thickness measure between 15mm and 25mm. The assemblage is likely to derive primarily from surface constructions such as domestic cooking hearths or ovens.

Human bone
Michael Henderson

All three cremation burials had been truncated by agricultural activity in the medieval and post-medieval periods; burial G49 had also been disturbed by the roots of a modern hedgerow which had grown over the top of it. Pottery vessels associated with the cremations indicate that they were Roman, probably dating to the 1st or 2nd centuries. The burnt bone was moderately well preserved, but a high level of fragmentation had resulted in numerous unidentified bone elements. Some fragments of joint surface survived, but in most cases it was not possible to assign these to a specific body area. No evidence of weathering or erosion was observed. The low total weight of burnt bone from each burial — 70.8g to 247.6g, with an average weight of 164.8g — and the lack of repeated elements suggest that each vessel contained the remains of a single, incomplete individual, although it is possible that some material was lost due to truncation.

Urned cremation burial G49 contained identifiable fragments of cranial vault, mastoid process, acetabulum, auricular surface, vertebrae (neural arch and apophyseal facet), ulna, radius, humerus, femur, and tibia. This included identifiable fragments of radial head, proximal ulna joint surface, and femoral and tibial joint surfaces. Identifiable burnt bone fragments from urned burial G50 included cranial vault, cervical vertebral body, neural arch, apophyseal facet, radius, ulna, tibia, and femur. Fragments of distal femoral joint surface were also observed. Three fragments of calcined animal bone were also recorded, consisting of sheep or goat astragalus (1.7g), while an unburnt sheep phalanx was also recovered from

the same deposit. Cremation burial G51 was not contained within an urn, but did have an associated ceramic jar. It contained the highest percentage of identifiable elements (56.9%), including a maxillary canine root, pre-molar crown and unidentified single rooted tooth crown. Fragments of cranial vault, ilum, vertebrae, radius, ulna, humerus, femur and tibia were also recorded.

Partial fragments of auricular surface indicated an adult age estimate for G49. The small size of the fragments precluded greater precision. It was not possible to determine age for G50; however, the size of the cervical body and neural arch fragments suggested a probable adult. The presence of a completely formed maxillary canine root and premolar crown also suggested an adult age for cremation G51.

The fragmentation sizes were within expected ranges, and were consistent with contemporary cemeteries (McKinley 1994). There was an overall under-representation of axial elements in all cremations when compared to expected values, and cremation G49 showed lower percentages than expected of identifiable bone for cranial, upper and lower limbs. The burnt bone from this cremation showed the highest level of oxidation, thereby indicating the most complete cremation. This may have affected fragmentation and which identifiable elements were present. A prevalence of lower limb fragments was noted for G51, but this may have been due to taphonomic factors resulting in the prevalence of robust cortical bone fragments and poor preservation of spongy trabecular bone.

Animal bone
Stephanie Vann

Phase 2 deposits yielded an assemblage of 3,054 fragments of animal bone (including 534 recovered from soil samples), only 702 of which could be identified. The composition of the assemblage is fairly standard for faunal material from a domestic late Iron Age to mid-Roman site. The numerically dominant species, cattle and, to a lesser, extent sheep/goat (Fig. 11), were regularly exploited throughout the Iron Age and the Romano-British period, as were the horse and pig, albeit not generally in the same numbers (Maltby 1981). The good survivability of large, strong bones such as those of cattle and horse can sometimes be a reflection of preservation conditions rather than husbandry practices; unfortunately, too few of the bones recovered by sieving are identifiable to help illuminate this potential point of bias.

The assemblage is skewed by the number of dog bones present: forty-nine of the sixty-one came from pit G36, and probably represent a single individual. The rest of the dog remains mostly constitute single, isolated elements; in addition, thirty-nine other bones from this assemblage also show evidence of canid gnawing. No wild

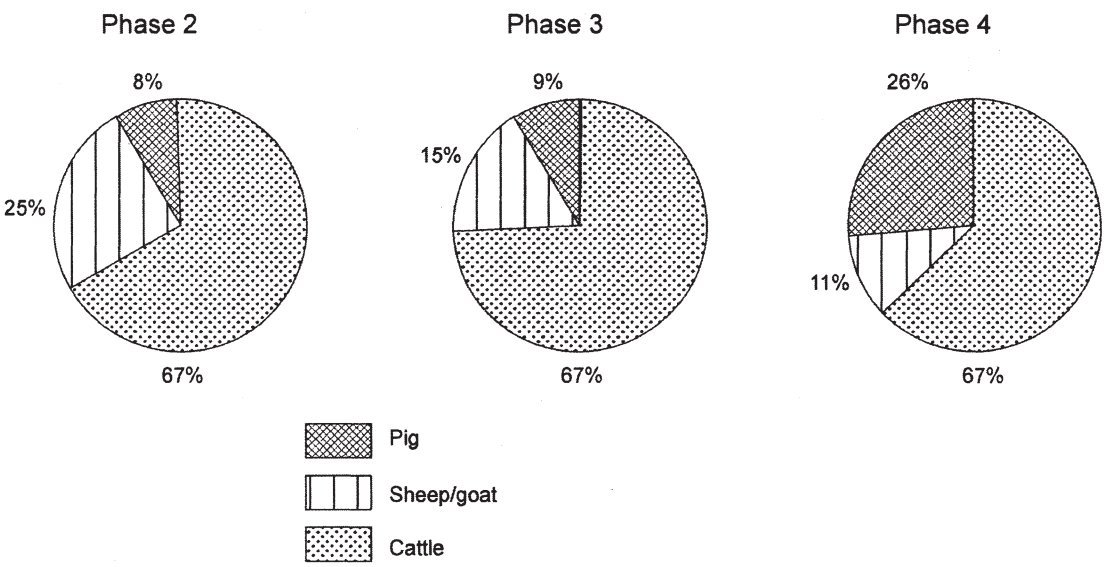


Figure 11: Relative proportion of three main domesticates in Phases 2–4

taxa are present, although five bird bones were recovered, all domestic fowl.

The skeletal maturity data show a range of ages for the cattle, sheep/goat and pigs identified (Table 4). They indicate the presence of juvenile cattle within the assemblage, at least one individual being under seven months of age at the time of death. Other individuals may have been older, potentially up to seven years or more, although the majority appear to have been less than four years old. Sheep and pigs are represented by both immature and adult animals, as also evidenced by the ageing data based upon tooth wear; a fairly high proportion of the pigs were less than a year old at the time of death.

Seven elements from the Phase 2 assemblage permit the calculation of the height at the withers for cattle, horse and dog. The height range for cattle is 1.08–1.20m; cattle resembling the Kerry cow or Irish shorthorn are widely found on both pre-Roman and Roman sites (Applebaum 1958, 74), and this height range is fairly normal. A dog femur gives an estimated height at the shoulder of 0.62m; this puts it at the taller end of the range of shoulder heights for dogs from late Iron Age Britain as given by Clark (2006, fig. 4.1), and would be comparable to modern breeds such as the Boxer (Clark, K.M. 1995, table 3). The height range for horse is 1.24–1.53m, which is comparable to that of modern ponies.

Evidence of butchery was found on cattle and horse remains. A cattle radius from G1 displays a triangular hole in the centre of the medial facet, which may have been made by a tool. A cattle astragalus and a horse phalanx exhibit cut marks, which may be indicative of filleting (Binford 1981). The remainder display chop marks that are most likely due to dismemberment of the carcass and marrow extraction (Binford 1981). These chop marks may support the conclusion that Romano-British butchers used the cleaver more often than the knife, as suggested by other authors (*e.g.* Seetah 2006, 112), perhaps as a result of a need to reduce the amount of time spent processing each carcass.

Bone burnt both to black (carbonised) and white (calcined) was recovered from twenty-six different deposits. Most contained only a few isolated burnt fragments; however, the southernmost pit in G35 produced a particularly high concentration, accounting for 29.9% of the burnt material from this phase.

Molluscs
Alan Pipe

The assemblage provides a moderately abundant terrestrial group, largely derived from species known to be common throughout lowland southern Britain, particularly in base-rich areas. Although essentially derived from four species, *Vallonia pulchella*, *Columella edentula*, *Vertigo pygmaea* and *Zonitoides nitidus*, the core of the assemblage is provided by smooth (or beautiful) grass snail *V. pulchella*, which is very much to be expected in moist, base-rich grassland. The amphibious shiny glass snail *Z. nitidus* was recovered from ditches G11 and G24 in the western half of the site; this probably indicates grassland liable to flooding, rather than long-term standing or flowing water. The recovery of two freshwater species from G24, the button (or white-lipped) ram's-horn snail *Anisus leucostoma* and the dwarf pond snail *Lymnaea truncatula*, supports the theory that the ditch periodically held standing water on a temporary basis.

Plants
John Giorgi

The nine analysed samples produced 435 quantified charred items. This material consists mainly of cereal grains (72%), with smaller amounts of chaff fragments (11%) and wild plant/weed seeds (18%). The cereal grains are poorly preserved; 52% of the grains could not be identified, while all the productive flots contain varying amounts of very fragmented and unquantifiable grain (smaller than 2mm). Wheat grains (*Triticum* spp.) account for 85% of those that are identifiable, and are present in eight of the nine samples. Almost half belong to free-threshing wheat (*T. aestivum*), while there are just seven hulled wheat grains of emmer/spelt (*T. dicoccum/spelta*), one of which was tentatively identified as emmer. The presence of hulled wheat in Phase 2, however, is confirmed by the chaff fragments, which consist almost entirely of wheat glume bases and rachis fragments, much of which was identified as spelt. Only one glume base of emmer was identified, although a large number of wheat glume bases remain unidentifiable. Other identified cereals in Phase 2 are represented by much smaller amounts of material, with only twelve barley (*Hordeum* spp.) grains (including hulled examples *H. vulgare* L.),

	Element	Cattle or Large Mammal						Sheep/Goat						Pig					
		Phase 2		Phase 3		Phase 4		Phase 2		Phase 3		Phase 4		Phase 2		Phase 3		Phase 4	
		U	F	U	F	U	F	U	F	U	F	U	F	U	F	U	F	U	F
Early-rising	Humerus, distal	2	2		3				1					1				1	
	Scapula, distal	1			3									3	1				
	Radius, proximal	4	7		5		1		1					1					
	Acetabulum				1				1		1			1					
	Metapodium, proximal		10		10		1				1		1						
	Phalanx 1, proximal		6		2	5		1	2			2	2						
	Phalanx 2, proximal	1	2		1	3	2	1	2							1			
Middle-fusing	Tibia, distal		5	1	5				2						1				
	Calcaneum, proximal		1	3				1		1								1	
	Metapodium, distal		11	2	10	13	3	1		2				1	1				
Late-fusing	Humerus, proximal			1															
	Radius, distal		3	1	2									1		1			
	Ulna, proximal	3	2											1					
	Femur, proximal	1	2	1	1														
	Femur, distal	1	1		1														
	Tibia, proximal	3	2		1											1			
	Vertebral centrum	54		4	1	4													

U: unfused; F: fused

Table 4: Total number of fused and unfused skeletal elements by species (after Reitz and Wing 1999, table 3.5)

In cattle, fusion is believed to be complete for the distal scapula at 7–10 months, and for other early-fusing elements at 12–24 months. Fusion of middle-fusing elements is complete at 24–30 months; fusion of late-fusing elements is mostly complete at 42–48 months, with the vertebral centrum amongst the last to fuse at 84–108 months. For sheep/goats, the proximal phalanges typically fuse at 6–16 months, and the acetabulum at 6–10 months. Distal metapodia, on the other hand, are completely fused at 18–28 months, and the proximal calcaneum at 30–36 months. For pigs, fusion of early-fusing elements is complete by 12 months, whereas fusion of the proximal calcaneum is complete at 24–30 months, and fusion of the distal radius and proximal ulna at 36–42 months.

plus eleven oat grains (*Avena* spp.) and a few awn fragments.

Seventy-seven charred wild plant/weed seeds were recovered, with a moderate range of species represented, including a number of characteristic arable weeds. There is good representation of docks (*Rumex* sp(p).), stinking chamomile (*Anthemis cotula* L.), leguminous seeds and grasses (Poaceae indet.), including brome (*Bromus* sp(p).).

The only feature that contained a substantial concentration of charred plant items was the eastern pit in G39, which produced just over 200 items (10.3 per litre of processed soil). The assemblage is indicative of a virtually cleaned crop of free-threshing wheat, which may have become accidentally burnt while being dried before storage or milling, or while being cooked over open fires. Free-threshing wheat is rarely found in pre-Saxon deposits, and its presence in the upper fill of this pit suggests that the feature did not become fully infilled until Phase 3.

Charcoal
Dana Challinor

Seven taxa were positively identified: *Quercus* sp. (oak); *Corylus avellana* (hazel); *Populus/Salix* (poplar/willow); *Prunus* sp. (cherry/blackthorn); Maloideae (hawthorn, apple, pear, service); *Acer campestre* (field maple); and *Fraxinus excelsior* (ash). Incomplete round-wood fragments are present in several of the samples. The charcoal is likely to represent spent fuel-wood debris, which was either dumped deliberately or, in the case of samples with only a few fragments, was blown in by the wind.

Phase 3: mid-Roman to mid-Saxon

Few of the features at Hill Field could confidently be assigned to Phase 3. It is unclear how much this is due to a genuine decline in activity, and how much it is a factor of the imprecise nature of much of the ceramic dating evidence: the majority of the Roman pottery cannot be closely dated. However, most of what can be closely dated belongs to the first half of the Roman period, with little late Roman material (Fig. 10); it may be reasonable to adduce a similar ratio within the less closely datable assemblage, supporting the broad picture of a late Roman decline.

The widespread mixing of deposits that occurred across the whole site due to the repeated cleaning-out of ditches has meant that residuality is a particular problem. This may have caused an underrepresentation of activity in Phase 3, with the finds assemblages from late Roman or Saxon features dominated by late Iron Age or early Roman material. It is possible, therefore, that some of the pits and ditches assigned to Phase 2 were in fact created, or at least still existed as significant earthwork hollows, during Phase 3 — the most likely candidate for this is the easternmost pit in G39 (L4), the upper fill of which contained sherds of Saxon pottery and grains of free-threshing wheat, a variety usually found in post-Roman assemblages. Its stratigraphic relationship with the enclosure ditch indicates that it was dug near the end of Phase 2, at least.

Contextual evidence
Of the boundary ditches that were established in Phase 2 (Fig. 2), G24 is the only one that clearly remained open in Phase 3, with several sherds of early Saxon pottery recovered from its upper fill G24.1. However, six large water-holes were dug across the site (G26–30 and G53), with five positioned on the line of the earlier boundary ditches (Fig. 12). Their location seems more than coincidental, and they may well have been fed by the ditches, even if the boundaries were primarily marked by hedgerows by this time. The presence of these water-holes implies that significant numbers of animals were brought to pasture here, making it likely that the layout of the Phase 2 farmstead was essentially retained, in order to facilitate stock control.

Five of the six water-holes (G26–30) lay within the area defined by the Phase 2 farmstead, while the sixth (G53), a re-cut of the Phase 2 water-hole G60, lay to the east. The largest of those within the area of the farmstead were G26 and G29, which were 12.5–14m long, 9.5–11.5m wide and 2.05–2.25m deep (Fig. 13, c and g). G27 and G28 were only slightly smaller in plan (Pl. 3), but their depths of 1.3–1.45m were similar to that of G30, which measured just 5.2m by 4m in plan. In addition, several small pits had been dug either next to water-hole G29 or through its infill; they were all about 1m wide, with no obvious indication of their function.

The composition of the finds assemblage from water-holes G26–30, along with the recovery of spelt wheat from some of them, suggests that they

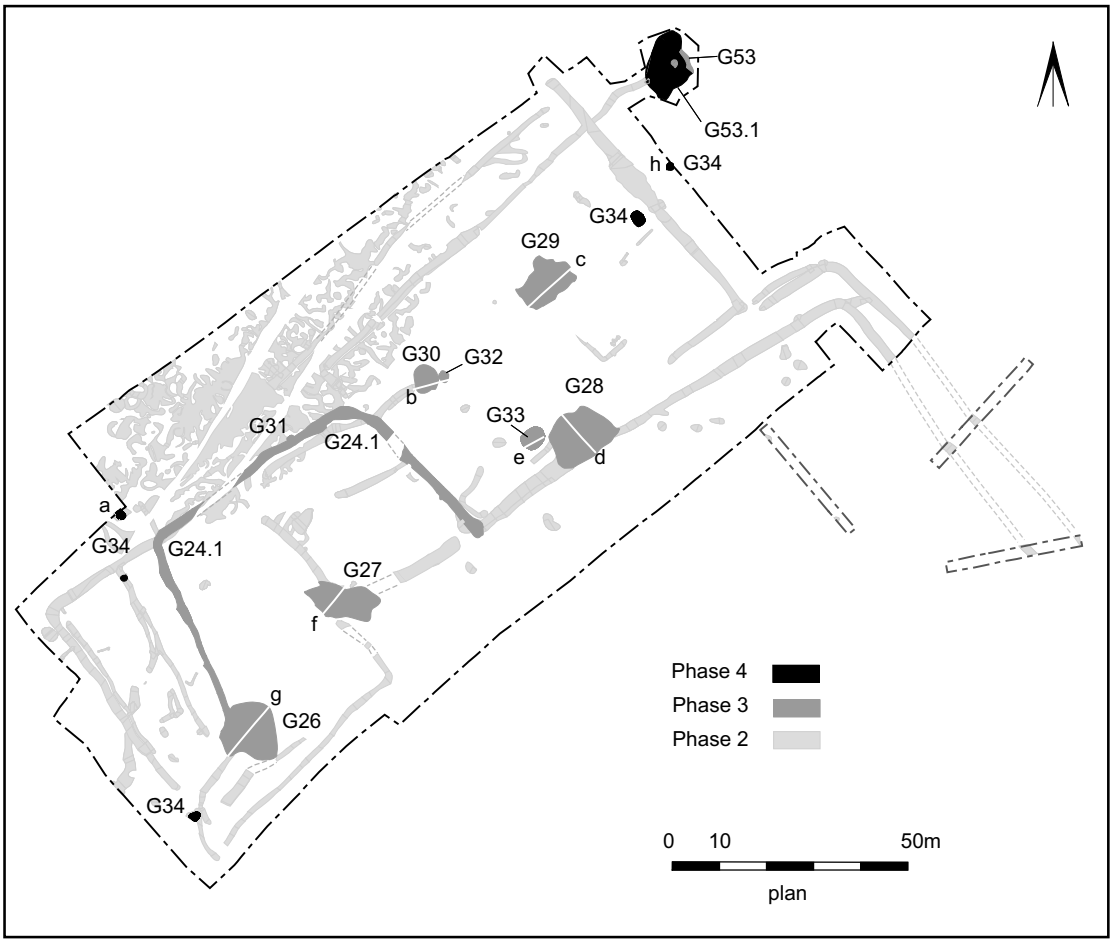


Figure 12: Plan of Phases 3 and 4

were mostly dug in the mid-Roman period, whilst the presence of Saxon pottery in their upper fills is testament to the longevity of their infilling. Some, however, might have been dug earlier in the Roman period; late Roman and Saxon pottery constitutes only a small proportion of the assemblages from G26 and G29 (Table 5), with none from the lower fills, suggesting at least that they became infilled at an earlier date than the others. More Saxon pottery was recovered from G28, yet the volume of late Iron Age material alongside it suggests that this also had an early origin. The relationships between G26/G28 and the surrounding Phase 2 ditches imply a mid- to late Roman construction date, but this may be due to subsequent expansion of two early Roman features. Intriguingly, the potentially earlier water-holes G26, G28 and G29 all had shallow profiles that would have allowed animals direct access to the water, whereas G27 and G30 had steeper profiles that would have prevented this unless the water-holes were full. The molluscan evidence suggests that the water-holes only held standing water on a temporary basis, which implies that people would have had to draw water out of these by hand, perhaps indicating a greater use of water troughs in the latter part of Phase 3.

The sixth water-hole G53, located to the east of the enclosures, was the only one to undergo distinct episodes of re-cutting (Pl. 4). The Phase 2 water-hole G60 was re-cut by [5304], which in turn was re-cut twice during Phase 3, first by [5294] and then by [5213] (Fig. 14; Table 7). Little survived of these re-cuts — all three were heavily truncated by further re-cutting during Phase 4 — though it can at least be said that the third one [5213] appears to have been the deepest, at 2.3m. The dates at which the first two re-cuts of

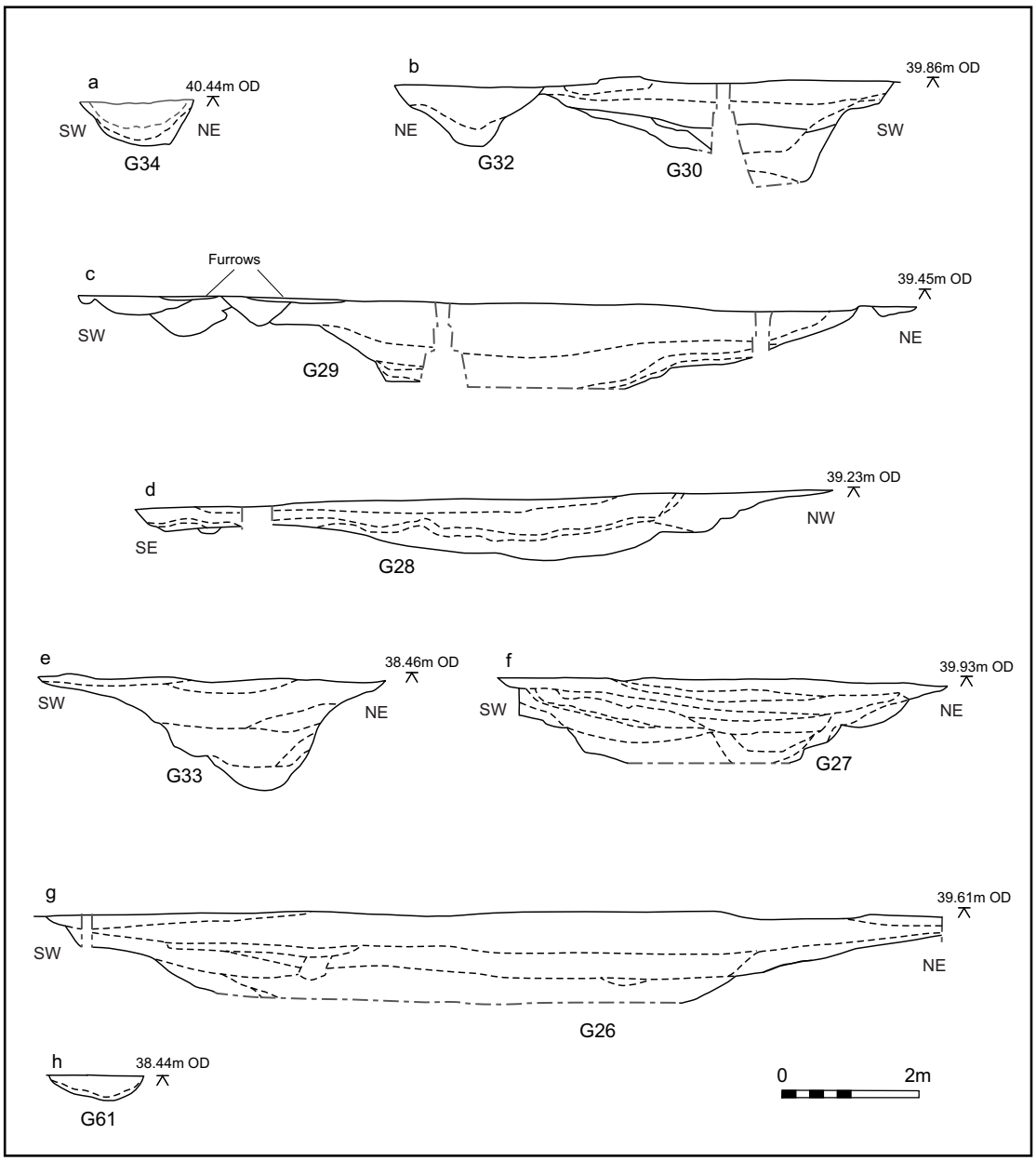


Figure 13: Sections relating to Figure 12

the Phase 2 feature occurred are uncertain, and the earliest [5304] may have occurred in Phase 2. However, we can be more precise about the date of the third re-cut: radiocarbon dating of two fragments of wood recovered from the fill of [5213] date the deposit to the late 6th century. More detailed consideration is given to the dating evidence for this series of features in relation to G53.1, Phase 4.

Whereas the six water-holes all originated in the Roman period, ceramic and stratigraphic evidence points to a Saxon origin for three further pits. One of them may, in fact, have been another water-hole: at 5.1m long, 4m wide and 1.6m deep (Fig. 13, e),



Plate 3: Phase 3 water-hole G28, looking south-east. Scales 1m. The nearby site at Luton Road, Wilstead (Luke and Preece 2010) lay beneath the houses that can be seen in the top left corner.



Plate 4: Excavation of Phase 3 and 4 water-holes and wells G53/53.1

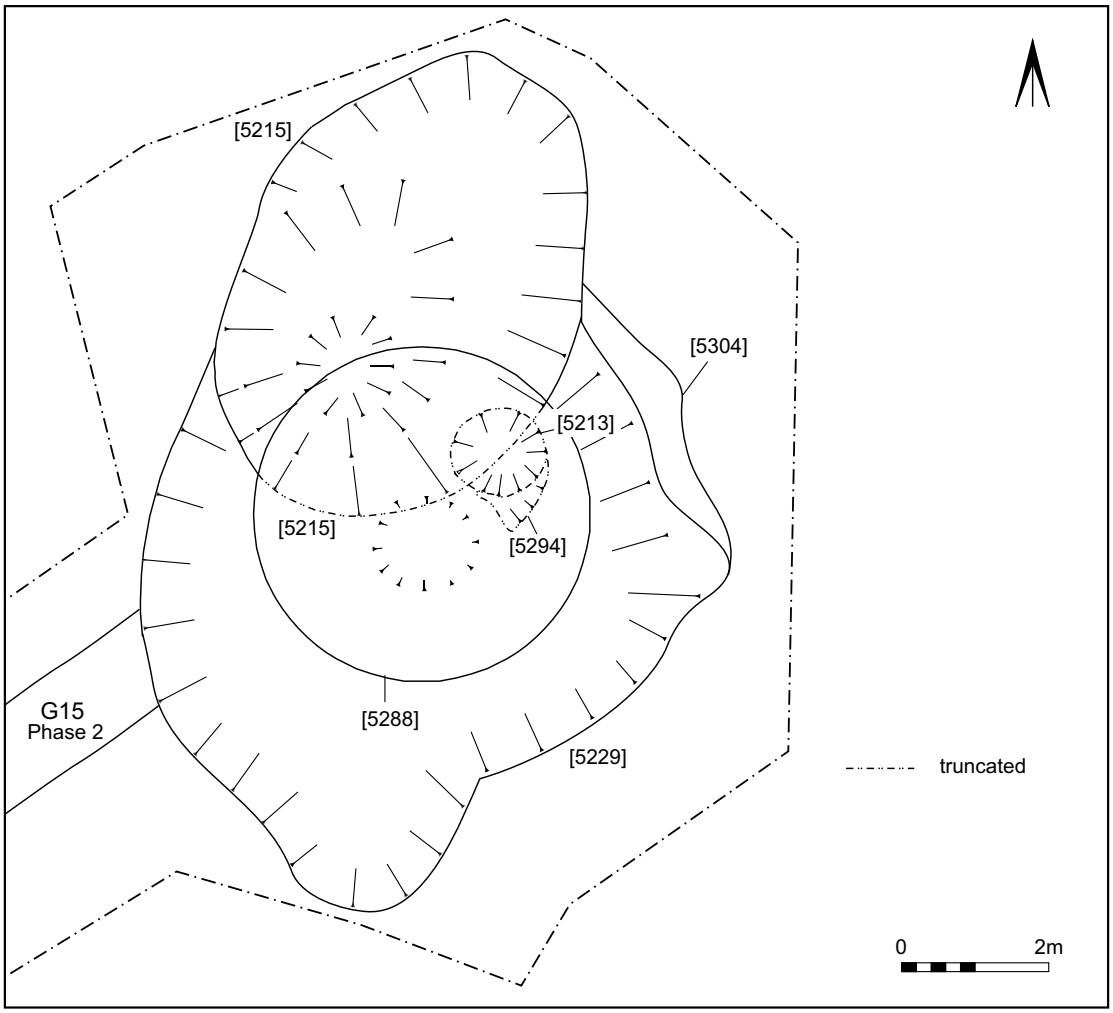


Figure 14: Plan of water-holes and wells G53/53.1

G33 was very similar in size to G30. Its greater regularity in plan and profile, however, suggests that G33 served another function, though it may simply have suffered less from animals' churning the ground around its edge. Pit G32, in contrast, was much smaller (Fig. 13, a), and was more comparable with those from Phase 2. Intriguingly, the third pit G31 was shallow, rectangular in plan, and was accompanied by a post-hole. The two features, dug into the top of ditch G24 once it had fully silted up (Fig. 4, a; Pl. 1), are reminiscent of a sunken-featured building when taken together. The pit was 1.6m wide and 0.25m deep, but its length is uncertain; it appeared to be slightly longer than it was wide, but relationships with other features made it hard to distinguish its outline in plan. The post-hole was 0.5m in diameter and 0.15m deep, and showed signs of burning in its fill. The dimensions are admittedly rather small for a sunken-featured building; however, the pit was different in shape and profile to any of the others excavated at Hill Field, and its association with the post-hole means that this interpretation, albeit unlikely, cannot be completely ruled out.

Non-ceramic artefacts
Holly Duncan and Peter Guest (coins)

In view of the large degree of residuality within the ceramic assemblage, it is likely that the non-ceramic artefacts from Phase 3 features are all similarly residual; the few from Phase 3 deposits that

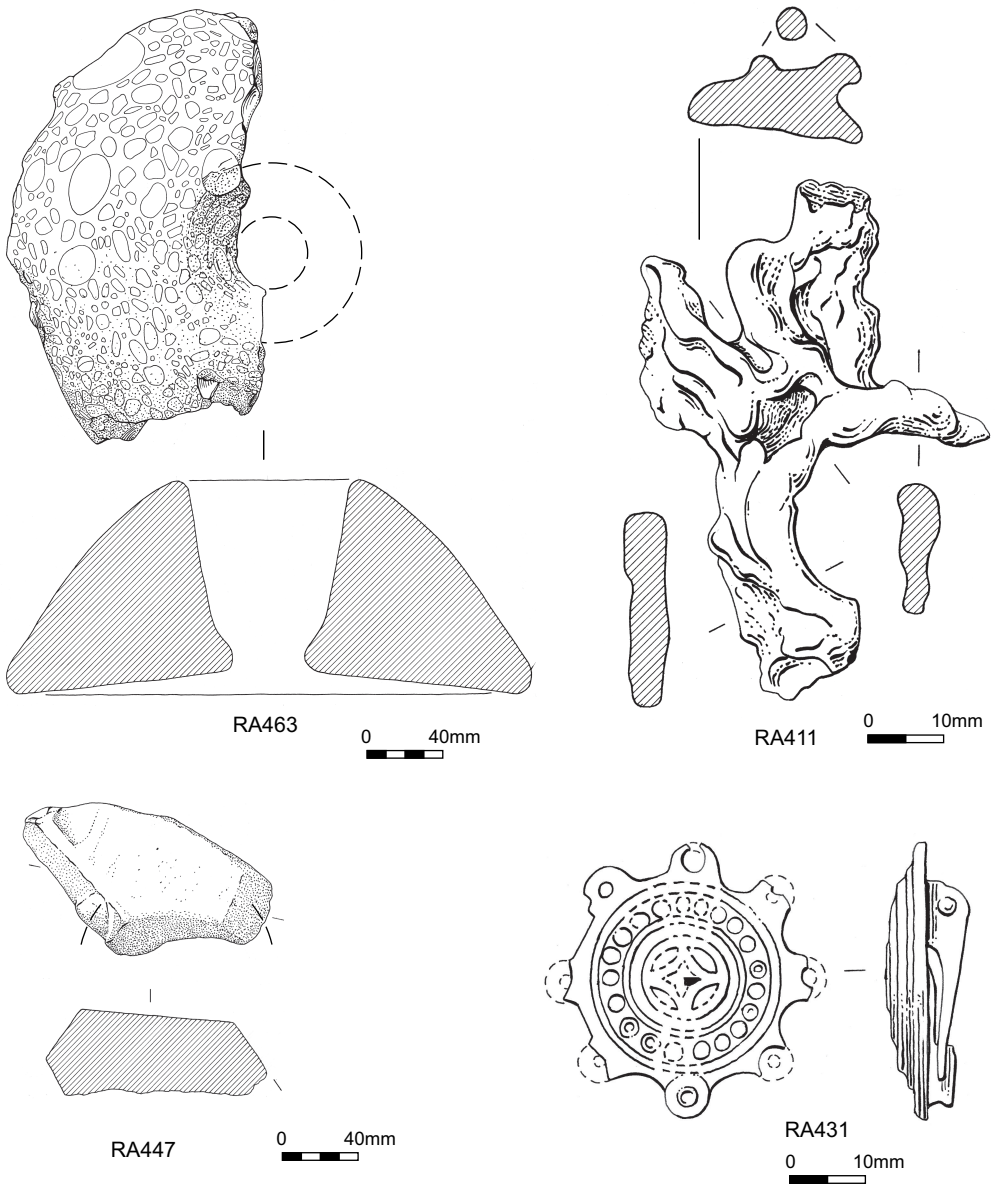


Figure 15: Selected non-ceramic artefacts from Phase 3 deposits

are typologically datable derive from the later 1st or 2nd centuries, with no clear Saxon examples. For this reason, the assemblage appears to offer little elucidation of the site's history during Phase 3, but may offer further insight into the activities that took place during Phase 2.

Eight iron nails, including general purpose nails (Manning type 1B) and a flat-headed tack (Manning type 7; Manning 1985, 134–5), were recovered from a range of features, with no concentrations. An enigmatic lead alloy object (RA411), with four radiating arms emerging from a small central hollow hub, was recovered from water-hole G27; its underside has irregular and unfinished surfaces, suggesting it was not visible when in use. This may have served as jointing or caulking for a structural fitting on a building or perhaps a gate. Six other fragments of lead were

recovered: a small piece of folded lead alloy sheet from the same feature; and five fragments from water-hole G29.

Three fragments of quern were found. One (RA463) from water-hole G26 is the upper stone from a bun-shaped rotary quern of Hertfordshire Puddingstone, a type that was used in the 1st to mid-2nd centuries AD; another example was recovered from a Phase 2 deposit in the eastern enclosure. The other two fragments, both flat rather than bun-shaped, were from water-holes G28 and G29, and are made of millstone grit, probably from the Pennine regions (King 1986, 86) — a pattern noted on other sites in Bedfordshire (King 1986, 114; Cool in prep.). Flat rotary querns were introduced following the Roman conquest, probably by the late 1st century AD (Welfare 1985, 157). Two possible millstone fragments were also tentatively identified, both from G29. One is a fragment of an upper stone retaining about a third of the central feeder/hopper, which has an estimated diameter of 120mm. The diameter of the feeder seems too large to have served on a hand quern, hence the suggested identification as a millstone. The second millstone (RA447) is more tentatively identified; it comprises a portion of the central feeder (estimated diameter 140mm) and what appear to be parts of two rynd sockets, both incomplete. A survey carried out by King in the 1990s produced evidence for 170 Roman sites in Britain where millstones larger than 600mm in diameter, and therefore probably power-driven, have been found, with a significant number on rural sites (Watts 2002, 58). The presence of millstones would suggest that grain processing may have formed an important part of the economy.

Water-hole G27 contained the head from a Colchester B brooch, dating to the second half of the 1st century AD, (Crummy 1983, 12; Olivier 1988, 46). A 2nd-century enamelled disc brooch with peripheral lugs (RA431) was found in water-hole G29; Johns (1996, 171) comments that these often gaudily coloured brooches were intended less for use than ornament, which may suggest a modicum of disposable wealth. Its nearly complete state potentially suggests deliberate deposition, perhaps as a votive offering in a water feature; three 2nd-century coins were also recovered from the surface of G29. The deposition of these four items was perhaps intended to mark the end of use of the water-hole; the coins' presence may be an example of their being exchanged as votive offerings rather than as money (Guest 2008, 135–48; Guest 2009, 113). G29 also contained an antler tine offcut, one of the few indications of craft activity within the assemblage.

Catalogue of illustrated items (Fig. 15)

RA463: Quern. Hertfordshire Puddingstone. About one third of an upper bun-shaped rotary quern stone with central tapering feeder, rounded V-shaped in section. Worn, slightly convex grinding surface. Finely made. Estimated diameter 280mm; thickness 100mm. G26.

RA411: Uncertain. Lead. Caulking? In elevation it has four radiating arms with central hollow hub. Each 'arm' has an irregular flat cross-section. Possibly caulking for iron tie or pintle? Length 57mm; 36.8mm; maximum height of arm 28mm. G27.

RA447: Millstone? Fine-grained micaeous sandstone. Possible portion of a runner stone, retaining a portion of the central hole, estimated diameter *c*. 140mm, with remains of two rynd sockets(?), both having only one edge surviving. The grinding surface is somewhat worn. The upper face of the stone does not survive. Maximum thickness 57mm. Identification very tentative. G29.

RA431: Brooch. Copper alloy (tinned?). Flat, enamelled disc brooch with eight peripheral lugs, indented presumably to take enamel. Only one lug complete, others survive as stubs. The disc appears to be tinned. Two concentric circles form a 4mm wide border which has a series of up to nineteen small rings within it (possibly enamelled originally). A raised ridge demarcates a central circular zone which encircles a lozenge-shaped compartment still retaining blue enamel. Hinged pin and catch plate survive. Diameter including lugs, 36mm. G29.

Pottery

Jackie Wells and Felicity Wild (samian)

Features assigned to Phase 3 yielded 1,769 sherds (24.9kg), representing 1,185 vessels. The sherds are moderately abraded and survive in fair condition, with an average weight of 14g and a vessel to sherd ratio of 1:4. A degree of residuality is evident, with all features except G31 containing late Iron Age/early Roman pottery (Table 5); however, the similar condition of this material makes it difficult to determine the full extent of the residuality. More than two-thirds of the assemblage (by weight) was recovered from water-holes G26–29, 35% of it coming from G29, including a 2nd-century stamped olive oil amphora handle (Fig. 16, P10). Pit G32 was the only feature in which Saxon pottery formed the majority.

Roman

The Roman pottery assemblage comprises 1,258 sherds (17.9kg), representing 838 vessels, and is broadly datable to the 2nd–4th centuries. While

	Pottery Date				
Features	**Late Iron Age / early Roman**	**Roman**	**Saxon**	**Saxo-Norman**	**Total**
G24.1	2,454	3,779	108	5	6,346
G26	195	1,671	15		1,881
G27	92	3,090	87	1	3,270
G28	1,372	1,503	178		3,052
G29	1,618	7,009	202		8,829
G30	38	526	320		884
G31		175	7	2	184
G32	9	136	251		396
G33	7	82	11		100
Total	5,785	17,971	1,179	8	24,942

Table 5: Phase 3 pottery quantification, by weight (g)

similar in composition to the Phase 2 material, the pottery includes a greater quantity of later Roman types.

The assemblage contains a wide range of fabric types, mostly of local origin. As in Phase 2, shelly ware R13 dominates, constituting 44% (by weight), followed by sand-tempered grey wares R06C and R06B, which total 16% and 10% respectively (pottery in the generic grey ware group R06 constitutes 36% of the total assemblage). Smaller quantities of reduced (R07B/C, R14) and oxidised (R05A/B, R10A/B) sand-tempered wares, alongside regional and continental imports, constitute the remainder of the assemblage. Imports, although poorly represented in terms of quantity, occur in a diverse range of fabric types. Regional imports constitute 6% of the assemblage, Nene Valley grey wares (R06A) dominate, supplemented by white wares from the Verulamium (St Albans) industries (R03A–C, R18, R33); pink grogged vessels from either Caldecotte, Bucks or Towcester, Northants; Nene Valley colour-coated wares (R12B); and small quantities of material from the Hadham (R22) and Oxfordshire (R11, R11D) industries, the latter including colour-coated and white wares. Continental imports account for 3%, and comprise samian ware, plus two sherds of amphora (R19A) from the Roman province of Baetica in southern Spain.

The diagnostic element of the assemblage is dominated by jars of varying sizes, which account for 55%, and mostly measure 120–260mm in diameter. Two large storage vessels have diameters in excess of 300mm. Jars are narrow-necked or neckless, and have plain everted, undercut, triangular or bead rims. A small number of lid-seated vessels occur exclusively in shelly fabric R13. Bowls and dishes respectively constitute 17% and 9% of the assemblage and measure 200–300mm in diameter, although in contrast with the Phase 2 pottery, sand-tempered bowls are the largest examples. Bowls have plain everted, flanged, bead, triangular or reeded rims. Mortaria are entirely absent. Decoration is again rare, comprising combing, rilling, rouletting, burnishing and incised diagonal motifs; one grey ware body sherd has stamped decoration (Fig. 16, P6). Sooting occurs predominantly on shell-tempered vessels, suggesting a preference for them as cooking vessels. One shelly vessel has post-firing holes drilled in the base and lower body.

Less prevalent vessel forms are folded beakers, plain- and ring-necked flagons, strainers, and amphorae. One of the latter is a stamped handle fragment from a Dressel 20 form (Fig. 16, P10). The stamp is probably part of a Callender n° 1573, SAX[VM FERREVM] (Callender 1965, 242 and fig. 16, nos. 24, 27–9 and 31–2), dated to *c*. AD 110–160 (R. Symonds, pers. comm.).

Samian ware (thirty-two sherds) is predominantly of Hadrianic to Antonine date and of central Gaulish origin, with two joining sherds from east Gaul, and two late 1st–early 2nd-century sherds which may be south Gaulish. Central Gaulish forms are a conical cup (form 33), dish (Curle 23), globular enclosed form (flagon or beaker), and bowls (forms 18/31 or 31 and form 31R). One of the latter is burnt, and has a swallowtail rivet slot. East Gaulish samian (probably from Rheinzabern) comprises two joining sherds from the base of a very thick dish with a step externally at the junction of the wall and floor, and a circle of crude rouletting on the interior, above the foot-ring. The form is a variant of Ludowici TgR, Tg and Tx (Oswald and Pryce 1920, pl. LX) dish and cup set.

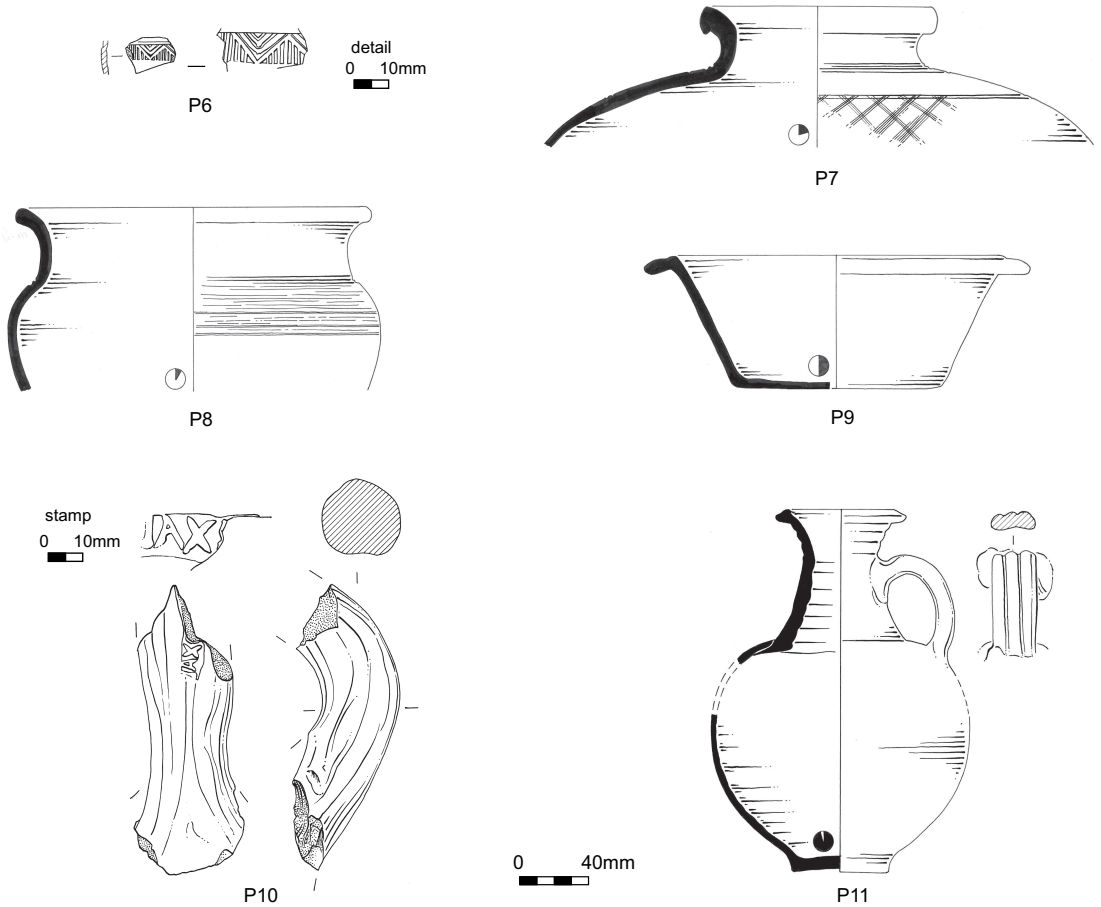


Figure 16: Selected pottery from Phase 3 deposits

G No.	Illustration No.	Ware	Comments
24.1	P6	R06C	stamped body sherd II\V/II
27	P7	R06C	burnished exterior; fire mark
27	P8	R06A	incised diagonal linear
27	P9	R06I	
28	P10	F06B	D1-4; wide-mouthed bowl; external soot; repair hole in neck
29	P11	R19A	stamped handle [-SAX-]; fine buff micaceous
29	P12	R18B	

Table 6: Illustrated pottery from Phase 3 deposits

The dish, Tg (Oswald and Pryce 1920, pl. LX, 1), shows the external step, but the junction of wall and floor here is more angular, as on the cup forms Ludowici. Ob and Tx (Oswald and Pryce 1920, pl. LX, 7, 8). The rouletted circle is sometimes present on the dish form, as here. The forms date to the late 2nd century and into the 3rd.

Saxon

Early to middle Saxon pottery (*c*. AD 450–850) constitutes approximately 5% of the assemblage from Phase 3. A total of 113 sherds (1.2kg) were recovered, representing seventy vessels. The pottery comprises hard-fired, undecorated wares in a range of quartz- (A16, A18, A26, A32), sandstone-

	G No.	Feature	Radiocarbon dates	Datable artefacts
Earliest	60	[5280]		
	53	[5304]		• 1 fragment Roman CBM
	53	[5294]		
	53	[5213]	Cal AD 460–650 / Cal AD 420–650	
	53.1	[5229]	Cal AD 690–970 / Cal AD 980–1170	
	53.1	[5215]		• AD 11th-century leather shoe RA466 • 2 sherds Roman pottery • 11 sherds Saxo-Norman pottery • 2 fragments Roman or Saxon/Saxo-Norman quern • 2 sherds medieval pottery
	53.1	[5288]		• 1 sherd Saxo-Norman pottery
Latest	53.1	Lining of [5288]	Cal AD 780–1020 / Cal AD 720–1030	

Cal: Calibrated radiocarbon date (95% confidence)

Table 7: Stratigraphic sequence and dating evidence for water-holes and wells G60/G53/G53.1

(A23), oolitic- (A24) and organic-rich fabrics (A01, A19), likely to be of local origin. A single sherd containing Mountsorrel granite from the vicinity of Charnwood Forest, Leicestershire was also identified (A25). Diagnostic forms constitute jars and bowls with either simple upright or everted rims. No bases survive. One sherd is decorated with a horizontal groove and finger impressions. The surfaces of most sherds are untreated apart from simple hand-wiping, although several are burnished.

Ceramic building material
Jackie Wells

Fourteen fragments of Roman brick and tile (1.3kg) in mostly shell-tempered fabric types were recovered, the majority from water-holes G28 and G29. The pieces have an average weight of 94g, and are generally water-worn and abraded. Diagnostic material comprises portions of eleven *tegulae*, and single fragments of brick and combed flue tile. The *tegulae* are 17–25mm thick, and one has a complete flange.

The fired clay assemblage, virtually all of it in an oxidised organic- and sand-tempered fabric, weighs 2.3kg, and derives mainly from water-hole G29. It includes portions of approximately eight handmade slabs of fired clay, which are 20–25mm thick and have finger-smoothed surfaces and edges. Pieces include fragments of perforated slabs or plates, which may have derived from ovens or similar structures; their recovery from water-hole G29 is the result of secondary deposition.

Animal bone
Stephanie Vann

Phase 3 deposits yielded an assemblage of 1,009 fragments of animal bone (including 126 recovered from soil samples), 768 of which could not be identified. A small part of the assemblage was burnt, but this material was spread widely across the site, with no concentrations.

The assemblage is dominated by the three major domestic species, cattle, sheep/goat, and pig (Fig. 11). Horse and dog are present, but in much lower numbers; however, thirty instances of canid gnawing also support the presence of dogs during this period. Bird, probably domestic fowl, is represented by a single bone. The infrequency of wild species such as red deer suggests that they were utilised only intermittently for meat and skins; deer bones are also relatively rare at other early Saxon sites such as West Stow, Suffolk, suggesting that hunting played only a limited role in subsistence patterns of the time (Crabtree 1989, 208).

Nineteen elements from the Phase 3 assemblage have unfused epiphyses; they derive from pig, sheep/goat, cattle, or large mammals comparable in size to cattle. The skeletal maturity data for cattle thus indicate the presence of sub-adult individuals, with several under two years of age at the

time of death, although others were potentially up to seven years old or more (Table 4). The data for sheep/goats indicate the presence of sub-adult to adult animals; there is no evidence for juveniles amongst the fusion data, even though their presence is attested by the tooth wear data from a single mandible. Pigs less than one year old were present, although there is also evidence from the skeletal maturity and tooth wear data for adult animals.

Biometric data was retrieved from twenty-one elements of the assemblage. Of these, four cattle bones permitted the calculation of the height at the withers, giving a range of 1.11–1.18m that is broadly comparable with the range from the late Iron Age to mid-Roman deposits.

Evidence of butchery was found on the remains of cattle, and on other large mammals of similar size. These cut and chop marks are most likely due to dismemberment of the carcass and marrow extraction (Binford 1981). The chop marks indicate the continued use of the cleaver, previously noted in the Phase 2 assemblage.

Molluscs
Alan Pipe

The molluscan assemblage is dominated numerically by freshwater snails, in particular the truly aquatic species, the button (or white-lipped) ram's-horn snail *Anisus leucostoma*; this occurred as thousands of juveniles and adults, particularly in water-hole G26. The only two shells in the whole assemblage of a ubiquitous aquatic species, common (or wandering) pond snail *Lymnaea peregra*, were also recovered from G26, while the dwarf pond snail *L. truncatula* was recovered in greater numbers, predominantly from the water-holes but also from ditch fill G24.1. All three freshwater species have the ability to tolerate seasonal desiccation, although this is particularly marked in *A. leucostoma* and *L. truncatula*. This, together with the absence of other aquatic species, including those known as their ecological associates — moss bladder snail *Aplexa hypnorum*, marsh pond snail *L. palustris* and the pea shell *Pisidium personatum* — may suggest that the water-holes did not contain permanent standing water, and were prone to some degree of seasonal desiccation.

The terrestrial assemblage comprises a snail group largely derived from species known to be common throughout lowland southern Britain, particularly in base-rich areas. The bulk of the assemblage comprises smooth (or beautiful) grass snail *Vallonia pulchella*, which is very much to be expected in moist, base-rich grassland; moderate numbers of *Columella edentula* were also recovered, with only occasional representation of *V. excentrica* and *Vertigo pygmaea*.

Plants
John Giorgi

The eleven analysed samples produced a total of 228 quantified charred items, consisting mainly of cereal remains: chaff fragments account for 56%; grains for 27%; and wild plant/weed seeds for 17%. The three samples from 6th-century water-hole [5213] (G53) yielded an almost entirely waterlogged assemblage; uncharred seeds were also recovered from a number of other features, but these are likely to be intrusive in all but water-holes G26 and G27, where they occurred in larger numbers.

Despite almost 70% of the cereal grains' being unidentifiable, fifteen wheat grains were positively identified, including a small number that represent hulled wheat, both emmer and spelt, and several free-threshing wheat grains. The presence of hulled wheat is confirmed by the 128 chaff fragments, mainly from spelt, with just one emmer glume base identified. Three barley grains (including one hulled grain) were also recovered, together with a single grain of oat. The thirty-nine charred wild plant/weed seeds that were identified represent a modest range of plants including scentless mayweed (*Tripleurospermum inodorum*), docks and stinking chamomile, plus leguminous seeds and grasses including brome and rye grass/fescue (*Lolium/Festuca* sp.). A charred fruit stone of sloe/blackthorn (*Prunus spinosa*) was found in water-hole G27.

The vast majority (92%) of the quantified charred remains from Phase 3 came from water-hole G29, albeit at an item density of only 3.5 per litre. Cereal remains make up the bulk of the 209 items, mainly chaff fragments (60%) and grains (23%); hulled wheat can be identified — primarily spelt, but including emmer — while the presence of barley is probable. There are also thirty-six charred wild plant/weed seeds. The bulk of these remains are from the de-husking of hulled wheat before storage or use; the chaff was often used as tinder, along with the weed seeds from crop-processing. The grains may have accidentally been

		Sample	486	485	484	476	475	473	474	472	471	470	469	468	467	466	465
		Phase	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4
		Group	53	53	53	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1
		Feature	5213	5213	5213	5288	5288	5288	5288	5288	5288	5215	5215	5215	5215	5215	5215
		Vol. processed (l)	10	10	10	20	5	5	10	5	5	20	5	5	5	5	5
		Vol. flot (ml)	8	5	5	30	25	110	50	30	40	5	2	8	5	8	4
Chara spp	stoneworts		++++	++++	+++	+++	+++	++	++	+++	++	+	+	+		+	+
Ranunculus acris/repens/bulbosus	buttercups		+	+			+	+	+	+	+						
R. subgen. *Batrachium* (DC) A Gray	crowfoots		+++	++++	++++	+	+	++	+++	+++	++++			+		++	+
Fumaria sp.	fumitory		+														
Urtica dioica L.	stinging nettle			++	+	++	++	++	+++	+++	+++	+	+	++	+++	++	++
U. urens L.	small nettle									+							
Corylus avellana L.	hazel nut shell								+								
Chenopodium spp.	goosefoot *etc*.		++	++	++	+	++	++	++++	+++	+++			+		++	+
Chenopodium album L.	fat hen			+		++	+	++	++	++	++					+	
C. rubrum/glaucum	red/glaucous goosefoot		++	+++	++		++	+	+++	+++	++					+	+
Atriplex spp.	orache		++	++	++	+	+	++	++++	+++	++			+	+	+	
Stellaria media (L.) Vill.	common chickweed								+			+		+	+	+	
Polygonum aviculare L.	knotgrass		+	+		+	+	++	++	++	++	+	+	+	+	+	
Rumex acetosella L.	sheep's sorrel			+													
Rumex crispus	dock tepals								+	+							
Rumex spp.	dock tepals								++	++	+						
Rumex spp.	dock		+	++	+	++	++	+++	++++	+++	+++			+	+		
Coronopus squamatus (Forssk.) Asch.	swine-cress		+	+	+				++	+	++				+		
Reseda luteola L.	dyer's rocket									+							
Rubus fruticosus/idaeus	blackberry/raspberry					+	+		+	+							
Potentilla spp.	cinquefoils								+								
Prunus spinosa L.	sloe/blackthorn					+			+								
Prunus spp	shell fragments																+
Rosaceae														+			
Linum cartaticum L.	fairy flax					+				+							
Conium maculatum L.	hemlock													+		+	+
Aethusa cynapium L.	fool's parsley					+	+	+	+	+							
Apiaceae indet.	-					+					+						
Apium spp.	marshworts															+	
Hyoscyamus niger L.	henbane								+					+		+	+
Solanum nigrum L.	black nightshade					+				+						+	
Mentha spp.	mints													+			
Anthemis cotula L.	stinking chamomile					+		+	++	++	++	+		+	+	+	

Chrysanthemum segetum L.	corn marigold				+											
Torilis spp.	hedge-parsleys				+	+	+		+							
Daucus carota L.	carrot			+	+		+	+	+							
Galeopsis tetrahit L.	common hemp nettle									+						
Lamaiceae indet.								+								
Plantago major L.	greater plantain									+						
Carduus/Cirsium spp.	thistles	+	+		++	+	+	+	++	++			+		+	
Alisma spp.	water-plantain	+														
Lapsana communis L.	nipplewort				+	++	+	+	+							
Leontodon spp.	hawkbit							+	+							
Sonchus asper (L.) Hill	spiny milk-/sow-thistle				+		++	+	+							
Sonchus spp.	milk-/sow-thistle				+		+	+	++	+						
Bidens cernua L.	nodding bur-marigold							+								
Bidens spp.	bur-marigolds						+	++								
Potamogeton spp.	pondweeds	+	++													
Zannichellia palustris L.	horned pondweed		+					+								
Lemna spp.	duckweed	++++	+++	++	+	+	+	+	++	++++			++		++	+
Juncus spp.	rushes	++	++	++	+	+		++	++	++	+	+			+	++
Eleocharis palustris/uniglumis	spike-rush	+	+							+						
Carex spp.	sedge	+	+			+	+	+	+	+	+	+	+			+
Cypercaeae indet.	sedges *etc*.						+									
Poaceae indet.	grasses		+	+	+	++	+	+	+	++		+		+	+	
indeterminate	-	+	+	+	+	+	+	+	+		+	+	+	+	+	+
indeterminate	bud fragments							+						+		
indeterminate	thorn fragments		+		+		+						+			
indeterminate	wood	+++	+++	++++	++++	++++	++++	++++	++++	++++	+++	+++	+++	+++	+++	+++
Bryophyta indet.	moss	+		+	+++	++++	++	+++	+++			+	++	++	+++	+

Key: + = 1–10 items; ++ = 11–50 items; +++ = 51– 250 items; ++++ = >250 items

Table 8: The waterlogged plant remains from G53/G53.1

burned during de-husking, or during other crop-processing or food preparation activities.

The waterlogged assemblage from water-hole [5213] (G53) is dominated by the remains of aquatic plants (Table 8): stoneworts (*Chara* spp.), which are freshwater algae; duckweeds (*Lemna* spp.), floating aquatic species very common in still and stagnant water; and crowfoots (*Ranunculus* subgen. *Batrachium*). Rushes (*Juncus* spp.) were also identified, along with occasional records of spike-rushes (Eleocharis palustris/uniglumis) and sedges (*Carex* spp.), and moderate seed numbers of another aquatic plant, pondweeds (*Potamogeton* spp.), species of which are submerged either permanently or almost permanently. Two other mainly aquatic plants were also recovered: horned pondweed (*Zannichellia palustris*), which is found in brackish and freshwater habitats; and water plantain (*Alisma* sp.). The remainder of the assemblage comprises a fairly wide range of plants that are mainly from disturbed (including cultivated) ground and waste places, although individual representation of these species is poor. Woodland/hedgerow species are absent.

The assemblage from G53 confirms the presence of standing water within the water-hole, albeit on a temporary or seasonal basis; this is further supported by the presence of very large amounts of Cladoceran ephippia. The good representation of stoneworts and duckweeds points to eutrophic conditions within the water-hole, which may have developed because of decaying plant matter, or possibly due to the presence of human or animal waste. The better represented disturbed/waste ground plants are indicative of nitrogen-rich soils; this may be a reflection of human or animal activity nearby, with enrichment possibly occurring through the excrement of livestock feeding at the water-hole or by the presence of dung heaps or refuse tips nearby.

The presence of standing (albeit perhaps temporary) bodies of water is also indicated within water-holes G26 and G27. Duckweeds were recovered in large numbers from both, while G26 also contained other aquatic species including crowfoots, horned pondweed, gypsy-wort (*Lycopus europaeus*) and sedges, as well as occasional instances of Cladoceran ephippia. The disturbed/waste ground plants from both indicate similar ground conditions around the water-holes to those surrounding G53.

Charcoal
Dana Challinor

The same seven taxa were positively identified as from the Phase 2 samples, with the addition of *Populus/Salix* (poplar/willow). Incomplete roundwood fragments are present in several of the samples. A large amount of charcoal recovered from water-hole G26 appears to be composed entirely of oak, including some large fragments of slow-grown trunk-wood. The charcoal is likely to represent spent fuel-wood debris, which was either dumped deliberately or, in the case of samples with only a few fragments, was blown in by the wind.

Pollen
Gill Cruise

Pollen samples were taken from water-hole G29 (Fig. 17). The pollen frequencies of trees and tall shrubs are slightly higher (12%) than they are from the Phase 4 wells, but this is probably due to the slightly larger catchment area of the water-hole than that of the wells, giving rise to slightly better representation of wind-pollinated, regionally-derived arboreal taxa (*e.g. Pinus, Salix*). *Pinus* is often over-represented in pollen diagrams, so is not considered to be significant here. A few spores of bracken (*Pteridium*) and a single record of heather (*Calluna*) are most likely to have derived from the heaths of the acid soils of the Greensand Ridge.

Much more locally, *Apium inundatum* t. (lesser marshwort) is a member of the Apiaceae (carrot family) that colonises muddy pond edges. Clumps of both grass pollen (Poaceae) and Chenopodiaceae suggest that these grew around the edges of the water-hole. While some Chenopodiaceae are weeds of nutrient-enriched, disturbed ground, others occur on periodically flooded, nitrogen-enriched, trampled ground at the edges of ponds where stock drink (*e.g.* Rodwell 2000, 321). Polygonaceae (knotweeds) are also frequent in such communities, and in such environments, some grasses may themselves be palatable and attractive to stock (*e.g.* Rodwell 1995, 153); it is possible that the iron-enriched organic matter in the cores from the water-hole G29 may well be relict dung. Other characteristics that are consistent with the presence of dung are the highest pollen concentrations and some of the best pollen preservation from the site, together with records of pasture-type pollen taxa (*Calluna*, *Lotus* t., *Onobrychis* t., *Stellaria* t., *Urtica pilulifera* t.) not

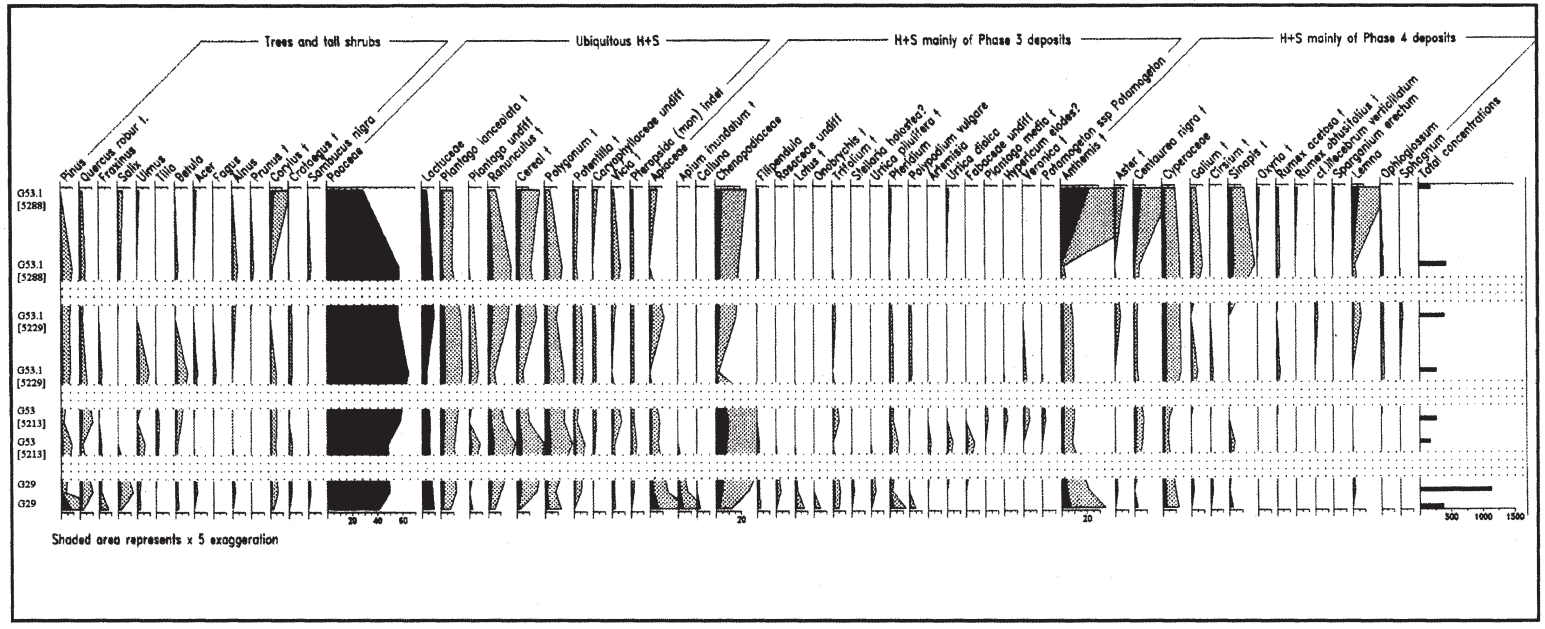


Figure 17: Pollen diagram

Laboratory code	Sample number	Material and context	Radiocarbon Age (BP)	$\delta^{13}C$ (‰)	Calibrated date (95% confidence)	Posterior Density Estimate (95% probability)
Beta-245426	WX1254-5267	*Prunus* sp, sail from well lining in [5288]	1130±60	–28.0	cal AD 720–1030	*cal AD 900–1020*
Beta-245427	WX1254-5277	*Corylus* sp, loose stake lying horizontal in lower part of [5288]	1030±40	–27.2	cal AD 890–1120	*cal AD 880–990*
Beta-245428	WX1254-5278	*Quercus* sp, sail from well lining in [5288]	1110±40	–25.7	cal AD 780–1020	*cal AD 900–1010*
Beta-245429	WX1254-5286	*Corylus* sp, piece from well [5229]	1190±40	–25.4	cal AD 690–970	*cal AD 690–900*
Beta-245430	WX1254-5287	Maloideae, from well [5229]	980±50	–26.6	cal AD 980–1170	
Beta-245431	WX1254-5302	*cf. Salix/Populus* from water-hole [5213]	1480±40	–27.5	cal AD 460–650	*cal AD 530–650*
Beta-245432	WX1254-5303	*Fraxinus* sp, from water-hole [5213]	1510±50	–26.9	cal AD 420–650	*cal AD 460–650*

Table 9: Radiocarbon results

recorded in any of the other samples, but which may derive from the dung of wide-ranging grazing stock.

Phase 4: mid-Saxon to Saxo-Norman

Hill Field remained in agricultural use throughout the later Saxon period into the 11th century, but with a reduced level of evidence for what activity took place there. Although the series of Roman to Saxon water-holes G60/G53 continued to be reworked, the only new features elsewhere that can confidently be dated to this period are five pits G34, two at the eastern end of the site and the other three to the west. Whereas the layout of the enclosures established in the late Iron Age was probably retained to a large extent in the late Roman and Saxon periods, it is unclear whether they were still extant in the late Saxon period, or whether the landscape had reverted to a more open aspect.

Contextual evidence

The sequence of water-holes G60/G53, which had been established during Phase 2 and remained in use throughout Phase 3, continued to be reworked (G53.1) during Phase 4 (Fig. 14; Table 7). Rather than continuing as a water-hole, however, the feature was converted into a well: [5229] was 2.8m deep and had a roughly circular central shaft that was 1m deep and about 2m in diameter. This in turn was re-cut by [5288], which was equally as deep but had a narrower shaft (Pl. 5). A wattle lining was subsequently inserted into [5288], narrowing the diameter of the shaft again (Pl. 6); radiocarbon dating suggests that the lining was inserted in the late 10th century. The dating for the whole sequence in G53/53.1 is discussed below.

A water-pit [5215] was identified as part of the sequence, centred slightly farther to the north and measuring 1m deep. Its precise extent in plan and its relationship with [5229] were unclear, but the pottery recovered from it suggests it was the later of the two. Unfortunately, the features' stratigraphic relationship could not be determined with confidence. The depth of the features meant that some of their upper extent was removed by machine to enable safe hand excavation of their lower halves, as had been done successfully with the other water-holes across the site; however, the complexity of G53/53.1 was not discernible until after the machine excavation, which meant that the features' upper portions had to be devised retrospectively.

Five other pits (G34) were spread across the site, the largest of which was 3.2m long, 2.45m wide and 0.9m deep (Fig. 12; Pl. 7). The other four



Plate 5: Phase 4 wattle-lined well [5288]. Scale 2m



Plate 6: Wattle lining in well [5288]. Scale 0.2m



Plate 7: Easternmost pit in G34, looking south-east. Scale 1m



Plate 8: Cattle skull in Phase 4 pit [4775]. Scale 0.25m

were 1.3–1.9m wide and 1.4–2.4m long, and ranged from 0.25m to 0.65m deep. One of these [4775] (Fig. 13, a) may have been used as a rubbish pit, judging by the relatively large amount of animal bone recovered from it, including a cattle skull (Pl. 8).

Dating sequence for water-holes and wells G53/53.1 (Phases 3–4)
Peter Marshall

The survival of waterlogged wood within water-holes and wells G53/53.1, some of it *in situ*, prompted the selection of seven samples for radiocarbon dating. The results are given in Table 9, along with calibrations relating the radiocarbon measurements directly to calendar dates, and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977). All calibrations have been calculated using the calibration curve of Reimer *et al*. (2004) and the computer program OxCal v4.0.5 (Bronk Ramsey 1995; 1998; 2001; in press). The calibrated date ranges cited in the text are those for 95% confidence. The ranges quoted in italics are posterior density estimates, derived from mathematical modelling of the data. Ranges in plain type in Table 9 have been

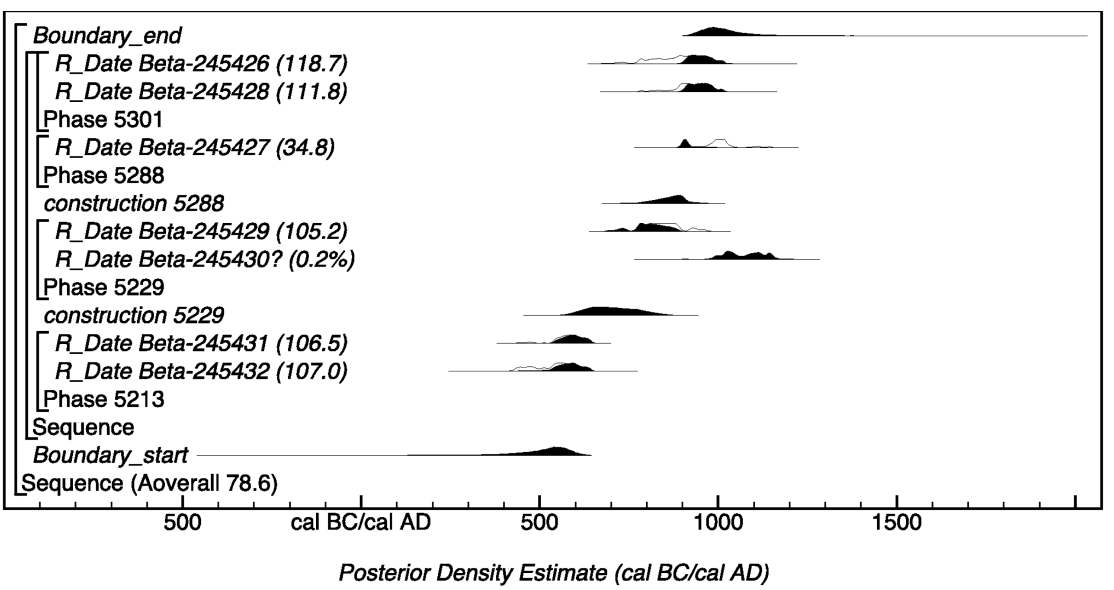


Figure 18: Probability distributions of dates. Two distributions have been plotted: one in outline, from simple radiocarbon calibration; and a solid one, based on the chronological model used. Distributions other than those relating to particular samples correspond to aspects of the model, *e.g*. 'construction 5288' is the estimated date for the construction of well [5288]. A question mark indicates that the result has been excluded from the model. The OxCal keywords and the brackets down the left hand side define the model exactly

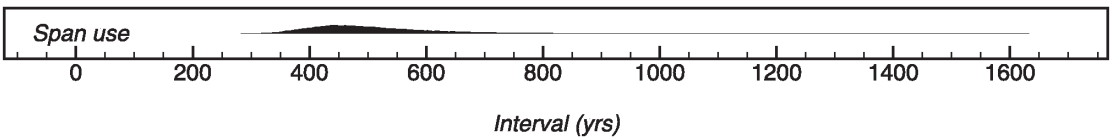


Figure 19: Probability distribution for the combined lifespan of the dated sequence of water-holes and wells in G53/G53.1

calculated according to the maximum intercept method (Stuiver and Reimer 1986); all other ranges are derived from the probability method (Stuiver and Reimer 1993). It should be emphasised that the posterior density estimates produced by this modelling are interpretative estimates and are not absolute: they will change as further data become available, and depend upon the perspective used to model the data.

A Bayesian approach was adopted to interpret the chronology from the wells and water-holes in G53/53.1 (Buck *et al*. 1996). This allowed the absolute dating information from the radiocarbon measurements to be combined with the stratigraphic relationships between the samples, in order to date the archaeological events rather than just the samples. The technique used was a form of Markov Chain Monte Carlo sampling, and was applied using the program OxCal v4.0.5 (http://c14.arch.ox.ac.uk/).

Material was selected from lining 5301 which was inserted in well [5288], since this was demonstrably contemporary with the feature from which it was recovered. Other samples with a less certain taphonomic origin comprised waterlogged wood taken from primary fills. Where possible, duplicate samples from these contexts were submitted to test the assumption that the material was of the same actual age. This allowed the analysis to demonstrate that, whereas the two samples from water-hole [5213] were statistically consistent and could therefore be of the same actual age, the two samples from well [5229] were not statistically consistent. For this reason, sample Beta-245430 from [5229] was excluded from the statistical model shown in Figure 18, since its date clearly showed that it was intrusive within the well.

The model in Figure 18 shows good agreement between the radiocarbon results and stratigraphic information ($A_{overall}$ = 78.6%). It provides an estimate for the construction of well [5229] of cal. AD 580–840 (95% probability) and probably cal. AD 620–780 (68% probability), and for the initial construction of well [5288] of cal. AD 760–960 (95% probability) and probably cal. AD 830–910 (68% probability). The span of use of the radiocarbon-dated features is estimated to be 320–770 years (95% probability; Fig. 19) and probably 380–580 years (68% probability); this is in addition to the three earlier phases of water-hole at the start of the sequence.

Non-ceramic artefacts

Holly Duncan and Quita Mould (leather)

Metalwork from the Phase 4 deposits is restricted to a group of up to eight nails (four with flat heads and four shank fragments) from the smallest pit in G34, plus a shoeing nail from the easternmost one. The shoeing nail has a T-shaped head, a type thought to represent very worn examples of 'fiddle-key' nails, dating to the 10th and 11th centuries (Ottaway 1992, 707; Clark, J. 1995, 85).

Four small, degraded fragments of lava (total weight 56.2g) were recovered from water-hole [5215] (G53.1); none retain diagnostic features, but it is presumed they originally derived from a quern. The importation of lava querns in this region began *c*. AD 50 and continued into the 17th century, but with an apparent hiatus in the earlier Saxon period, importation recommencing in the 8th century (King 1986, 95). Due to the condition of the lava fragments, it is impossible to say whether they represent Roman or late Saxon/Saxo-Norman querns.

At least fourteen small fragments of delaminated bovine leather were recovered from well [5288]; the fragments lack any diagnostic features, but the thickness and wear suggest they were broken from a shoe upper. Adjacent water-hole [5215] also yielded part of an upper that had deliberately been cut away from a heavily worn shoe of sheep/goatskin, presumably to salvage any reusable leather before it was thrown away (Fig. 20). This suggests that the community was actively collecting leather from unwanted items in order to repair or refurbish other leather objects. The remains of the shoe upper have a curved seam sewn with whip stitching, and a line of sixteen

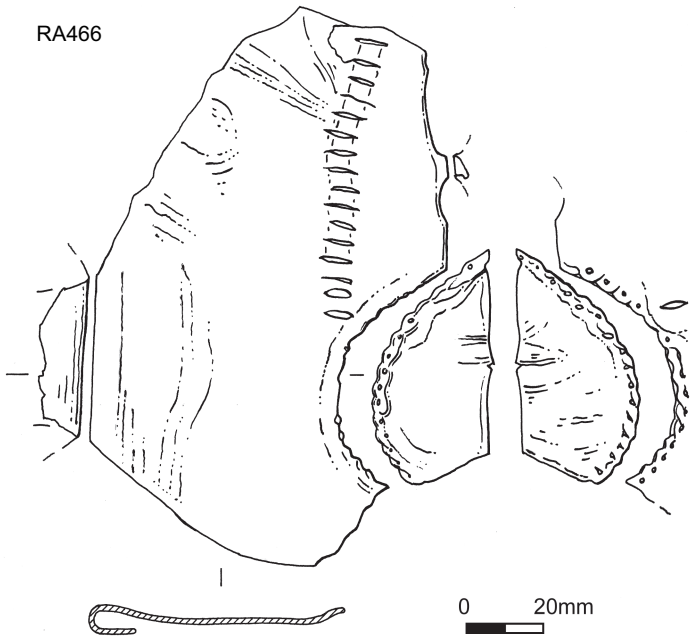


Figure 20: Leather shoe from water-hole [5215]

closely-spaced thong slots. The majority of the slots are pulled and have been used, though at least two are closed and have not had a thong passed through them. The impression of a thong or drawstring is present on the grain side of the leather.

Ankle shoes with closely-spaced thong slots of this general type form a distinctive group of footwear found in this country and other parts of north-west Europe, principally in 11th-century contexts (Mould *et al*. 2003, 3296). While many of these shoes have a line of closely-spaced slots for a drawstring-fastening running around the top of the ankle opening, others, such as the Hill Field shoe, have the row of slots running some distance below the top edge. These shoes, extending just above the ankle in height, have a characteristic concave seamed throat, often with a separate insert piece at the throat, a feature seen on this example. Shoes of this style have been found in late 11th-century contexts in London (Pritchard 1991, 224–6, 3.109 no. 288, 3.111 no. 296), although a well preserved example from New Fresh Wharf had constructional features which quickly fell out of fashion in this country following the Norman conquest, perhaps indicating that the London examples were at least a generation old when thrown away, or were slightly residual (Pritchard 1991, 224–6, 3.111 no. 296).

Ceramics
Jackie Wells

The Phase 4 assemblage comprises 144 sherds (886g), representing 100 vessels, with the majority deriving from pits G34. The fragmentary nature of the assemblage is demonstrated by its low average sherd weight of 6g, and the fact that few vessels are represented by more than single sherds. Saxon pottery (39g) comprises four undiagnostic sherds (fabric types A16, A23 and A24) from G34. Eighty sherds, representing forty-three vessels (462g), are datable to the Saxo-Norman period (*c*. AD 850–1150). They comprise shell-tempered, wheel-thrown vessels in the St Neots-ware tradition (fabric B01) and its variants (types B01A/B/C). Vessel forms are bowls with inturned and simple upright rims, everted rim jars, and single examples of a spouted vessel and 'top hat' jar. Residual late Iron Age/early Roman pottery (fifty sherds, weighing 380g) constitutes the remainder of the assemblage.

A single piece (1,680g) of vitrified clay was recovered from the deposit in the top of the depression that had been formed by G53.1. Almost certainly residual, it is thought to be the remains of a kiln or oven structure, although no such structure was found during excavation.

Wood

Damian Goodburn, with contribution by Dana Challinor

Lining of well [5288] (G53.1)

The stakes from the lining inserted into well [5288] measured *c*. 32–50mm in diameter and were mostly well preserved. Their ends had been formed into points by an edged tool that was at least *c*. 60mm wide, with some of the chisel-form points showing deep and rough cuts that suggest forceful, hurried work, with no trimming afterwards; a general-purpose, narrow-bladed woodman's axe (Wheeler type 1; Wheeler 1927, 22) or possibly a small hatchet was probably used. These narrow axes are well evidenced from a number of sites in London and elsewhere, including on the timber tank found at Haynes Park in Bedfordshire (Goodburn 1992, 108; Gale and Darrah 2004, 111), and most households are likely to have had such a tool. A deep 'L' shaped mark on one of the larger ones (Fig. 21, 5265), caused by the corner of a fairly square-ended axe, reveals that the woodworkers had used an axe for felling and trimming the stems used for these stakes, rather than the heavy billhook typically used by modern woodsmen.

Fourteen of the stakes from the well lining and those that had fallen in were of the chisel shape with one broad facet; one was formed of two adjacent facets; three were formed with three facets; and three had four facets forming a square-section point. The predominance of simple chisel-form points shows that the ground was relatively soft, so that fairly blunt points could be driven into it.

The hazel and ash rods used for weaving around the stakes were very regular, free from large side branchlets and of less than 20mm diameter. The form suggests that they were of coppiced or pollarded origin, although other characteristics, *e.g.* their age (up to 7–8 years), are atypical of such an origin — modern coppiced or pollarded ash or hazel taken from moderately open, managed areas would be expected to reach up to three times that maximum diameter. The stakes were far more varied in size and form, and probably represent branches selected from larger trees or saplings. They were of several species and ages: in the case of the well lining, thirteen of the twenty-two sampled stakes were of oak (4–22 annual rings), two were of prunus (15–26 annual rings), and the rest were hazel or willow/poplar (see Fig. 22). The age, species, and kinkiness of the oak and prunus stakes are most indicative of a branch origin — stockpiled leftovers from lopping larger trees used for other purposes — whereas the hazel and ash may have been coppiced or pollarded from stems that were growing in a more open setting.

With too little space to weave the lining *in situ*, the conical lining must have been woven at ground level, with the stakes driven into the ground in a circle at *c*. 150–200mm centres, many of them paired, as is typical of so much Saxon wattle-work. The stakes would have had to be driven in at an outward-sloping angle to form the cone, which was *c*. 0.6m wide at its base and expanded to *c*. 0.9m diameter as it survived, with a total surviving depth of 0.6m. The rods would then have been woven round them in what appears to have been a straightforward in-and-out weave. The roundwood used for this lining could not have lasted at the upper levels for more than about three years before repairs would have had to be woven in. The well may have been used by a nearby peasant family who did not have the resources to make a lining of solid oak which would have lasted for decades, or who only lived there on a temporary basis while carrying out a seasonal or specialist activity, and did not feel that a more durable lining was worth the expenditure.

Other worked wood

A stake-like piece of hazel round-wood (Fig. 21, 5277) was found lying horizontally in the lower part of well [5288], measuring 0.657m long with a maximum diameter of 27mm. One end had been whittled roughly straight across, whilst the other had been very gently cross-cut with repeated blows from a small hatchet or possibly a knife, in order to form a point. Close to this end, the rod had been very carefully shaved round with a tool, possibly a spoke shave or small, fine-bladed draw knife, which left elongated flat facets, 3–5mm wide, running along the grain. The length of rod was probably an off-cut from making a fine shaft such as might be needed for a throwing spear or similar tool. A similar cleft section of hazel pole, 0.245m long, was recovered from well [5229], the precursor to [5288]. It had been left untrimmed at one end, measuring 44mm by 23mm, but was trimmed down to a roughly round section *c*. 23mm in diameter at the other. This item could also have been an off-cut from a long, round shaft, but might also have been an off-cut from making something like a rake tine or even some form of wooden peg or treenail.

An ash woodchip was recovered from waterhole [5215]. It had been hewn from a parent log at

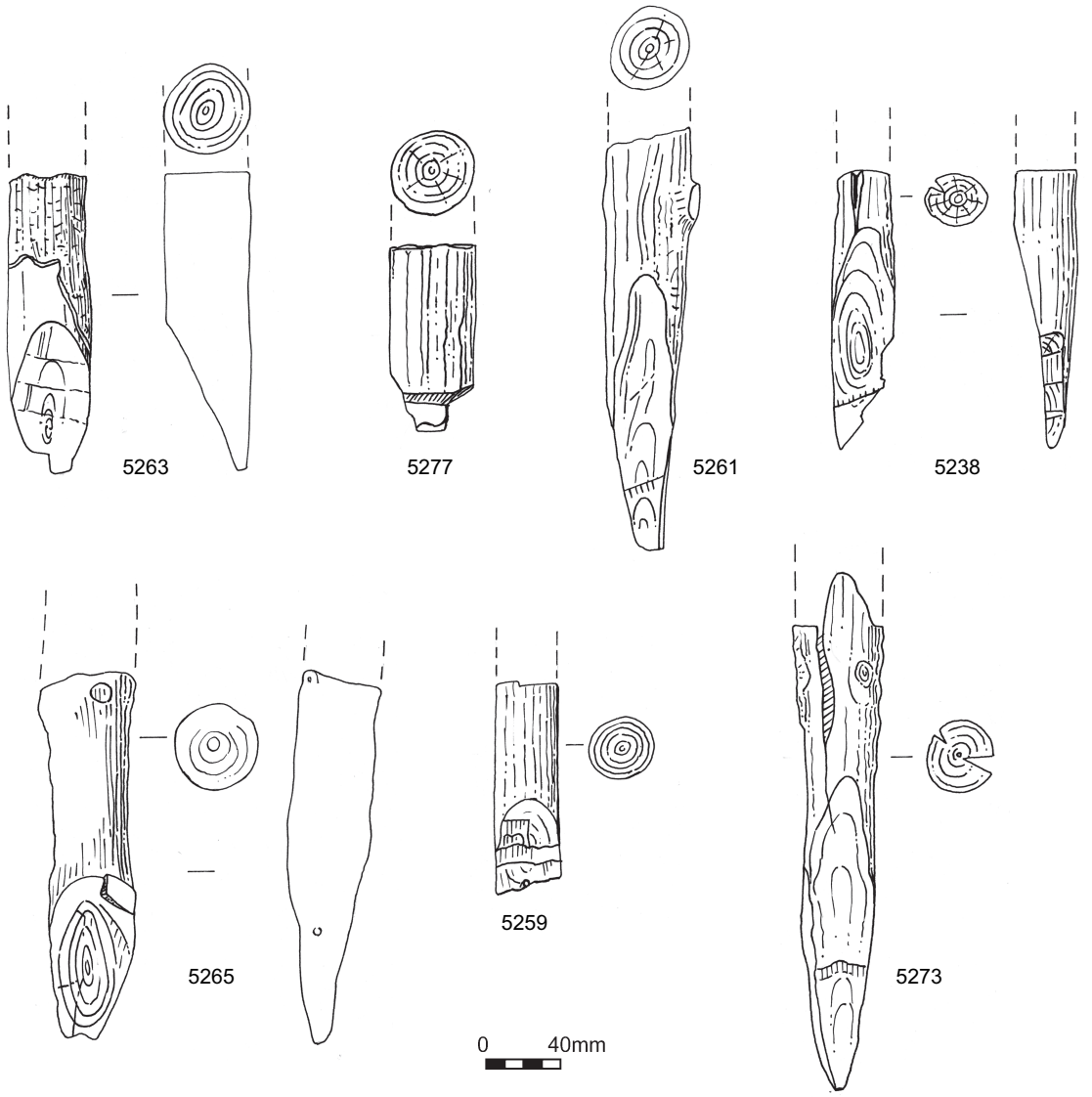


Figure 21: Worked wood from well [5288]. 5277 was found in the base of the well; the others are from the lining

least 150mm in diameter, the largest parent tree evidenced in the whole assemblage. Ash logs of this size could have been used for constructional purposes.

Animal bone
Stephanie Vann

Phase 4 deposits yielded an assemblage of 364 fragments of animal bone, 236 of which (including all thirty-nine recovered from soil samples) could not be identified. Cattle again predominate; however, pig remains are also significant, being present in greater frequency than sheep/goat (Fig. 11). Horse and bird (most likely domestic fowl) are represented by individual elements. There are no wild taxa or dogs in the assemblage, although a single instance of canid gnawing from G34 indicates the presence of dogs at the site on at least one occasion. Two of the large mammal bones in the

assemblage display cut and chop marks, which are most likely due to dismemberment of the carcass (Binford 1981).

The skeletal maturity data for cattle indicate the presence of immature individuals, with several individuals under eighteen months old at the time of death, although other individuals were older (Table 4). This is compatible with the ageing data based upon tooth wear, which also indicate the presence of individuals ranging from immature to sub-adult; other mid- to late Saxon sites, such as Chopdike Grove in Lincolnshire, show similarly high frequencies of sub-adult cattle (Baker 2002, 5). The data for sheep/goat also indicate the presence of juvenile individuals within the assemblage, possibly under ten months old; the remains of juvenile sheep of a similar age were also recovered from the Saxo-Norman deposits at Ingleborough, Norfolk, (Baker 2002, 7). Fusing data suggests that some of the pigs at Hill Field were less than a year old at the time of death, though others may have been older — ageing data based upon tooth wear also indicate the presence of adult animals.

Plants
John Giorgi

The charred plant remains from Phase 4 were nearly all concentrated in the eastern two pits in G34, which produced 171 quantified charred plant items, with cereal grains accounting for 70% of them, along with twenty-three weed seeds. Almost 60% of the grains are unidentifiable, however, although small numbers of wheat grains could be identified, including free-threshing wheat and barley, with one hulled grain of the latter. The twenty-three weed seeds include stinking chamomile, leguminous seeds (vetch/tare (*Vicia/Lathyrus* spp.) and medick/clovers (*Medicago/Trifolium* spp.)), and grasses (rye-grass, brome, meadow grass (*Poa* spp.)).

The samples from the wells and water-hole in G53.1 yielded rich assemblages of waterlogged plant remains (Table 8). Those from water-hole [5215] consist mainly of low numbers of seeds from wetland (including aquatic) species, with slightly better representation of plants from disturbed (including cultivated) ground and waste places. These waterlogged remains suggest the presence of standing water within the water-hole, albeit perhaps on just a seasonal or temporary basis. Fairly large numbers of Cladoceran ephippia in all five flots further attest to the presence of aquatic conditions. A wide range of the disturbed/waste ground plants in the samples, including stinging nettle (*Urtica dioica*), goosefoots (*Chenopodium* spp.), oraches (*Atriplex* spp.), chickweeds (*Stellaria media*), henbane (*Hyoscyamus niger*), and black nightshade (*Solanum nigrum*), all point to the presence of nitrogen-rich soils in the immediate vicinity of the water-hole. The presence of a few seeds of stonewort and duckweed may tentatively suggest eutrophic conditions within the water-hole. This may be a reflection of human or animal activity nearby, perhaps indicating the water-hole's use by livestock and/or the possible presence of refuse deposits nearby. There is very little evidence to suggest a wooded/shady environment in the vicinity of the water-hole, thus suggesting a fairly open habitat.

The samples from well [5288] produced very rich botanical assemblages, similar in composition to those from [5215] but with larger numbers of seeds and fruits and generally high species diversity. Three aquatic plants — stoneworts, duckweeds and crowfoots — are well represented, while other wetland species such as sedges and rushes appear only in small numbers. There are occasional seeds of other wetland species such as horned pondweed and bur-marigolds (*Bidens* spp.). A very wide range of other plants are represented, with the majority coming from disturbed (including cultivated) ground and waste places. Stinging nettle is well represented, along with *Chenopodium* species, oraches, knotgrass and various docks. Some of the disturbed/waste ground plants often grow as arable weeds, including stinking chamomile, prickly sow-thistle (*Sonchus asper*) and fool's parsley (*Aethusa cynapium*). There is also tentative evidence for woodland or hedgerow vegetation, with occasional records for blackberry/raspberry (*Rubus fruticosus/idaeus*) and sloe/blackthorn, plus occasional hazel nut (*Corylus avellana*) shell fragments. These remains may, however, simply represent food residues of wild fruits collected elsewhere.

The botanical assemblage from well [5288] points to the presence of standing water within the well, again supported by large numbers of Cladoceran ephippia. The environment around the well appears to have been similar to that surrounding [5215], with the good representation of stoneworts and duckweeds providing more conclusive evidence for eutrophic conditions within the well. There is again not much evidence to suggest a

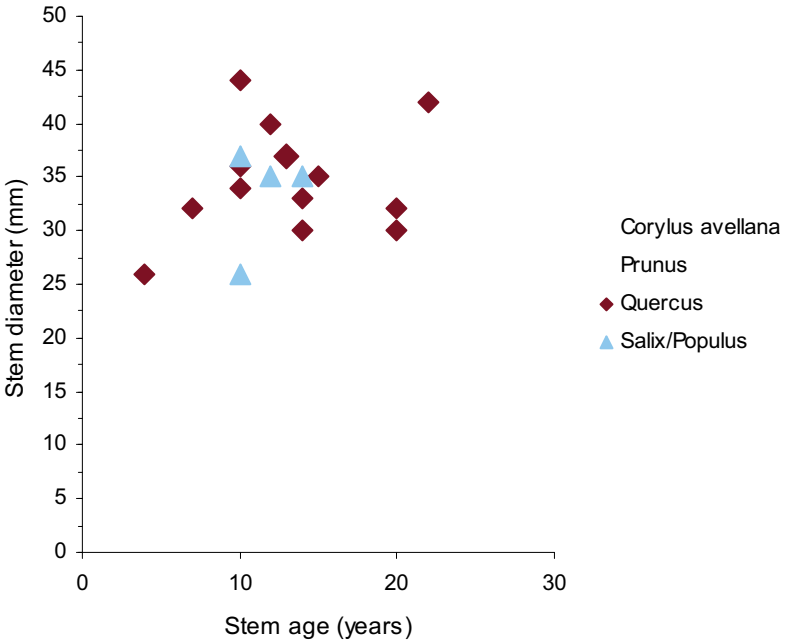


Figure 22: Sail chart showing the age, diameter and species of the stakes used in the lining of well [5288]

wooded or shady environment nearby; the fruits of the few woodland or hedgerow plants identified are potential wild food resources, and may have been collected off-site.

Pollen
Gill Cruise

Well [5229] (G53.1) contained clumps of grass pollen, suggesting the presence of grassy vegetation right up to and possibly within the well itself (Fig. 17). It also contained *Ophioglossum* (adder-stongue), a small fern associated with old, species-rich pastures and meadows (Rodwell 1992, 65) which is found in moist grassy places and is much favoured by cattle (Dony, 1953). Slight increases in Cyperaceae pollen are also consistent with the presence of damp grassland. The records of arboreal taxa are interesting, but it is impossible to say whether they indicate an increase in distant hedgerows or copses (*Ulmus, Acer, Fagus*), regeneration on distant sandy soils (*Betula*), or woody material imported on to the site for woodworking close to the well.

The best pollen preservation came from well [5288], and shows a slight increase in *Corylus* t., with enhanced frequencies for herbaceous taxa Asteraceae, *Centaurea nigra* t. (knapweed), *Galium* t., *Sinapis* t., and the aquatic *Lemna* (duckweed). The uppermost sample is noteworthy by having several clumps of pollen of *Anthemis* t. (chamomile, yarrow, oxeye daisy *etc*.), *Centaurea nigra* t. and *Lemna* — the presence of clumps indicates a very local presence for these plants. The assemblage suggests a weedy and herb-rich grassy environment consisting of a patchwork of trampled and disturbed, moist soils, with some nutrient enrichment. The marked difference in the pollen spectra from this core may have been caused by the introduction of at least some pollen in dung. Again, it is difficult to know whether the slight increase in hazel pollen (*Corylus* t.) is due to an increase in managed hedgerows or copses, or to importation of hazel on to the site for woodworking close to the well.

PHASE 5: MEDIEVAL / POST-MEDIEVAL

Evidence for activity at Hill Field in the medieval/post-medieval period is confined to the remnants of ridge and furrow cultivation G57 (Fig. 23). The ones aligned NE–SW were spaced at intervals of *c*. 8m, as were most of the eastern group aligned

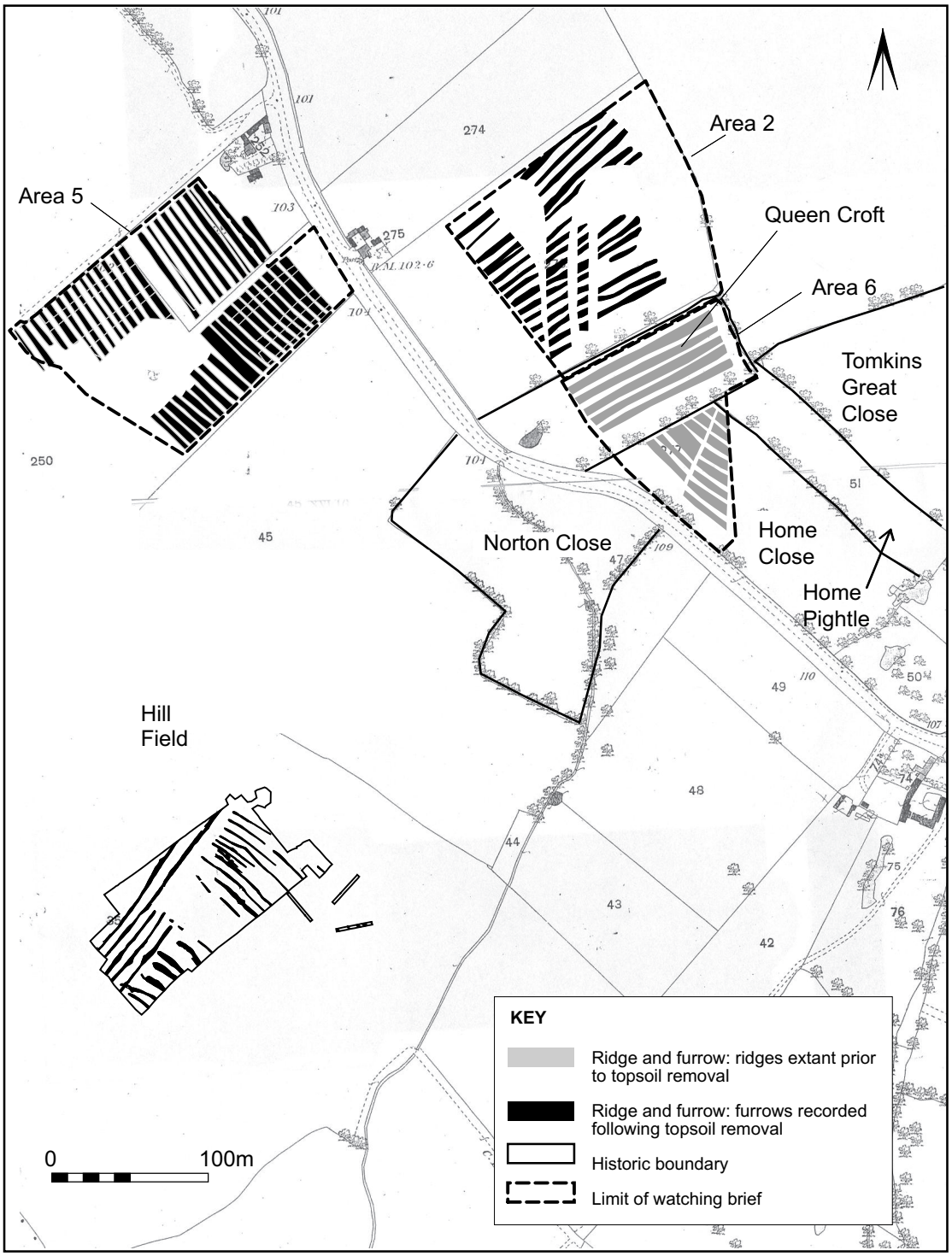


Figure 23: Plan of furrows recorded at Hill Field and in Areas 2, 5, 6 and 9

NW–SE; variations in the latter are likely to have resulted from different episodes of ploughing. The set of furrows aligned NW–SE at the western end of the site were spaced at more irregular intervals, with no apparent standard. There was no indication of overlap between the two alignments; this suggests that they were contemporary, from which it can be inferred that the land was split into at least two separate fields. No artefactual evidence was recovered to help determine when the ridge and furrow was established, but the close correlation in position and alignment between the furrows and the 19th-century ceramic land drains suggests that they at least maintained a significant presence as earthworks until recent times.

Non-ceramic artefacts
Holly Duncan and Peter Guest

A wide variety of non-ceramic artefacts, covering an equally wide date range, were recovered from the fills of plough furrows and the overlying subsoil. The assemblage includes livery/blazer buttons from the 17th to 19th centuries, carbine or pistol balls from the 17th century, fencing wire, and an angled strut from a cast copper alloy skillet of late medieval or earlier post-medieval date. In addition, five Roman coins were also recovered. Two of these mirror the date of the stratified assemblage from Phases 2 and 3, but there are also coins of the later 3rd century present, which are the only indications from the non-ceramic assemblage of activity during the late 3rd and early 4th centuries.

DISCUSSION

Excavation at Hill Field revealed the remains of an enclosed farmstead, which was established in the late Iron Age and survived into the first half of the Roman period. Although subsequent evidence for occupation is more limited, the site appeared to remain in use as a series of stock enclosures, with the creation of a number of water-holes, before being turned over to arable cultivation in the medieval period.

The following discussion considers the layout, development and socio-economic status of the farmstead; how the land was subsequently employed; evidence for change or continuity in the environment; and signs of ritual significance in what was found. For ease of description, the report has so far been broken down into five chronological phases of activity. However, the following discussion addresses the site as a whole, in order to recognise the essential fluidity and continuity that existed in the use of Hill Field throughout the first millennium AD.

Settlement morphology and chronology

The earliest evidence for human activity at Hill Field comes from a single pit dating to the early Iron Age (Phase 1). In addition, three residual sherds of similarly dated pottery were recovered from other features across the site. With a complete absence of struck flint amongst the finds assemblage, there is no indication that Hill Field was substantially used before the late Iron Age farmstead was established. The pit may have been associated with sporadic activities in the clay vale that were peripheral to the major prehistoric settlement and farming areas on the river gravels to the north. The sporadic nature of the activities is further evidenced by the lack of any middle Iron Age remains at Hill Field.

Dating evidence relating to the farmstead is, unfortunately, rather imprecise. Indeed, the assertion that it was created in the late Iron Age may even be erroneous, relying as it does on the date of the ceramic assemblage: the use of late 'Belgic' Iron Age wares is known in some instances to have extended into the early 2nd century (*cf.* Stagsden, Dawson 2000; Biddenham Loop, Luke 2008). There is certainly nothing to suggest that the farmstead was established before the 1st century AD, which is when the adoption of 'Belgic' pottery forms is thought to have become widespread (Hill 2002). It is clear from the quantity of late Iron Age wares recovered that there was domestic occupation of the site in the 1st century AD (Fig. 10); however, the amount of Roman pottery that could be assigned no more than a broad date makes it difficult to establish when domestic activity was at its greatest during the Roman period.

As far as can be told from the ceramic dating evidence, the three enclosures and associated subsidiary enclosure and drove-way that constituted the enclosed element of the farmstead at its greatest extent (Phase 2) were established at an early stage in its development. The precise sequence is hard to detect due to the repeated cleaning out or re-cutting of ditches — a ditch in its original stage of construction is rarely distinguishable from one

that has been re-cut in such a way that all trace of its previous form has been destroyed. It is unusual for re-cuts to follow the line of their predecessors so closely, and this may be an indication that the ditches were accompanied by hedgerows from an early stage, which closely defined their course thereafter. Ditch G9 in the area of the western enclosure (Fig. 4) is the only one that was incompatible with the subsequent layout of the farmstead, indicating that it belonged to an initial, poorly defined phase of enclosure. The absence of samian and regionally imported pottery from the initial layout of the central enclosure suggests that this may have predated its neighbours, but this may instead be the result of a lesser degree of recutting of these ditches. However, the concentration of late Iron Age pottery from the central enclosure (Fig. 10) does at least suggest a focus of domestic activity there during the initial phase of the farmstead.

No substantial evidence was found for differentiation in use between the three enclosures, although the possibility that they were used for different types of livestock is discussed below. However, the eastern enclosure (L4) does appear to have had a more domestic function: it was the only one to yield fragments of mortaria, and also contained the largest (albeit still fairly small) assemblage of non-ceramic artefacts, including a silver La Tene III or Knotenfibeln variant brooch (Fig. 8, RA433). The eastern enclosure also contained the most likely candidates (G7 and G25) for the remains of domestic buildings (Fig. 5), with fragments of quern stone recovered from the vicinity of both. The three L-shaped shaped features (G46) in the western enclosure (Fig. 4) may also have been associated with buildings, but they were less substantial, and perhaps represent the remains of agricultural buildings. The structural features in the western corner of the same enclosure were even more ephemeral, and, like G48 in the eastern enclosure, were perhaps associated with animal pens. The assemblage of non-ceramic artefacts shows scant evidence for the presence of structures on the site as a whole: little was recovered in the way of building fastenings, fittings or furnishings; and the few nails that were found were dispersed widely across the site.

Although cleaning out and re-cutting of the ditches seems to have ceased in the mid-Roman period, the layout of the enclosures was probably maintained into the Saxon period (Phase 3), with the boundaries marked solely or primarily by hedges. The presence of hedgerow-type taxa in the charred plant assemblage supports this. At the least, it can be assumed that the majority of the ditches continued to exist as earthworks; the close spatial correlation between the ditches and the water-holes that were dug in the Roman period means that, even if the ditches were no longer respected as boundaries, they would still have been useful for draining groundwater into the water-holes (Williamson 2006, 170). It is unlikely that the site was occupied in the late Roman to mid-Saxon period on anything other than a temporary basis; G31 (Fig. 12) possibly represents the remains of a sunken featured building, albeit an exceptionally small one, but there are no other indications of permanent or lengthy habitation from the contextual record or the artefact assemblages. Small amounts of Saxon pottery were recovered from across the site (Table 5), and three coins from the subsoil are late Roman, but none of the other artefacts can typologically be dated to either period.

There is equally little artefactual support for permanent occupation in the late Saxon to Saxo-Norman period (Phase 4), although there may have been temporary or seasonal occupation. In addition to five pits that were spread across the site, a sequence of water-holes that had been established in the early to mid-Roman period (G60) continued to be maintained and re-cut (G53), before being transformed into a well (G53.1). This well in turn was re-cut, and then had a wattle lining inserted into it. The change from water-hole to well suggests a shift from animals to humans as its primary user. The wood used to construct the lining would probably have needed to be replaced about every three years: this suggests either that the people who constructed the well could not afford, or did not have access to, a more durable material such as oak; or that the activities for which the well was used did not warrant greater expenditure of time and resources. It is reasonable to assume that the people who used the well lived nearby, in easy reach of it, even if not within the excavated area at Hill Field; the presence of the cut-up shoe (Fig. 20) in the wattle-lined well also supports the presence of domestic activity nearby. The lack of structural remains and paucity of domestic artefacts recovered from the vicinity of the well suggest that occupation here was only on a temporary basis, perhaps to undertake a seasonal activity for which this location near the top of the hill was particularly suitable.

The sequence of water-holes and wells was used over an exceptionally long period of time. Statistical modelling of radiocarbon dates indicates that the sampled part of the sequence is likely to have spanned a period of 380–580 years (Fig. 19), with an end date in the 11th century, yet the earliest sampled feature (dated to the 6th century) was at least the third re-cut of the original water-hole G60, which is thought to have been dug in the early to mid-Roman period. The evidence for this is slight, but the short north-eastward spur of ditch G15 from the nearby corner of the eastern enclosure strongly suggests the presence of a contemporaneous water-hole into which it drained. This implies a span potentially of 900 years — broadly comparable sequences are known from other sites, *e.g.* the 500 year Bronze Age sequence at Swalecliffe, Kent (Masefield *et al.* 2003), but such a lengthy span is still far from usual. It is impossible to tell whether the features were in use continuously, yet the repeated use of this location suggests no significant break of activity in the sequence.

As with most rural sites in Bedfordshire, ridge and furrow cultivation was adopted in the medieval period (Phase 5); the remains of it are widespread in the vicinity of Hill Field (Fig. 23). It is rarely possible to date its formation within the confines of an archaeological excavation; however, changes in the weed flora recorded in pollen samples from the wattle-lined well might be an indication of an increase in, or closer proximity to, arable soils. This suggests a possible date in the 9th or 10th century for the adoption of ridge and furrow cultivation around Hill Field, although the palynological evidence is only tentative. However, the continued use of the well in the 11th century and the occasional presence of similarly-dated pits across the site suggest that ridge and furrow was not established on the upper part of the hill until later, perhaps during the 12th- to 13th-century high-water mark for arable cultivation. The establishment of ridge and furrow at Luton Road, Wilstead is also believed to date to the 12th–13th centuries (Luke and Preece 2010).

Layout of the enclosures in relation to stock control

The layout of a farmstead concerned primarily with pastoralism was particularly important, and often complex, due to the need to control the movement of livestock. Much analysis has been carried out in recent years into how the layout of field-systems and enclosures relates to the management of livestock, particularly following the efforts of Francis Pryor with regard to the interpretation of Bronze Age drove-ways and enclosure/corralling systems at Fengate (*e.g.* Pryor 1999, 100–5). Pryor argues that the ditches identified on archaeological sites must have been associated with hedges to work as stock control features, and this is also assumed for the following text. Hedgerow taxa are certainly present in the botanical assemblage from Hill Field, and it is clear that some of the boundaries by the late Roman period were marked primarily by hedges, their ditches having largely silted up. Evidence for batching, inspection and sorting of livestock is now increasingly recognised across all archaeological periods in Britain, and evidence for stock holding, manipulation and droving can be seen in the layout of the Hill Field farmstead. The following text, in combination with Figure 24, attempts to put interpretive flesh on the skeletal ditch layout, in order to consider how, in combination with associated barriers such as hedges or hurdles, the system may have functioned.

One aspect of a pastoral as opposed to arable landscape is that entrances into and out of enclosures/fields are usually *via* corners, as it is much easier to funnel herds or flocks into them (Pryor 1999, 101). The south-eastern opening in the central enclosure is a good example of such an exit; conversely, however, it could not easily have been used as an entrance for livestock without the use of hurdles, being central to a long length of a flat boundary. A more practical entrance would have been at the western end of this boundary, where it intersected with the western enclosure; the angle of the two ditches would have created a funnel, thus enabling stock to be directed into the western enclosure and through to the central one from the fields to the south. The existence of an entrance at this location is only theoretical — a later water-hole removed all evidence of whether such an opening may have existed — yet the apparently exit-orientated nature of the south-west corner of the western enclosure suggests that it was entered primarily from another point.

Interpretation of the western enclosure's complex arrangement of internal ditches is clouded by the question of contemporaneity. It is unlikely that all the ditches were created in a single event. However, it is plausible that all the boundaries represented by them came to be in use at the same time, creating the means by which the movement of animals could be manipulated. The two long,

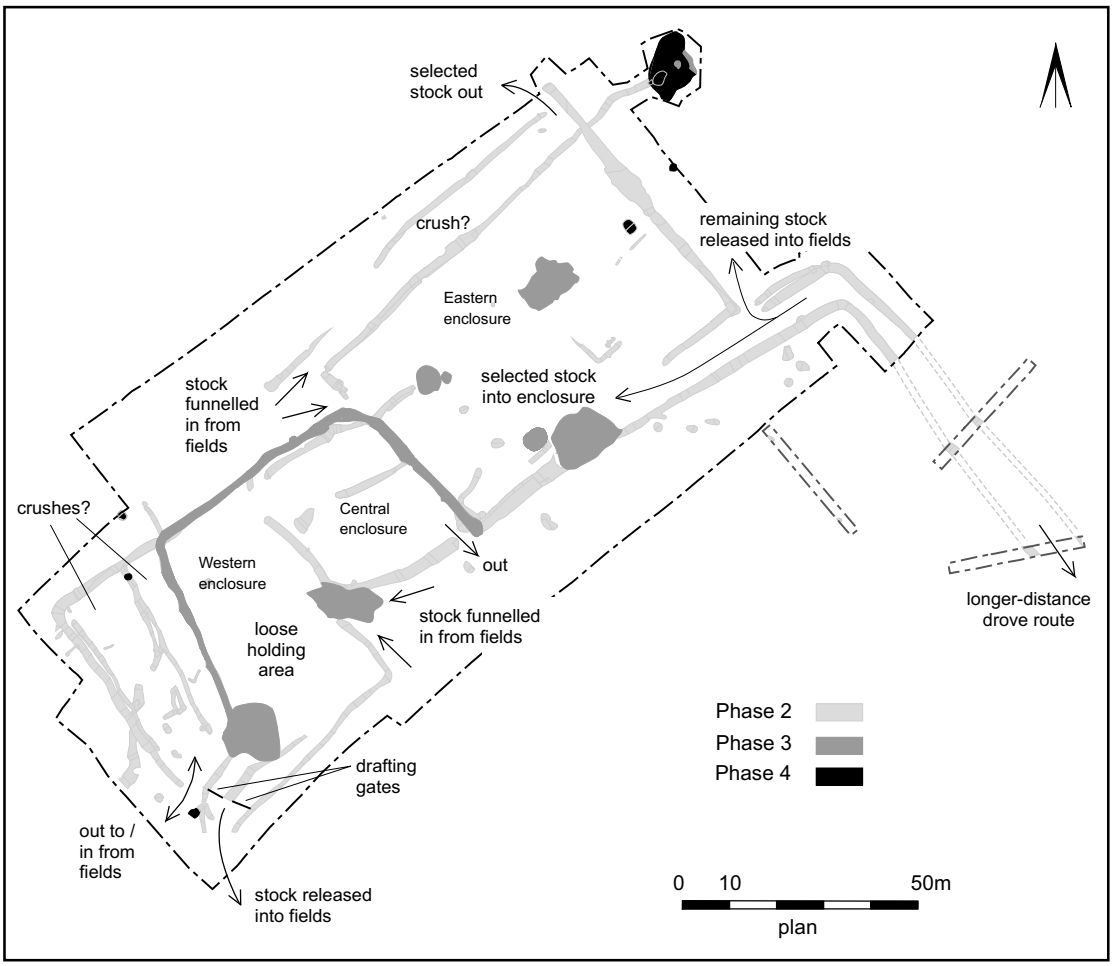


Figure 24: Hypothetical patterns of stock movement

narrow internal divisions in the western half of the enclosure could have been used as a 'crush' for the close confinement of livestock, for example; modern flocks or herds are routinely compressed into a restricted space in order to reduce their ability to bolt when being inspected (*e.g.* for signs of disease or pregnancy). Alternatively, this elongated layout may have been designed for ease of inspection from the sides of the sub-enclosure without necessarily needing to enter it. The eastern half of the enclosure may have been used for general loose corralling of the animals overnight and possibly during winter, at which times their diet could be supplemented with hay and/or silage. Keeping them in enclosed spaces would also have facilitated the collection of animal dung for spreading on to arable land.

The three main subdivisions of this enclosure may also, or alternatively, have been used to hold different species, or as separate areas for the temporary subdivision of stock of the same species, for example ahead of selective culling or separating stock to be taken to market. The means by which stock could be separated off would probably have been *via* the narrow corner exits out of the enclosure. The funnel effect of the layout would have meant that stock were potentially forced into something approaching single file as they passed through the narrow gap towards the external pastures. A farmer or shepherd in control of the (hypothetical) drafting gate could in theory at that point grab or redirect any stock that needed to be separated out (*e.g.* rams from ewes or ewes from lambs), allowing the remainder through into the

field beyond. The selected stock could potentially have been returned *via* one of the other two entrance gaps (using mobile hurdles as required) into another compartment of the western enclosure for whatever purpose was required. The most obvious location for such drafting gates is marked on Figure 24.

The subsidiary enclosure running along the northern side of the main eastern enclosure may also have acted as a crush (Pryor 1999, 101–2), designed potentially to process a herd or flock. Stock may have been brought into the elongated enclosure from open pasture to the north *via* the funnel created to the west (Fig. 24). The herd/flock could have been divided at this point, if required, with stock either entering the eastern enclosure *via* the narrow entrance, or being directed into the crush to the north, where they could have been held for inspection. When the inspection was complete, the stock could then have been released back into the field to the north *via* the exit at the eastern end of the crush. A possible subdivision within the eastern enclosure may also have been for detaining stock, whilst the main open area of the enclosure was large enough to contain a sizeable herd of cattle overnight and potentially through the winter, provided that any areas of human habitation were fenced off.

The drove-way to the south of the eastern enclosure is probably indicative of a long-distance route that was used to transport animals to or from pastures to the south-east. The route could also have been used to transport stock to the local market, and to bring in fresh stock, including new rams or bulls, to maintain the breeding herd's genetic viability. There is a potential stock-sorting gap in the northern side of this drove-way, which may have provided means by which the farmers could subdivide those animals brought towards the eastern enclosure, with some continuing into the enclosure, and others being released into the field to the east. This track appears to have been the main route of communication to and from this farm, and it is interesting to note that it projects south-east towards the Greensand Ridge rather than north towards the Great Ouse.

The water-holes that appear to have dominated the site from the mid-Roman period may in some cases have been established earlier. This appears to have been the case with the two largest examples in the eastern enclosure and the one within the western enclosure; two of these truncated the earlier enclosure ditches, but this may be the result of later expansion of the original features. It is logical that water-holes would have existed contemporaneously with the earlier phase of the farmstead, since the livestock known to have been present then, from both the faunal assemblage and the stock systems defined by ditches, would have required watering. The location of these water-holes primarily on the line of the earlier enclosure ditches also supports the assumption that the enclosures were still marked by hedges once the ditches had silted up. Some of these water-holes would have allowed animals to access the water directly, whereas the steep profile of others would have required the water to be drawn by hand — the ones that are believed to be earliest are also the ones with shallowest profiles, perhaps suggesting a change of approach in the later Roman period.

Finally, it is worth considering the three enclosures in relation to each other. The apparently planned nature of the farmstead may indicate that each enclosure was occupied by different groupings within the family clan, and/or that each had a separate function in relation to stock — for example, the large eastern enclosure might have been used predominantly for cattle, with the intricate subdivisions in the western enclosure perhaps more suited to sheep-handling. Although the central enclosure's ditches produced a substantial pottery assemblage (Fig. 10), the paucity of other domestic debris and internal features may indicate that this enclosure held the pigs and/or fowl known to have been present, rather than forming the domestic core of the settlement. As indicated above, use of the enclosures for stock would not have precluded human habitation within the same enclosures.

Comparison with other sites

The excavated remains at Hill Field share similarities with contemporary sites excavated elsewhere on the claylands of the Marston Vale and beyond, yet there are differences in the representation of chronological periods and in the level of continuity. The nearest site, at Luton Road, Wilstead (Luke and Preece 2010), also revealed evidence of human activity from the early/middle Iron Age to the Saxo-Norman period, but with more of an even representation throughout. The earlier Iron Age remains, although fragmentary, were more numerous than at Hill Field and possibly indicate a small open settlement. The greatest evidence for domestic activity also came from the late Iron Age and early Roman period, with two roundhouses

revealed, yet the layout of the settlement appeared less organised and also betrayed aspects of discontinuity. The suggestion of sacrificial or ritual activity in relation to a late Roman water pit is interesting, in view of the potentially votive or ritual deposits from some of the water-holes at Hill Field (see below); the sites also share a lack of evidence for substantial domestic activity at this time. In contrast, however, the site at Wilstead displays no evidence for continued activity in the Saxon period, whilst the pits, ditches and possible structural features recorded for the Saxo-Norman period are more obvious evidence of settlement activity than was evident at Hill Field. This is probably to be expected, in view of the Luton Road site's greater proximity to the main settlement in the centre of the parish. Despite this, however, the Saxo-Norman settlement at Luton Road was succeeded by ridge and furrow, implying that the main settlement became more nucleated as arable cultivation expanded in the 12th to 13th centuries.

Other sites excavated on the claylands in Bedfordshire also produced evidence for settlement activity in the late Iron Age and early to mid-Roman period, but generally with no evidence for continued activity into the Saxon period. Excavation along the route of the Willington to Steppingley pipeline in the vicinity of Hill Field revealed Roman remains to the south-west of Wilshamstead (Network Archaeology in prep.); Iron Age remains were also recorded to the south and east, but these are likely to predate the farmstead at Hill Field. Settlement remains that date from the middle Iron Age to the late Roman period were found to the north-west of Hill Field on the route of the Stagsden bypass (Dawson 2000a). Those from East Stagsden bear the greatest similarity: a number of enclosures were established in the late Iron Age, which were retained and subdivided in the early Roman period, but with no evidence for their continued use beyond the 2nd century (Dawson 2000a, 21–59).

Similar remains were also found along the Great Barford bypass to the north-east (Timby *et al*. 2007); Sites 1, 2, 4 and 7 all contained late Iron Age enclosures. Sites 2 and 7, however, had their origins in the middle Iron Age and did not continue into the Roman period. Site 4 bears the closest comparison with the Hill Field farmstead (Timby *et al*. 2007, 37–41; 78–90): although on a larger scale and with more evidence of structural remains than at Hill Field, this low-status settlement included a combination of enclosures and droveways, with seven (mostly urned) cremation burials and no evidence for continued settlement beyond the 2nd century. Site 8, a larger Roman settlement with no Iron Age precursor, was the only one to produce evidence for continued activity into the Saxon period, with pottery from the 5th to the 10th centuries (Timby *et al*. 2007, 159–61), although Site 9 revealed a settlement that began in the Saxon period (Timby *et al*. 2007, 161–77).

The remains at Hill Field can thus be seen to fit in with the pattern of late Iron Age and Roman settlement on the Bedfordshire claylands, but without the same degree of earlier Iron Age settlement that is often seen. In contrast, however, the site was more durable than most, remaining in use throughout the Saxon period; its continuity marks it out from many of the other sites, which tended to be shorter-lived and where the location of human activity tended to move around with the course of time.

Environment

Human activity at Hill Field can be traced continuously in the archaeological record for a period of about a millennium, from the end of the Iron Age to the end of the Saxon period. This enables an examination of how the landscape changed or stayed the same during that time, both within the area of the enclosed farmstead itself, and in the area of Hill Field more generally.

The overwhelming impression is that Hill Field was primarily an open, grassy environment. This supports the picture drawn by other sites in the wider region: 'where there is environmental evidence available, this seems to indicate a greater emphasis on the use of claylands for pastoral farming [by the late Iron Age]' (Clay 2002, 116). The dominance of the molluscan assemblage from Hill Field by *Vallonia pulchella* suggests that the site itself comprised moist grassland during the Roman period, while pollen samples for the Saxon period produced high percentages of grasses and herbaceous taxa. The botanical evidence is similar, suggesting a fairly open environment; there is little material from woodland or hedgerow species except for a few wild fruit remains from the Saxon and Saxo-Norman periods. Although these wild fruit remains may represent food gathered off-site, the contextual data suggest that the early Roman ditched boundaries

were either accompanied or replaced by hedgerows, support for which is provided by taxa such as hawthorn group and cherry/blackthorn in the charcoal assemblage.

More detailed evidence is available for the immediate environment surrounding the Saxon to Saxo-Norman sequence of water-holes and wells G53/53.1 at the eastern end of the site. As with the other water-holes across the site, the ground around the features was disturbed and trampled, with numerous species that are indicative of nitrogen-rich soils, probably due to the use of these features by livestock. The species composition of the well lining in [5288] also gives an indication of what trees were growing within range of the site (Fig. 22). Oak, sloe/blackthorn, hazel and willow/poplar are all represented, as they are in the charcoal assemblage, although it is unclear whether these were from the hedgerows on site or from woodland further away; the low overall frequencies of arboreal pollen indicate that supplies of wood were primarily imported from managed hedgerows or woods located some distance away. Willow/poplar is a species that usually grows along watercourses; a modern stream runs along the southern side of the hill, suggesting a possible source, although the similarity in the restricted species composition of the molluscan fauna with examples from floodplain pastures and wet-meadows on the River Test, Hampshire and in the Thames valley (Davies 2008, 31) may indicate that areas of the site itself were damp enough for this species of tree to grow there.

Socio-economic structure

The overwhelming impression of the farmstead at Hill Field is that of a small, low-status settlement with a pastoral economic base, which was used solely for pastoral purposes once domestic activity had ceased in the mid-Roman period. However, the finds assemblage does include a few anomalies such as the silver brooch and glass bowl from the eastern enclosure, and these are considered below. In terms of the ceramic and non-ceramic assemblages, the balance of probability suggests that the items recovered from Phase 3 deposits are likely to be either residual or curated, and are therefore considered alongside the Phase 2 assemblages as evidence for activity in the early to mid-Roman period.

Status and economic basis

The non-ceramic assemblage suggests a rather basic standard of living. The majority of the jewellery is of copper alloy, and may have been fairly accessible in terms of costs, although the 1st-century silver brooch could suggest the presence of an individual of some social standing. The rarity of glass recovered from Hill Field fits the pattern from elsewhere: the inhabitants of rural sites of the 1st and 2nd centuries appear to have been very selective about the types of glass vessels they used, with no evidence that they did use it on many sites. Where they did use glass, they seem to have preferred blue/green bottles and large bowl forms (Cool and Baxter 1999, 84–5), as were found at Hill Field.

The ceramic assemblage is similarly indicative of relatively low socio-economic status, with few fine wares or imports. The assemblage is generally comparable with those from contemporary rural sites in the vicinity of the Great Ouse Valley, including the nearby settlements at Marsh Leys Farm (Luke and Preece in prep.), Wilstead (Luke and Preece 2010), Kempston (Dawson 2004), and Great Barford (Webley 2007).

There is little in the finds assemblage to indicate the economic basis of the settlement. No tools were found, either agricultural or craft-related, and the only representation of craft activity from the Iron Age or Roman period comes from a single sawn tine that would have been used for antler working. The possible 'sail-maker's palm' (Fig. 9, RA457) might suggest leatherworking, but the function of the object remains uncertain — it also came from a deposit that might not have accumulated until the Saxon period; leatherworking from the Saxo-Norman period is attested by the presence of a deliberately cut-up shoe (Fig. 20) from the wattle-lined well.

Two possible explanations can be adduced to account for the anomalous presence of items that are either expensive or attest extensive trading links, within a low-status, locally derived artefactual assemblage. The first is that the settlement was relatively prosperous in the 1st century AD, farmed by someone who had a modicum of social standing — this would also account for the apparent conversion of the few fragmentary remains that can be dated to the settlement's initial establishment, into a series of three regular, linked enclosures with a drove-way and subsidiary enclosure attached. The settlement then dwindled, with domestic activity largely ceasing at about the

end of the 2nd century, after which the site appears to have been used for grazing livestock by people living primarily elsewhere in the later Roman and Saxon periods. This theory, however, fails to take explain the presence of 2nd-century samian and a sherd of amphora within the ceramic assemblage — both attest to the sort of long-distance trading links that are not evidenced by the remainder of the artefactual assemblage. An alternative possibility is that the farmstead was not a self-contained unit, but one of a series of tenant farms within a larger estate that was owned by someone of greater social standing, perhaps centred on one of the higher-status settlements along the Great Ouse.

Arable/pastoral balance and diet

Pastoral

The layout of the Hill Field farmstead strongly suggests a primarily pastoral economy, as discussed above. The faunal assemblage that was recovered comprises 4,435 fragments, although only 1,080 (24%) could be identified. Most of these (69%) derive from the late Iron Age to mid-Roman deposits; some of the 23% from the mid-Roman to mid-Saxon deposits may also originate from the same period, as seems to have been the case with the finds assemblages. The range of species present is limited: the major domesticated species — cattle, sheep/goat, pig, horse and dog — are all present, but birds, rodents and red deer are all represented by just a few bones, with no recovery of fish. This may simply be an artefact of preservation, but it may alternatively indicate that there was little exploitation of wild and aquatic resources at the site.

The three main domesticates — cattle, sheep/goat and pig — dominate in all periods, with their proportionate representation following trends seen elsewhere in the country. The importance of sheep/goat and cattle nationally during the earlier phases of occupation at Hill Field is such that one author has suggested that the late Iron Age deserves to be called the 'Sheep Age', which is then succeeded by the 'Cattle Age' following the transition to the Roman period (Albarella 2007, 389). Whilst this is undoubtedly simplistic, it does highlight the dominance of those two species in the archaeozoological record during these periods. Cattle are present within the assemblage from Hill Field much more than sheep/goats; this is largely due to the fact that cattle are better suited than sheep/goats to damp, heavy soils (Williamson 2006, 170), yet it may also be a further sign that occupation at Hill Field began only at the very end of the Iron Age.

Cattle remained the dominant species in the late Saxon to Saxo-Norman period, yet sheep/goats were overtaken in second place by pigs during this period. This reversal is comparable with other contemporary sites; an increase in pig exploitation has also been noted in the Saxon layers at Middleton Stoney in Oxfordshire, for example (Levitan 1984, 108).

Ageing data indicate a mixture of both immature and adult animals during all phases. This suggests a mixed economy, with some animals being slaughtered for meat whilst immature, and others being kept until they were mature in order to provide secondary products such as milk, wool, traction, and manure.

Arable

While there is plenty of evidence for pastoral activity, both from the faunal assemblage and from the wealth of features associated with the control and movement of livestock, indications of arable farming are much fewer. Five fragments of quern stones were recovered, four of which were probably used for grinding grain in the early Roman period; yet 'querns of themselves do not prove local cultivation' (Fowler 2002, 124). Only a small assemblage of charred plant remains was recovered, with just two samples that produced dense enough remains to indicate more than just background levels (yet even these yielded no more than *c*. 10 items per litre).

The main cereal that was identified throughout all phases is wheat, predominantly spelt during the late Iron Age and Roman period, and free-threshing in the Saxon and Saxo-Norman periods. Spelt appears to have been the main variety of wheat grown on Iron Age and Romano-British sites (Greig 1991, 306 and 309), after which free-threshing wheat took over, and the results from Hill Field tally with this. The other cereals from Hill Field are only represented by small amounts of barley and oats. Hulled barley is a common cereal throughout these periods, whereas oat does not appear to have been widely cultivated as a cereal until the post-Roman period (Greig 1991, 315): the earlier finds of oat in Phase 2 may represent cereal weeds.

Evidence on other crop husbandry practices, such as sowing and harvesting times and the range of soils used for cultivation, is limited by the small

amounts of charred weed seeds in the samples, and because the majority cannot be reduced to species. Most of the charred wild plant/weed seeds are probably cereal weeds, in view of their association with cereal grains in virtually all the samples. Scentless mayweed, a widespread arable weed, is only represented in samples containing hulled wheat; this plant also grows mainly in clay soils, suggesting the use of such for the cultivation of the hulled wheats. A similar correlation exists between stinking chamomile and free-threshing wheat in the post-Roman period, indicating that both types of wheat may have been grown in the immediate vicinity of Hill Field. The remaining charred weed seeds cannot provide any further information on crop husbandry, although the presence of spike-rushes and sedges in a few Roman samples tentatively suggests the cultivation of damp areas of ground, or the wetter parts of the valley.

Most of the charred plant assemblage represents burnt residues from the advanced stages of crop-cleaning and food preparation before consumption, with no definite evidence for the residues from earlier stages of crop-processing. The hulled wheat grains may have been burned accidentally during the de-husking of the cereals, as spikelets require light parching to separate the grains from the tough glumes; the chaff fragments may also have become charred during this process, or as a result of being used for tinder. All the different cereal grains may have accidentally been burned as a result of cooking accidents, or while being dried by heating before storage or milling. The weed seeds would have been separated from the grains by the use of large and small sieves, and may have become charred by being used as tinder. The low densities at which the material was recovered, however, suggests that the charred remains relate to crop-processing and food preparation activities that took place primarily at some distance away, and are mostly from background debris blowing around the site.

The poverty of the charred plant assemblage from Hill Field fits a general pattern for sites excavated on areas of clay geology in the region. Iron Age sites have proved to be particularly unproductive: recent excavations at Scotland Farm, Dry Drayton (Abrams and Ingham 2008; Ingham 2008), the Great Barford bypass (Timby *et al*. 2007, 365) and Twinwoods Business Park, Milton Ernest (Ingham 2010) have generated more than 100 soil samples, yet no more than a handful have produced more than background levels of charred plant material. Slightly more evidence has been forthcoming from Roman sites, yet only Site 8 at Great Barford (which contained kilns and a corn drier) consistently produced abundant charred plant assemblages (Timby *et al*. 2007, 365). The nearby excavations at Luton Road, Wilstead produced large quantities of chaff from three Roman deposits, but most of the remainder were as unproductive as those from Hill Field (Luke and Preece 2010). Questions of taphonomy and queries regarding sampling strategies inevitably haunt the recovery of sparse charred plant assemblages, yet the consistency of the overall pattern suggests that the results portray an accurate picture.

Diet

The wheat and barley grains may have been used for bread, porridge, gruel and cakes during the late Iron Age and the Roman period (Wilson 1991, 234); spelt wheat had particularly good properties for baking and milling (Jones 1981, 107). Spelt wheat or barley was also used during the Roman period in a gruel known as *puls* or *pulmentus,* which was roasted, pounded, and cooked in water to make porridge, similar to Italian polenta (Renfrew 1985, 22). Bread was the staple food during the Saxon period, with wheaten loaves regarded as the best bread (Hagan 1992, 20).

Little evidence was recovered to suggest that the gathering of wild foods played a significant part in the food economy of the site at any time. The only potential evidence comes from the Saxo-Norman wattle-lined well, which yielded the waterlogged remains of a few blackberry/raspberry and elder seeds, hazelnut shell fragments, and sloe/blackthorn fruit stones (also found as a charred example in Phase 3 water-hole G27). There is a similar lack of wild species within the faunal assemblage, suggesting that the inhabitants relied primarily on the main domesticated species (cattle, sheep/goat and pig) for their meat diet, even though evidence for butchery of these is low.

Ritual activity

Human burials

Three Roman cremation burials were recovered, each of a single, adult individual. This was the most common form of burial practice in the early Roman period (Taylor 2001), generally of 1st- to mid-2nd-century date, representing the continuation of late Iron Age traditions (Zeepvat 2003, 57).

A similar date can be adduced for the Hill Field burials from the pottery vessels that accompanied them; two were contained within an urn and were accompanied by two accessory vessels, while the third had no urn, but was accompanied by a ceramic jar. Similar cremation burials with up to three accessory vessels are known from a nearby cremation cemetery on the northern edge of the Biddenham Loop (Luke 2008, 218), where it was suggested that the vessels themselves may have held greater importance in the burial rite than the human bone.

Sorted burnt bone with no accompanying pyre material appears to have been the most common category of cremation burial in the early Roman period (Weekes 2008, 79). The remains of an entire body were rarely included in burial (McKinley 2000b, 67); however, the inclusion of elements of skull, axial, upper and lower limbs shows that all skeletal areas were represented, with no clear preference for selection in the recovery of particular bones.

The presence of burnt animal bone in cremation G50 may suggest the inclusion of animal foodstuffs on the cremation pyre. Inclusions of food offerings appear common practice, but may also indicate residual bone, incorporated accidentally into the cremation burial (McKinley 2000a).

Structured deposition

The inference of ritual activity to explain the deposition of particular artefacts or ecofacts, often in particular locations, is one of the more contentious issues amongst archaeologists. Distinctions between structured deposition and domestic refuse, though clear-cut in some cases, are often hard to determine (*e.g.* the cattle skull in Saxo-Norman pit [4775], Pl. 6); this is particularly true for the Roman period, where instances of structured deposition may be lost among the generally higher numbers of artefacts that are recovered.

The most compelling evidence for structured deposition at Hill Field comes from mid-Roman pit G36, which was located in the entrance to the eastern enclosure. Sixteen sherds of an unusual glass bowl were recovered from the pit; as well as being an object of higher status than was characteristic of the farmstead at Hill Field, the amount of the vessel present (*c.* 10%) is much larger than normal for a domestic context, whilst the sherds retain a fracturing pattern that may have been caused by a deliberate blow. Whilst not conclusive on its own, the recovery of a large proportion of a canine skeleton from the same pit is strongly suggestive of ritual deposition.

Further evidence comes from water-hole G29, which contained a 2nd-century enamelled disc brooch with peripheral lugs (Fig. 15, RA431) and three 2nd-century coins in its upper fill. The nearly complete state of the brooch suggests that it was deliberately deposited rather than lost, while the coins' presence may be an example of their being exchanged as votive offerings rather than as money (Guest 2008, 135–48; Guest 2009, 113). Recovery of these four items from the upper fill of the water-hole is perhaps an indication that they were used to mark the end of use of the water-hole in the late Roman or early Saxon period. A similar purpose might explain the recovery of four of the site's five quern fragments from water-holes.

CONCLUSIONS

Excavation at Hill Field revealed the remains of a low-status farmstead, occupied primarily in the 1st and 2nd centuries AD. Little evidence was uncovered for structural remains, but this was perhaps to be expected: building remains securely dated to the Roman period are surprisingly rare in rural Bedfordshire (Luke 2008, 58). The pottery assemblage is dominated by utilitarian, locally produced vessels, with a generally similar lack of ostentation amongst the non-ceramic artefacts, which also provide little evidence for the presence of buildings. The farmstead's economic base was pastoral, with cattle the dominant species, whilst little conclusive evidence was found for any other economic activities.

Even though occupation appears to have taken place on no more than a temporary basis after the 2nd century AD, the layout of the farmstead appeared to survive. The water-holes that are likely to have been integral to the early Roman farmstead were seemingly long-lived, and remained in use into the Saxon period. In addition, others were dug along the line of the earlier ditches, while the ditched boundaries came to be marked solely or primarily by hedgerows. The provision of water-holes attests to the continued importance of cattle, even at a time when sheep were attaining greater importance on many sites across the country. This situation continued into the late Saxon and Saxo-Norman periods, though perhaps on a smaller

scale: the water-holes that were dug in the Roman period appear to have fallen out of use by this time, with water supply restricted to the exceptionally long-lived sequence of water-holes and wells at the eastern end of the site. A suggestion from the palynological evidence that arable cultivation was becoming more important in the wider area, if not necessarily the immediate vicinity, may help to explain a reduced reliance on cattle. The presence of a wattle-lined well here suggests the presence of domestic activity nearby, although it was probably associated with a seasonal or specialist activity that would only have required temporary occupation. There is no evidence, however, of how the site related to the rest of the township; it was anticipated before excavation that evidence might be forthcoming that would relate to local place names such as 'Dane Lane' and 'Dane Farm', yet there is also no indication that Danish camps in the vicinity had any direct influence on the site, which appears to have witnessed a millennium of peaceful continuity.

There have been an increasing number of excavations taking place in areas of clay soils in the last few decades, which has helped to redress the imbalance between archaeological evidence from the claylands and that from the more intensively studied river valleys and chalk downs. Archaeologists have come to realise that areas of clay geology, traditionally overlooked due to the greater difficulty of detecting archaeological remains there, are often densely populated with farmsteads from the Iron Age and Roman period, as well as remains from earlier prehistory. This was particularly helped in Bedfordshire by a series of aerial photographs taken in 1996, which identified a vast number of sites that were previously unknown (Palmer 2007).

In view of the increasing belief that many areas of clay geology were as densely populated as anywhere else, it is noteworthy that the excavated evidence from the overall Wixams development appears to strike a discordant note. The farmstead at Hill Field is indeed another example of late Iron Age and Roman activity on the claylands, yet the density of settlements being revealed elsewhere does not seem to be replicated here. The nearest known farmstead, at Luton Road, Wilstead, is situated nearly a mile away, with no other examples revealed within the area covered by the Wixams development. The evidence from the Wixams development is not definitive, with only a limited amount of excavation having taken place, yet even the most promising of the other areas identified by the evaluation (Area 2) proved to have no more than fragmentary remains, with no clear indication of permanent occupation. The drove-way leading to the south-east is evidence that the farmstead at Hill Field did not exist in isolation, but the surrounding land appears to have been open countryside, used for farming rather than settlement.

Anomalous instances of high-status items within otherwise low-status ceramic and non-ceramic assemblages perhaps indicate that the farmstead was part of a larger estate rather than a self-sufficient unit, functioning as a series of stock enclosures that were used by shepherds and drovers on a temporary basis; this would also explain the absence of evidence for any substantial buildings. It may therefore be possible to characterise Hill Field and the surrounding area as predominantly open pastoral land during the late Iron Age and the Roman and Saxon periods: the site at Hill Field is not so much an example of the colonisation of the claylands, as an outpost used as a temporary camp by pastoralist farmers.

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APPENDIX 1: CERAMIC TYPE SERIES

POTTERY

Pottery fabrics, based on surface appearance and major inclusion types, are summarised in Table 10 by chronological period, using type codes and common names in accordance with the Bedfordshire Ceramic Type Series, currently maintained by Albion Archaeology. Detailed fabric descriptions are available from Albion Archaeology; published references are noted in Table 10. Full fabric descriptions are only provided where examples have not been previously published. Bracketed numbers after each fabric code denote sherd numbers. No new fabric types were identified.

Fabric code	Common name	Reference
Late Bronze Age/early Iron Age		
F01B (1)	Fine flint	Wells (2008, 294)
F01C (28)	Flint and quartz	Wells (2008, 294)
Early – middle Iron Age		
F02 (19)	Grog and flint	Slowikowski (2000, 61)
F19 (1)	Sand and organic	Parminter and Slowikowski (2004, 445)
F22 (9)	Grog and organic	Slowikowski (2005, 102)
F28 (3)	Fine sand	Wells (2008, 296)
F29 (3)	Coarse sand	Wells (2008, 296)
Late Iron Age		
F03 (33)	Grog and sand	Parminter and Slowikowski (2004, 443)
F05 (295)	Grog and shell	Parminter and Slowikowski (2004, 443)
F06A (30)	Fine grog	Parminter and Slowikowski (2004, 443)
F06B (1141)	Medium grog	Parminter and Slowikowski (2004, 443)
F06C (179)	Coarse grog	Parminter and Slowikowski (2004, 443)
F07 (561)	Shell	Parminter and Slowikowski (2004, 444)
F09 (509)	Sand and grog	Parminter and Slowikowski (2004, 444)
F34 (17)	Sand	Wells (2008, 296)
F39 (6)	Grog and mica	See detailed description
Roman		
R01A (70)	Samian (Central Gaulish)	Tomber and Dore (1998, 30–32)
R01B (3)	Samian (Southern Gaulish)	Tomber and Dore (1998, 28)
R01C (2)	Samian (Eastern Gaulish)	Tomber and Dore (1998, 39)
R03A (5)	Fine white ware	Tomber and Dore (1998, 154)
R03B (46)	Gritty white ware	Marney (1989, 186, fabric 39)
R03C (12)	Smooth white ware	Wells (2008, 297)
R05A (29)	Orange sandy	Wells (2008, 297))
R05B (85)	Fine orange	See detailed description
R05C (1)	Orange micaceous	See detailed description

Fabric code	Common name	Reference
R06A (84)	Nene Valley grey ware	Marney (1989, 179, fabric group 14)
R06B (328)	Coarse grey ware	Wells (2008, 297)
R06C (602)	Fine grey ware	Wells (2008, 297)
R06D (204)	Micaceous grey ware	Wells (2008, 297)
R06E (10)	Calcareous grey ware	Wells (2008, 297)
R06F (136)	Grey ware grog and sand	Parminter and Slowikowski (2004, 449)
R06G (78)	Silty grey ware	See detailed description
R06H (8)	White-slipped grey ware	See detailed description
R06I (5)	Black-slipped grey ware	See detailed description
R07B (146)	Sandy black ware	Wells (2008, 297)
R07C (3)	Gritty black ware	Wells (2008, 297)
R08 (1)	Black micaceous	Wells (2008, 297)
R09A (6)	Pink grogged	Tomber and Dore (1998, 210)
R10A (2)	Coarse buff gritty	Wells (2008, 297)
R10B (6)	Fine buff gritty	Wells (2008, 298)
R11 (20)	Oxford oxidised wares	Young (1977, 185)
R11D (1)	Oxford colour-coat	Young (1977, 123)
R12A (1)	Nene Valley mortaria	Tomber and Dore (1998, 119)
R12B (69)	Nene Valley colour-coat	Tomber and Dore (1998, 118)
R13 (1005)	Shell	Brown (1994, 57–8)
R13B (63)	Shell with limestone and sand	See detailed description
R14 (123)	Sand (red-brown harsh)	Parminter and Slowikowski (2004, 452)
R17 (1)	Smooth orange ware	Wells (2008, 298)
R18A (5)	Pink gritty	Parminter and Slowikowski (2004, 453)
R18B (29)	Pink fine	See detailed description
R19A (3)	Dressel 20 Amphora	Tomber and Dore (1998, 84)
R20 (3)	Mancetter/Hartshill mortaria	Tomber and Dore (1998, 189)
R22A (3)	Hadham oxidised ware	Tomber and Dore (1998, 151)
R31 (13)	Lumpy white ware	Parminter and Slowikowski (2004, 454)
R33 (1)	Verulamium region mortaria	Tomber and Dore (1998, 154)
R (1)	Non-specific Roman	Described in site archive
Saxon		
A01 (1)	Organic	Baker and Hassall (1979, 152)
A16 (50)	Mixed coarse quartz	Wells (2005, 30)
A18 (23)	Fine quartz	Wells (2005 30)
A19 (9)	Quartz and organic	Wells (2005 30)
A23 (32)	Sandstone	Wells (1996, 110)
A24 (2)	Oolitic	Wells (1996, 110)
A25 (1)	Granite tempered	See detailed description
A26 (1)	Mica, sand and organic	Wells (2005, 31)
A32 (1)	Red quartz	Wells (2005, 31)
Saxo-Norman		
B01 (48)	St Neots-type ware	Wells and Slowikowski (1996, 84)
B01A (11)	St Neots-type (orange)	See detailed description
B01B (39)	St Neots-type (fine)	Wells and Slowikowski (1996, 84)
B01C (1)	St Neots-type (mixed inclusions)	Wells and Slowikowski (1996, 84)
Early medieval		
B07 (1)	Shell	Baker and Hassall (1979, 167)
B13 (1)	Chalk	See detailed description
Late medieval		
E03 (1)	Oxidised smooth	Wells and Slowikowski (1996, 113)
Post-medieval		
P01	Fine glazed red earthenware	Baker and Hassall (1979, 220)

Table 10: Ceramic Type Series

Late Iron Age

F39 Grog and mica: Hard fabric with variable surface colour containing frequent, sub-rounded grog, up to 2.5mm in length, and moderate to frequent fine silver mica. Rare red-brown ferrous inclusions, up to 3.5mm in length, and natural clay pellets, up to 2.5mm in length, are visible in some sherds. Generally wheel-made.

Roman

R05B Fine orange: A finer version of R05A. Hard fired fabric, orange-buff throughout, although surfaces are often white-slipped. Contains frequent subangular quartz *c*. 0.1–0.5mm. Wheel-made.

R05C Orange micaceous: As R05B, although no slipped examples occur. Characterised by abundant well-sorted mica visible on surfaces.

R06G Silty grey ware: Soft fired, dense, dark buff-grey fabric with smooth fracture; smooth and soapy to the touch. Characterised by sandwich appearance in break. Contains sparse clear, well-rounded milky quartz, *c*. 0.5–1mm, sparse decayed (?)shell and rare dark red iron oxides. Wheel-made.

R06H White-slipped grey ware: Hard fired dark grey fabric, sometimes with a light grey core, characterised by an external white slip and occasionally an internal slip. The slip is always thick and extends well down the vessel profile. Irregular to finely-irregular laminated fracture Contains moderate well-sorted white quartz *c*. 0.1–0.5mm, sparse iron oxide and rare angular shell. Wheel-made.

R06I Black-slipped grey ware: As fabric R06H, but characterised by an external black slip and occasionally an internal slip.

R13B Shell with limestone and sand: Hard fired fabric with distinct orange surfaces and a rough texture, due to the sand content. Contains abundant poorly sorted sub-angular shell *c*. 0.2–0.5mm and moderate, poorly sorted sand and limestone lumps in varying amounts. Wheel-made.

R18B Pink fine: Smooth, fairly hard fired pink-buff fabric, with an even, irregular fracture and powdery surfaces. Characterised by abundant, well sorted subrounded/subangular glassy and rose pink quartz *c*. 0.1–0.2mm, and common poorly sorted red and black iron oxides. Wheel-made.

Saxon

A25 Granite: Hard, uneven fabric usually dark grey-black in colour, although some examples can be oxidised. Characterised by distinctive gold mica flakes visible on surfaces. Also contains abundant poorly sorted subangular quartz *c*. 0.3–0.6mm, some ranging up to 1.5mm.

Saxo-Norman

B01A St Neots-type (orange): Fairly hard, smooth fabric, characterised by at least one bright orange surface and a dark grey core. Contains abundant finely pounded angular shell; sparse subrounded red iron ore, *c*. 0.5mm; sparse subangular light grey limestone fragments, *c*. 2mm; and sparse subrounded clear quartz, *c*.1.0mm. Wheel-made.

Early medieval

B13 Chalk: Fairly smooth, patchy buff-orange to grey-brown fabric characterised by chalky inclusions, *c*. 0.2–1.5mm. These are clearly visible on the surfaces as white sub-rounded speckles, although are occasionally dark grey in colour, especially in the break. Also contains moderate well sorted rounded quartz, *c*. 0.5mm and occasional black elongated voids where organic matter has incompletely fired out.

BRICK AND TILE

Sand: fine and hard fired, orange throughout, turning to brick-red where over-fired. Generally finely tempered, although some fragments are coarsely made and contain angular quartz of up to 6.0mm in size. Contains frequent, well-sorted, sub-angular multi-coloured quartz *c*. 0.2–0.5mm and dark red and black iron ore *c*. 0.1–0.3mm. Also rare angular flint inclusions of up to 5mm in size.

Shell: hard fired, fairly smooth fabric with bright orange to buff-brown surfaces, and sometimes a paler core. Contains abundant ill-sorted, sub-angular shell, some ranging up to 10mm, visible throughout the fabric and on the surfaces. Also rare, poorly sorted limestone c. 0.2–0.5mm. Harrold tile fabric is described by Brown (1994, 79).

FIRED CLAY

Sand: fine, hard fired mid to dark orange-red fabric with variable dark grey-black patches where reduced. Inclusions are abundant sub-rounded and sub-angular quartz *c*. 0.1–0.5 mm and rare red iron ore *c*. 0.5 mm. Some larger fragments contain sub-angular/angular flint or chert pebbles ranging in size between 1–2 cm.

Sand and organic: fine orange-buff fabric, dark blue-grey where reduced. Inclusions are moderate, poorly sorted, sub-angular, multi-coloured quartz *c*. 0.1–0.5 mm, occasionally ranging to 1.0 mm, and frequent organic material (?straw), evidenced by elongated voids where the latter has burnt out.

Organic: soft variable buff-brown fabric with soapy texture, containing abundant poorly-sorted organic material evidenced by elongated voids where the latter has burnt out. Also occasional poorly-sorted mica.

APPENDIX 2: ANALYSIS METHODOLOGIES

A summary of the methods use for analysis of the artefact and ecofact assemblages is given below. In all cases, standard procedures were used unless otherwise stated.

Artefacts

Non-ceramic

Each non-ceramic artefact was identified, assigned a functional category, and quantified by number and/or weight. Where applicable, a date range was assigned. A full catalogue description was entered into the project database. All ironwork and selected non-ferrous objects were x-rayed to assist their identification; one coin also required specialist cleaning.

Leather

A basic record of the leather assemblage was made, including measurement of relevant dimensions and species identification, where possible. No allowance has been made during measuring for shrinkage. Any shoe-sizing has been calculated according to the modern English Shoe-Size scale. Leather species were identified by hair follicle pattern using low powered magnification. Where the grain surface of the leather was heavily worn, identification was not always possible. The grain pattern of sheep and goat skins are difficult to distinguish, and have been grouped together as sheep/goatskin when the distinction could not be made. Similarly, the term 'bovine' is used where there is uncertainly between mature cattle hide and immature calfskin.

Ceramic

The ceramic assemblage was examined by context, and fabric types and form codes identified in accordance with the Bedfordshire Ceramic Type Series (see Appendix 1). Quantification of pottery was by minimum vessel and sherd count, and weight; of ceramic building material, by fragment count and weight, with recording of any measurable dimensions. The condition of the pottery from each context was noted, and attributes such as decoration, manufacture, levels of abrasion, and evidence of function (residues, sooting and wear marks *etc*.) were recorded. Selected pottery is illustrated in Figures 9 and 16; vessels are shown at one quarter size, external view on the right and internal view on the left. Handmade vessels are illustrated with hatched sections, and wheel-thrown vessels with solid sections. The pie diagram accompanying each illustration indicates the proportion of the vessel recovered.

Wood

After preliminary recording and sketching, the full length stakes in the assemblage of waterlogged wood were cut down to the worked ends for ease of storage. Samples for wood species identification and radiocarbon dating were taken at this point. Detailed analysis was then carried out on the twenty-four worked ends that were sufficiently well preserved to merit further examination. The samples were washed of any concretion that had formed, and were examined in raking daylight to highlight fine tool mark details. Eight items were selected as a representative sample for scale drawing on film.

Ecofacts

Human bone

Analysis of the human bone was carried out with reference to current guidelines (McKinley 2004). The material was examined in relation to its weight, fragment sizes, representation of skeletal areas, and colour. The minimum number of individuals present and their age and sex were all calculated where possible. Age at death was based upon observations of the auricular surface (Lovejoy et al. 1985), skeletal maturation and epiphyseal fusion (Scheur and Black 2000), and dental development and eruption of teeth (Gustafson and Kock 1974).

Animal bone

Species identification of the animal bone was undertaken at context level, using the comparative reference collection of modern specimens at the School of Archaeology and Ancient History, University of Leicester. Fragments of mammal bone that could not be attributed to a taxonomic group at least equal to genus were categorised as either 'large mammal' or 'medium mammal'. For the three main domestic species — cattle, sheep/goat and pig — tooth wear on mandibles was recorded according to Grant (1982). Fused and unfused elements were also recorded. Measurable bones were measured to the nearest tenth of a millimetre using Vernier callipers; the measurements taken were as defined by von den Driesch (1976).

Molluscs

Mollusc shells were examined under a low-powered binocular microscope, and all sufficiently well-preserved shells were identified following Cameron and Redfern 1976, Macan 1977, and with reference to the MoLAS environmental archaeology collection. Ecological interpretations

follow Cameron and Redfern 1976, and Kerney 1999.

Plants

Although the botanical remains from all seventy-six soil samples were considered when analysing the overall assemblage, only the thirty-five soil most productive samples were selected for detailed analysis. The remains were identified using a binocular microscope with a magnification of up to 40x, together with the seed reference collection housed in the Environmental Section, MoLAS, and various seed reference manuals (Berggren 1969 and 1981; Beijerinck 1947). Identifiable charred plant remains were extracted and quantified in absolute numbers, with the exception of small cereal grain fragments (<2mm), awn fragments, charcoal, and indeterminate plant items; the quantities of these remains were estimated. The waterlogged plant assemblages were scanned wet, and the approximate abundance of different species was recorded. Taxonomy follows Stace (2005), while ecological/habitat information follows Ellenberg (1988), Hanf (1983) and Stace (2005).

Charcoal

A detailed assessment of the charcoal was undertaken, rather than full analysis: little of the charcoal from the fifteen samples is identifiable (>2mm), with most producing fewer than twenty fragments; and the species diversity for the only two that produced abundant fragments is very limited. Representative fragments from each sample were examined in longitudinal sections, using a Meiji incident-light microscope at up to x400 magnification. Identifications were made with reference to Schweingruber (1990), Hather (2000) and modern reference material. Nomenclature and classification follow Stace (2005). An estimate of the relative abundance of the charcoal was made where possible.

Pollen

Estimates of pollen concentrations and pollen preservation characteristics are based on the methods and criteria outlined in Delcourt and Delcourt (1980) and Stockmarr (1971). Pollen identifications are based on Moore *et al*. (1991) and modern reference material. Pollen counts are a minimum of 200 pollen and spores. Large numbers of pollen grains were too badly deteriorated for identification, and were recorded as unidentifiable. The slides were also scanned for pollen types which may have been missed during routine counting, and these were recorded as single occurrences. Pollen nomenclature is based upon Moore *et al*. (1991), Stace (1991) and Bennett et al. (1994).

The excavation of a 1st–2nd century cemetery at New Venue, Court Drive, Dunstable

Catherine Edwards

with contributions by
Mike House, Anna Slowikowski, Holly Duncan, Kevin Rielly, Felicity Wild,
Phil Austin and Melissa Melikian

SUMMARY

Excavations at the site of the New Venue development in Dunstable revealed a Roman cemetery that comprised 20 cremations and seven inhumation burials. The cemetery was in use during the first two centuries AD, after which the area appears to have been abandoned.

INTRODUCTION

The site investigation at New Venue Dunstable was conducted by AOC Archaeology Group in advance of the redevelopment of the site by CDP Dunstable Limited. The investigation area is located approximately 1km to the northwest of Dunstable town centre at National Grid Reference (NGR) TL 0185 2246 (Fig. 1), within the grounds of Dunstable Park Recreation Centre.

An evaluation, comprising five machine-excavated trenches, was carried out in November 2003. This was followed by strip and map recording which started in September 2006. The Roman cemetery was uncovered during the excavation for the new children's playground.

The archaeological fieldwork was completed in December 2004. All of the work was recorded using the site code NVD 04. The archive for this deposit will be deposited and available for consultation upon request at Luton Museums Service.

GEOLOGY AND TOPOGRAPHY

Dunstable falls into the modern day area known as the Chilterns, the hills of which are formed by an outcrop of Chalk and are, in places, overlain by clay with flints, up to a depth of four metres on the north-western side of the London basin. The Chalk strata have been tilted to create a dip slope that rises so gently towards the north-west that it generally has the character of a plateau. The plateau is cut by a series of through-valleys that divide it into roughly rectangular blocks with many branching dry valleys further dividing these blocks and thereby creating a varied mix of landscapes, (Countryside Agency 2006).

The site is located on a plateau of chalk, which has a gentle rise to the south-west.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND (Fig. 2)

The focus of prehistoric activity in the Dunstable area appears to have been at some distance from the site itself; on the downs and prominences around the town. Numerous flint implements from the Neolithic period were recovered during the 19th century from Dunstable Downs, to the southwest (VCH I; 161–7), and within Maiden Bower, an Iron Age hill fort, about 2km to the northwest (VCH I; 270). Also on Dunstable Downs was the Five Knolls barrow cemetery and a long barrow, now destroyed. Several cremation burials and a contracted inhumation have also been noted in this area (VCH I; 168–9).

The origin of the Romano–British settlement of *Durocobrivis*, now known as modern Dunstable, was probably in the 1st century. Watling Street, now followed by the A5, was the main Roman road from London to Chester and was probably built soon after the conquest. The junction with the existing Icknield Way would have been of some local significance, and at twelve miles from Verulamium (St. Albans) it was a convenient stopping point at which to site a staging post. Its appearance in no less then three Roman itineraries of the imperial post implies that there was a posting station

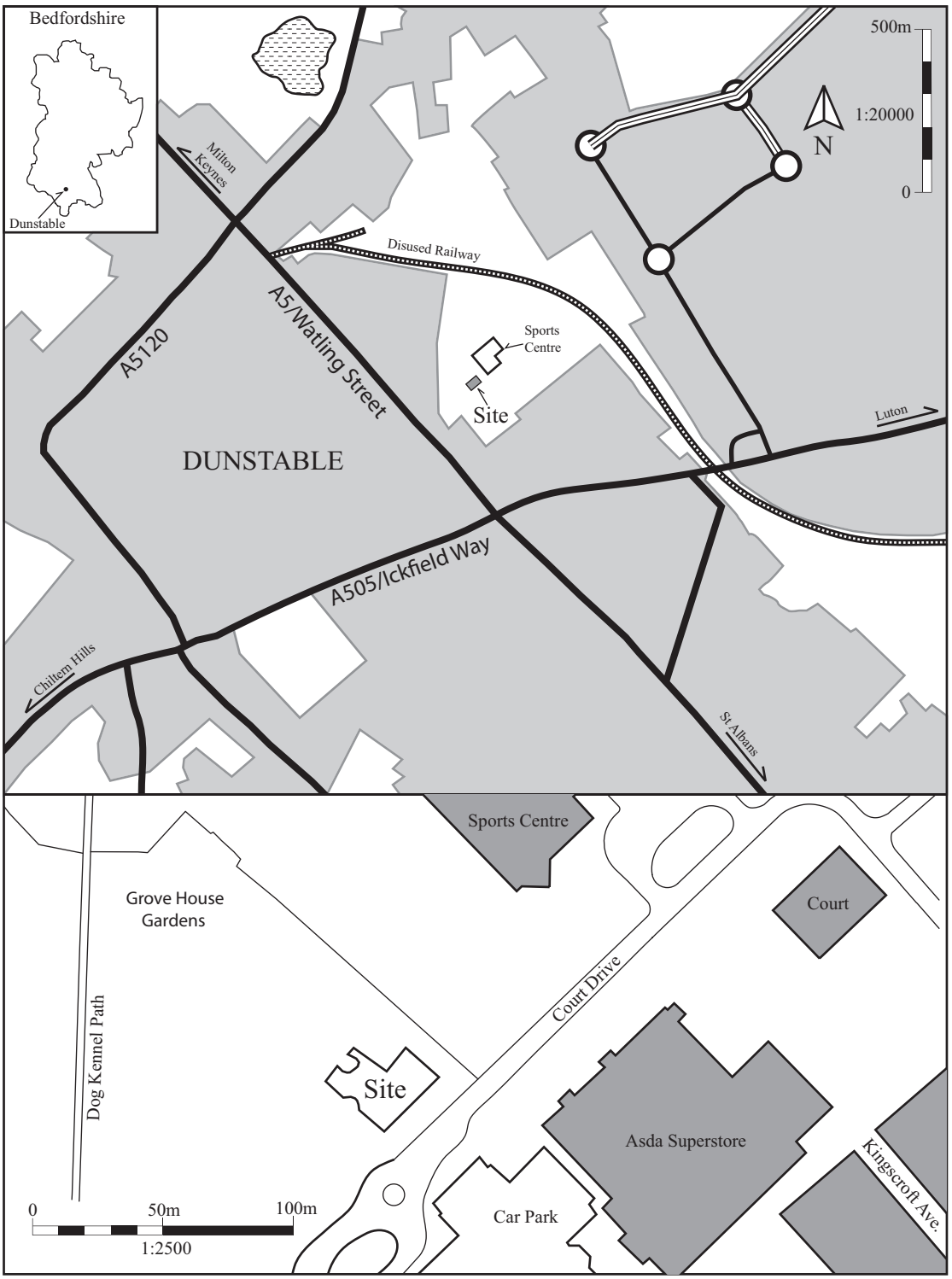


Figure 1: Site location

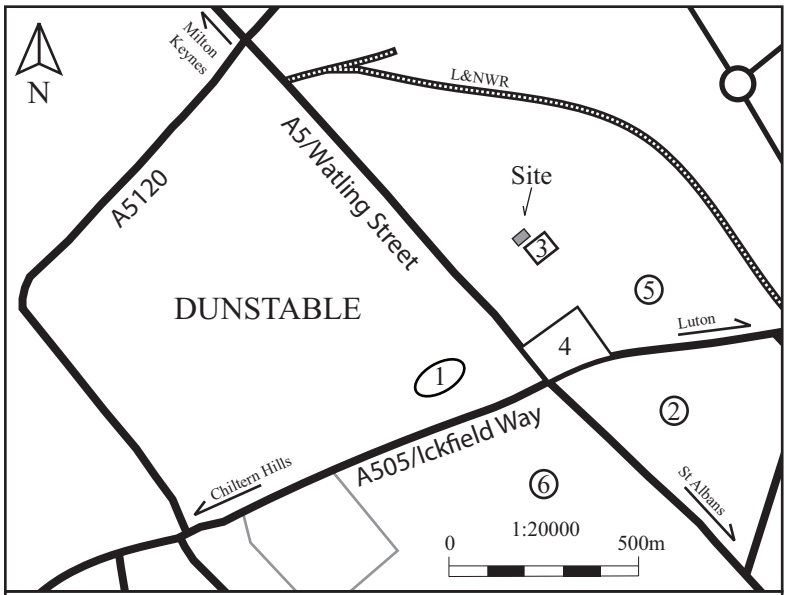


Figure 2: Gazetteer of Roman archaeology in Dunstable

there, (Branigan & Niblett, 2003). The station might have lead to the development of a small settlement serving the station, messengers and passing travellers and may also have provided a focus for a relatively dispersed agricultural based 'Belgic' or late Iron Age society.

There is limited evidence for Roman Dunstable with only a handful of sites yielding significant Roman archaeology. Local to the site was the excavation at Queensway Hall (excavated in 2000 by Northampton Archaeology), where evidence of a Roman ditch enclosure with associated ditches and pits was recorded, see Fig. 3 (Mudd 2004). These excavations provided evidence dating to the 1st century AD with activity ceasing on site in the late 1st -early 2nd century. The evidence suggests that the enclosure may have been used for agricultural purposes rather than occupation, as finds such as domestic pottery and structural debris were limited.

Other early Roman archaeology in Dunstable was recorded at a site excavated in 1964 just off Church Street, approximately 300m to the south-west of the New Venue site. Several possible dwellings, pits, wells and a possible track way were recorded with several yielding possible early dates. The dwellings are described as primitive mainly composed of postholes, sunken floors and chalk walls. The wells and pits contained various forms of domestic rubbish including pottery, oyster shell, building tile and animal bone. Excavation of the metalled tracked way uncovered sherds of pottery as well as numerous Roman coins dating from the 2nd century to the 4th century AD. Also on site were a cremation burial and two inhumations, suggesting a cemetery, (Manshead Magazine 14). Lack of dating evidence prevents establishing a chronology with the cemetery excavated on this site.

Another example of pre-Roman and early-Roman settlement was excavated in the northern outskirts of Dunstable at Puddlehill, now known as Castle Hill. The evidence for structural remains on this site was in the form of trodden floors which would have been the internal surfaces of timber structures. The structures have been dated to the

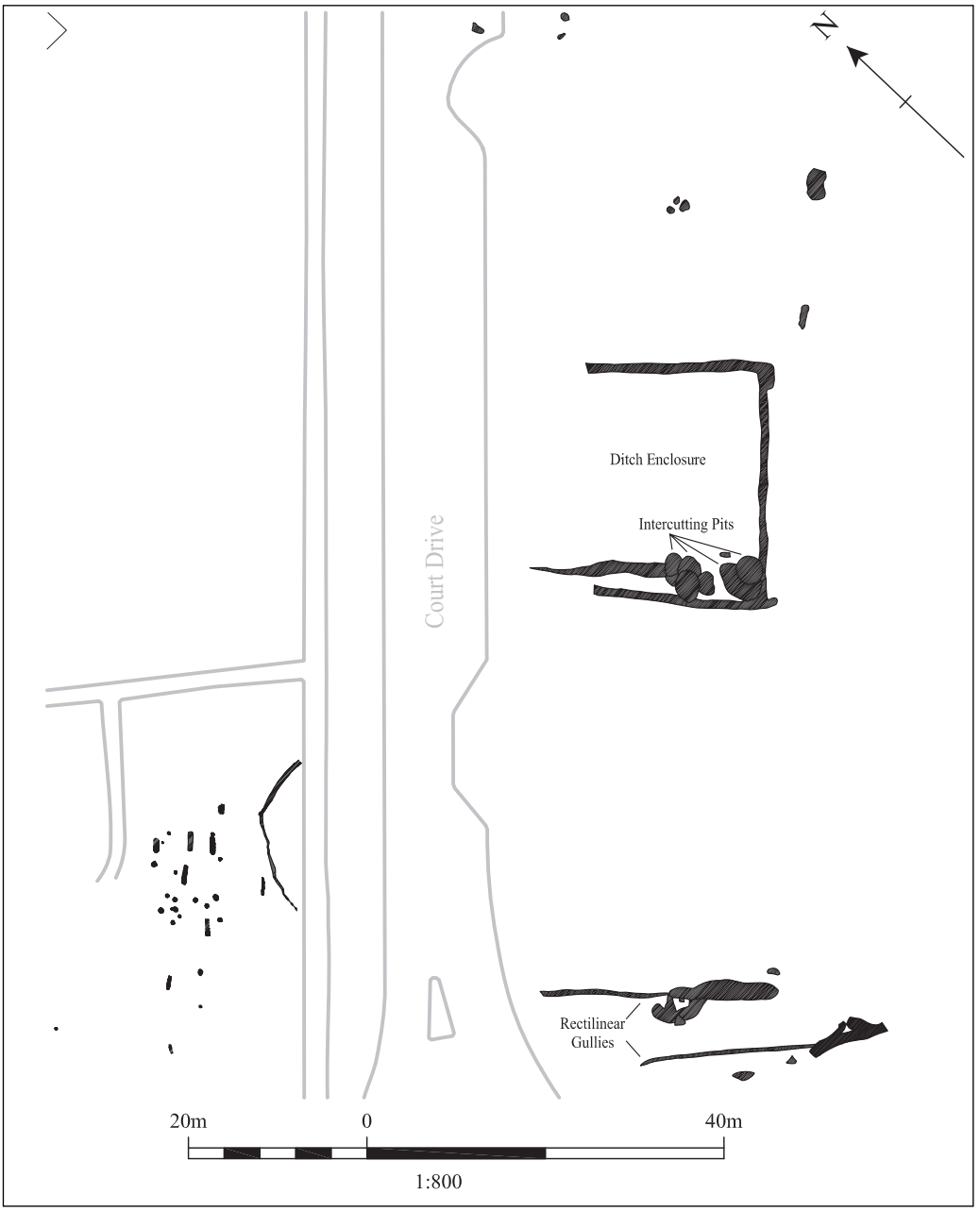


Figure 3: The archaeology recorded at the New Venue Cemetery and Queensway Hall site

1st–2nd century with no activity after the 2nd century. Also recorded on site were nine cremations burials interned in urns made in the pre-Roman 'Belgic' style (Matthews 1989). The abandonment or shift in settlement pattern of this site echoes that of both the Queensway Hall site and the New Venue cemetery. This suggests there was a universal change or shift in the settlement patterns of the inhabitants during the 2nd century.

The Friar Fields cemetery was located in the south-western quadrant of Dunstable approximately 650m to the south-west of the New Venue

site. The site at Friar Fields contained some 1st–2nd century pits and wells, but appears to have been mainly used during the 3rd–5th centuries for inhumation burials. The establishment of this cemetery on the diagonally opposite side of the current town suggests that there was a significant shift in the pattern of occupation during the 2nd–3rd century AD.

THE RESULTS

During the strip and record exercise in the area demarcated for the new playground, part of a Roman cemetery was excavated revealing 20 cremation burials and seven inhumation burials (Fig. 4). The cemetery dates to the 1st–2nd century AD. After the 2nd century the cemetery falls out of use with no later cremations or inhumations being interned.

Pre-Roman Evidence

There was no evidence of any significant pre-Roman activity on site that might have suggested that the location of the cemetery had been determined by pre-existing land use or settlement. Towards the east of the site, a small, narrow, circular ditch [1058] was recorded, (Fig. 4). No datable finds were recovered from the ditch and as the feature has no stratigraphic relationship with the cemetery, is it impossible to determine whether it was related to it.

Funerary Process

Bustum

Feature [1062] was interpreted as a bustum. A bustum is the site of a cremation and burial, where the pyre is constructed over a grave shaped pit. The pyre debris and the cremated remains are then deposited into the pit below, (Barber & Bowsher, 2000). The rectangular feature [1062] measured 1.90m long x 0.30m wide x 0.10m deep, and was filled by a black brown grey clay silt that contained a large quantity of charcoal fragments and cremated bone (Fig. 4). Charcoal remains recovered from the fill (and from six other cremations) has been identified as being derived from oak (*Quercus* sp). Oak has excellent burning properties and has long been valued as fuel. Oak is unlikely to have grown on the thin calcareous soils that characterise much of the area and it is not present locally today. This suggests that oak was preferentially selected over other, equally good, fuel woods which were probably available locally.

The fill of the bustum contained 422g of cremated bone which varied in colour from buff to dark grey/black. Only 12g of bone was identifiable.

Burial Practice

Inhumation Burials

All of the burials were laid on an east-west alignment with the position of the head at the eastern end but a number of different corpse positions were recorded (see Table 1). Due to the lack of associated features on site, it remains unclear whether the burials were related to any contemporary Roman features nearby, however both the inhumations and the ditch enclosure excavated on the Queensway Hall site are aligned at a 90° angle to Watling Street and parallel to the Icknield Way (pre Roman).

In grave cut [1082] the corpse was laid in a prone (face down) position. The remains were extended, with the arms resting either side of the body and the legs out stretched indicating that there was no post burial body disturbance or bone tumble. This was the only prone burial on site and

Grave Cut	Skeleton	Orientation	Body Position	Length/breadth (m)	Depth (m)	% of remains	Finds
1066	1065	E–W	Crouched	0.77 x 0.36	0.15	35	None
1070	1069	E–W	Supine	2.14 x 0.55	0.54	95	Votive vessel
1073	1072	E–W	Supine	1.98 x 0.56	0.52	95	None
1082	1081	E–W	Prone	2.15 x 0.50	0.42	95	None
1090	1089	E–W	Supine	1.55 x 0.53	0.30	80	None
1093	1092	E–W	Crouched	1.65 x 0.66	0.37	90	None
1096	1095	E–W	Supine	1.90 x 0.45	0.43	85	None

Table 1: Inhumation burials

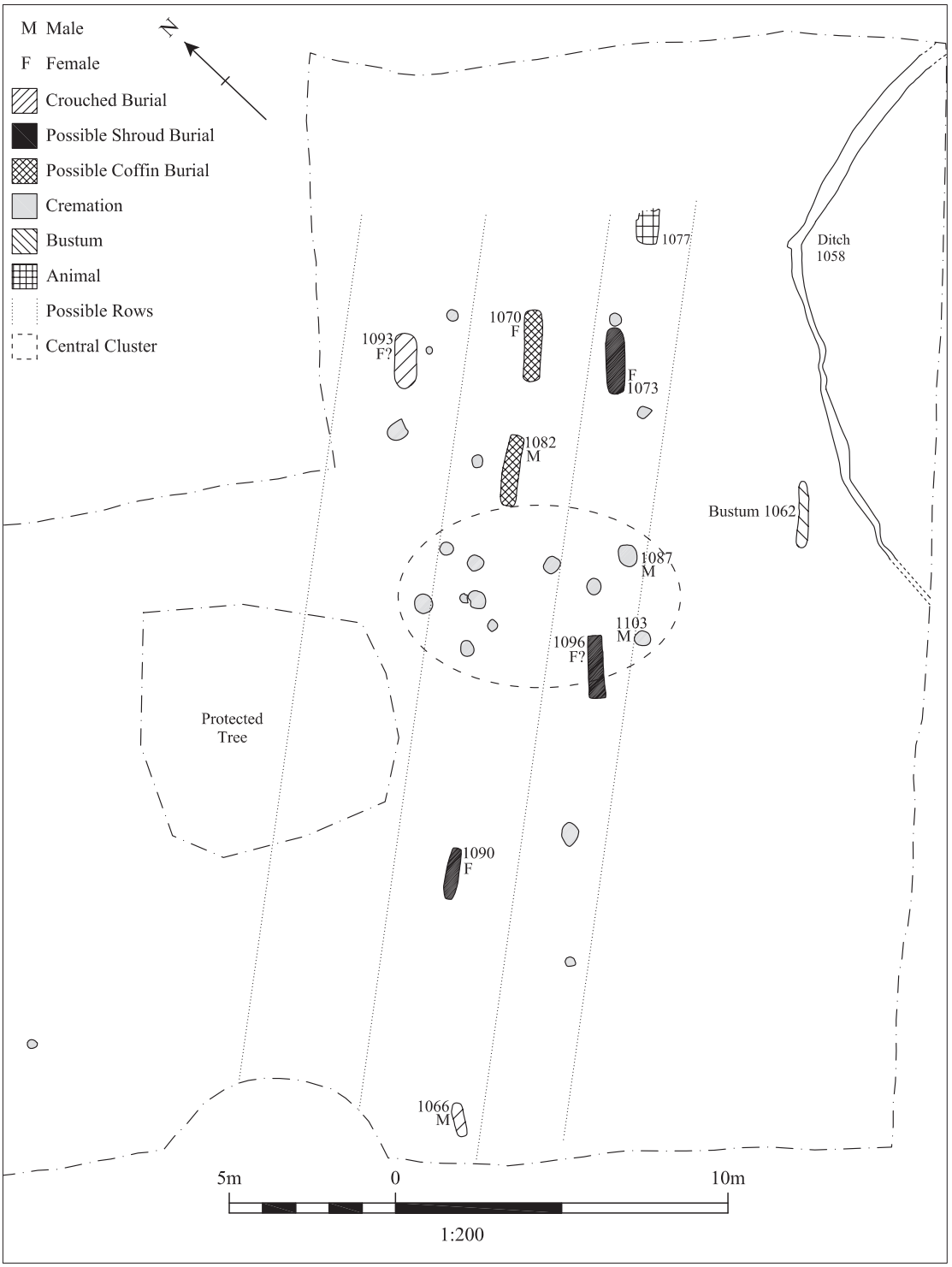


Figure 4: The Roman cemetery: burial practice

may represent a variation on the burial rite or simply an 'undertaker's error' (Barber & Bowsher, 2000). In grave cuts [1066] and [1093] the corpse was laid in a crouched position with the legs pulled up underneath the body. The arms of the corpse within grave [1066] were laid across the chest whilst the corpse in grave [1093] had both of its arms tucked under its face and head. The corpse in burial [1093] was laid on its right hand side, facing north-west, whilst the corpse in burial [1066] was recorded lying on its left side. The remaining corpses were supine burials, with all but one corpse, lying in an extended position. The exception was the corpse within burial [1090] which had slightly drawn up legs, though not in a fully crouched position. The arm positions in these four graves varied from extended to crossed arms over the chest or waist.

Only one grave [1070] contained grave goods, a single vessel deposited at the eastern end of the grave directly on top of the corpse's left upper arm. The complete votive vessel was recorded as a jar in fabric F09, a grog and sand-tempered ware. The fabric and vessel type (wheel thrown) indicating a 'Belgic' tradition, dating to conquest period–1st century AD.

Cremation Burials

A total of 20 cremation burials were recorded on site, 16 were urned, three were unurned and one was within a casket burial, interned within an urned burial. Each of the burials contained the remains of one individual with the exception of cremation [1042] which contained the remains of two. The cremation burials were deposited within circular or oval cuts, with the exception of three cremations which were sub-rectangular. The size of the burial cuts varied from 0.65m by 0.50m wide, to 0.24m by 0.20m. The depth of the cremations at between 0.05m to 0.35m is dictated by the level of truncation across the site. Three small sub-circular post holes were located near three burials possibly suggesting the use of grave markers.

The majority of cremation urns were made in local fabric R14 including examples of jars such as a cordoned jar and a lid seated jar. The second type of burial container excavated on site was a possible casket. During the excavation of cremation burial [1029] a large amount of metal was recovered. The contents of the cremation urn revealed six iron split-spike loops with copper alloy wires and a cast angular ring, and up to four nails, see Table 9. These fragments are thought to have been fasteners for a type of box suggesting that this cremation is part of a tradition known as casket burials.

Several cremation burials contained grave goods such as multiple votive vessels, hobnail boots and jewellery. Votive vessels accompanied the main cremation urns in nine vessels. The vessels were both locally produced wares in the 'Belgic' style, and imported foreign wares, including four examples of central Gaulish ware (Les Martres-de-Veyre) and southern Gaulish samian ware (La Graufesenque). All of the samian ware on site was stamped with a potters mark such as MAGN (Magnus), OFLICIN (Licinus) and VITALISMSF (Vitalis). One example of a samian dish from cremation [1033] had been broken in antiquity and repaired using lead rivets. One cremation [1105] contained evidence of hobnail boots. The condition of the hobnails recovered from the cremation urn suggests that they were either worn or placed on the pyre. Items of personal adornment included a glass bead (heat affected) and three iron brooches in the form of Headstud, Colchester and Camulodunum Type III (Gaulish). All of the brooches were broken which might suggest ritual 'killing' of the grave goods.

SPECIALIST REPORTS

THE POTTERY

A.M.Slowikowski

Introduction

Forty eight individual vessels were recovered, each being recorded separately, by context, fabric and form, and quantified by sherd and weight. Fabric codes are those in use by the Bedfordshire Ceramic Type Series. Few vessels were intact although most had substantial parts surviving. Rims were largely absent or very fragmentary so estimated vessel equivalents were not recorded. At least seven vessels had sherds spread through different contexts, although in most cases these were separate layers within the same burial fill. Other recorded attributes are glaze and decoration, evidence of use such as sooting, wear marks, residues and post-firing modification, and evidence of manufacture.

Pottery fabric descriptions

F06B Grog-tempered ware (1 vess; 87 sh; 1.732kg)

Fairly soft and soapy to the touch. Surfaces are orange-brown

to grey-black with a grey core. Grog is the predominant temper, dark grey or buff, 0.5–1.5mm. Also contains sparse fine quartz and red or black iron ore. Date and parallels: Fully discussed by Thompson (1982).
A single cordoned jar was found in this fabric.

F07 Shelly ware (1 vess; 58 sh; 0.711kg)
Fairly hard fired, bright orange brown with a grey core; dense shell inclusions, seen as elongated white inclusions, give a speckled white appearance to the surfaces.
A single lid-seated jar was found in this fabric.

F09 Grog and sand tempered ware (9 vess; 257sh; 4.978kg)
Harsh to moderately soapy in texture, depending on the proportions of sand and grog. Generally reduced to shades of brown or grey. Moderate to abundant angular black and/or buff grog, and varying amounts of sub-angular quartz, 0.1–0.5mm, but can be up to 1.0mm. Some examples may also contain sparse but quite large chalky lumps, up to 3.0mm, and frequent black inclusions, imperfectly fired out organic matter. This fabric type is possibly a variant of the grog and sand tempered wares of which R14 is also a part (see R14 below).
The same basic range of forms occurs in both fabric types: jars, usually cordoned, and pedestal urns. Both hand made and wheel thrown examples occur.

R01 Samian (see samian report by F.Wild) (4 vess; 38 sh; 0.709kg)

R03A Verulamium region ware (3 vess; 38 sh; 0.392kg)
Hard, fairly rough gritty fabric, off-white or pinkish in colour, with abundant sub-rounded quartz and sparse red iron ore. Fully described by Tomber and Dore (1998, 154–55).
The lower part of a jar was recovered as well as body sherds from a small thin walled jar or beaker.

R03C Fine white ware (1 vess; 97 sh; 0.138kg)
Smooth surfaces, off-white to buff in colour with a fine dense fabric giving a soapy feel. Few inclusions visible but these are poorly sorted sub-rounded quartz, 0.2–0.5mm, and sparse red iron ore, 0.1–0.3mm. Surfaces are slightly micaceous.
A single beaker or small jar was found.

R05A Orange sandy ware (6 vess; 233 sh; 1.596kg)
Dense fabric with few inclusions visible to the naked eye. Smooth surfaces, finely micaceous, orange in colour, although interiors may be brown or grey, with a grey core. Sparse sub-angular quartz approx. 0.3mm, sparse rounded red inclusions, possibly iron ore, approx. 0.3mm and moderate rounded white chalky inclusions, 0.1mm or less, although some examples are fewer but larger, up to 2.0mm. Very occasionally rounded grog or perhaps natural clay pellets, may be present. The presence of a bloated waster in this fabric indicates that this type was being manufactured in the immediate locality. The presence of chalk in the fabric supports this. The butt beaker (illust 19) is a variant of this type without chalky inclusions and with the addition of organic matter, which has imperfectly fired out and appears as small black patches.
A variety of forms was found, among them beakers, including a butt beaker, a jar and a flagon.

R05B Fine orange sandy ware (1 vess; 39 sh; 0.198kg)
Particularly fine orange sandy ware, very smooth and orange throughout. Fine micaceous fabric with all inclusions 0.1mm or less. Subrounded quartz and moderate red iron ore may be seen, in addition to frequent tiny white inclusions, probably chalk, which appear as a speckled background.
A single beaker was found with a thin dark red slip, largely worn away, on both the interior and the exterior.

R14 Harsh sandy ware (16 vess; 552 sh; 5.104kg)
This category covers a variety of fabrics across the county, all of a similar date and with similar characteristics, but here it is possibly a local type. Fairly soft fired (can be scratched with a finger nail) usually patchily oxidised/reduced surfaces in varying shades of orange to brown, and a reduced dark grey core. Characterised by the very harsh feel. Inclusions are abundant rounded to sub-rounded quartz, 0.3–0.7mm, and sparse black patches where organic matter has imperfectly fired out. Occasional inclusions of black and/or buff grog, but not in all sherds (see F09 above). Varying amounts of small chalky inclusions may also occur, suggesting a local fabric. F09 and R14 are probably extremes in a range of grog and sand tempered wares, with varying proportions of grog and sand occurring.
A similar range of forms to fabric F09 is found, including jars, cordoned jars and pedestal urns, but also lid-seated jars and bowls.

R26 Terra Nigra (2 vess; 64 sh; 0.298kg)
Two platters were found, both with some variation to their fabric, but with the same visual characteristics, copying terra nigra. They are described separately below.
Illust 22 Micaceous surfaces smoothed and burnished exterior. Patchy black/brown surfaces, smooth and fine and fairly soft. Dense abundant small white rounded chalky inclusions, 0.1–0.5mm, sometimes occurring as lenses within the fabric,possibly indicating poorly mixed clay. Black patches indicate imperfectly fired out organic matter. Because of the presence of chalky inclusions, this may be a local product.

Illust 23 Smooth, soapy fine surfaces with burnished exterior. Black with slightly reddish margins. Poorly sorted angular quartz, 0.2-1.5mm. Some small black patches where organic matter has imperfectly fired out. Sparse sub-angular brown inclusions, soft and possibly grog, 0.3–0.5mm.

R30 Fine micaceous (1 vess; 5 sh; 0.013kg)
Fine, smooth micaceous fabric, light grey throughout. Few inclusions are visible although possible iron ore appearing as small black speckles, is present. A single vessel was found, whose fabric is so close to the St Remy glazed ware flagon (see below) that it could be of the same type. The vessel however, is so abraded and fragmentary that any signs of glaze have totally disappeared. It may be a beaker or small jar.

R32B Central Gaulish glazed ware (St Remy ware) (1 vess; 27 sh; 0.076kg)
Very fine, smooth, pale whitish grey throughout. Very micaceous especially on the surfaces. A dense fabric with few inclusions visible: sparse sub-rounded quartz, 0.1mm or less; some possible black iron ore inclusions, also 0.1mm or less, particularly visible on the surface where the glaze has worn away; sparse elongated thin black inclusions, possibly organic matter which has imperfectly fired out. Characterised by a thickly applied dark olive green glaze which also covers the interior. The underside of the base was also once glazed, but only traces remain.

A single small flask was found, with characteristic relief-moulded decoration in the form of rows of leaves. Much of the

Cremation no	F06B	F07	F09	R01A	R03A	R03C	R05A	R05B	R14	R26	R30	R32B
1005				1		1			1			
1012									1			
1015									1			
1018									1			
1021					1							
1025	1						1					
1029			2									
1033			1	1	1						1	
1039		1										
1046				1			1					1
1051									1			
1054									1			
1061									1			
1070			1									
1087			1				1					
1103							1	1		1		
1107									1	1		
1112									2			

Table 2: Variety of fabrics occurring in each cremation

surface has deteriorated, but the glaze remains in patches and the relief-moulding is clear and, in some places, sharply defined, indicating a good quality mould.

R Unidentifiable Roman
From soil samples only

Discussion: pottery
The date range for the pottery in the cemetery is from the early 1st century to early 2nd century AD, although some may be earlier. Many of the vessels have 'belgic' characteristics, such as cordons, pedestal bases and grog-tempered fabrics. They are likely to be pre-Conquest, but it is equally possible that they were buried post-Conquest. They may have been retained as heirlooms for burial with their owner, or they may have had little significance except that they were now old fashioned and fit for burial. Pottery with 'belgic' characteristics of form and fabric have been found with 2nd-century pottery in Luton (Ren Hudspith pers. comm.), so it is not unlikely that 'old fashioned' pottery continued to be used, if not made, well into the Roman period in this region. Cremation [1021] contains a Verulamium Region ware (R03A) jar dating to the early-mid 2nd century, and is likely to be among the latest of the excavated cremations. Body sherds of Verulamium Region ware (R03A) were also recovered from cremation [1033] but this was badly disturbed and only small fragments survived. However, if the sherds originate from a cremation or accessory vessel, cremations [1033] and [1021] may be contemporary.

Most of the vessels are in fabrics F09 or R14, possible variations within the same broad fabric type (Table 2). They are mutually exclusive, with either F09 or R14 being chosen for the burial vessel. Accessory vessels are more varied with only cremations [1029] and [1112] containing more than one vessel in the same fabric.

Hand and wheel thrown examples occur, suggesting that several potters or potters' workshops were producing the same basic range of vessel forms in similar fabrics, but using different techniques. The production of wheel-thrown pottery would mean the purchase of a wheel and an investment in training, with correspondingly high set-up costs. This implies a Roman influence while the continuance of handmade vessels, often in the same fabric, suggests a backward looking community, steeped in ancient tradition.

The forms occurring in fabrics F09 and R14 are all variations of the jar, with the single addition of a lid-seated bowl in fabric R14 (Table 3). Jars also occur in other fabrics, but there is more variety of fabric in other forms, and an absence of non-jar forms in fabrics F09 and R14. This suggests the choice of local wares for the cremation vessel and non-local, possibly high status vessels for accessories.

Sources
The majority of the vessels are of a harsh sandy fabric, varying in firing colour from orange through varying shades of brown to grey. They are of local origin, probably made in, or in the

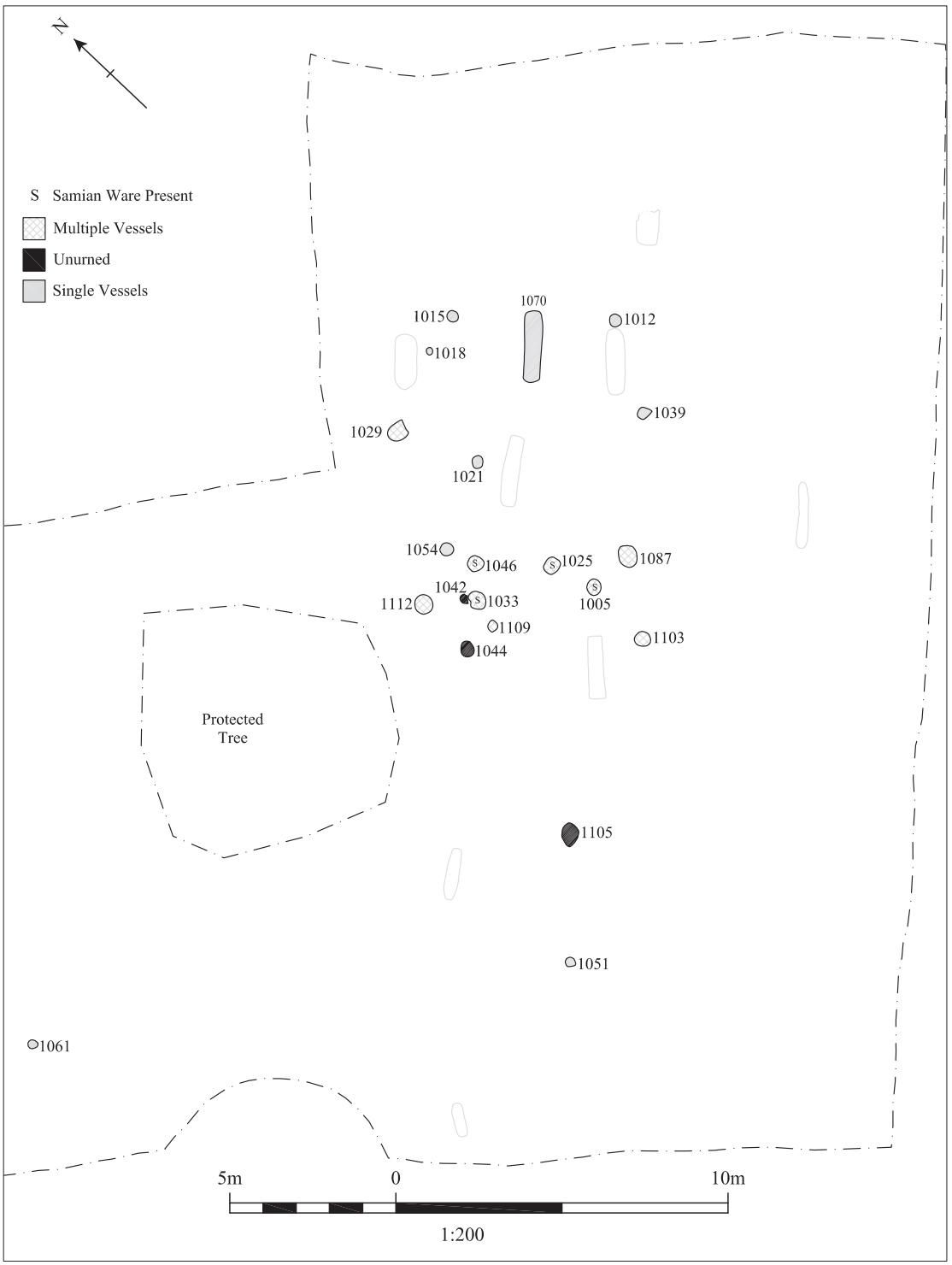


Figure 5: Roman cemetery: distribution of grave goods

Fabric	Pedestal urn	Jar	Cordoned jar	Lid seated jar	Lid seated bowl	Beaker	Butt beaker	Dish	Platter	Flagon/ flask
F06B			1							
F07				1						
F09	2	3	1							
R01A								2	2	
R03A		2								
R03C						1				
R05A		1				1	1			1
R05B						1				
R14	1	4	4		1					
R26									2	
R30						1				
R32B										1

Table 3: Variety of identifiable forms occurring in each fabric type

vicinity of, Dunstable. Although no pottery kilns have yet been recognised the presence of the waster/second attests to their existence. Wasters are unusable vessels spoilt at the point of manufacture and discarded there; so they would not have travelled far from the kiln site. Seconds are also spoilt vessels but still usable, therefore they may have travelled further, although unlikely much beyond the local market. The vessel from cremation [1103] is probably a waster although still largely surviving in one piece. The surfaces have been split apart in a number of places by bubbles caused by the vessel not drying out sufficiently prior to firing. The water in the body turns to steam and causes the vessel to bubble, a fault known as 'bloating'. This vessel may have been acquired, cheaply, directly from the manufacturing site as it is unlikely to have reached the market.

Shelly wares were made in a number of small production sites all over north Bedfordshire. Here the Jurassic clays provide suitable raw materials and have been used in pottery manufacture from the Iron Age to the medieval period. The products of these kilns do not have a wide distribution, and it is not until the large manufactory at Harrold monopolised the shelly ware industry in the area that its products reach most of Roman Britain, particularly in the 4th century (Brown 1994). During the Conquest period, shelly pottery was being made at Stagsden, one of several small potting workshops known in the area. It is only 8km from Harrold and may even have been its precursor. Four kilns were excavated, together with their products, both wasters and usable vessels. Among the pottery from kiln G7 were jars with bases which had a distinctive potter's mark on them (Slowikowski 2000, 82). The same mark has been recognised on the base of a shelly jar from the cemetery (Illust. 11, Fig. 7). It was likely to have been made in the same workshop, if not by the same potter. Archaeomagnetic dating of the kilns indicated a date within the range AD 40–110 (Clark 2000, 125), giving a date for the manufacture, if not the deposition, of this shelly jar. Why this particular vessel was chosen for burial is unclear. Its significance may have lain in the distance it had travelled; the distinctively different colour and surface appearance from the local sandy wares or even the fact that it was a marked vessel. It may have been a treasured family possession or just another cooking pot. There are signs of soot blackening on the exterior.

Imported vessels are largely samian dishes but there is a rare example of a Central Gaulish glazed ware flask (Illust. 14, Fig. 7) from Cremation [1046]. The flask is a small vessel with characteristic relief-moulded decoration in the form of rows of leaves, with an overall lead glaze. Most of the vessels found in Britain come from St Remy-en-Rollat, in the Allier valley (Tyers 1996, 141). These vessels are rare in Britain. Those that do survive are usually complete as they are most commonly found in burials. They can be dated closely to between AD 43 and AD 70/75. A form series of these glazed wares has been published (Greene 1978) but there is no parallel for the Dunstable form in the series. It is far more angular than any of the flagons illustrated and smaller, and may have been copying metal forms. Although it has been suggested that glazed flagons were used as tableware, to complement samian dishes, the Dunstable flask is too small to hold much liquid. Added to this is the fact that the Dunstable flask is glazed internally as well as externally while other closed forms such as the flagons are glazed externally

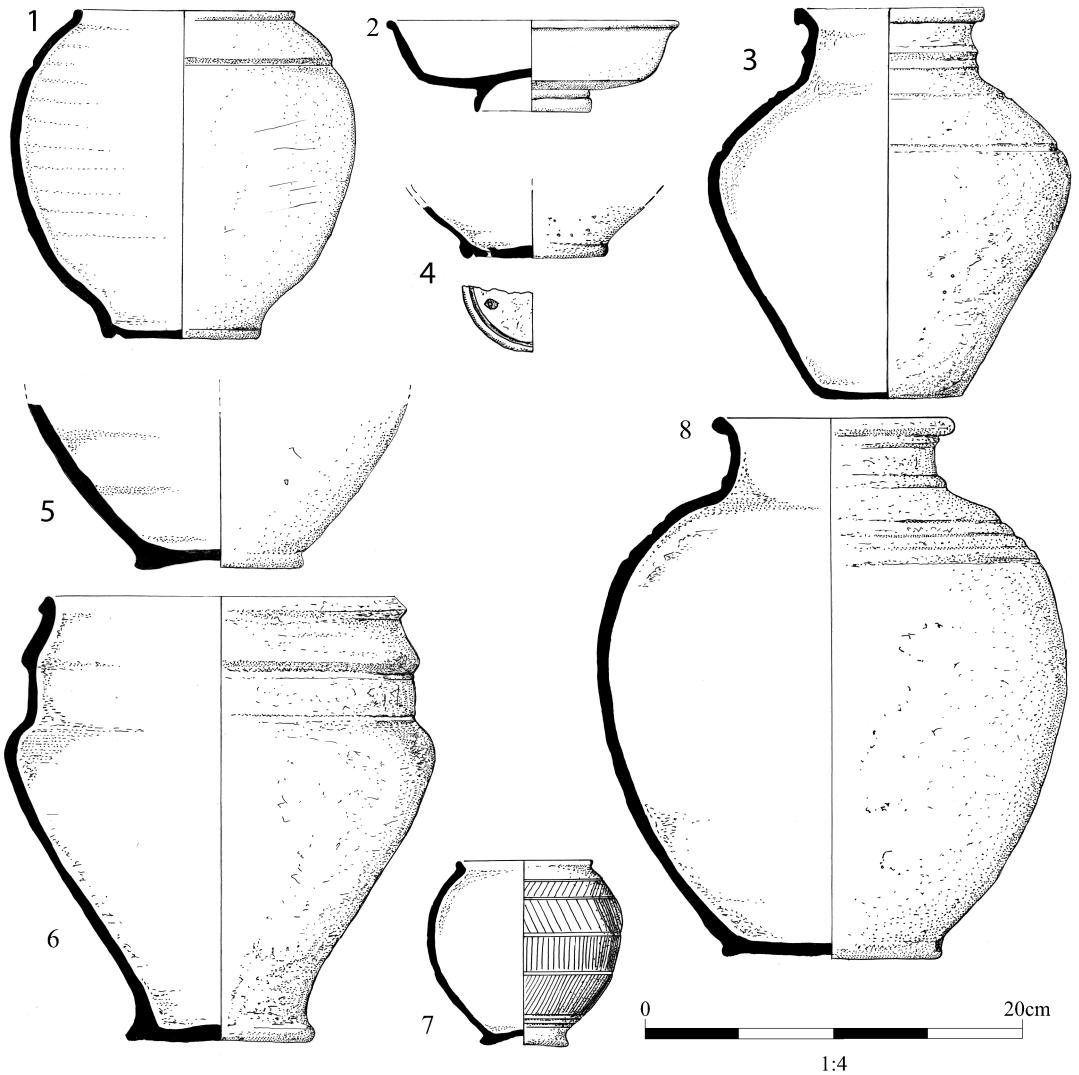


Figure 6: Roman pottery

only (Tyers 1996, 140). It is more likely to have held other substances, such as precious oil or perfume.

There are few examples known from the region. A single sherd from a beaker was found at Milton Keynes (Marney 1989, 179) while a base fragment was found at the cremation cemetery at Harlington, unfortunately unstratified (Wells 2001, 30).

Glazed vessels are rare in the Roman period, although the skill needed to produce them was there. White slipped and green lead-glazed wares were manufactured in Britain in the 1st and early 2nd centuries, and are known from assemblages in the county, such as Sandy (Slowikowski 1991) but glazed vessels, in general, had a short lived popularity, and, by the second quarter of the 2nd century, they were no longer being produced (Arthur 1978, 295).

Signs of ritual activity

The choice of vessels for burial corresponds with the idea of deliberately 'killing' a vessel as part of the burial ritual, or of using a previously 'spoilt' vessel (Philpott 1991, 239). The use of the waster is a case in point. The vessel was unusable,

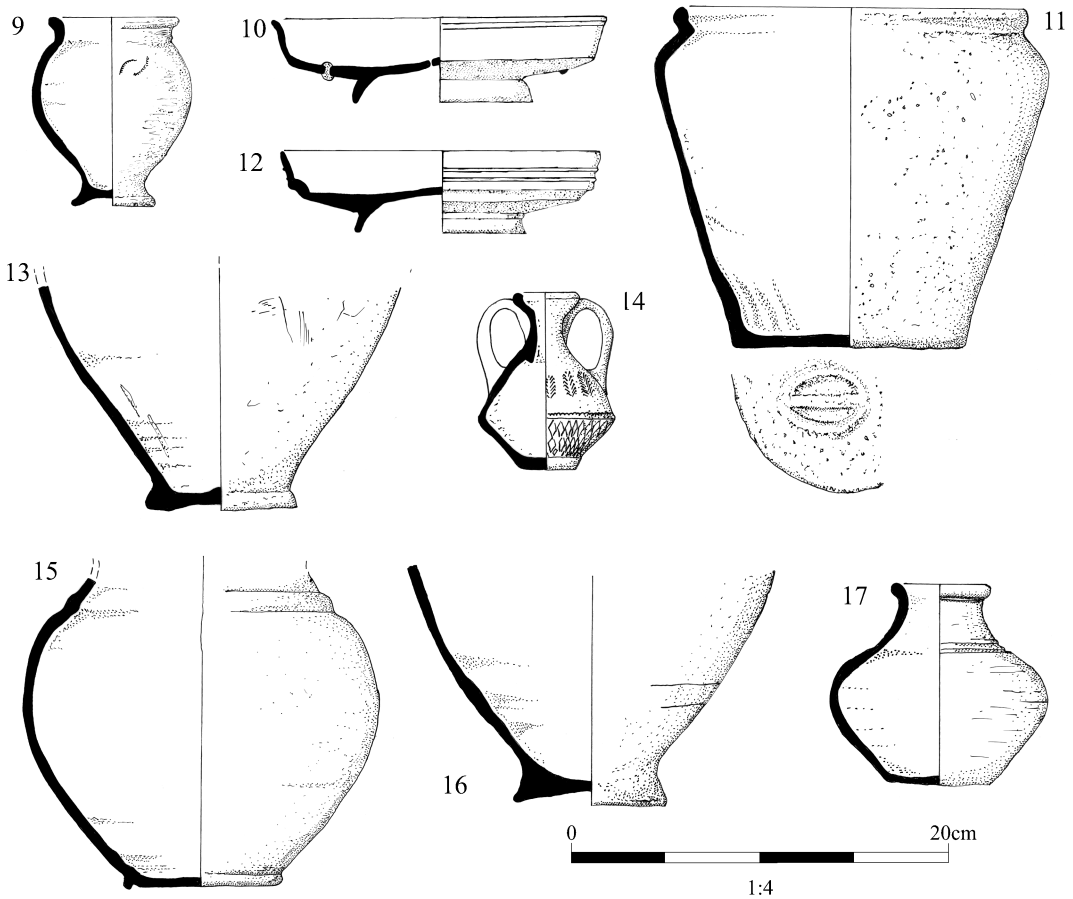


Figure 7: Roman pottery

imperfect and probably deliberately broken. The breaks are not fresh and they clearly reveal the imperfect, bloated fabric of the vessel. Although not common, the use of wasters or seconds has been noted in other cemeteries, such as Skeleton Green, Puckeridge (Partridge 1981, 249). Their use has been attributed to their symbolic role rather than poverty of the dead person or their family (Philpott 1991, 36).

Repaired vessels were also used, such as (Illust. 10, Fig. 7) the samian dish with lead rivets from Cremation [1033]. It is unclear, however, whether the dish was chosen because it was already repaired or whether it was broken and repaired in preparation for burial. The same uncertainty pertains to the vessel with a pre-firing hole in the base, (Illust. 4, Fig. 6) from Cremation [1015]. Was it the hole that made it the perfect choice for burial?

Cremation [1029] is distinctive in its choice of vessels as well as the non-ceramic grave goods (Duncan 2006). The burial contains two brooches which were possibly deliberately broken, as well as the remains of copper alloy and iron fastenings from a possible wooden box. The vessels comprise a cordoned jar, the cremation vessel, and a small pedestal jar, both in grog and sand fabric F09 (Illust. 8–9, Fig. 6&7), suggesting relatively low status. The cremation jar itself is particularly large with a wide circumference. It is incomplete with only a small part of the rim surviving; all the breaks are old. There is copper alloy and iron staining inside this vessel, in the base angle, suggesting that the box may have been placed inside the jar. It cannot be certain whether the jar was deliberately broken to insert the casket, or intact on burial.

Quality of the vessels and status of the burials

Although 'quality' is a subjective term, there does appear to be a distinct difference in the quality of the various vessels used in the burial rite. It has been noted that vessels used to hold cremations are often not of the best and have frequently been used for other purposes (Philpotts 1991, 36). Sooting on the surfaces suggests domestic use as cooking vessels prior to their use as cremation vessels. For example, the grog and sand F09 jar from cremation [1033] and the shelly F07 jar from cremation [1039] (Illust. 11, Fig. 7) have patchy external sooting but clean bases, indicating that they rested on something during cooking, which prevented direct contact of the base with the flames. The grog tempered F06B jar from cremation [1025] (Illust. 6, Fig. 6) is sooted on the body and the base. These vessels were locally made, often large handmade jars and rarely decorated. The cordoned jar from cremation [1112] (Illust. 24, Fig. 8) shows signs of heavy use prior to burial: there is a wear mark around the circumference on the underside of the base.

Accessory vessels, on the other hand, are of better quality and there are a number of imported vessels among them. They are small in size, although not exclusively so, and there is a difference in the numbers buried. Rarely are there more than two vessels in the same fabric (Table 2).

If it is assumed that the richer, higher status burials are those with the largest number of vessels, then three of the burials stand out. They are cremations [1005], [1033] and [1046], all with three or more vessels (Table 4). A consistent feature of these cremation groups is the presence of samian dishes. All the samian vessels found with burials occur in these three 'high status' cremations. The only other samian vessel on the site came from the fill of a post hole [1055]. It is noteworthy that the casket burial, cremation [1029], contained only two vessels, both in the same grog and sand fabric F09. In terms of its ceramics, it was not among the 'high status' cremations.

Although buried with native-style vessels, the inclusion of continental imports, which would have been expensive and probably treasured items, suggests that it was the Roman credentials of the dead, and possibly also their families, that were on display, rather than just their individual status.

Catalogue of illustrated pottery (Figs. 6–8)

Illust. 1 Cremation [1005] Cordoned jar in fabric R14 Harsh Sandy ware with some sparse buff grog; grey brown surfaces; handmade; single cordon at neck and wider cordons on shoulder; footring base; burnished exterior; context (1007) (91 sherds; 0.745kg)

Illust. 2 Cremation [1005] Dish in fabric R01A Samian ware; Central Gaul; stamped [VITALISMSF]; context (1008) (19 sherds; 0.283kg); context (1004) (3 sherds;10g) sample <1> (5 sherds; 3g)

Illust. 3 Cremation [1012] Cordoned jar in fabric R14 Harsh Sandy ware; grey brown surfaces; hand-made; patchy sooting on exterior; context (1010) (82 sherds; 0.902kg)

Illust. 4 Cremation [1015] Jar in fabric R14 Harsh Sandy ware; cremation vessel; grey brown surfaces; wheel thrown; one hole pierced pre-firing near edge of footring in base; context (1014) (22 sherds; 62g)

Cremation no	Pedestal urn	Jar	Cordoned jar	Lid seated jar	Lid seated bowl	Beaker	Butt beaker	Dish	Platter	Flagon/ flask
1005			1			1		1		
1012			1							
1015		1								
1018		1								
1021		1								
1025			1			1				
1029	1		1							
1033		2				1		1		
1039				1						
1046		1							1	1
1051		1								
1054			1							
1061	1									
1070		1								
1087	1						1			
1103						1			1	1
1107		1							1	
1112			1		1					

Table 4: Variety of identifiable forms occurring in each cremation

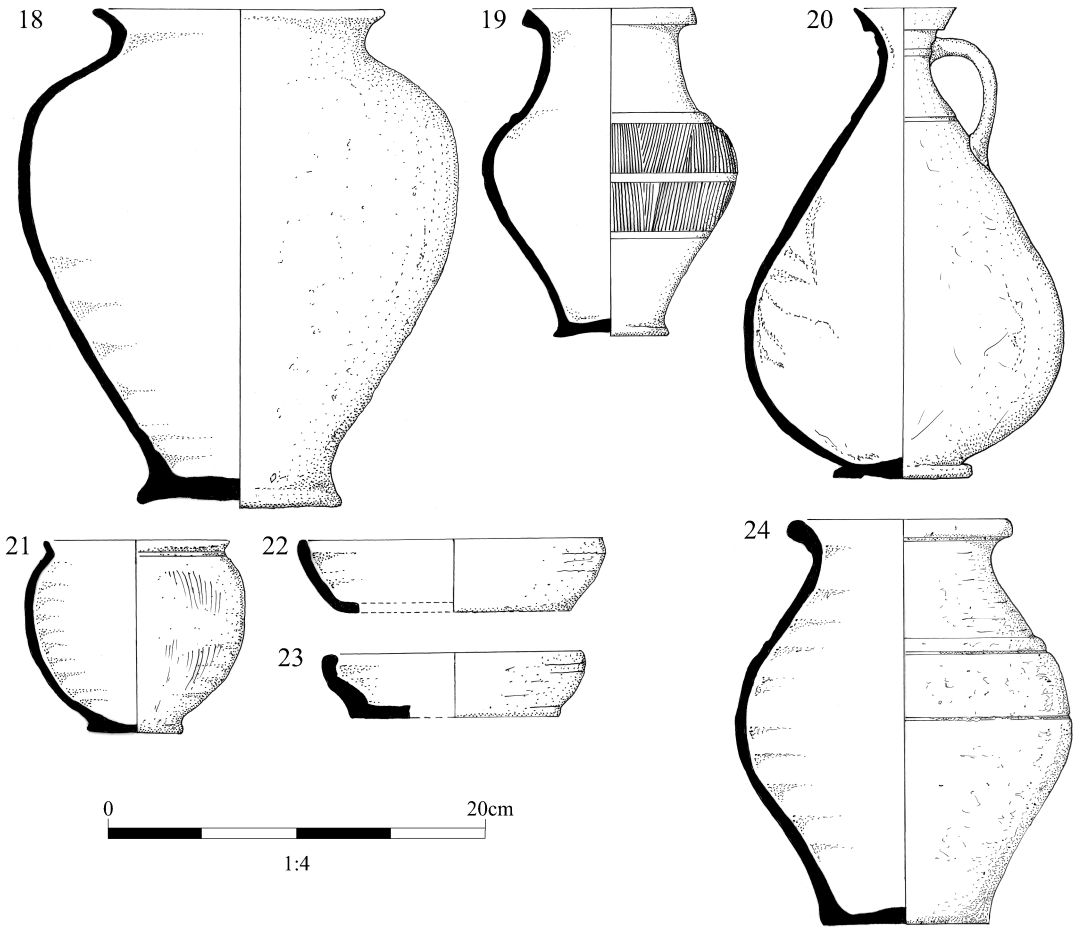


Figure 8: Roman pottery

Illust. 5 Cremation [1021] Jar in R03A Verulamium Region whiteware; cremation vessel; wheel thrown; context (1020) (35 sherds; 0.387kg)

Illust. 6 Cremation [1025] Large cordoned jar in fabric F06B Grog-tempered ware with abundanr black and buff grog and very sparse quartz; orange surfaces; wheel thrown; wide cordons and footring base; patchy sooted exterior, especially inside the footring; context (1022) (87 sherds; 1.732kg)

Illust. 7 Cremation [1025] Beaker in fabric R05A Orange sandy ware; cremation vessel; orange surfaces; wheel thrown; rouletted? ; context (1023) (53 sherds; 0.138kg); context (1022) (1 sherd; 4g)

Illust. 8 Cremation [1029] Large cordoned jar in fabric F09 Grog and sand-tempered ware with frequent black and buff grog; cremation vessel; orange surfaces; hand made; footring base; signs of iron and copper alloy staining in the base angle; context (1027) (85 sherds; 1.868kg)

Illust. 9 Cremation [1029] Complete pedestal jar in fabric F09 Grog and sand-tempered ware; small votive vessel (*c*. 13cm); grey brown surfaces; wheel thrown; context (1028) (3 sherds; 0.202kg)

Illust. 10 Cremation [1033] Dish in fabric R01A Samian ware; South Gaul; votive vessel; stamped base [MAGN]; three lead rivets *in situ*; context (1031) (7sherds; 0.247kg)

Illust. 11 Cremation [1039] Lid-seated jar in F07 Shelly ware; orange surfaces; hand-made; Stagsden potter's mark on base; patchy sooting on exterior but with a clean base; spall on lower body; context (1038) (53sherds; 0.697kg); context (1036) sample <11> (15 sherds; 8g); Cremation [1056] context (1055) (5 sherds; 14g)

Illust. 12 Cremation [1046] Dr 15/17 platter in R01A Samian ware; Southern Gaul; stamped [OFLICIN]; context (1045) (13 sherds; 0.167kg)

Illust. 13 Cremation [1046] Jar in R05A Orange sandy ware; orange surfaces; wheel thrown; pedestal foot has come away possibly prior to burial; context (1045) (98 sherds; 0.426kg); Cremation [1090] context (1088) (1 sherd; 3g)

Illust. 14 Cremation [1046] Small flask in fabric R32B St Remy glazed ware; dated to AD 43–70/75; angular form with leaf decoration in moulded relief; glaze dripped inside as well as on exterior; context (1045) (27 sherds; 76g)

Illust. 15 Cremation [1054] Cordoned jar in fabric R14 Harsh Sandy ware; grey brown surfaces; wheel thrown; footring base; context (1052) (89 sherds; 0.612kg); context (1053) (17 sherds; 0.101kg)

Illust. 16 Cremation [1061] Pedestal urn in fabric R14 Harsh Sandy ware; cremation vessel; grey brown surfaces; wheel thrown; context (1060) (30 sherds; 0.289kg)
Illust. 17 Cremation [1070] Complete jar in fabric F09 Grog and sand-tempered ware; votive vessel; grey brown surfaces; wheel thrown; context (1068) (25 sherds; 0.275kg)
Illust. 18 Cremation [1087] Large pedestal urn in fabric F09 Grog and sand-tempered ware; cremation vessel; orange surfaces; hand made; context (1085) (83 sherds; 1.511kg)
Illust. 19 Cremation [1087] Complete butt beaker in fabric R05A Orange sandy ware; votive vessel; orange surfaces; wheel thrown; context (1086) (complete vessel; 0.387kg)
Illust. 20 Cremation [1103] Flagon in fabric R05A Orange sandy ware; waster with signs of bloating; orange surfaces; wheel thrown; context (1098) (117 sherds; 0.680kg); context (1099) sample <18> (16 sherds; 12g)
Illust 21 Cremation [1103] Beaker in fabric R05B Fine orange sandy ware with worn red slip on interior and exterior; wheel thrown; context (1100) (39 sherds; 0.198kg)
Illust. 22 Cremation [1103] Platter in fabric R26 copying Terra Nigra; grey brown surfaces; hand made; context (1101) (50 sherds; 0.217kg)
Illust. 23 Cremation [1107} Platter in fabric R26 copying Terra Nigra; wheel thrown; context (1107) (14 sherds; 81g)
Illust. 24 Cremation [1112] Cordoned jar in fabric R14 Harsh Sandy ware; cremation vessel; grey brown; hand made; patchy sooting on exterior; wear mark under base angle; context (1111) (106 sherds; 1.116kg)

The Samian Ware
Felicity C. Wild

The site produced probably four vessels of samian ware, all dish forms and all from cremations apart from a group of four joining sherds of form 15/17 from the fill of a small post-hole (1055) in [1056]. One dish was Central Gaulish, from Les Martres-de-Veyre, dating to the first quarter of the second century AD; the others were all South Gaulish, from La Graufesenque, and pre-Flavian. It is noteworthy that one dish placed with a cremation had been repaired. The detailed information on the potters' stamps was obtained from the works cited. Ligatured letters are denoted by underlining.

Form 15/17, South Gaulish. Fifteen fragments in all: seven of base and eight of rim. The rim sherds join in two groups of four, amounting to just over a full circle, which suggests the presence of two identical dishes. The four joining sherds from the post-hole (1055) mentioned above may come from one of them.

The joining base fragments show the stamp OFLICIN, by Licinus of La Graufesenque. Licinus had a great many different dies, but a similar stamp with this reading occurs at Vechten (Polak 2000, 252, L14). He made the pre-Flavian forms Ritt. 1 and Ritt. 8, and his site record includes the pre-Flavian forts of Rheingönheim and Kingsholm, Gloucester. c.AD 45–65. (1045) in cut [1046].

Form 18, South Gaulish. Seven joining sherds amounting to almost the complete dish, which had broken in half in antiquity and been mended with three lead rivets across the base, of which fragments survive. The dish is an early example of the form, with a short, upright wall and sharp angle, though no external groove, between wall and base. The stamp, broken and damaged, reads MAGN[. Magnus was not one of the more common potters. Parallels to the stamp exist at Vechten (Polak 2000, 259, M18), also damaged, but possibly this die, reading MAG[N]IMA, and La Graufesenque (Hermet 1934, pl. 111, 88) where he presumably worked. His work occurs on Ritt. 1, in the second pottery shop at Colchester, burnt during the Boudican revolt, and Period I (pre-Flavian) at Zwammerdam. c.AD 50–70. (1031) in cut [1033].

Form 18/31, Central Gaulish. Many fragments, including small chips, amounting to almost the complete dish, with the stamp VITALISMSF (Romeuf 2001, pl. 36, 191, 2) by Vitalis iii of Les Martres-de-Veyre. The stamp normally occurs, as here, on early examples of form 18/31, but also occasionally on form 15/17. It occurs in Period IIA at Verulamium (Hartley 1972, 233, S58) and in the Hadrianic Second Fire at London. c.AD 100–125. (1008, 1004, 1010) in cut [1005].

The Human Bone
Melissa Melikian

Methodology
The human bones were analysed in accordance with recommendations by English Heritage (2002) and the IFA (Brickley & McKinley 2004). Specifically age was assessed following Ubelaker (1989), Scheuer & Black (2000), Sundick (1978), Brooks & Suchey (1990), Lovejoy *et al* (1985) and (Brothwell 1981). A holistic approach was adopted and individuals were classed into one of ten age ranges. 0=no data, 1=foetal/neonate, 2=1–6 months, 3=7–11 months, 4=1–5 yrs, 5=6–11yrs, 6=12–17yrs, 7=18–25yrs, 8=26–35 yrs, 9=36–45 yrs, 10=46+ yrs, 11=adult, 12=subadult. Age category 0 was assigned in the absence of osteological age indicators. Age category 11 was applicable where the individual could be classed as adult, i.e. permanent dentition or complete fusion, but a more accurate age range could not be determined. Age category 12 was applicable where the individual was classed as sub-adult, i.e. fusion was incomplete or deciduous dentition present, but a more accurate age range could not be given.

Determination of the sex of skeletal individuals is based on the secondary sex characteristics that manifest themselves at puberty. As a result with the exception of bimolecular analysis, there are no acceptable methods for sexing juvenile remains. The biological sex of the adult skeletons was assessed following Phenice (1969), Buikstra &

Ubelaker (1994) and Acsadi & Nemeskeri (1970). Again a holistic approach was adopted and individuals were classed into one of the following categories: 0 = undetermined sex, 1 = female, 2 = probable female, 3 = indeterminate, 4 = probable male, 5 = male. Undetermined sex was allocated where no osteological sex indicators were present. Individuals were classed as indeterminate where the sex determination was ambiguous and could not be defined as male or female.

A range of metric data was recovered following the definitions of Howells (1973) and Brothwell (1981). In this study height was calculated using the formulae of Trotter (1970) and Trotter & Gleser (1952, 1958, 1970). Where applicable the following indices were also calculated: cephalic, platymeric and platycnemic. Non-metric traits were recorded following Brothwell (1981) Berry & Berry (1967) and Finnigan (1978). The following non-metric traits were scored: metopism, coronal wormian bones, sagittal wormian bones, ossicles at lambda, os inca, ossicles in lambdoid suture, maxillary torus, mandibular torus, os acromiale, distal septal aperture, supracondylar process, vastus notch and the type of calcaneal facet.

Each tooth or tooth position was assessed to ascertain the completeness of the dentition and the prevalence of dental pathology. The presence or absence of dental caries was noted for each tooth and, if dental caries was identified, then the site at which the lesion was initiated was noted following (Hillson 1996). The amount of calculus deposit and alveolar disease was recorded following Brothwell (1981). The presence or absence of enamel hypoplasia was also noted.

Where applicable, every joint of the skeleton was assessed for joint disease (osteoarthritis) following Rogers *et al* (1987) and Rogers & Waldron (1995). For each vertebra the presence or absence of the following pathology was recorded following Rogers *et al* (1987) and Rogers & Waldron (1995); osteoarthritis, osteophyte, fusion, intervertebral disc disease, Schmorl's nodes and ligamentum flavum. Enthesopathies are extra bones growths which develop for a variety of reasons including trauma, 'stress' and muscle activity and are thought to be age related. The following areas were examined for the presence of enthesopathies; rotator cuff, deltoid tubercle, radial tuberosity, olecranon process, medial epicondyle of the humerus, lateral epicondyle of the humerus, iliac crest, ischial tuberosity, grater trochanter, lesser trochanter, linea aspera, tibial tubercle, soleal line, fibula, patella, posterior surface of the calcaneus, inferior surface of the calcaneus, finger flexors and metatarsal shafts. Any gross pathology was described and diagnosis was based on findings in Aufderheide & Rodriguez-Martin (1997) and Ortner & Putschar (1981).

For those cremation urns that were relatively complete they were excavated stratigraphically in the laboratory following McKinley (1994). The cremated bone was analysed following McKinley (1994, 2000 & 2004). The sample was observed for the presence and positioning of any pyre goods, grave goods or animal bone. The minimum number of individuals (MNI) was identified. Age was assessed from the stage of skeletal and dental development and degenerative change described above. Where possible sex was estimated using the methods described above. In addition the bone was examined for any pathological conditions.

Results

A total of seven articulated inhumations and 21 cremation burials were identified. Due to the small sample size the results were assessed by individual rather than adopting a population-based approach.

Inhumations

The inhumation burials were aligned east-west with the heads situated at the east end. Only one inhumation burial contained evidence of grave goods in the form of a ceramic vessel. The results of the analysis of the articulated inhumations are summarised in Table 5 below.

The small assemblage recovered from the inhumations consists of 2 males and 5 female or probable females. No sub-adults were represented in the assemblage. Stature was calculated using a number of different measurements. Only five individuals had long bones sufficiently intact to calculate a stature estimation. The small numbers preclude any conclusions regarding the population of *Durocobrivis* (Roman Dunstable). However when compared to the average height of modern British males (1.75m) and females (1.61m) the individuals from New Venue are shorter. All seven individuals had teeth present. Of these, five displayed ante-mortem tooth loss, three had ante-mortem tooth loss and three had dental caries. One individual displayed enamel hypoplasia; an enamel developmental defect which is the result of 'stress' when the teeth form e.g. illness, injury, dietary deficiency.

Skeleton number	Pres.	Completeness (%)	Sex	Age (years)	Stature (cm)	Pathology
1065	2	35	M	26–35	–	
1069	1	95	F	26–35	160cm ± 4.45cm	myositis ossificans, enamel hypoplasia
1072	1	95	F	36–45	152cm ± 4.45cm	–
1081	1	95	M	26–35	171cm ± 4.05cm	–
1089	3	80	F	46+	–	–
1092	1	90	F?	36–45	152cm ± 4.45cm	–
1095	2	85	F?	36–45	158cm ± 3.72cm	right calcaneonavicular coalition

Table 5: The skeletons from New Venue, Dunstable

One individual displayed pathology consistent with myositis ossificans; a relatively common condition where an extra-osseous growth of new bone occurs as a result of trauma. One individual had calcaneonavicular coalition in the right foot. The condition may be congenital or developmental and is relatively uncommon with an incidence of *c*.1%. The condition would have caused restricted movement of the foot.

Cremations

A total of 21 cremation burials were identified on site. Many of these burials contained more than one deposit containing cremated bone. The metric data for the cremation burials is shown in Appendix A. A summary of the cremation burials is shown in Table 6.

A small amount of neonate bone was recovered from one cremation deposit; the remainder of the assemblage originated from adult individuals. With the exception of one cremation which consisted of two individuals, all the cremations consisted of a MNI of one. One individual (1030) displayed evidence of degenerative joint disease in the form of marginal osteophyte around the head of an unidentified PP1 of the foot.

Discussion: human bone

The Romans traditionally buried their dead along main roads external to the main settlement. Until the mid-second century, the predominant method of burial in Roman Britain was cremation. In the mid-second century the practice of inhumation was introduced from the continent. This became increasingly popular with time and by the 4th century was the generally accepted method of burial.

All the inhumations were on an east-west alignment which appears to be respecting the road alignment. Only one inhumation contained grave goods in the form of a complete vessel, probably once containing oil or perfume. It appears that none of the burials were within coffins but instead were in simple, earth-cut graves. The cremations were both within cremation urns and unurned. It is probable that some of these unurned cremations were within other containers which have since decomposed; as evidenced by the presence of iron nails retrieved from the grave fill. Several of the cremation burials contained grave goods in the form of secondary ceramic and glass vessels and hobnail boots. Evidence of pyre goods was found in several instances, including animal offerings and possible metal jewellery or other metallic offerings.

Registered Finds

H.B. Duncan

Introduction

Non-ceramic artefacts were found in ten out of twenty cremations. In contrast none where found accompanying the inhumation burials. Grave goods and pyre goods were found in both unurned and urned burials. The range of artefacts present in most burials was limited, in the main comprising small quantities of nails and hobnails. Only burials [1044] and [1029] had a wider range of goods, including items of personal ornament and, in the case of [1029], a possible casket. Where burials had both an urn and one or more accessory vessel, no grave goods were found within the accessory vessel fills, although four of these burials did produce finds from the fill of the cremation pit itself. A descriptive catalogue of the artefacts by burial number can be found in the project archive; the evidence is presented in summary form in Table 8. The following discussion is presented by finds type.

Nails

Seven burials, including both urned and unurned, produced from one to four nails (Table 8). Where complete the nails were between 30mm and 51mm

Context number	Parent context	Weight (g)	Age	Sex	MNI	Pyre/grave goods	Colour
1004	[1005]	209	U	U	1	Charcoal, Fish vertebra, Iron nails	Buff to light grey
1007	[1005]	1164	A	U	1	Iron nails	Black to buff/white
1009	[1005]	73	U	U	1	Charcoal	Light grey
1010	[1012]	416	A	U	1	Charcoal	Buff
1011	[1012]	1252	A	U	1	Charcoal	Buff and light grey
1013	[1015]	89	U	U	1	Charcoal	Buff
1014	[1015]	2	U	U	1	–	Buff
1016	[1018]	44	U	U	1	–	Buff
1017	[1018]	2	U	U	1	–	Buff
1019	[1021]	1	U	U	1	–	Buff
1020	[1021]	208	A	U	1	Charcoal, Charred seed	Buff
1022	[1025]	1412	U	U	1	Charcoal, Iron hobnail	Buff
1024	[1025]	<1	U	U	1	Charcoal	Buff
1027	[1029]	1928	A	U	1	Charcoal, Animal bone, Iron nail, Copper object, Iron object, Copper alloy brooch	Buff
1030	[1033]	1077	A	U	1	Charcoal	Grey
1032	[1033]	1297	A	U	1	–	Buff
1036	[1039]	51	U	U	1	–	Buff to light grey
1038	[1039]	91	U	U	1	–	Grey
1041	[1042]	993	N&A	U	2	Charcoal, Hobnail	Buff to grey
1043	[1044]	619	U	U	1	Charcoal, Iron brooch, Glass bead	Buff
1045	[1046]	297	U	U	1	Glass fragment, Iron nail	Buff
1049	[1051]	60	U	U	1	–	Buff
1050	[1051]	228	U	U	1	–	Buff to light brown
1052	[1054]	643	A	U	1	Charcoal	Buff
1053	[1054]	1	U	U	1	–	Buff
1059	[1061]	3	U	U	1	Charcoal	Buff
1060	[1061]	188	U	U	1	–	White to black
1063	[1064]	422	U	U	1	Charcoal, Glass fragment	Buff to black
1083	[1087]	7	U	U	1	Charcoal, Iron nail	Buff
1084	[1087]	290	A	U	1	Charcoal, Iron nail	Buff to beige
1085	[1087]	2167	A	M?	1	Charcoal, Iron object	Buff to light grey
1097	[1103]	423	A	U	1	Charcoal, Cremated animal bone, Iron object	Buff
1099	[1103]	57	U	U	1	Charcoal	White to buff
1100	[1103]	115	U	U	1	Charcoal, Iron object	Buff
1102	[1103]	1043	A	M?	1	Charcoal, Cremated animal bone, Iron object	Buff to dark grey
1104	[1105]	260	U	U	1	Charcoal, Iron nails	Buff
1106	[1109]	49	U	U	1	–	Buff
1107	[1109]	1240	A	U	1	Charcoal, Cremated animal bone	Buff
1108	[1109]	10	U	U	1	–	Buff
1110	[1112]	457	U	U	1	Charcoal, Iron nails	Buff

Table 6: The cremation burials from New Venue, Dunstable

Context number	Total	10mm (% total)	5mm (% total)	2mm (% total)	Max frag	id. wt.	% total	Skull (% id)	Axial (% id)	U.limb (% id)	L.limb (% id)
	wt. (g)	wt.	wt.	wt.	mm.	wt. (g)	wt.	wt.	wt.	wt.	wt.
1004	209	28.2	51.7	20.1	40	6	2.9	83.3	0	0	16.7
1007	1164	42	32.3	25.7	62	110	9.5	41.8	55.5	0	2.7
1009	73	5.5	20.5	74	25	1	1.4	100	0	0	0
1010	416	17.3	58	24.7	41	11	2.6	63.6	9.1	18.1	9.1
1011	1252	39.8	17.6	42.7	69	155	12.4	47.7	13.5	7.1	31.6
1013	89	32.6	41.6	25.8	36	3	3.4	100	0	0	0
1014	2	50	50	0	17	0	0	0	0	0	0
1016	44	22.7	54.5	22.7	29	8	18.2	100	0	0	0
1017	2	50	50	0	11	0	0	0	0	0	0
1019	1	0	100	0	19	0	0	0	0	0	0
1020	208	30.8	42.8	26.4	32	9	4.3	11.1	22.2	11.1	55.6
1022	1412	20.1	40.2	39.7	51	41	2.9	70.7	9.8	73	12.2
1024	<1	0	0	0	11	0	0	0	0	0	0
1027	1928	54.6	16.4	29	86	407	21.1	47.9	19.9	5.4	26.8
1030	1077	35.7	35.6	28.7	56	53	4.9	28.3	7.5	9.4	54.7
1032	1297	34	36.2	29.8	94	96	7.4	49	33.3	5.2	12.5
1036	51	31.4	49	19.6	25	7	13.7	42.9	57.1	0	0
1038	91	24.2	41.7	34.1	34	1	1.1	100	0	0	0
1041	993	49.8	38.9	11.3	64	177	17.8	44	39.5	6.8	9.6
1043	619	27.8	59	13.2	36	28	4.5	85.7	10.7	3.6	0
1045	297	31.3	55.6	13.1	43	21	7	85.7	9.5	4.8	0
1049	60	16.7	65	18.3	28	2	3.3	0	100	0	0
1050	288	61.5	15.6	22.9	56	33	11.5	51.5	18.2	0	30.3
1052	643	40.6	44.6	14.8	51	38	5.9	97.4	0	0	2.6
1053	1	0	100	0	14	0	0	0	0	0	0
1059	3	0	66.7	33.3	21	<1	0	0	0	0	0
1060	188	19.7	31.4	48.9	24	3	1.6	66.7	0	0	33.3
1063	422	25.4	58.3	16.6	40	12	2.8	100	0	0	0
1083	7	14.3	57.1	28.6	30	<1	0	0	0	0	0
1084	290	17.2	60.7	22.1	53	8	2.8	62.5	0	37.5	0
1085	2167	54.7	21.1	24.1	75	273	12.6	20.9	42.1	11.4	25.6
1097	423	20.6	62.9	16.6	34	15	3.5	60	26.7	13.3	0
1099	57	14	56.1	29.8	29	1	1.8	100	0	0	0
1100	115	32.2	47.8	20	48	3	2.6	0	50	50	0
1102	1043	54.6	36.3	9.1	59	250	24	18.8	27.2	0.4	7.2
1104	260	27.7	56.9	15.4	55	16	6.2	100	0	0	0
1106	49	32.7	46.9	20.4	47	3	6	33.3	33.3	33.3	0
1107	1240	39.1	26.7	34.2	60	140	11.3	23.6	55	0	21.4
1108	10	0	80	20	11	0	0	0	0	0	0
1110	457	28.4	57.3	14.2	60	23	5	95.7	0	4.3	0

Table 7: New Venue, Dunstable: Cremated bone weights and percentage distribution by fraction size and skeletal area, and maximum fragment size

long, with flat heads of rounded to rectangular shape. These equate with Manning's type 1B nail, for general purpose use (1985, 134). In only one instance was there evidence for a possible rove on the tip of a nail shank (RF24) from burial [1112]. The condition of the nails differed, some examples being almost pristine in appearance while others displayed varying degrees of corrosion. The condition of the pristine nails is likely to have been the result of heat from the pyre and the small numbers of them in the burials might suggest that old timbers, with structural nails and other fittings remaining in place, may have been used within the pyre and then accidentally incorporated into the cremation deposit. The four nails found within the urn of burial [1029] may well have formed part of the possible casket (see Containers).

Containers

Wood

The largest assemblage of metal artefacts was found within cremation urn [1027] from cremation burial [1029]. The cremation urn was excavated in

Feature	Description	Artefacts from urn	Artefacts from burial fill	Comment
1042	Unurned burial		Hobnail (1)	
1044	Unurned burial		Glass bead (1); Brooch (1)	
1105	Unurned burial		Hobnails (24); Nails (2)	Nails heat-affected
1005	Urned burial	Nails (2)	Nail (1)	Nails heat-affected
1025	Urned burial	Hobnail (1)		
1029	Urned burial	Brooches (2); Casket fittings (7) Fragment (1 CA) Nails (4)		
1046	Urned burial		Nail (1); Glass (1)	
1087	Urned burial	Hobnail (1)	Nails (3) lower fill; Nail (1) upper fill	Single nail from lower fill heat-affected
1103	Urned burial	Nail (1)	Fragment (1 FE)	
1112	Urned burial		Nails (4)	3 nails heat-affected
1062	Pyre Pit		Glass slivers (2)	

Table 8: Non-ceramic artefacts from cremation or cremation-related features (CA = copper alloy; FE = ferrous)

spits, the upper three spits containing no grave goods. Spits 4 to 7 yielded, in addition to the remains of two brooches (see Personal Ornament), six iron split-spike loops, several with copper alloy wire and one with remains of a cast annular ring, in *situ* and up to four nails (Table 9).

Two sizes of split-spike loop were evident, the smaller and more numerous examples ranging between 19.4mm to 23mm long, while two examples, both from spit 7, were slightly larger, measuring between 27 and 30mm. Where the split-spikes were complete, all had their tips bent or clenched at right angles. The distance between the bent tips and the start of the loop indicate that they pierced wood of about 10mm thickness. Three of the split-spike loops retained portions of circular-sectioned copper alloy wire, diameter 2.2mm, threaded through the spike loop, the end of the wire then bent over to fix it in place. One of the larger split-spike loops (part of RF7, Fig. 9), retained about a third of a cast copper alloy ring with decorative ridging.

A possible explanation for this group of fasteners may lie in a cremation from Walls Field, Baldock, Herts. Four cast copper alloy rings, also with decorative ridging, and paired split-spike loops were found within cremation burial no. 5 in Walls Field. These rings and split-spike loops are thought to have functioned as hinges for a small wooden box which contained a single brooch (Stead and Rigby 1986, 61–63). The cast ring and iron split-spike loop (part of RF7, Fig. 9) from Dunstable may have once served a similar role. As the cast ring is incomplete it is not known whether a second split-spike loop (perhaps RF27) held the opposing side of the ring. RF4 and RF6 (Fig 9), from spits 5 and 6 respectively, are likely to have joined to form a simple curved drop handle of about 57mm length. It is possible that a second drop handle is represented by RF8 from spit 7. The copper alloy sheet fragment (RF3) could possibly have served as part of the box fittings, but its distorted shape precludes certainty.

If this interpretation of these remains is correct it is possible that cremation [1029] belongs to a group of burials known as casket burials. These burials possess a casket which either held, or accompanied, the cremated remains (Philpott

Artefact type	Spit 4	Spit 5	Spit 6	Spit 7
Split-spike loop with CA wire		1 (RF4)	1 (RF6)	1 (RF8)
Split-spike loop with cast CA ring				1 (RF7 part)
Split-spike loop	1 (RF25)			1 (RF27)
Nail	1 (RF2)	3 (RF26)		
CA sheet (binding?)		1 (RF3)		
Brooch			1 (RF5)	1 (RF7 part)

Table 9: Finds from Urn 1027, Burial 1029 (CA = copper alloy)

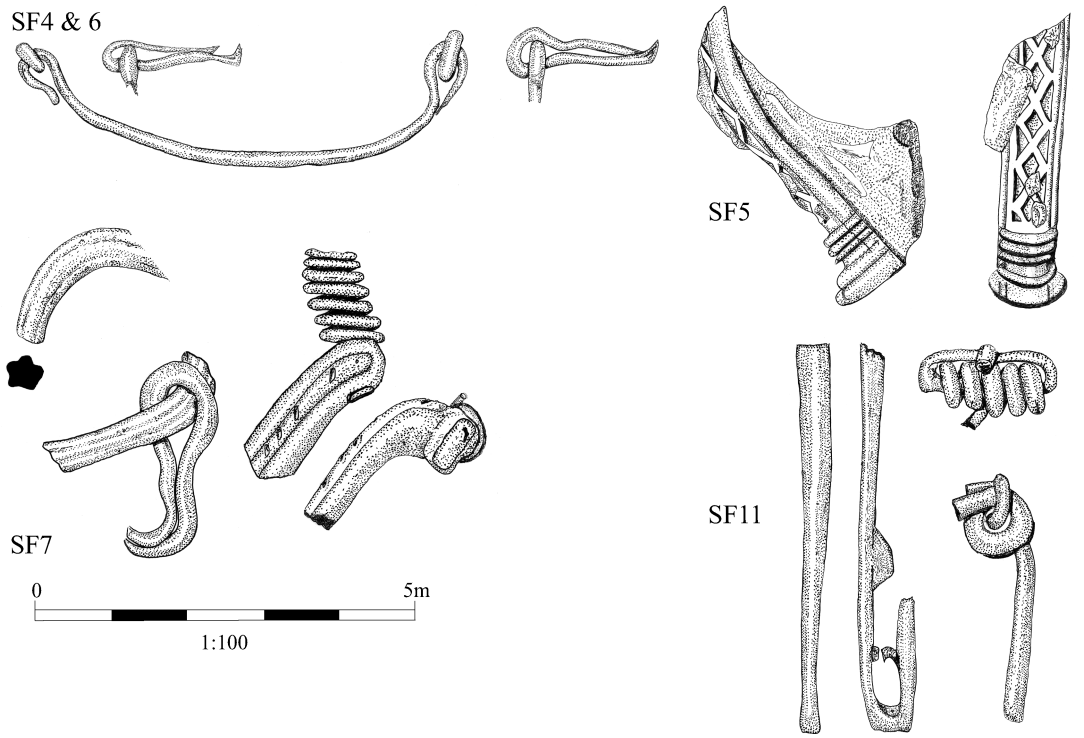


Figure 9: Casket fittings and fragments of brooches

1991, 12–13). Casket burials are confined almost wholly to south eastern England with concentrations in some Hertfordshire cemeteries and elsewhere in small numbers (Philpott 1991, 13). At Skeleton Green, Puckeridge, Hertfordshire four certain and one probable casket burials were encountered, while Borrill recorded a further ten burials from south east England (1981, 304 –321). Philpott (1991, 12–14) has identified a further twenty-four certain or probable examples.

The earliest example of a casket burial is dated to the Claudian period, but numbers increase dramatically in the later 1st century (Philpott 1991, 13). Philpott argues that the use of casket in the mid to late 1st century has the appearance of the high ranking native aristocracy adopting a Roman idiom to express their traditional burial practices (1991, 16).

Although casket fittings have been found in association with cinerary urns (Philpott 1991, 13), burial [1029] may be unique in having the box fittings contained within an urn. The urn itself (1027) is in a fragmented and incomplete state, lacking the rim. It has a very bulbous body, the girth estimated to be at least double the base diameter of 115mm (pers. com. A. Slowikowski). None of the breaks appear recent and therefore the possibility of either post-depositional damage or the utilisation of only the lower portion of the vessel in the burial process must be considered. The complete suite of casket fittings are also absent; it could be they did not survive the burial environment but post-depositional damage or partial inclusion should also be borne in mind. The latter possibility may be apposite when considering the associated brooch fragments (see Personal Ornament, below).

Glass

Evidence for glass vessels within burials was limited to a small sherd of clear colourless glass (RF12) from burial [1046]. The only other evidence of glass vessels came from the fill of the possible pyre site [1062]. These comprised of tiny slivers of natural green glass and clear colourless glass (RF14 and RF15). Neither fragment showed any evidence of having been heat-affected. Although it is possible that these two fragments

were Roman in date, their forms cannot be reconstructed nor do they appear to relate to the use of the pyre site.

Personal Ornament

Two burials contained items of personal ornament. Unurned burial [1044] contained a bead and a brooch within the cremation burial. The blue bead (RF10) exhibits distortion and discolouration, indicating it was exposed to high temperatures and therefore may well have been worn during the cremation process. Associated with the bead, but showing no visible signs of having been a pyre good, was an iron one piece brooch (RF11, Fig. 9) The fragmentary survival of the brooch, in five pieces, precludes certainty as to the exact type. Three traits, the six coil spring with the suggestion of a forward facing hook, the straight profile of the bow and the double perforated catch plate, suggest it could belong to the Camulodunum Type III Simple Gaulish brooches, possibly of wire/rod bow form (c.f. Olivier 1988, 39–40). This form of brooch occurs in both pre- and post-Conquest contexts in England. There are some indications that examples having a more elaborately perforated catch plate (c.f. Olivier 1988, fig.18 no. 22) may be more common during the first half of the 1st century AD, although the type continued in popularity into the third quarter of that century (Olivier 1988, 40). Although this identification of brooch type is tentative, and due to the damage to the catch plate it is uncertain if the perforations match the more elaborate pattern, it is possible that Burial [1044] may be one of the earlier burials in this small Dunstable cemetery.

Burial [1029] contained both an urn and an accessory vessel. Cremation urn [1027] was excavated in spits and contained the remains of two brooches, RF5 from spit 6 and RF7 from spit 7, (Fig. 9). RF5 comprised the lower portion of a brooch with enamelled decoration. The decoration, comprising cells of diamond and triangular shape, can be seen on brooches of both Headstud and Trumpet form. The rectangular sectioned bow and the close parallel of a brooch from Colchester (Crummy 1983, 13 and fig.9.65), suggest the Dunstable brooch may well be of Headstud form. As a type they are known to have been in use by the mid-Flavian period, as one with a similar pattern of enamelling was found at the Lunt in a pit dated no later than *c*. AD75 (Hobley 1973, 66, no. 6, fig 19; Cool 1998, 30).

The second brooch (RF7) is also incomplete but in this instance the upper portion of the brooch is represented (Fig. 9). This consists of a head with a double-perforated lug to secure the external chord and axial bar, one wing, half of a ten coil spring and short portion of a plano-convex bow. The upper bow has a central raised rib with groove either side extending the surviving length of the bow. The original surface of the brooch has been heavily disrupted by blistery corrosion products but there is some evidence to suggest that the central rib may have had transverse notching. Without the full extent of the brooch surviving it is difficult to be certain of the brooch form. It does, however, appear to belong to the general Colchester Derivative class. Colchester Derivative brooches with spring and double perforated lug are most common in post-Conquest contexts, remaining in use throughout the late 1st century AD (Olivier 1988, 46).

Within the general rite of Roman cremation the brooch is by far the predominant type of personal ornament in mid and late 1st century cremations, usually occurring without other types of ornament (Philpott 1991, 129). The distribution of cremations furnished with brooches shows a marked concentration in the former cremation-using area of south eastern England. It has been argued above that burial [1029] may well be a 'casket burial' and Philpott has noted that finds of personal ornament in casket burials are scarce, although examples are known (c.f. Philpott 1991, 14). The date range of the Colchester Derivative (RF7) and the probable Headstud (RF5) brooches suggests that this burial occurred sometime in the third quarter of the 1st century or the very early 2nd century AD. The fact that the top of one type of brooch and the bottom of the other type have been deposited seems more than accidental chance. These 'half' brooches may have been deliberately mutilated, an example of artefacts being ritually 'killed' before deposition (Haslegrove 1997, 66). Whether the same ritual was applied to the cremation urn and the possible casket remains uncertain.

Footwear

Four burials, two urned and two unurned, produced hobnails (Table 8). In three instances this comprised a single hobnail. Where this occurred in urned burials the hobnail was found within the urn fill. By contrast however unurned burial [1105] had a total of 24 hobnails within its fill.

The distribution of hobnails in cremations represents a rite concentrated in the smaller towns and rural settlements of the La Tene III area of south eastern England and may well represent continuation of a native custom of including leather shoes within burials (Philpott 1991, 165). Although iron-shod footwear was probably common amongst urban populations in the 1st century AD, there are few hobnail cremations that can be securely dated to this period, the majority dating to the 2nd century (Philpott 1991, 165). The increase in the numbers of 2nd century cremations with hobnails, and their concentration in smaller towns and rural settlements, may merely reflect the progressive spread of iron-shod footwear amongst non-urban communities.

It is questionable whether the instances of single hobnails in cremations [1042], [1025] and [1087] actually represent this rite. The presence of single hobnails within cremation urns at King Harry Lane, Verulamium was suggested to have occurred accidentally when the burnt remains were collected up from the pyre debris (Stead and Rigby 1989, 111; Philpott 1991, 166).

The quantity of hobnails from burial [1105] however does indicate intentional inclusion and may suggest a date in the latter half of the 1st to 2nd centuries for this burial. These hobnails do not appear to have been concentrated in one part of the burial but instead were found throughout the fill. The hobnails survived in extremely good condition, perhaps indicating that they were worn during the cremation rite and carefully retrieved from the pyre. Philpott's survey of grave furniture in burials with hobnails indicates that the level of furnishing is high, perhaps indicative of status burials (1991, 166). This does not appear to be the case with burial [1105] which was unurned, had no accessory vessels or any other artefacts beyond portions of two general purpose nails (see Nails, above).

Summary : registered finds

A suggested date can be offered for three of the ten cremations producing registered finds based upon the typological date of grave or pyre goods. The presence of a probable Camulodunum Type III Simple Gaulish brooch accompanying unurned burial [1044] suggests that this may be one of the earlier burials within the cemetery. The fragmentary survival of this brooch precludes certainty, but the suggestion of a more elaborately perforated catch plate may indicate a date in the first half of the 1st century AD, when this trait was more common. The brooch type however did continue into in use into the third quarter of the 1st century.

A second unurned burial, [1105], contained 24 hobnails seemingly worn during the cremation rite. There are few hobnail cremations that can be securely dated to the 1st century suggesting this burial may be later 1st century at the earliest, but more probably falls within the 2nd century when the number of such burials increased, in particular in smaller towns and rural settlements.

Urned burial [1029] is noteworthy not only for the range and quantity of items found, but also the manner of their deposition. It has been argued above that the assortment of small split spike loops and associated copper alloy wires and cast ring are the remains of a small casket, although the full complement of fittings is not present. The casket, or part of a casket, appears to have been placed within a cremation urn, the vessel also possibly incomplete at the point of burial. Two brooch halves, the upper half of a Colchester Derivative and the lower half of a Headstud, were also found within the urn. These half brooches may have been deliberately mutilated or 'killed' as part of the burial ritual. The date ranges of the brooch types, combined with known dates of casket burials, strongly suggests that burial [1029] dates from the third quarter of the 1st century or the very early 2nd century.

Catalogue of illustrations: registered finds by cremation

Cremation 1029 Urned

RF4 [1027] (Fig, 9) Cremation urn spit 5. Iron and copper alloy. Part of a simple curved drop handle. Remains of an iron split-spike loop with looped over copper alloy wire of circular diameter *in situ*. Copper alloy wire broken in two, but appears to curve, length about 51mm. One end is broken off. Appears to join RF6 from spit 6 to form complete drop handle. Length split-spike loop 21mm; diameter wire diameter 2.2mm. X-ray pl. 1 *joins RF6 to form simple curved drop handle*

RF6 [1027] (Fig. 9) Cremation Urn spit 6. Iron and copper alloy. Part of a simple curved drop handle. Split-spike loop with a copper alloy wire of circular section threaded through the head. Appears to join RF4 from spit 5 to form complete drop handle. Length split-spike loop 19.4mm; diameter wire 2.2. X-ray pl. 1 *joins RF4 to form simple curved drop handle*

RF5 [1027] (Fig. 9) Cremation Urn spit 6. Brooch. Copper alloy. Rectangular sectioned bow, tapering slightly to foot-knob, with a groove parallel to each edge and diamond and triangular cells, cells probably originally set with enamel. Three horizontal ridges are situated across lower bow, separated from the oval foot-knob with ridged upper surface, by a deep

concavity. Triangular catch plate. Length 41.5mm, width 9.3mm. X-ray pls. 1 & 3.

RF7 Cremation Urn [1027] spit 7 (Fig. 9). Copper alloy. Upper portion of brooch, comprising plano-convex sectioned bow and head of brooch with a lug to hold the external chord. Half of the spring survives, comprising 5 coils. X-ray indicates that the spring is secured by passing the external chord and axial bar through a lug with two perforations behind the head. The upper perforation retains the external chord *in situ*. The lower perforation appears to have worn through. The upper bow has a central raised rib with a groove either side. The single surviving wing appears to be semi-cylindrical, but the state of preservation precludes determining whether the wing was decorated. Length 40.7mm

**Iron and copper alloy. Split-spike loop and cast annular ring. An extensively corroded iron split-spike loop is attached, via corrosion products, to the brooch coil. About one third of a cast copper alloy annular ring is threaded through the head of the split-spike loop. The annular ring has decorative ridging. Length split-spike loop 27mm; Diameter cast ring 28mm, width 4mm. X-ray pls. 1 & 3

Cremation [1044] Unurned

RF11 [1043] (Fig. 9) Cremation cut fill. Brooch. Iron. Incomplete. Simple Gaulish wire/rod bow brooch(?). One piece brooch with spring of 6 coils and possible external chord with remnants of forward facing hook. Plain narrow rod-like bow with straight profile(?), tapering towards foot. Catch plate double perforated. Short section of pin survives. In 5 pieces, extensively corroded and shape distorted. Estimated length 65–70mm. X-ray pl. 2

Animal Bones

Kevin Rielly

Introduction

A small number of animal bones were recovered from features associated with the early Roman cemetery. Following the description of these remains, an attempt is made to interpret their presence in relation to the obviously ritual nature of this site. The site assemblage was recorded onto an animal bone database using Microsoft Access, this was devised for the environmental section of the Museum of London Specialist Services. This database is divided into various headings, as follows:- species, skeletal part, fragmentation (the proportion of the skeletal part represented), sex, age (a general age if possible, as well as teeth eruption/wear and epiphyses fusion), size and various modifications as butchery, burning, gnawing, working and pathology. The tooth eruption/wear uses the method devised by Grant (1975 and 1982), while the measurements are essentially taken from von den Driesch (1976). A bone was deemed as measurable if it was a whole limb bone (bird and mammal domesticates), or if it included an epiphysis which could be classed as belonging to an adult. This includes mandibles where the adult third molar is in wear and various limb bones with fused intermediate and/or late epiphyses. Approximate ages for the tooth eruption and epiphyses fusion sequences are taken from Schmid (1972, 75 and 77) and Amorosi (1989, 98 and 99). A large proportion of this data will be detailed in the following text, and is otherwise available in its complete form in the site archive.

Description of the bones

Cremations and associated features

Animal bones were recovered from seven of the cremation pits (Table 10), all within the major concentration of these features in the centre of the site. In addition, a few bones were found in the fill (1063) of an elongated pit, [1062], interpreted as a bustum. These date between the early 1st century up to the 2nd century, defined by the following phases:- 1. pre Conquest–early 1st century AD; 2. post Conquest–1st century AD; and 3. 1st–2nd century AD. The various animal bone assemblages include those which are clearly associated with the burial activity and those which may represent redeposited food waste. The former category includes the calcined remains of an adult chicken (all limb bones are fused), found within the fill (1027), of the cremation vessel in pit [1025]. As there are both wing and leg parts, it can be assumed that this may represent a whole carcass or at least a dressed carcass i.e. after removal of the head, neck and feet. In addition, two calcined pig backleg joints were found within the two fills of pit [1103] (the same sieved fills also providing a collection of unburnt mouse/vole fragments). Each represents a subadult individual (distal tibia unfused but the size of the bones suggests these animals are probably second rather than first year animals), possibly taken from a dressed carcass and deposited as a whole joint. The single bone, an unburnt sheep-size rib from (1107), was also taken from a cremation vessel, [1109]. This could represent the remains of a food offering, perhaps associated with a culmination event following the deposition of the human remains. The other fills from cremations, [1005], [1042], [1046] and [1087], include a cattle foot bone and then one each with single fish vertebrae and another with

Fill	Cremation/ feature	Phase	Description/recovery (H hand, S sieved)
1004	1005	3	Cyprinid vertebra (S)
1027	1025	1	Chicken coracoid, ulna and tibia, all calcined (H)
1040	1042	2	Cattle metatarsus (H)
1045	1046	3	Clupeid vertebra (S)
1063		1	Small mammal vertebra (H)
1084	1087	1	2 amphibian vertebrae (S)
1097, 1102	1103	3	1097 – Pig femur, fibula, patella and tibia, all calcined (H); unidentified bird phalange (S); 4 mouse/vole teeth and a mouse/vole longbone fragment (S); 1102 – pig femur, tibia and calcaneus, all calcined; 13 mouse/vole teeth and a mouse/vole femur (S)
1107		2	Sheep-size rib (H)

Table 10: Cremation and possible cremation animal bones

two amphibian vertebrae. Notably, these small species, as well as the small rodent bones from [1103], were all taken from sieved soil samples. The small rodents and amphibians may represent the accidental inclusion of wild fauna within these archaeological deposits. The other bones could represent the residual remains of a general spread of animal bone waste, not associated with the cemetery. The cattle foot bone, in particular, is clearly not food waste and therefore unlikely to be a grave good.

The bustum fill, (1063), provided a cat- or a dog-sized vertebra from a young individual. While this is an unlikely grave good, its association with cremated remains, albeit redeposited, perhaps suggests a ritual rather than mundane explanation for its presence.

Conclusion: animal bones

The interpretation of animal bones as cremation grave goods is clearly dependant on the state of the bone, particularly if calcined, and its location. Bones recovered within a cremation vessel, even when unburnt, are more likely than not to represent grave goods. The limitation of calcined grave goods to chicken and pig is comparable to the evidence from the various cemeteries located around the periphery of Roman London, and in particular those on the eastern side (Barber and Bowsher 2000, 72–76). In addition, chicken is often represented by relatively complete carcasses and pig by select joints. However, at the aforementioned cemeteries, pig is generally represented by foreleg rather than hindleg joints. It is notable that pig and, especially, chicken also form the major component of the animal grave goods found in inhumation burials within the London cemeteries (ibid, 131; Watson 2003, 16; McKinder 2000, 21). The absence of animal grave goods from the other cremations could suggest some variation in burial practises. Alternatively, their absence may relate more to the quantity of bone removed from the pyre (see Barber and Bowsher 2000, 76). These same cemeteries also provided a variety of unburnt animal bones, many from cremation vessels, strongly suggesting the inclusion of food offerings other than those burnt on the pyre.

It is of interest that no animal grave goods were recovered from the inhumation burials. Again, in comparison to the London cemeteries, there were a considerably greater proportion of cremations than inhumations with such grave goods. Thus, their absence at this site may simply relate to the fact that an insufficient number of graves were present on site to provide a meaningful sample.

The other bones found in the cremation fills, discounting the small rodents and amphibians, could represent residual remains of general refuse disposal. This was postulated as an explanation for the cattle foot bone from (1040), cut [1042] and it could also explain the presence of fishbones. While it may be significant that these bones were only found in cremation fills, it should be pointed out that their distribution may relate more to the sieving strategy (limited to certain cremation fills) rather than an actual pattern of deposition.

Charcoal Remains

Phil Austin

Introduction

Six wood charcoal samples recovered from excavation of cremation deposits at Dunstable, Bedfordshire (site code NVD04).

Methodology
Each sample was dry sieved to separate the remains into >4mm and 4–2mm size categories. Fragments >4mm typically retain sufficient anatomical characteristics to enable secure identification. Fragments 4–2mm are less likely to retain diagnostic features but can often still be identified. Below 2mm fragments cannot be securely identified. For this assessment only fragments >4mm were examined. From initial inspection fragment characteristics, and features visible to the naked eye, suggested that the majority of fragments in each sample were probably *Quercus* sp. (Oak). For this reason the least '*Quercus*-like' fragments were preferentially selected for detailed examination. Fragment preparation and examination follows standard procedures as described in Hather (2000). Nomenclature follows Stace (1997).

Results
The findings of this assessment are summarized in Table 11. Of the 60 fragments examined, 59 were identified as Oak and a single fragment, from sample <16> (1084) cut [1087], was identified as Beech (*Fagus sylvatica*). Both taxa are deciduous hardwoods indigenous to southern Britain and were the only taxa identified. Fragment preservation in most instances was good. Mineral deposits were present in the vessels of several fragments but not so severe that features were obscured hampering identification. Thermal degradation was occasionally more severe than average, but tended to be localised. None of the examined fragments exhibited signs of 'vitrification'; the most acute form of thermal degradation that results in 'glass like' brittle fragments in which anatomical features are homogenised.

Context	Samp/ feature	Frag count (est.)	ID (Qty)
1110	23	900	*Quercus* sp. (10)
1107	–	40	*Quercus* sp. (10)
1084	16	800	*Quercus* sp. (9)
			Fagus sylvatica (1)
1063	14/1 (west)	1400	*Quercus* sp. (10)
1063	14/2 (east)	450	*Quercus* sp. (10)
1063	14/3 (mid)	1550	*Quercus* sp. (10)

Table 11: Charcoal species

Comments: charcoal
The findings of this assessment suggest that the large majority of fragments in each sample are Oak and that this was the principal wood used. Both Oak and Beech have excellent burning properties and have long been valued as fuel woods. Unlike Beech, Oak is unlikely to have grown on the thin calcareous soils that characterise much of the area and it is not present locally today. This suggests that Oak was preferentially selected over other, equally good, fuel woods which were probably available locally.

DISCUSSION

Origin and Development of the Cemetery

The cemetery lies approximately 240m to the north-east of the Roman Road of Watling Street. How prominent the road would have been when the cemetery was first used is unclear. There is certainly more evidence for the late Iron Age and early Roman period in the northern part of Dunstable, than the remainder of the town suggesting that the cemetery was located near to a small dispersed local population settled in the north, rather than near the cross roads.

The chronology of the site is difficult to ascertain due to the lack of stratigraphy, the mix of pottery fabrics and wares which range in date from the late 1st century BC to the early 2nd century AD, and the lack of dating for the inhumation burials. The cemetery appears to have been in use during the 1st and 2nd century AD. The lack of datable finds from the inhumation burials means that the chronological correlation with the cremations remains unclear. The votive vessel recovered from inhumation burial [1070] dates to the first century AD which falls within the general dates of the cemetery. The latest burials on site date to the 2nd century. The inclusion of Verulamium Region Ware (R03A) dated to the early to mid 2nd century within cremation burials [1021] suggests that is one of the latest burials on site.

Cemetery Layout

The eight inhumations excavated on site may have been laid out into rows (Fig. 4). All of the grave cuts are on the same alignment, north-east to south-west, suggesting deliberate spatial placement. The graves are also aligned parallel to Icknield Way and perpendicular to Watling Street which may suggest that the inhumations were positioned respecting either or both of these.

Towards the centre of the excavated cemetery was a group of 11 cremations which seemed to form a small cluster (Fig. 4). The remaining cremations were slightly more dispersed across the cemetery, with one cremation burial some 20m west of the central cluster. The central cluster may indicate a social grouping, or high status group, with decreasing status or non-related burials interned further away from the central group. The cremation detached from the central focus of the cemetery may be the start of a second group that extends beyond the excavation area to the west. Only three burials had grave markers. There is little to link these burials in terms of wealth, status or spatially that might suggest why they had markers. The use of markers however suggests a wish to indicate certain burials, perhaps to help signal areas already in use or possibly as location markers for visitors.

Funerary Practice

No pyres were recorded on site but evidence of the pyre was recorded in several cremation burials. Pyre goods were recovered in eight cremations, whilst charcoal recovered from the site suggests that Oak was the chosen wood used in the cremation pyre. Several nails recovered from three cremations suggest that the timber used in the pyre had previously been used elsewhere. Evidence of hobnails and a bead suggest that some of the corpses might have been dressed or covered in personal belongings, whilst two burials suggest that food offerings were also put on the pyre.

Only one *in situ* cremation and burial was recorded on site, a bustum. Again evidence was recovered suggesting the use of oak as the construction timber for the pyre which would have been burnt along with the corpse and then buried within the linear pit below. Glass slivers within the fill suggest that some sort of glass vessel was placed within the burial, possibly already broken in line with the ritual killing of the grave goods recorded in other cremation burials.

Burial Practice

Due to the relatively small sample of burials on site a population-based study was not reasonable to pursue. Only one other site, towards the northern outskirts of Dunstable, has produced evidence for the internment of burials in the early Roman period. That cemetery is likely to have been related to the settlement based in Puddlehill which might suggest that the cemetery at the New Venue also relates to a small settlement based locally, rather than being linked to any settlement near the cross roads to the south.

Not all of the cremations on site could be sexed or aged but where this could be established, the age ranged from 26–45+ with both genders represented. No infant nor juveniles were recorded in the burials, but one neonate was recorded in one cremation burial interned with an adult male. Any interpretation based on gender and age is restricted, as it cannot be assumed that this site represents the whole of the cemetery.

The status of the burials is hard to determine. Assumptions that burials with grave goods have a higher status than those that do not, might be misleading. The layout of the inhumation burials is very formulaic with no one burial standing out. The inclusion of a pottery vessel in one grave may have ritual connotations rather than status related ones. The central cluster of cremations does seem to include the 'richer' of the burials though this is not exclusive as burial [1029] is located towards the north-east of the cluster. The central cluster of 11 burials contained all but one of the multi-vessel cremations and most of the cremations with none ceramic grave goods (Fig. 5), which might suggest that this central group might be linked by a similar social status or burial tradition.

The breaking of a vessel before internment or the use of broken and used vessels appears to be a prominent ritual tradition amongst the burials on site. This is echoed in the 'killing' of the brooches interned in two of the cremation burials. There may also be a ritual aspect to the use of older and more local or traditional pottery as the main cremation vessel. The community may have used this as reverence to their ancestors or as an indicator of their heritage (communal identity) in the face of new social change.

Disuse of the Cemetery

The cemetery was active in the 1st–2nd century AD. After the 2nd century the cemetery fell out of use with no later cremations or inhumations being

interned. The site itself seems to have been totally abandoned as no later dated Roman features were recorded on site. This suggests that the knowledge of the cemetery location was probably passed on through generations, thus upkeeping the principle of not living in the vicinity of an area dedicated to the dead. It also follows a general trend for Roman Dunstable in the abandonment of the northern part of the town. Both the site at Puddlehill (Castle Hill) and the site at the former Queensway Hall, directly east of the site, were abandoned in the 2nd century suggesting the focus of the settlement or town when entering the 3rd century had changed. This shift is also reflected in the Friars Field site. Only a small amount of possible domestic pitting and deep wells was recorded on the Friary Field site dating to the 1st–2nd century AD. After the second century the Friary Field site was used as a cemetery until the 5th century, mainly for the internment of inhumation burials.

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A Romano-British aisled building and associated settlement south of Ampthill Road, Shefford

Mike Luke, Tracy Preece and Jackie Wells

With major contributions by Mark Maltby (animal and human bone), Jenny Robinson (charred plant remains and molluscs)

Other contributions by Peter Guest (coins) and Felicity Wild (samian)

Illustrations by Cecily Marshall

SUMMARY

Between 1993 and 2006, Albion Archaeology undertook an intermittent series of investigations at Ampthill Road, Shefford. They were located in an area where Romano-British artefacts and structural remains had been found for the past 200 years. A small late Bronze Age/early to middle Iron Age pottery assemblage, all residual within later features, suggests late prehistoric occupation. However, the majority of the evidence derives from a Romano-British settlement.

The settlement was established prior to the Roman conquest and comprised a large ditched enclosure which continued to function throughout the 2nd century until the late 3rd century. The original enclosure contained a possible roundhouse and other settlement-type features. A substantial aisled building was constructed in the 2nd century along with two rectangular, timber buildings. The aisled building was subject to repairs before it was effectively rebuilt in the same location. Evidence from antiquarian investigations suggests that its south end contained a substantial suite of rooms which featured hypocausts. The buildings may have been linked by cobbled yards and paths.

A routeway to the west of the enclosure may have provided access through the settlement to the floodplain of the River Flit to the north. To the west of the routeway was a large area of intercutting quarry pits and, identified by antiquarian investigations, a cemetery which may have been replaced by a walled enclosure.

The presence of 3rd- and 4th-century pottery indicates continuing settlement, which comprised a new enclosure that was established in roughly the same location. A small number of artefacts from the antiquarian investigations suggest Saxon activity but the recent work produced no such evidence.

INTRODUCTION

Mike Luke and Tracy Preece

This article presents the results of a series of developer-funded investigations at Ampthill Road, Shefford, carried out between 1993 and 2006 by Albion Archaeology (formerly Bedfordshire County Archaeology Service). Evidence for a Romano-British site in the area had emerged sporadically over the previous 200 years. The Historic Environment Record (HER) of Bedfordshire County Council records all discoveries made in this part of Shefford as HER 379. The recent work comprised a series of watching briefs and, most significantly, two open area investigations: in 2002, part of the gardens to the rear of 77–81 Ampthill Road was developed for housing (project code ASH773); and in 2004, a number of new classrooms and extensions were built at Shefford Lower School (project code SLS893).

Site location, topography and geology

The recent work was centred on TL 137 387 to the south of Ampthill Road on the western side of Shefford (Fig. 1). It covered a total area of *c*. 1.7ha. The site is situated on the north-facing slope of a low east–west ridge between the River Flit (to the north) and a tributary stream to the south, at a height of *c*. 40m OD. The underlying geological strata comprise river gravels overlying clay and Greensand.

Previous archaeological discoveries in the vicinity

Inskip's discoveries

The first reported Roman finds were made in the summer of 1826 by men digging gravel to the south of Ampthill Road, then known as Campton Road (Dryden 1845, 10). A local antiquarian, Thomas Inskip, became aware of their discoveries; an account of his talk to the central committee of the British Archaeological Association represents the earliest published account of the site: 'it appears that for a long time this locality has been productive of vast quantities of interesting objects of art, of the Romano-British epoch, most of which, discovered previous to Inskip's researches, have been either lost or dispersed' (Anon. 1844, 395).

Inskip initially worked in conjunction with the quarrying, but after a short time employed the men to look for further remains in and around their pits. The talk and a later published note (Inskip 1850) represent the only accounts written by Inskip himself. However, Sir Henry Dryden published an article in 1845 on Inskip's discoveries. His description of the remains was clearly based on an intimate knowledge of the site and was later used as the basis for the account of the site in the Victoria County History (Page 1908, 11–13). The following summary is based on these three accounts; the significance of the discoveries is addressed in the discussion at the end of this article.

Cemetery

On the basis of very dark ground which contained ash, bones and artefacts, Inskip interpreted the discoveries made around the quarry pits as part of a Romano-British cemetery. He investigated this in and around 1826, but also returned to the cemetery area ten years later (Dryden 1845, 11). The cemetery is described as being situated in 'two fields and a garden' (Dryden 1845, 9). When the plan published by Dryden (1845, 10) is compared to the 1883 25-inch OS map, it is clear that the cemetery lay in the vicinity of present-day 93 and 95 Ampthill Road (Fig. 2). Inskip sought to define the extent of the cemetery and subsequently found a 'rough wall about 3 feet [0.9m] in thickness' of sandstone, with 'little mortar and no bonding tiles' to the west, south and east (Dryden 1845, 10). Although it is unclear how much of the walls was actually exposed, they were considered to enclose an area '150ft square' (45m x 45m).

On the basis of Dryden's account, the existence of at least eight graves can be postulated, although it is clear that he only described those with significant quantities of grave-goods. He indicates that cremated bone was found (without using that term) but makes a point of stressing that none was contained within pots. In an apparent contradiction, however, he does use the word 'urn' (Dryden 1845, 10–12) on numerous occasions. It is therefore unclear whether all the graves contained un-urned cremated bone or not. Perhaps unsurprisingly, given its distinctive appearance, the majority of the recovered pots were samian ware vessels. The numbers from each grave ranged from none to eleven. A number of other pots are described as 'whitish earthenware bottle', 'amphora' and 'coarse black'.

A range of other artefacts were discovered, although not all were necessarily grave-goods. They included glass and 'brass' vessels; two 'brass' brooches; an iron lamp, hammer and knife; an ivory pipe; a silver pipe; 'copper moulds for pastry'; and coins. Dryden suggested that the two brooches might be Saxon (Dryden 1845, 12–3); this was confirmed by Kennett who believed them to be of 6th-century date (1970, 203).

In the vicinity of the cemetery

Neither during his initial investigations nor when he returned to the site ten years later did Inskip restrict his work to the area of the cemetery. He reports 'digging round the outside of the cemetery' (Inskip 1844, 397), where he found further remains and artefacts. The accounts given by Inskip (1844) and Dryden (1845) are slightly different but not necessarily contradictory.

Inskip reports that in the vicinity of the cemetery he found a 'trench or cist, about twelve feet [3.6m] in length, filled with the usual deposit of ashes, burnt bone, and charcoal; over this were

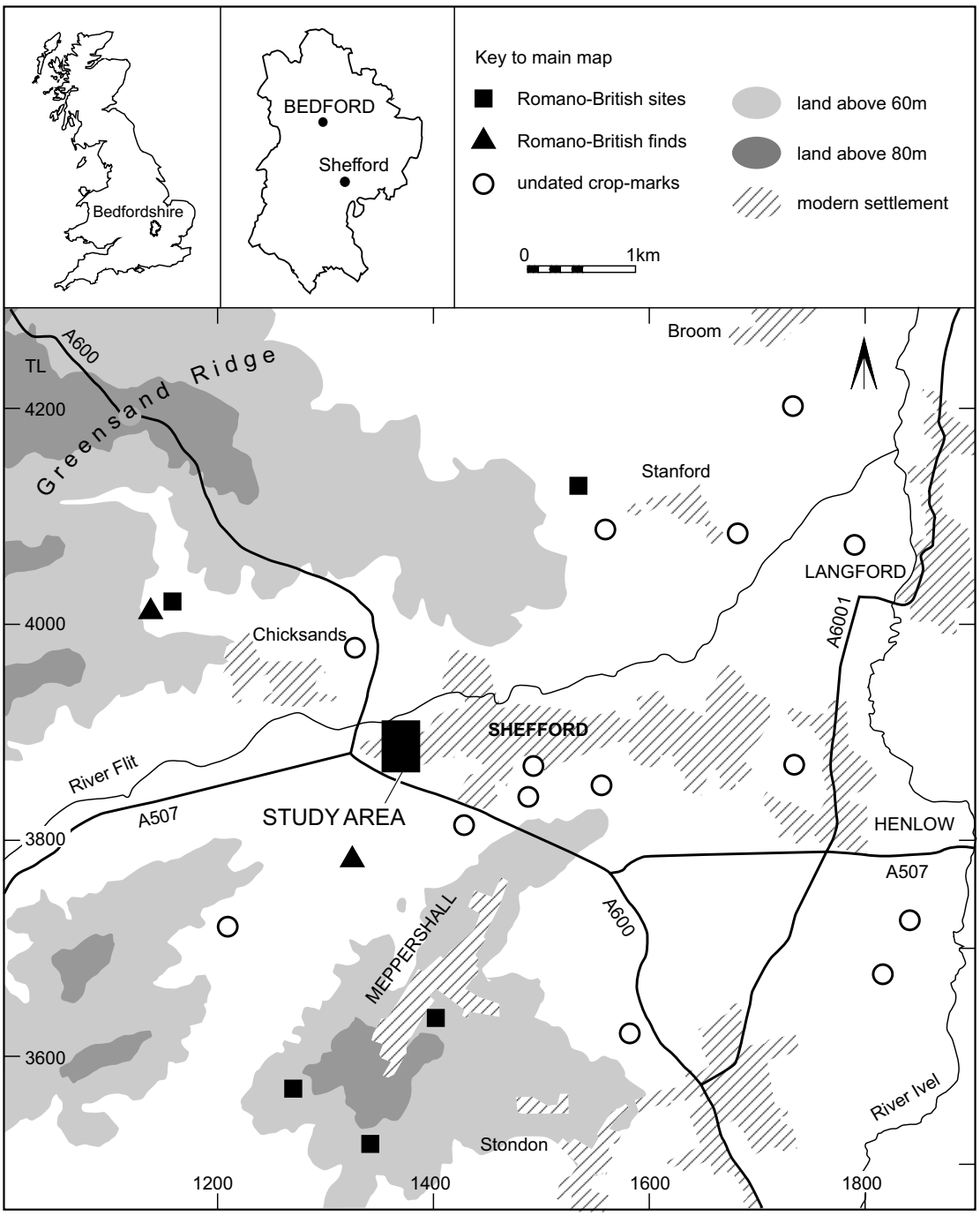


Figure 1: Location of study area, topography and known Romano-British sites in the vicinity

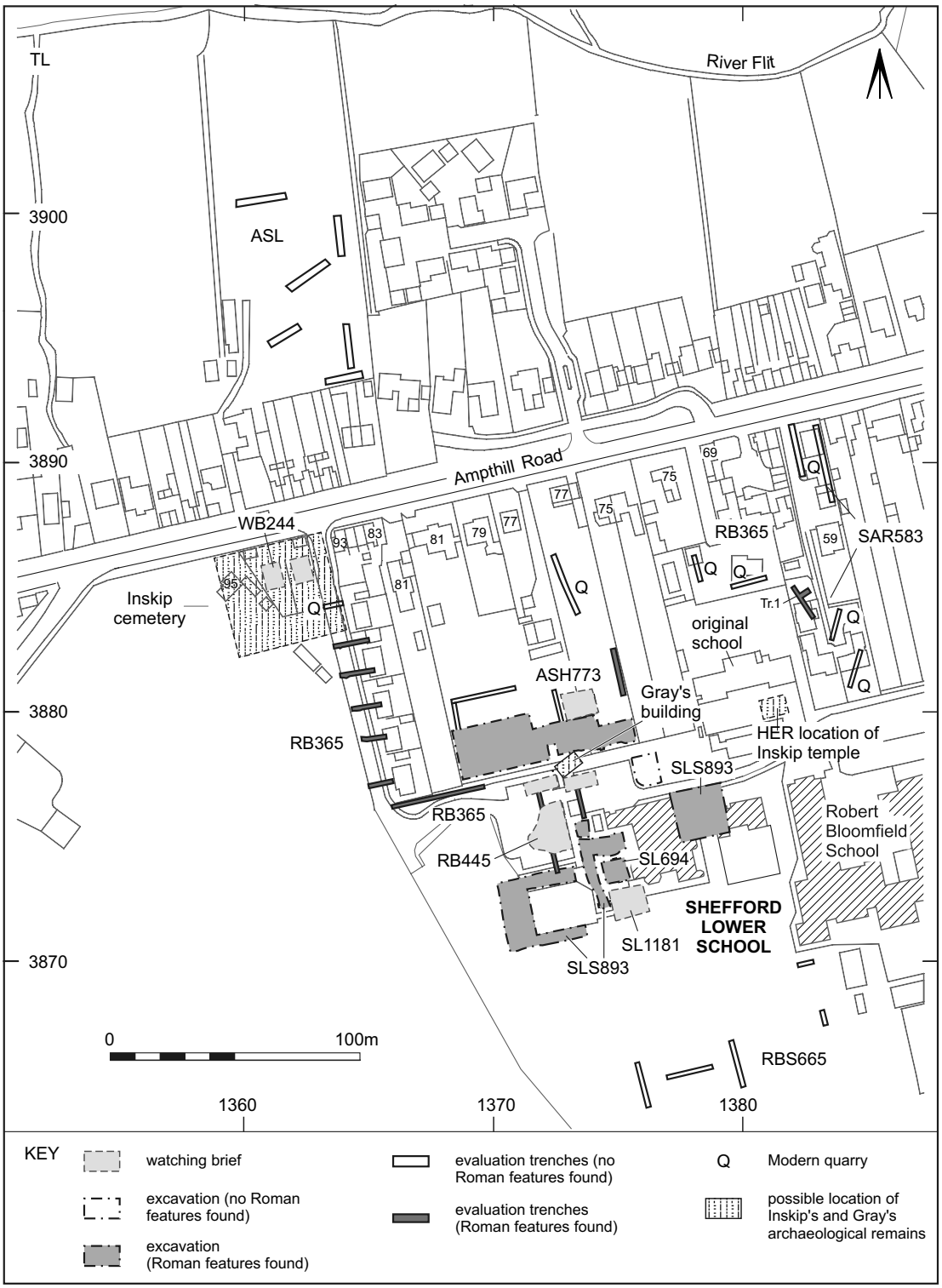


Figure 2: Location of all known archaeological investigations within the study area

placed Roman tiles leaning against each other at the top, so as to form an angle and protect the dust beneath' (Inskip 1844, 397). Associated with this structure or in its vicinity were found a small/miniature silver trumpet, an iron object and a coin of Greta. Simco (1984, 117) interprets this structure as a hypocaust channel but wrongly locates it in the vicinity of the 'temple' (see below). While a hypocaust channel is a possibility, Inskip does not mention any evidence for buildings and, therefore, this structure might equally have been a drying oven. Other finds reported by Inskip 'at some distance' from the structure, but not specifically described as being within the cemetery, were another coin of Greta and 'copper moulds for pastry'. These were found in deposits that contained 'abundant evidence of cremation' (Inskip 1844, 397).

Dryden reports that at this time Inskip found 'the bones of a man burnt to ashes, the bones of a horse, a silver pipe and an iron instrument resembling a hammer' (Dryden 1845, 12). Interestingly, these were associated with two coins of Greta, possibly suggesting a link with Inskip's account. In addition, the silver pipe may be the object described by Inskip as a trumpet. Dryden also mentions that several large urns were found in the 'eastern field'. If this location is correct, they would lie outside the 'walled cemetery'. They contained ashes but no bones, but are still described as urns. One contained an S-shaped hook, another nails, and another pieces of iron. The large urns were apparently surrounded by three small ones.

Temple

Approximately ten years after his original discoveries, Inskip 'dug in various directions outside the cemetery' (Dryden 1845, 11). He found a Romano-British building which he presumed to be a temple associated with the cemetery. It is described as being at a distance of 'half a furlong [201m]' (Inskip 1844, 397) or '250 yards [229m] S.E.' (Dryden 1845, 11) of the cemetery. These measurements place the building in the vicinity of the original Robert Bloomfield School and this is the location shown on maps in the HER (see Fig. 2). However, the plan published by Dryden (1845, 10) does not show the school or any existing boundaries near it (as shown on the 1799 map of this area). An alternative interpretation of his plan would place the building in his 'eastern field', *i.e.* the former back garden of 77 Ampthill Road (where the ASH773 investigations took place).

Although there is no specific description of the building, its foundations occupied an area 30 feet (9m) by 20 feet (6m) (Inskip 1844, 397; Dryden 1845, 11). It is also mentioned that there was 'deposited a great quantity of mutilated remains of Samian pottery, and other coarse ware' (Inskip 1844, 397).

Gray's discoveries

The levelling of a school field in the summer of 1940 uncovered further Romano-British remains, which prompted investigations by a Mr Edgar Gray. Although the results were not published, a brief summary and plan were produced by a Mr Davis (copy in the HER). The plan shows a building to the south of the gardens of the houses fronting on to Ampthill Road. When compared with the 1937 OS map, it appears that this was located to the south of number 77 (see Fig. 2). Some of the older residents of Shefford have confirmed that this was the area subject to investigation.

Gray appears to have initially excavated two trenches. Within Trench A he located a Roman building, measuring 20 feet (6m) by 30 feet (9m). It is described as disturbed but it is unclear if this was purely the result of the levelling of the school field or due to previous investigation. The side walls comprised 'disturbed sandstone foundation' which was at least 1 foot (0.3m) high. There is some suggestion that the foundation was mortared. Within the building and at a depth of 4 feet 9 inches (1.44m), Gray's description states that the 'floor of the building revealed hypocaust tiles' which he also describes as 'floor of hypocaust'. This appears to have comprised cement 1½ inches (38mm) thick and tiles 12 inches (0.3m) square. Charcoal was present and some of the tiles were burnt, but no other details are given. If the 'floor' is the area shown on the plan, it would be *c*. 2m by 3.5m and would be central within the building. There are other references to 'surfaces' within the building but these are unclear and not described in detail. Although Trench B is shown on the plan to be outside the building, Davis's account contains enigmatic references to 'remains of pillar? tiles, cement and sandstone'.

It is clear that Gray believed he had located a hypocaust, and, given the references to 'pillar? tiles' and depth of the so-called 'floor', this seems likely. Simco believed this building was the same as that previously claimed by Inskip as the temple (1984, 117).

Other discoveries
Other artefacts found in this area of Shefford include unconfirmed reports of Romano-British armour uncovered during the construction of the original primary school in 1872 (as recorded in the HER). References in the HER suggest that further Romano-British artefacts were found in 1976 during the construction of a school extension.

The recent archaeological investigations

Three types of projects were undertaken in the area between 1993 and 2006 (Figs 2–3):

Evaluations
Projects RB365, SL694, SAR583 and SLS893 (BCAS 1993, 1999 and 2000b and c; Albion Archaeology 2001 and 2003) all produced some evidence for Romano-British activity. Only ASL (Roberts and Kier 2004) RBS665 (BCAS 2000a) produced no such evidence.

Watching Brief
Projects WB244, RB445 and SL1181 (Albion Archaeology 2006) were undertaken during construction work. The circumstances of these investigations — an archaeologist was in attendance but unable to control machining levels or investigate features — means that their limited results are unreliable. A watching brief was also undertaken at the end of ASH773 during the digging of trenches for wall footings, to the north of the open area excavation.

Open area investigation
Projects ASH773 and SLS893 were undertaken immediately in advance of building work. Earthmoving down to archaeological levels was undertaken under archaeological supervision (Albion Archaeology 2005).

Structure and terminology of this report

During contextual analysis of the results of fieldwork, the following structural hierarchy was defined:

G (*group*) numbers: interpretative entities, *e.g.* buildings, ditch lengths, concentrations of pits;
L (*land-use area*) numbers: collections of broadly contemporary and spatially coherent groups, *e.g.* a settlement focus, a field system;
Phases: broad, chronological divisions, *e.g.* late Iron Age/early Romano-British, later Romano-British.

The results of the investigations are presented within a phased chronological framework, the site narrative. This is further subdivided by land-use area (L prefix) and group (G prefix). A decimal suffix is used to indicate non-primary major fills within both G and L numbers. Decimal points are also used for G numbers to indicate different elements of the buildings. Fill descriptions are only given where they are considered useful; *e.g.* if none is given for a posthole, then no packing material or evidence for a post was present.

Along with describing the archaeological features, the site narrative includes a summary of key artefactual and ecofactual evidence. Pottery in this section is described as 'contemporary' if it is dated to the same chronological period as the phase under discussion. The artefactual and ecofactual evidence is presented more fully in stand-alone sections, with further technical detail in the appendices. The report concludes with a discussion of the results of the investigations.

Throughout the article, letters preceding registered artefact numbers indicate the projects from which they derived, i.e. **R** = RB365 and **S** = SLS893. Artefacts with no prefix, which constitute the bulk of the assemblage, are from ASH773.

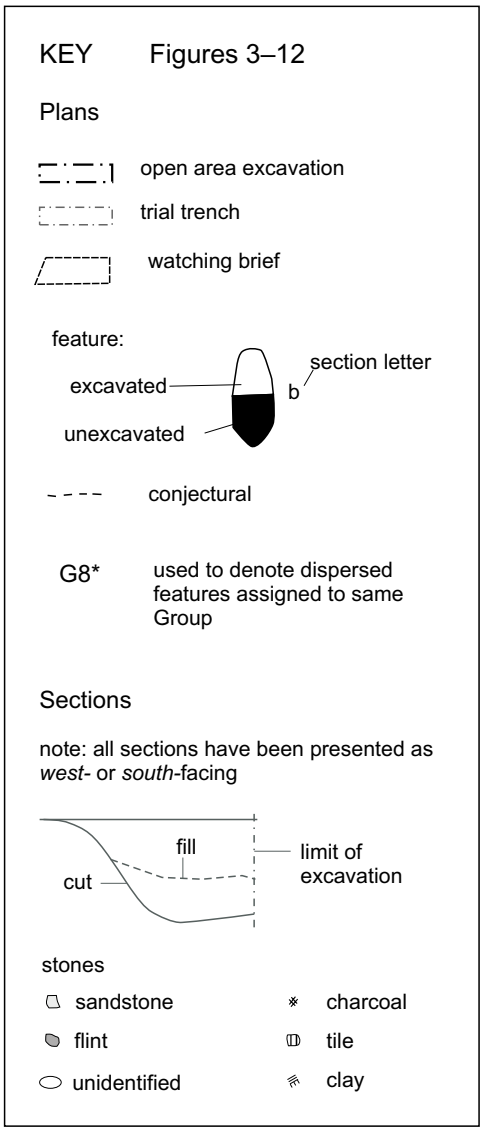
RESULTS OF THE INVESTIGATIONS

Mike Luke and Tracy Preece

The majority of the evidence from the investigations relates to Romano-British settlement. Although a small number of prehistoric flint flakes and sherds of late Bronze Age/early to middle Iron Age pottery within the Romano-British features may indicate previous activity on the site, they do not warrant detailed discussion.

Phase 1: Late Iron Age/early Romano-British settlement (Figs 4–5)

The earliest firm evidence for settlement was identified on the basis of stratigraphic relationships with later features and a late Iron Age/early Romano-British pottery assemblage. It comprised a large ditched enclosure L1, subdivided by an internal boundary ditch L20 which was re-cut on a



number of occasions. The majority of the enclosure underlies the present-day Lower School. However, three areas L2, L3 and L33 produced evidence for concentrated activity. L2 and L3, located *c*. 20m apart in the northern part of the enclosure, were probably associated with domestic occupation. The latter included a possible roundhouse, while L2 included hearths/ovens, structural features, pits and a ditch**.** Another area of activity L33, comprising two small ditches, a structural slot and a pit, was located in the vicinity of the possible continuation of the subdivision ditch. Approximately 95m to the northeast of L2, a ditch and a posthole L34 were also identified.

The presence of oysters demonstrates that this phase of activity continued after the Roman conquest, and it has tentatively been dated to the early 1st to early 2nd century. Although ceramic building material and coins were recovered from features within this phase, they are considered to be intrusive from later phases. This is particularly the case with the enclosure ditches, where it was very difficult to distinguish between the original ditch and later ditch fills, resulting in significant contamination by later artefacts. The pottery assemblage is characterised by domestic vessels such as storage jars and cooking pots. Moderate quantities of animal bone, dominated by cattle, were recovered.

Enclosure L1 (Fig. 4; Pl. 1)

Only the southwest (G10/G100) and northwest (G27) boundary ditches of enclosure L1 were clearly identified. These suggest it was aligned NW–SE and was rectangular in shape, covering at least 4,500m^2. However, ditch G216 assigned to L34 *c*. 80m to the east, within SAR583 evaluation trench 1, was on a similar alignment but located in an area which was not subject to extensive investigation (Fig. 2). If it does represent the northeast boundary, then the enclosure would have covered an area of at least 1.2ha. The fills of ditch G100 appear to have derived from the east and could suggest the presence of an internal bank (Fig. 4g). Although only non-contiguous lengths of ditches G10/G100 and G27 were revealed, they are believed to have been the same boundary because of their similar size and shape and because the absence of ditch G10 from a trial trench to the north suggests that it turned east.

The southwest enclosure ditch produced a large quantity of pottery (including samian), ceramic building material and animal bone, including a partial dog skeleton. Where the earlier ditch fills were well defined, they produced only late Iron Age/early Romano-British pottery. An ecofactual sample from the main ditch fill contained charred cereal grains.

Southwest enclosure ditch G10/G100

Enclosure ditch G10/G100 was revealed in both of the open area excavations. To the north, G10 was *c*. 2m wide and 0.6m deep (Fig. 4a) while to the south, G100 was up to 2.5m wide and 1m deep (Fig. 4g). Their shared alignment and similar concave profile indicate that they were part of the same boundary.

The *c*. 0.2m thick primary fills comprised yellow-brown sandy clay with occasional small stones and charcoal flecks. This was overlain by a 0.15–0.4m thick lower fill G10.1/G100.1of light yellow-brown sandy clay with occasional small stones and chalk flecks. Ecofact sample 15 from this fill

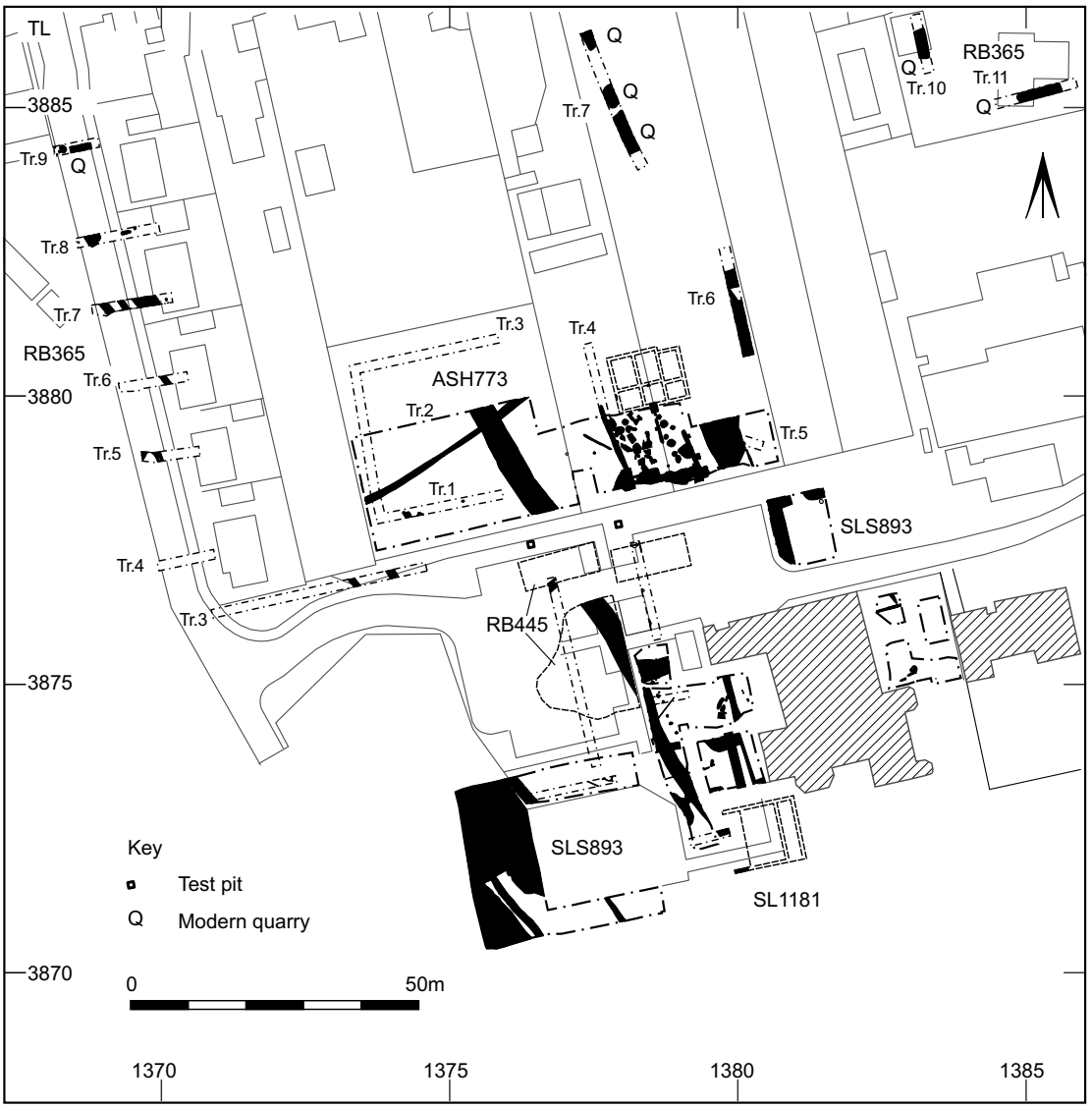


Figure 3: All features plan of central area

contained small quantities of charred wheat and barley grains. The main infilling G10.2/G100.2 comprised mid-grey-brown silty clay with patches of yellow-brown clay and inclusions of occasional small to medium stones and charcoal flecks. A varied artefact assemblage is dominated by late Iron Age/early Romano-British pottery. Metal detecting during a watching brief (RB445) recovered two late 3rd-century coins, one of Victorinus, and two 4th-century coins of Constantine from the uppermost part of the ditch.

Northwest enclosure ditch G27

Ditch G27 was only revealed in evaluation trench 6. It was 3.2m wide and 0.85m deep with sides sloping at 45 degrees; it appeared to have a flat base (Fig. 4b).

The primary fill comprised a 0.5m thick mid-grey-brown sandy silt with occasional small to medium stones and charcoal flecks. This was overlain by mid-yellow-brown sandy silt with moderate small stones and occasional charcoal flecks.

Possible northeast enclosure ditch and associated feature L34

Two features, a ditch and a posthole, were located in SAR583 evaluation trench 1, *c*. 95m to the northeast of domestic focus L2. Their significance and date are not fully understood because this area was not subject to open area excavation. The ditch

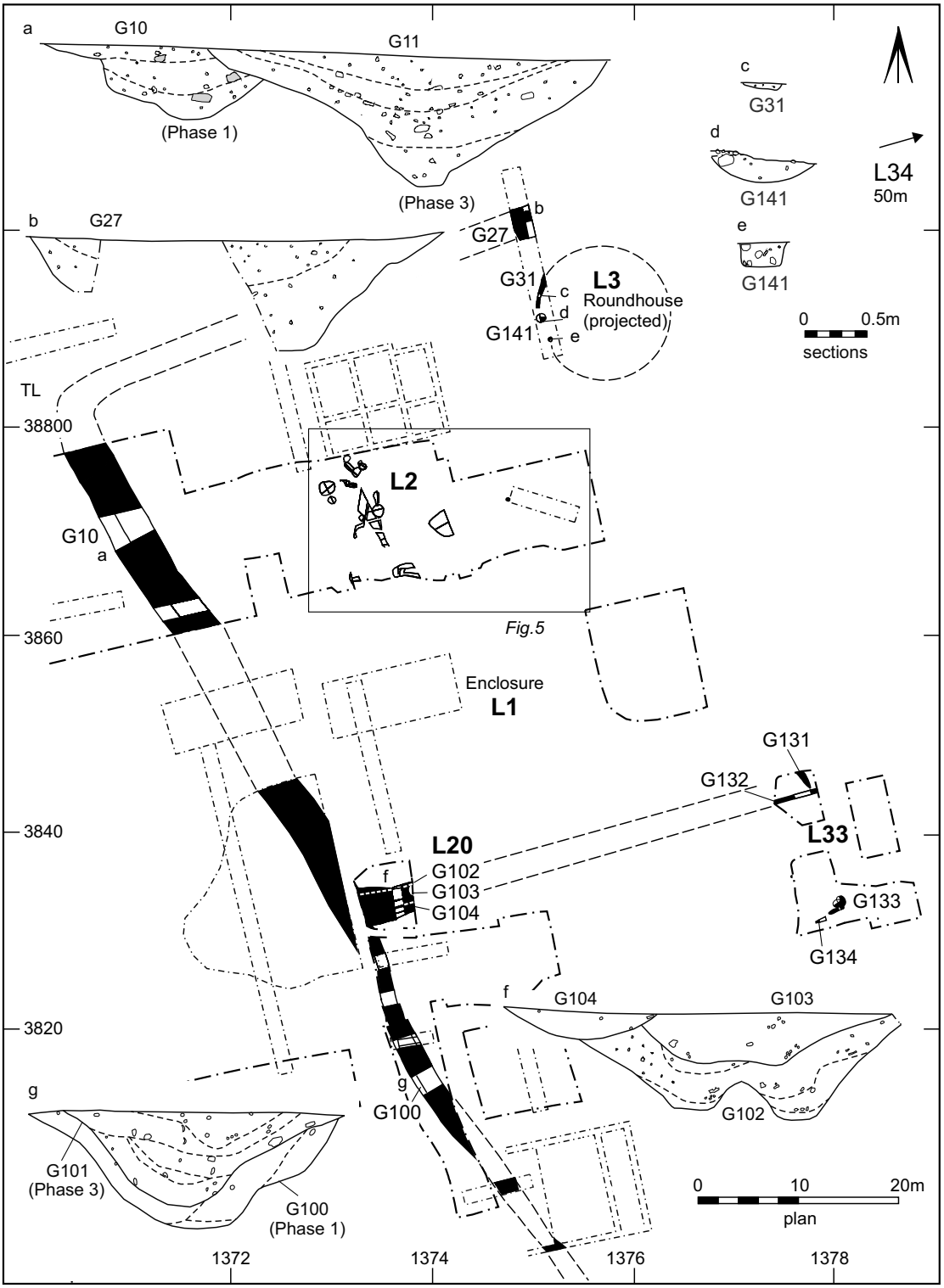


Figure 4: Phase 1: Late Iron Age/early Romano-British plan, with sections



Plate 1: Phase 3 enclosure ditch G100/G101 from north, with 1m scales

may represent the northeast side of the large enclosure L1. Neither feature produced any firm dating evidence.

Ditch G126
Ditch G126, aligned NW–SE, had a concave profile and was 2m wide and 0.48m deep. Its alignment, profile and dimensions are closely comparable to the southwest enclosure ditch G10/G100, suggesting that it may have been the northeast side of the same enclosure. It was filled by mid-green-brown clayey sand with occasional small stones and frequent flecks of charcoal.

Posthole G136
A single, sub-oval posthole was located *c*. 1m west of ditch G126 and, therefore, possibly inside enclosure L1. It was *c*. 0.3m in diameter and 0.15m deep.

Internal division L20 (Fig. 4)

Although it was only observed for 5m, ENE–WSW aligned ditch G102 represents the earliest version of an internal division L20 within the large rectangular enclosure. It was re-cut on at least two occasions as G103/G104. The ditch fills produced a relatively small quantity of contemporary pottery and fragments of animal bone.

Original ditch G102
Ditch G102 had a W-shaped profile, suggesting it was actually two intercutting ditches. Together, they were 2.65m wide, at least 0.8m deep and both had flat bases (Fig. 4f). Both the primary and secondary fills comprised an orange-brown sandy clay with occasional chalk flecks. The tertiary fill (G102.3) comprised dark brown-grey sandy clay.

Re-cuts G103/G104
The two re-cuts were considerably shallower than the original ditch. The first (G103) was located centrally within the original ditch. It was 1.95m wide and 0.4m deep with a U-shaped profile and slightly uneven base. The second (G104) was located on the south side of the original ditch. It was 1.2m wide and 0.2m deep with a shallow, concave profile (Fig. 4f). The fills of both ditches comprised a single deposit of mid-yellow-brown sandy clay.

Domestic focus L2 (Fig. 5; Pl. 2)

Domestic focus L2 was located in the northwest corner of enclosure L1. As revealed, it covered an area of *c*. 12m by 18m, although it may have extended beyond the limit of excavation to the south. No buildings were identified but there was evidence for a hearth G4, two possible ovens G5 and associated scoops G7, a structural slot G18, a posthole G15, a ditch G17 and pits G6, G13 and G20. Although all of these features were sealed or truncated by Phase 2 deposits, they were not all contemporary with one another.

A large quantity of pottery, along with smaller amounts of ceramic building material, fired clay and animal bone were recovered, mainly from the ovens and ditch. Charred cereal grain and chaff were identified in several ecofactual samples from these features.

Ditch G17
Ditch G17 was aligned NW–SE, parallel to and *c*. 18m from the southwest side of enclosure L1. It may have formed an internal division within the enclosure. The ditch was heavily truncated by later features. It was at least 8m long and 0.65m wide, increasing to 2m wide and possibly terminating to the northwest. It had a concave profile (Fig. 5g) and was 0.25–0.55m deep.

The ditch was infilled with a light grey-brown sandy clay G17.1, overlain by a dark grey-brown clay silt G17.2 with inclusions of moderate charcoal flecks and small stones. Its moderate artefact assemblage is dominated by late Iron Age/early Romano-British pottery and fired clay.

Hearth G4
Sub-circular hearth G4 was 1.6m long, 1.3m wide and 0.25m deep with a concave profile and base (Fig. 5a and b). The sides and base of the feature exhibited evidence for in situ burning. Its upper fills comprised dark red-brown to mid green-grey sandy silt with occasional charcoal flecks. These contained several sandstone slabs which may have derived from the superstructure.

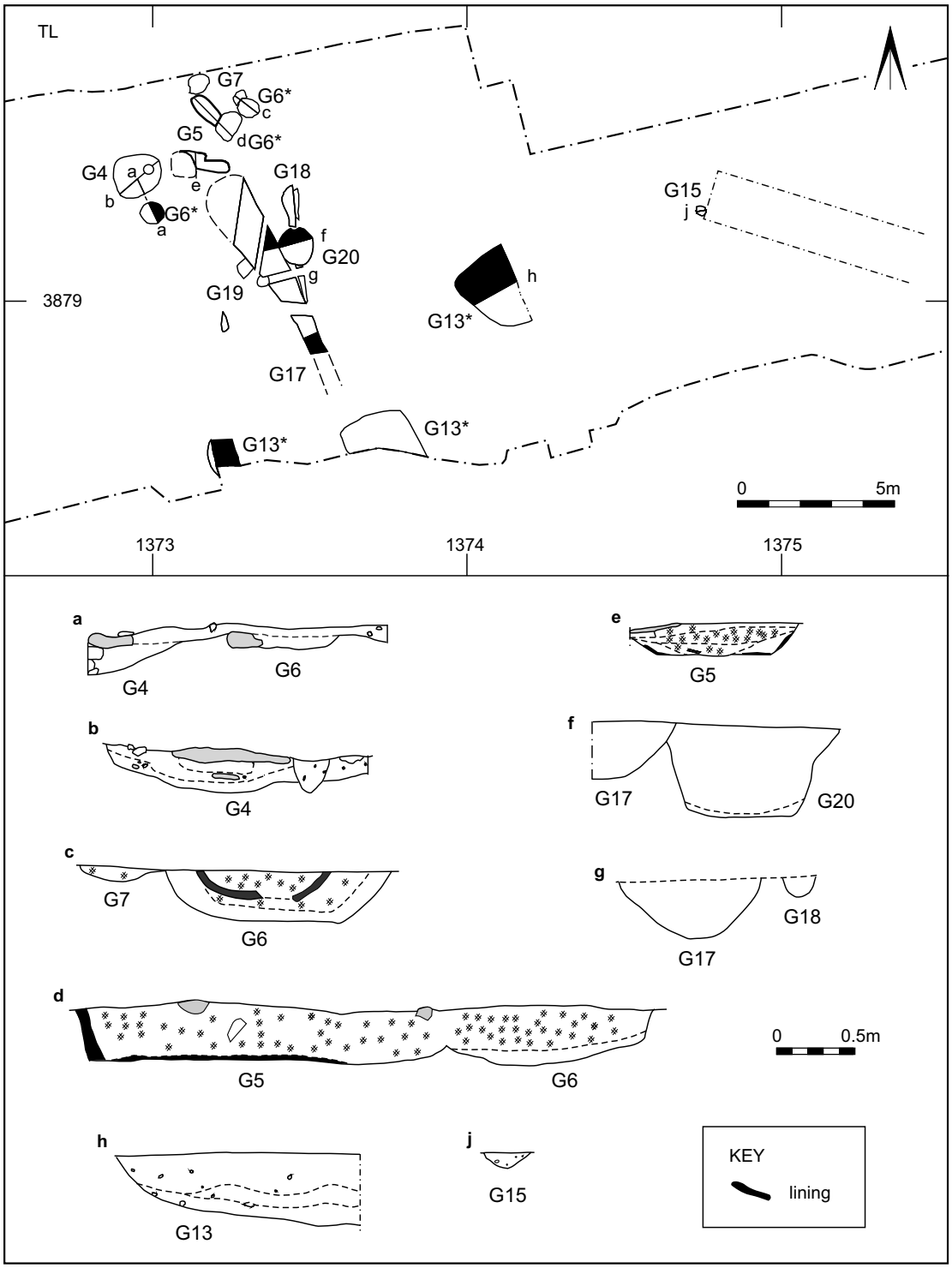


Figure 5: Detail of Phase 1 domestic focus L2, with sections



Plate 2: Ovens G5 from south, with 1m scale

Ovens G5 and associated scoops G7
Adjacent to hearth G4 were two keyhole-shaped ovens G5, 1.1m long, 0.3m wide and 0.2m deep with nearly vertical sides and flat bases (Fig. 5d and e). These were aligned east–west and NW–SE, both with stoke holes to the west. Their sides and bases preserved traces of a burnt clay lining.

The primary fills of the ovens comprised 50mm of mid orange-red clay with inclusions of charcoal. A moderate pottery assemblage is dominated by late Iron Age/early Romano-British sherds. Their secondary fills G5.1 comprised dark grey-brown and dark grey-black silty clay with frequent flecks of charcoal. Ecofactual samples 8/9 and 10/11 from these deposits contained small quantities of charred wheat and barley grains, along with larger quantities of charred wheat chaff. Also present were hawthorn stones, perhaps indicating that freshly cut branches were used as fuel.

Two c. 50mm deep scoops G7, to the north of the ovens, contained a similar fill to that of the ovens. It is unclear whether they represent the truncated remnants of further ovens or of features associated with them.

Possible structural slot G18
North–south aligned slot G18 was 3.8m long and varied between 0.25m wide towards the south and 0.5m wide towards the north. It was 0.15m deep throughout, with steep sides and a slightly concave base (Fig. 5g). The length and profile of this feature suggest that it served a structural purpose. It was truncated by pit G20, and its proximity to ditch G17 suggests that they were not contemporary.

Posthole G15
Circular posthole G15 was located *c.* 12m to the east of ovens G5. It was 0.3m in diameter and *c*. 0.1m deep (Fig. 5j).

Postholes G19
Three postholes G19 were located within 1.5m of each other and may have been associated with slot G18. Like the latter, two of the postholes were truncated by ditch G17. They were oval or sub-square in plan, measuring 0.3–0.5m in diameter and 0.1–0.3m deep.

Pits G6
Three pits G6 were located adjacent to hearth G4 and ovens G5. Two were sub-circular and one circular in plan. They were *c*. 0.9m in diameter, 0.1–0.2m deep with irregular concave sides and slightly concave bases (Fig. 5c). Two of the pits could have been contemporary with ovens G5 but one of them was stratigraphically later.

The 50mm thick light yellow-brown silty clay primary fill was overlain by a mid red-brown sandy clay G6.1. Both contained inclusions of charcoal flecks and ecofact sample 18 had high quantities of ash charcoal.

Pits G13
Three large pits G13 were located on the southern periphery of the cluster of features L2. Two were sub-oval and one was sub-rectangular; they were 0.9–2.1m long and 0.2–0.45m deep. All three had U-shaped profiles with irregular, concave bases (Fig. 5h).

The 50mm–0.15m thick primary fills varied from light grey-brown to mid-brown-grey sandy silt with frequent flecks of charcoal and occasional small stones. One pit contained a 0.1m thick lower fill of mid-orange-red sandy clay G13.1 with occasional patches of green-grey clay and burnt stones.

The main pit fills G13.2 were 0.1–0.3m thick and varied from mid-yellow-grey to dark black-brown sandy silt with occasional small stones and moderate charcoal flecks. They contained intrusive finds derived from later activity which truncated the pits. Ecofactual sample 4 contained moderate quantities of charred wheat grain, no chaff but much Pomoideae (apple, hawthorn *etc*.) charcoal.

Pit G20
Circular pit G20 was 1.1m in diameter and 0.6m deep, with nearly vertical sides and a flat base (Fig. 5f). Its profile and size suggest it might have been a storage pit. It was stratigraphically earlier than ditch G17, but truncated slot G18.

The pit contained a 0.3m thick primary fill of light yellow-brown sandy clay with occasional charcoal flecks. This was overlain by mid-grey-brown sandy clay G20.1 with inclusions of small–medium burnt stones.

Roundhouse L3 (Fig. 4)

A possible roundhouse was located just within the northwest edge of the enclosure. It was only investigated within an evaluation trench and is, therefore, poorly understood. It comprised a possible drainage gully G31 and two postholes G141 tentatively interpreted as door posts. Only a small quantity of mainly contemporary pottery was recovered from the gully.

Gully G31
The gully was on a curving SW–NE alignment and was at least 3.5m long; it continued beyond the limit of the evaluation trench. It was 0.3m wide and 50mm deep with a flat base and a projected diameter of *c*. 12m. (Fig. 4c). Its fill G31.1 comprised a mid grey brown sandy silt to a dark grey clay silt with occasional small stones and charcoal flecks.

Postholes G141
The postholes were 1.8m apart and sub-circular in plan. One was 0.35m in diameter, with vertical sides and a flat base (Fig. 4e); the other was 0.8m, with a concave profile (Fig. 4d). Both were 0.2m deep.

Activity focus L33 (Fig. 4)

Activity focus L33 was located in the vicinity of the major subdivision L20, c. 40m from the southwest enclosure ditch. All the features in this area — two ditches G131 and G132, structural slot G134 and pit G133 — had been subject to substantial modern truncation. Ditch G132, although significantly truncated, is likely to have been a continuation of subdividing ditch L20. Only a small assemblage of contemporary pottery, fired clay and animal bone was recovered from these features, perhaps as a result of truncation rather than indicating that they were not in the proximity of domestic activity.

Possible enclosure subdivision ditch G132
Ditch G132 was on a similar alignment to ditch G103 (L20) and is likely to represent its continuation. It was only 0.4m wide and 0.1m deep, with a shallow, concave profile. It was filled by mid-brown silty clay with occasional small stones and charcoal flecks.

Ditch G131
NW–SE ditch G131 terminated on the north side ditch G132 and may have been contemporary with it. It was at least 2m long, continuing beyond the excavation limit to the northwest. It was 0.65m wide and 0.15m deep with a concave profile, and was infilled with mid-brown silty clay containing occasional small stones.

Structural slot G134
Slot G134 was located 11m south of ditch G132. It was 0.35m wide and 0.15m deep, with concave sides and a flat base. Its fill comprised mid-brown silty clay with occasional small stones and charcoal flecks.

Pit G133
Oval pit G133 was located adjacent to the north of slot G134. It was 1.4m long, 0.8m wide and 0.3m deep, with nearly vertical sides and a flat base. Its mid-brown silty clay primary fill was overlain by a darker brown silty clay containing occasional small stones and moderate charcoal flecks.

PHASE 2: PRE-BUILDING DEPOSIT (NOT ILLUSTRATED)

Within the ASH773 investigations, a *c*. 0.2m thick deposit of mid-brown-grey clayey silt L11 covered an area *c*. 9m long and *c*. 7m wide. It was confined to the site of the Phase 3 aisled building. Its interpretation is uncertain but it appeared to seal Phase 1 features and may represent the remains of a soil that had formed before the building was constructed. Its small artefact assemblage contains both residual and intrusive elements, and does not provide a reliable date for its formation.

PHASE 3: MID-2ND TO 3RD CENTURY (FIGS 6–9)

During this phase, the late Iron Age/early Romano-British ditched enclosure was retained. The entire length of the original southwest boundary was

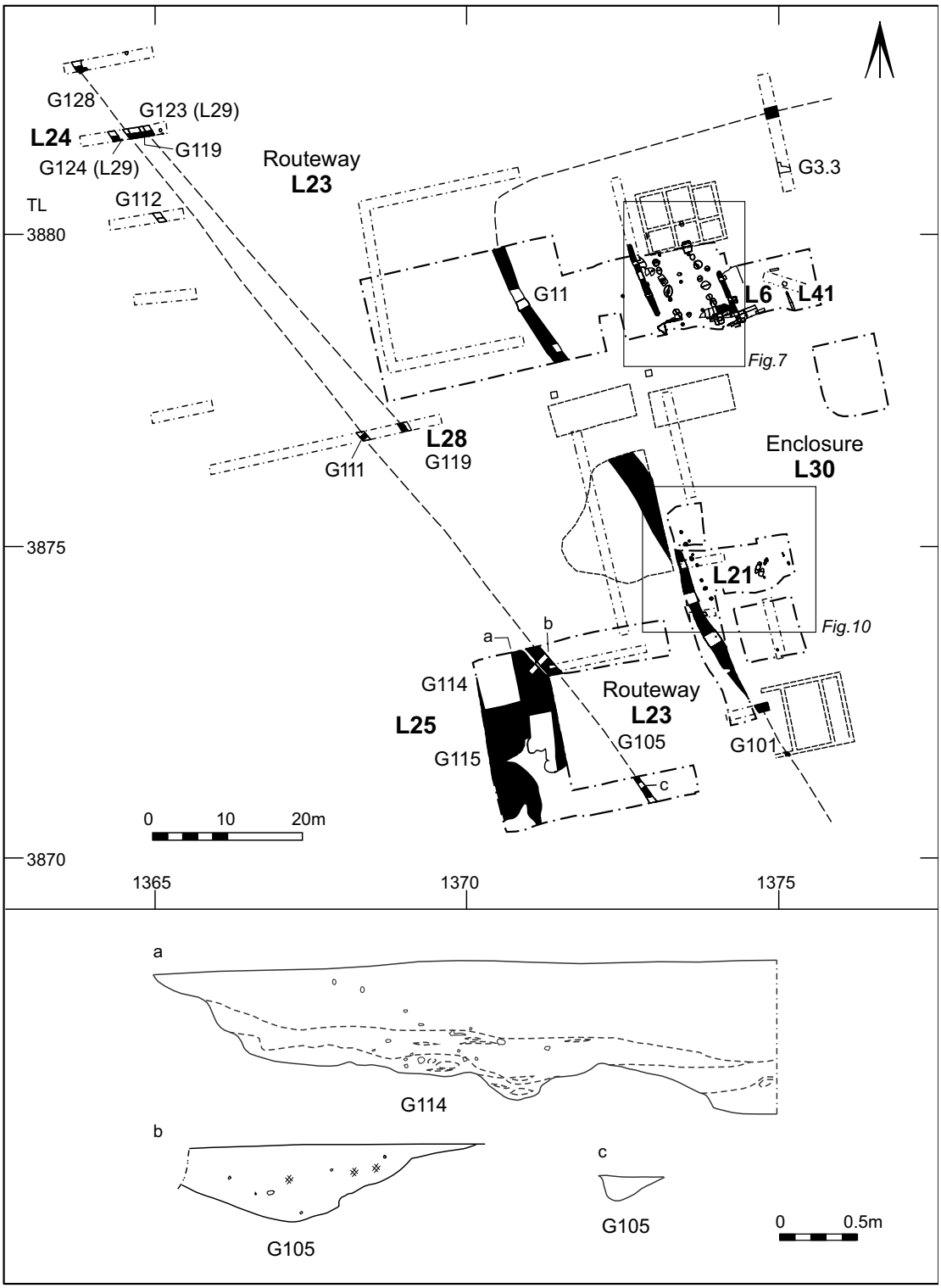


Figure 6: Phase 3: Early Romano-British plan, with sections

re-cut (L30); however, the internal subdivision was not retained. Within the enclosure, aisled building L4 was constructed in the same location as one of the Phase 1 domestic foci, with a cobbled yard L6 to the east. A series of minor alterations (L5) to the original structure was followed by a major phase of rebuilding (L12). Some 30m to the south, another post-built building L21 was constructed.

A probable trackway L23 was situated to the west of the enclosure. Its western ditch appears to have been replaced on a number of occasions (L28/L29). Excavation to the west of the trackway revealed a large area of intercutting quarry pits L25, probably dug to extract sand for use in the construction of the buildings within the enclosure. Further north, near the western boundary of the trackway, a number of postholes L29 were found in evaluation trenches. Their significance is not fully understood but the relatively large quantity of artefacts in the nearby trackside ditches suggests another focus of domestic occupation.

Not all the evidence within this phase was contemporary — the aisled building was subject to alteration, the quarry pits were intercutting and the western side of the trackway was redefined on a number of occasions. Overall, however, the significant proportion of 2nd- to 3rd-century wares in the pottery assemblage provides a broad date for this phase of activity. Contemporary pottery includes white wares from Verulamium (St Albans) and smaller quantities of samian and amphorae. However, the assemblage is dominated by sand-tempered coarse wares which can only be broadly dated to the Romano-British period. The large assemblage of building material is dominated by brick and tile, but stone roof tile, tesserae, opus signinum, painted plaster, mortar and window glass are also present. Much, but not all of this, was found in the vicinity of the aisled building, suggesting it had a tiled roof and some well appointed rooms. A range of personal objects were also found, along with domestic artefacts indicating craft activities.

Enclosure L30 (Fig. 6)

Only the western ditch of the enclosure (G11/G101) was clearly identified. No comparable, direct evidence for re-cutting of the northern Phase 1 enclosure ditch was recovered. However, its size would suggest that this is a possibility. The ditch fills contained a large quantity of pottery (including samian ware dated to the second half of the 2nd century) and other artefacts. The presence of moderate quantities of building material suggests that the enclosure was maintained until the aisled building (see below) had gone out of use. Cattle bones from the ditch, derived from the same animal, are likely to represent butchery waste.

Ditch G11/G101

The southern length of the re-cut (G101) was *c*. 1.6m wide and 0.7m deep (Fig. 4g), positioned centrally within the original ditch. To the north, G11 was 1.8m wide and *c*. 0.6m deep (Fig. 4a), centred slightly to the west of the original ditch. The ditch had a U-shaped profile, with slightly convex sides in places.

The 0.1–0.2m thick primary fills comprised mid-yellow-brown sandy clay with occasional small stones and charcoal flecks. The 0.3–0.5m thick overlying fills G11.1/2 and G101.1/2 comprised light brown to dark brown-grey clayey silt, with occasional small to medium stones and charcoal flecks. Both the lower and main fills produced a relatively large assemblage of 2nd-century pottery, providing a *terminus post quem* for the infilling of the ditch.

Initial construction of aisled building L4 (Figs 7–9; Pl. 3)

Aisled building L4 was situated in the northern part of the enclosure, *c*. 15m from the western boundary and *c*. 10m from the postulated position of the northern boundary. The building was 12.5m wide and at least 18.5m long, continuing beyond the limit of excavation to the north and south. Its principal surviving elements were footings for two external walls G1.1/G1.6 and two parallel rows of internal post-pits (G1.2) for the timbers which supported the roof. The actual posts were in pairs, at a fairly regular *c*. 3m spacing, except for the northern pair (see below). This arrangement created 2.5m wide aisles and a 6m wide nave. No definite entrances were located, although a possible gap in the western wall footing and an area of stones G3.2 adjacent to the eastern wall footing may have been associated with doorways. No internal surfaces or firm evidence for internal activity survived. An area of stones G1.5 within the western aisle of the building may represent a levelling deposit.

The overall pottery assemblage does not give a precise date for the construction and use of this building. However, the samian ware recovered from constructional elements indicates that a date in the mid-2nd century is likely. A large quantity of ceramic and other building material was recovered from the building and features in its vicinity; this is discussed in the relevant artefact sections.

External walls G1.1/G1.6

The side walls G1.1 of the building survived for *c*. 9m on both sides but had been heavily truncated, and their apparent ends to the north are, therefore, not genuine. However, the *c*. 1.4m gap

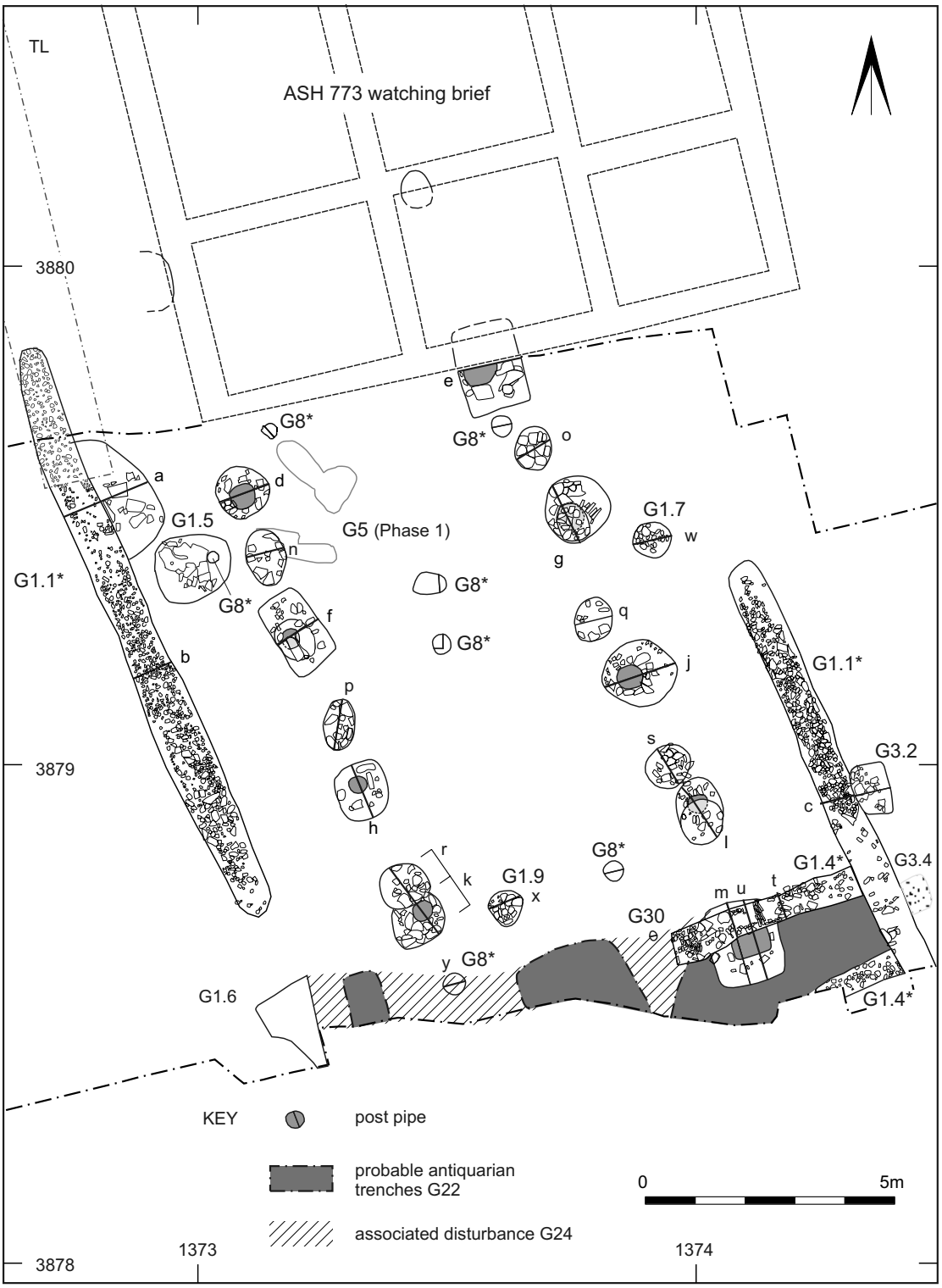


Figure 7: Detailed plan of aisled building L4/L12



Plate 3: Western external wall G1.1 of aisled building L4 from south

between G1.1 and G1.6 of the western wall may represent a genuine doorway.

The construction trench for the western wall was *c*. 0.8m wide and 0.3m deep. It contained a single course of cobbles, along with occasional pieces of sandstone, which ranged in size from 30 to 100mm (Fig. 8a and b). The southerly continuation of the wall line G1.6 was heavily truncated by a later robber trench G2.4. The construction trench for the eastern wall was *c*. 0.7m wide and 0.4m deep, and contained two courses of stones (Fig. 8c). The lower course of 50–150mm cobbles was similar to those in the western wall trench, while the upper course comprised 50–100mm thick sandstone slabs.

Both trenches contained mid-orange-yellow silty clay which appears to have been used to bond the stones. The trenches produced a mixed assemblage of finds, but none were securely contemporary with the stone footings.

Post-pits G1.2

Within the building, eleven post-pits G1.2 in two rows were identified (Fig. 9). They were in pairs, *c*. 6m apart, although only one of the southernmost pair fell within the excavation area. The pairs of post-pits were spaced at *c*. 3m intervals, except for the northernmost pair: they were only identified in a watching brief but were measured on site at *c*. 4.2m from the next pair. The majority of the post-pits were roughly oval in plan and *c*. 1m in diameter. Two rectangular pits (not a pair) were identified; they measured up to 1.2 by 1.7m. The post-pits were generally *c*. 0.9m deep with vertical sides and either flat or concave bases (Fig. 8d–m). The two identified within the watching brief were only recorded as *c*. 0.7m in diameter and 0.2–0.7m deep, but had clearly been truncated by earthmoving associated with the building work.

All the post-pits had evidence for post-pipes, 0.3–0.75m in diameter, except for the two found in the watching brief. In one instance, the post-pipe extended beyond the base of the post-pit (Fig. 8m; Pl. 4). The packing around the post-pipes comprised light blue-grey to mid-orange-brown clay and stones. The latter usually comprised 50mm–0.5m fragments of sandstone and, more rarely, 200mm flint cobbles, with the larger stones positioned nearer the post-pipes. In several of the post-pits, the stones were tightly packed together (Fig. 8g, k, and m).

The post-pipes were filled by either mid grey brown clay silt or dark grey orange sandy silt. Several contained fragments of sandstone and flint cobbles presumably derived from the packing material when the posts were removed. At least four of the post-pipes had stones or tiles placed horizontally on their base (Fig. 8d, k, l and m).

A large and varied range of artefacts were recovered from the post-pits. However, the majority cannot be securely associated with the building's construction. Some may have derived from earlier, pre-building deposits as well as the various other layers that survived within the building, others may have been introduced during the repair/replacement of the posts. However, the majority of the pottery assemblage is 2nd century in date and includes seven sherds of central Gaulish samian of probable early to mid-2nd-century date. Ecofactual sample 24 from one of the post-pits contained charred wheat grain. Other samples, not subject to analysis, consistently contained

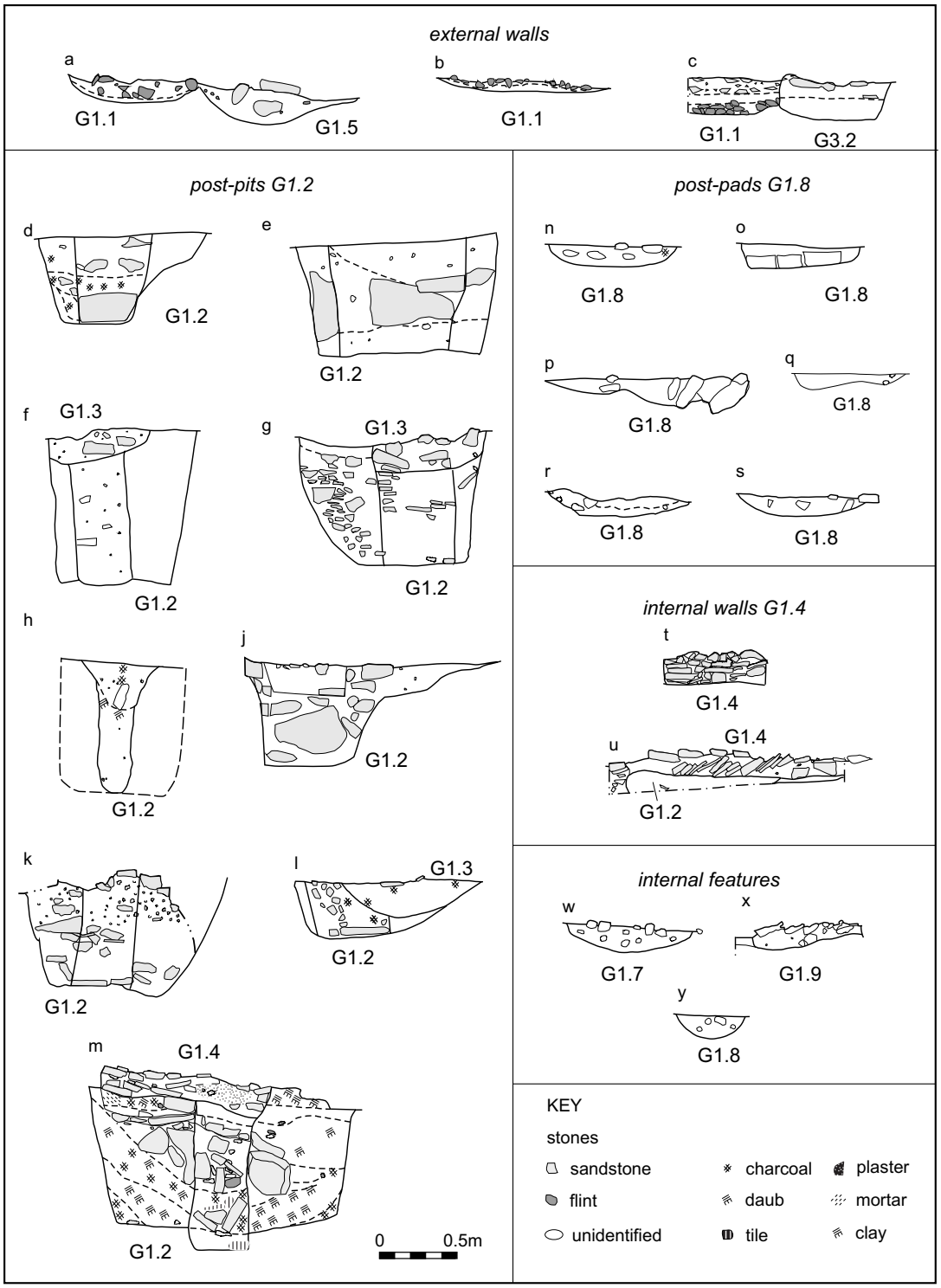


Figure 8: Sections of walls, post-pits, post-pads and other post settings associated with aisled building L4/L12 and alterations L5

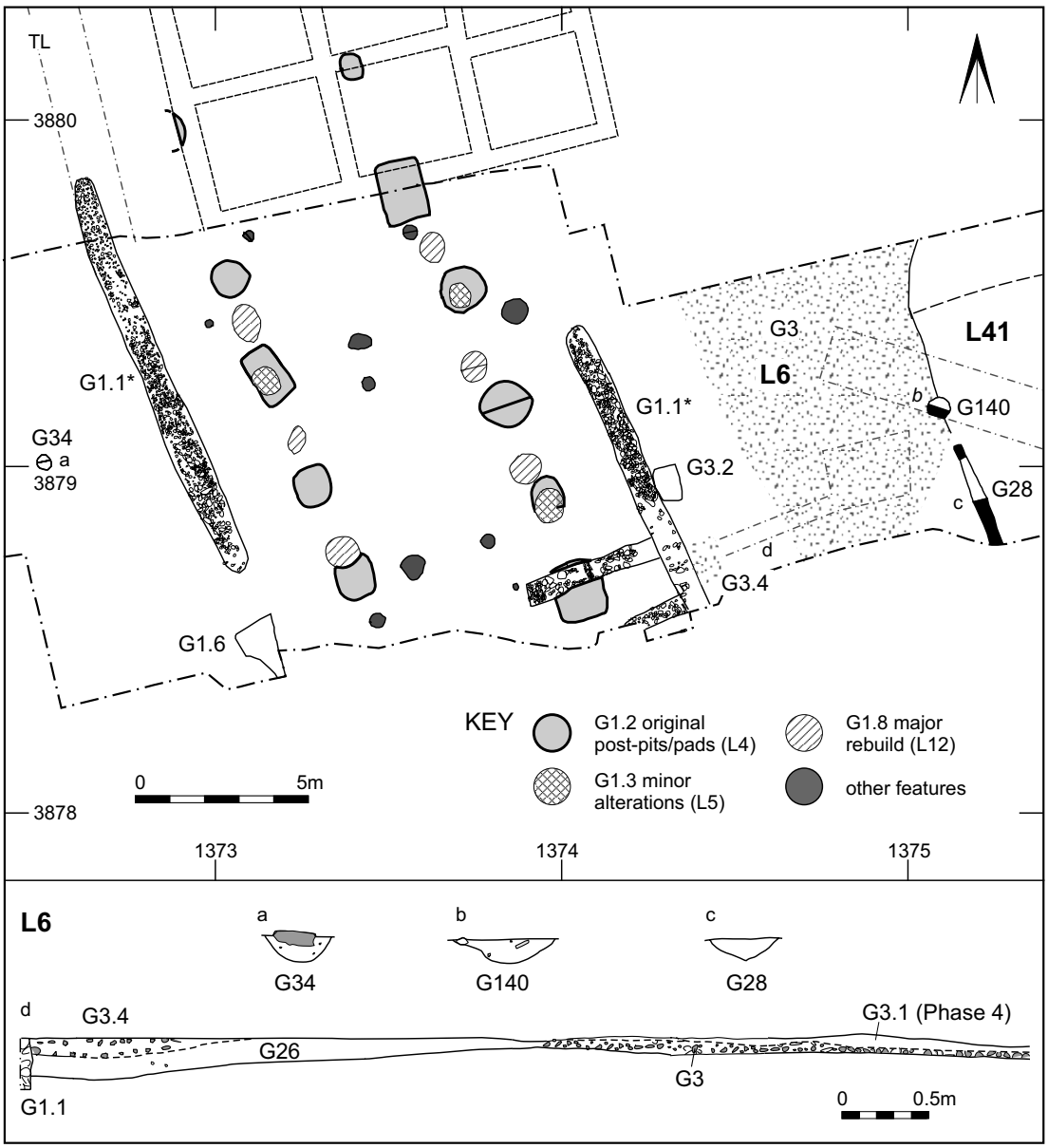


Figure 9: Interpretative development plan of aisled building L4/L12 and adjacent cobbled surface L6

oak charcoal, perhaps indicating the type of wood used for the aisle posts.

Levelling deposit G1.5

Two patches of stones G1.5 were identified within the building's western aisle (Fig. 7). They comprised several large slabs of sandstone, laid flat in a shallow scoop, along with some flint cobbles. They covered an area *c*. 4m long and 1.2m wide and were less than *c*. 0.15m thick (Fig. 8a). Some of the stones clearly overlay Phase 1 features and it is possible that they were used to level uneven ground.

Alterations L5 to the aisled building (Figs 7–9?)

For three of the original aisle posts, the post-pits were replaced by post-pads. It is presumed that the original posts had been removed, because the post-pads sealed the infilled post-pipes. It is not possible to date these alterations. They appear to represent localised repairs, probably carried out with the roof still in place.



Plate 4: One of the G1.2 post-pits, with post-pipe clearly visible adjacent to internal wall G1.4, with 1m scale

Post-pads G1.3

The three post-pads G1.3 truncated the upper part of the original post-pits G1.2 (Fig. 8f, g and l). Although they overlay the original post-pipes, they were not central to the original post-pits (Fig. 9). They were sub-circular in plan, *c*. 0.7m in diameter and 0.2m deep with a concave profile. Two of the post-pads featured courses of 0.25–0.55m sandstone slabs (Fig. 8f and g).

Reconstruction L12 of the aisled building (Figs 7–9; Pl. 5)

The original aisled building appears to have been substantially rebuilt — possibly in the early 3rd century, although the artefact assemblage does not provide a precise date. Some building material from the original structure was reused to infill the post-pits and to create new post-pads.

All the original post-pits went out of use; ecofactual samples suggest that some of the original posts may have been burnt *in situ*. The new aisle posts were set on post-pads G1.8, positioned between the original post-pits; this might indicate that the original roof remained in place while the new posts were inserted. There is no evidence to suggest that the external walls G1.1 were altered. However, these only survived as footings, so any changes may not be visible in the archaeological record. Two new internal stone walls G1.4 were built on to the eastern wall of the building, which appear to have defined a corridor.

A variety of other post settings — two post-pads (G1.7 and G1.9) and eight postholes (G8 and G30) — were found within the aisled building, mainly in the nave. It is not clear whether these were associated with the original or the rebuilt structure. They produced late Iron Age/early Romano-British artefacts — probably from the earlier Phase 1 features that they truncated — and one was sealed by Phase 4 activity.

There is sufficient evidence from Gray's earlier excavation to suggest that the rooms to the south of the new corridor were more luxurious. The *tesserae*, *opus signinum* and painted plaster found during the recent investigations probably derived from this part of the building. Such material was present in the infilled original post-pits, suggesting that, from the outset, the building featured these more well appointed rooms. However, the



Plate 5: Northern wall G1.4 of possible internal corridor from west, with 0.2m scale

insertion of the corridor does suggest that they too were subject to significant modification during the major rebuild.

Infilling G2.7 of original post-pits
The original post-pipes and post-pits G1.2 were infilled with a mix of stones and/or clay. Many contained frequent charcoal flecks, sand, and occasional small stones. They also contained building material, dominated by daub but including small quantities of brick, roof tile, nails and mortar, presumably derived from the original aisled building. Ecofactual samples 1 and 2 contained relatively high quantities of oak charcoal.

Post-pads G1.8
Six paired post-pads, at *c*. 3.5m spacings, were located between the original post-pits. They were circular or oval in plan, *c*. 0.85m in diameter and 0.2m deep, with concave bases (Fig. 8n–s). The post-pads usually comprised one layer of irregular 50–350mm fragments of sandstone, brick and tile, probably derived from the original aisled building. This material was set in a dark orange-brown or mid-grey-brown silty clay with occasional flints. The sandstone was generally laid flat (Fig. 8o), although some was more jumbled and may have been disturbed (Fig. 8p).

Possible internal corridor G1.4
Two internal stone walls G1.4 were located within the east aisle at the south end of the excavated area. The northern one was more recognisable, partly because it was fully exposed. The walls were perpendicular to the main axis of the building and appeared to abut the external wall. The north wall sealed one of the infilled original post-pits G1.2 (Fig. 8m).

The two walls were 1.4m apart and may have defined a corridor. Both had clearly been disturbed, probably by previous excavation (see Phase 6). The north wall only extended for *c*. 4m, after which it had been completely removed. It was *c*. 0.65m wide and 0.3m deep and comprised two courses of 50–200mm sandstone slabs (Fig. 8m, t and u). The stones of the lower course were placed flat, while the upper part of the wall displayed a slight herringbone pattern. The stones were bonded with a mix of yellow and grey clay but no obvious mortar. The south wall was only partially exposed; it was 0.4m wide and 0.6m deep and comprised two courses of 70–200mm sandstone slabs. Although some white mortar was present, they appeared to be primarily bonded with a light grey-brown sandy silt.

Internal layer G33
Layer G33 was located both between the two internal walls G1.4 and along the northern side of the north wall. It covered an area *c*. 5m long and *c*. 1.2m wide and was 50–150mm thick. It comprised a light green-grey clayey silt with occasional charcoal flecks and small stones. The interpretation of this layer is uncertain: it may predate the building but have become mixed with construction debris, or may even indicate the site of an earlier excavation.

Postholes G8 and G30
Eight postholes were located within the aisled building. The majority (G8) were 0.4m in diameter, but one (G30) was only 0.2m in diameter. All were 0.15–0.4m deep with either concave or flat bases (Fig. 8y).

Post-pads G1.7 and G1.9
Two sub-circular post-pads were offset by *c*. 1.1m from the aisle posts. G1.7 was in the east aisle, G1.9 was in the west part of the nave. They were *c*. 0.8m in diameter and 0.2m deep, with concave bases (Fig. 8w and x). G1.7 was the only post-pad in the building constructed solely out of cobbles, which ranged in size from 100 to 200mm. The other post-pad comprised irregular 50–250mm sandstone slabs, which appeared to be roughly coursed. In both post-pads the stones were bonded with a dark orange-brown sandy clay.

External activity L6 (Fig. 9; Pl. 6)

Evidence for activity adjacent to the aisled building was concentrated on its east side; only a single posthole was identified to the west. Although truncated in places, a cobbled surface G3/G3.3/G3.4 appeared to occupy the space between the aisled building and a possible further building L41 to the east. Stone setting G3.2 may have been associated with a doorway into the aisled building. A moderate artefact assemblage was recovered, including samian dated to the second half of the 2nd century.

Cobbled surface/yard G3/G3.3/G3.4
Three areas of cobbles were located east of the aisled building. They comprised tightly packed, rounded 30–100mm cobbles, set usually in a single layer within a grey clay-silt matrix (Fig. 9d). The most extensive area (G3) was over 8m long,



Plate 6: Part of cobbled surface/yard G3

continuing beyond the excavation limit to the north and south. Although it survived to a width of 6m, only its eastern limit, which coincided with structural slot G28 (see L41 below), is thought to be a genuine edge. A small area of similar cobbles (G3.4), *c.* 1.8m by 0.9m in extent, suggests this surface may have originally extended up to the east wall of the aisled building — nearer to *c.* 8.5m wide (Fig. 9d). An additional area of cobbles G3.3, at least 2m wide, was located *c.* 13m to the north in evaluation trench 6 (Fig. 6). It may have been part of, or at least connected with, the G3 surface.

A mixed artefactual assemblage including pottery, building material and a rotary quern was recovered. Much of it came from the upper part of the surface and is, therefore, not securely associated with its construction or use.

Stone setting G3.2

Stone setting G3.2 abutted the east side of the aisled building, *c.* 1.5m north of cobbled surface G3.4 (Fig. 7). It was set in a construction trench that was 1m long, 0.7m wide and 0.25m deep, with vertical sides and a flat base (Fig. 8c). The lowest fill comprised a mix of chalky white and yellow-grey mortar, 0.15m thick. Two large flat tiles, a large piece of sandstone, and several smaller stones (some of which showed signs of burning) were partly set in the mortar.

This stone setting could have served a variety of purposes. It might represent the position of a buttress, although the absence of similar features along the east wall make this unlikely. Given its position just south of an aisle post, it is perhaps more likely that it was associated with a doorway.

Layer G26

Layer G26 was investigated in a single box section to the east of the aisled building. It clearly underlay cobbled surface G3.4 but its precise relationship with G3 was not established, although it was probably earlier (Fig. 9d). It comprised mid-green-grey clayey silt with moderate inclusions of clay, sandstone and charcoal. It was thickest (0.3m) next to the building. It probably represents localised levelling of uneven ground prior to the construction of the building and the cobbled surface. The latest pottery from a varied finds assemblage dates to the 2nd–3rd centuries.

Posthole G34

Circular posthole G34 was located *c.* 3.5m west of the aisled building. It was 0.4m in diameter and 0.15m deep with a concave base (Fig. 9a). Its fill comprised a dark grey-brown clayey silt, containing two large pieces of sandstone which may have been the remains of disturbed post-packing.

Possible post-built building L41 (Fig. 9)

Building L41 was located c. 8.5m east of the aisled building. The principal evidence for its existence was the way that cobbled surface G3 stopped abruptly on the line of structural slot G28, which, with posthole G140, represented the building's west wall. A complete ground plan could not be recovered because the building extended beyond

the limit of excavation. However, it was at least 7.5m long and 5m wide. Although the features contained no datable artefacts, their location and the absence of debris from the demise of building L4 suggest that building L41 is likely to have been contemporary with the original aisled building L4.

Structural slot G28
Structural slot G28 was at least 3m long. It continued beyond the limit of excavation to the south and may have been truncated to the north. It was 0.4m wide and 0.1m deep, with a concave base (Fig. 9c).

Posthole G140
A circular posthole G140 was located on the projected alignment of slot G28. It was 0.6m in diameter and 0.1m deep, with a concave base (Fig. 9b).

Possible post-built building L21 (Figs 6 and 10)

Building L21 was located adjacent to the south-west enclosure ditch, *c*. 30m south of the aisled building. A complete ground plan could not be recovered because of heavy truncation. However, its west wall line G107 was *c*. 12m long and a possible opposing wall line G108 was located *c*. 13m to the east. There is some evidence, in the form of three postholes that were slightly offset from the main alignment, to suggest that the west wall had once been rebuilt. Between the two rows of postholes was a small concentration of features G109/G110.

In terms of dating, one of the postholes truncated a Phase 1 ditch. The majority of the small pottery assemblage is dated to the 2nd century, with several of the sherds recovered from post packing. Along with the absence of significant quantities of building material, this suggests that the building was contemporary with the original aisled building L4 rather than its replacement.

Possible walls G107/G108
The west wall was represented by a *c*. 12m long alignment of six postholes G107, the east wall by a *c*. 2.3m long alignment of three postholes G108. The postholes of the west wall were generally spaced *c*. 1.5–2.3m apart; a 3.9m gap may indicate the position of a doorway. Three smaller postholes, 0.3–0.6m in diameter and 0.1–0.3m deep (Fig. 10a and b), were situated *c*. 0.4m to the east of this alignment. Two of the main line of postholes contained post-pipes and associated packing. The post-pipes were 0.15–0.2m in diameter and 0.2–0.25m deep, with vertical sides and flat bases (Fig. 10a). The packing comprised 50–150mm stones and pottery sherds set in a mid-brown silty clay. Three further postholes contained large stones which, although not *in situ*, probably represent post packing material (Fig. 10b).

The postholes of the east wall G108 comprised one sub-rectangular and two sub-oval postholes, all heavily truncated. The former was 0.5m long, 0.25m wide and 0.2m deep, with nearly vertical sides and a flat base (Fig. 10f); the two sub-oval postholes were only 0.2m in diameter and *c*. 0.15m deep, with a V-shaped or concave profile. The close proximity of these two postholes may suggest that one was a replacement for the other. None of the postholes contained evidence for post-pipes or packing material.

Pits G109 and postholes G110
A cluster of five features were present within the east part of the possible building — three sub-oval pits G109 and two postholes G110. The pits were oval in shape, 1.2–2.1m long, 0.6m wide and under 0.3m deep. One of the pits had a concave profile and flattish base (Fig. 10c); the others had more rounded, V-shaped profiles (Fig. 10d and e). Postholes G110 were sub-circular in shape, less than 0.4m in diameter and 0.3m deep, with V-shaped profiles.

Trackway L23 (Fig. 6)

Trackway L23 lay immediately west of the main settlement enclosure L30. It was defined by the enclosure ditch itself and ditches G105/111/128, which together formed a *c*. 24m–30m wide corridor. The west ditches were only revealed in a number of evaluation trenches but extended for a distance of at least 145m. To the north, the ditch was re-defined on a number of occasions by L24/L28 (see below). A moderate quantity of artefacts was recovered, including a large assemblage of mainly 2nd–3rd-century pottery.

Ditch G105/111/128
NW–SE aligned ditch G105/111/128 was 0.8–1.9m wide and 0.35–0.5m deep. The smaller dimensions to the south are the result of truncation (Fig. 6c). The ditch typically had an asymmetrical, U-shaped profile (Fig. 6b), and was filled with a deposit of dark orange-brown clayey silt with occasional small to medium stones and chalk flecks.

Re-establishment (L24/L28) of west ditch of trackway (Fig. 6)

The west side of the trackway was re-defined by a series of NW–SE aligned ditches. They were adjacent to, and parallel with, ditch G111/128, but because they were only located in evaluation trenches it was impossible to establish their precise sequence. The pottery from the ditch fills mainly comprises 2nd–3rd-century types, hence their assignment to this phase. Despite being at least 70m from the aisled building, the ditches produced a large quantity of domestic debris, suggesting another domestic focus in this area. However, with the exception of postholes L29, no features indicative of settlement were found.

Ditch G112
Ditch G112 was revealed in two evaluation trenches. It was 1.3–1.7m wide and 0.35–0.5m deep with a flattish base, and

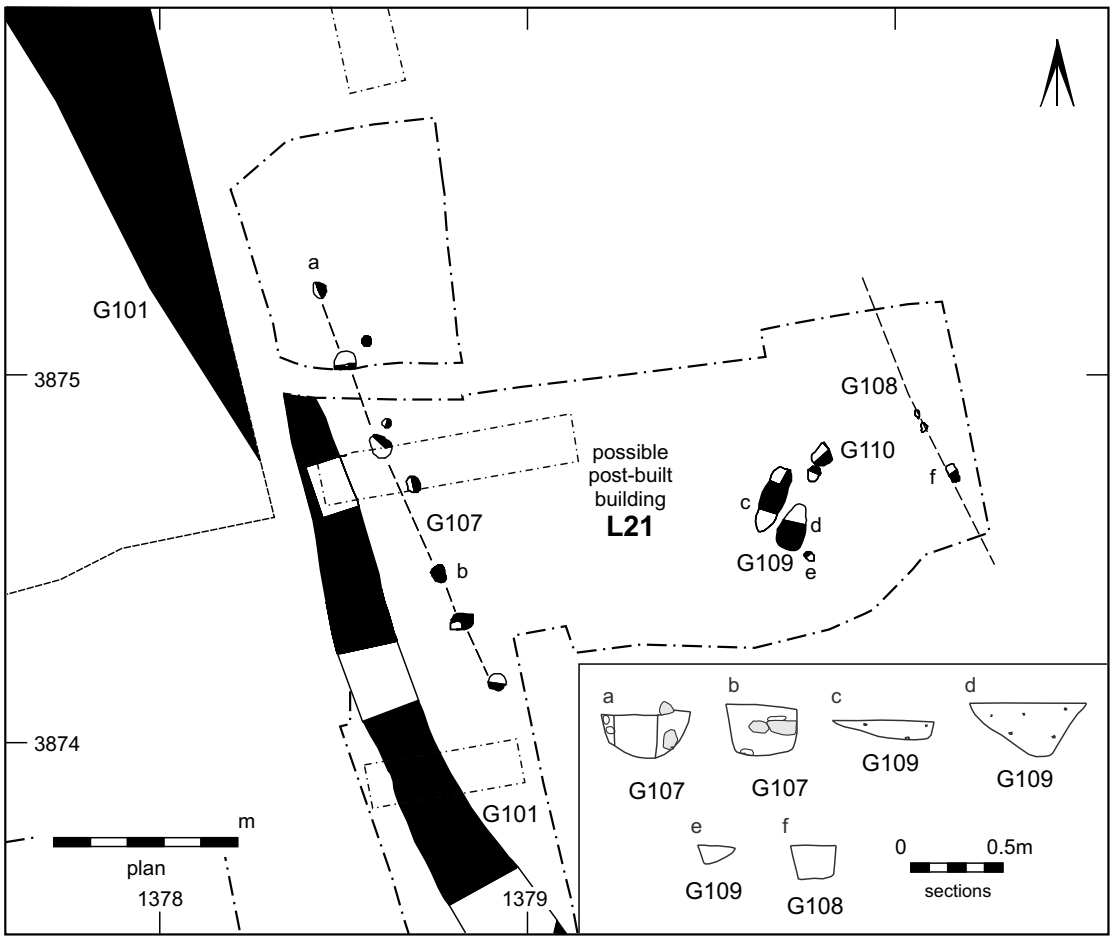


Figure 10: Detailed plan of possible post-built building L21

extended for at least 18m. Its fill comprised mid-grey-brown sandy silt that contained occasional small stones.

Ditches G119
Three intercutting parallel ditches G119 were revealed in two evaluation trenches. They were 0.45–1.55m wide and 0.25–0.4m deep, with either concave or V-shaped profiles. They were infilled with either mid-yellow-brown silty clay or orange-brown sandy silt, with occasional small stones and charcoal flecks.

Postholes L29 (Fig. 6)
Four postholes L29 were revealed in two evaluation trenches in the vicinity of the west trackway ditches. Three of the postholes (G123) were located to the east of the ditch, apparently within the routeway, while one (G124) was situated between two of the trackside ditches. Given their small size, it is surprising that these postholes produced a moderate quantity of domestic debris, supporting the idea that a domestic focus was located in this area. The majority of the mixed pottery assemblage dates to the 2nd–3rd centuries.

Postholes G123
Postholes G123 were 0.4–0.5m in diameter and up to 0.6m deep, with vertical sides and slightly concave bases.

Postholes G124
Circular posthole G124 was 0.25m in diameter and 0.25m deep, with nearly vertical sides and a slightly concave base.

Quarrying L25 (Fig. 6; Pl. 7)
A series of intercutting quarry pits G114/115 were located to the southwest of trackway L23, respecting its western boundary. They extended over an area of at least 28m by 11m, continuing beyond the limit of excavation. The pits had been dug into sand, which was presumably required for building. Their fills derived from both natural silting and



Plate 7: Excavation of quarry pits G114 from north-west

episodes of rubbish disposal, suggesting that they remained open for some time. Only a small quantity of building material was recovered, possibly suggesting that the pits had been largely infilled by the time the aisled building went out of use. The small pottery assemblage is dominated by Romano-British types. A dog skeleton, complete but for the skull, was found within the main fills.

Quarry pits G114/115

A series of intercutting quarry pits were identified. They were 0.5–4m across and up to 1.2m deep, with steep sides and either flat or uneven bases (Fig. 6a). The quarry pits were initially filled with mixed yellow-grey silty sand and brown-grey clayey silts, 0.2–0.7m thick, while the main fills comprised a mix of mid-yellow-brown clayey silt and mid-grey-brown silty clay.

Phase 4: Early 4th century (not illustrated)

By the early 4th century, the main settlement enclosure, including the aisled building L4, was no longer in use. It is possible that a hiatus in occupation occurred. However, the remains of the aisled building became the focus for the robbing (L8) of building material. The final infilling of the enclosure ditch (L30.3) and the quarry pits (L25.3) also contained large quantities of building debris, hence their assignment to this phase. These deposits contained a small quantity of late 3rd- to early 4th-century pottery, alongside large quantities of residual material. Although it is not possible to date precisely the activity assigned to this phase, the absence of post-Romano-British artefacts and stratigraphic relationships with Phase 5 features suggests an early 4th-century date. Cattle appear to have remained the dominant animal species, although it is likely that residual material has biased the assemblage.

Aisled building disuse L8

Evidence for the disuse of the aisled building comprised several deposits of mixed building debris both inside (G2.1, G2.2, G2.3 and G2.5) and outside (G3.1) its walls. The only robber trench identified (G2.4) was located to the south of the west wall. Before it was fully backfilled, it was utilised as a convenient hollow for the burial of a dog.

Large quantities of building material were recovered, including fired clay roof tiles and bricks, stone roof tiles, mortar, painted plaster and *opus signinum*.

Deposits of mixed building debris G2.1/G2.2
Two areas of mixed building debris G2.1 and G2.2 were located *c*. 1.4m apart in the west aisle of the building. Both were less than 2m in extent, up to 0.2m thick and contained mortar, tile and brick.

Deposit of mixed building debris G2.3
Another deposit of mixed building debris G2.3 was located in the southern part of the building. It lay partly within the area of disturbance probably associated with previous archaeological investigations, by which it may have been contaminated. It extended over an area of at least 7m by 3.5m, continuing beyond the limit of excavation., and comprised a 0.1–0.2m thick deposit of light green-grey sandy silt and dark grey-brown silty clay, mixed with large quantities of building debris. The latest pottery comprises 3rd–4th-century types.

Robber trench G2.4
It is presumed that trench G2.4 was dug to remove masonry from the west wall G1.6. It was 1.3m wide and 1m deep, and therefore is unlikely to reflect precisely the dimensions of the wall itself. It was filled by a light brown to dark black-brown silty sand with inclusions of mortar flecks, moderate quantities of small flints, and sandstone. Large quantities of building debris were found along with 3rd–4th-century pottery. The absence of modern artefacts and the presence of a dog skeleton are the main reasons that this has been interpreted as a robber trench rather than an antiquarian one.

Internal wall debris G2.5
G2.5 was located in the southern part of the building, next to the more northerly internal wall G1.4. It contained a large number of sandstone slabs and painted wall plaster mixed with a light grey clayey silt. It appeared to be derived from the collapse or dismantling of the internal walls.

Infilling of post-pads G2.6
The stones within several of the post-pads G1.8 were sealed by a mid-orange-brown to dark grey-brown clayey silt G2.6, containing frequent charcoal flecks and small quantities of building debris. Ecofactual samples 6 and 22 contained high quantities of oak charcoal, which may suggest that some of the timbers were burnt *in situ*.

Deposit of mixed building debris G3.1
Layer G3.1 was located to the east of the aisled building over the Phase 3 cobbled surface G3. It produced sherds of 3rd–4th-century pottery, along with moderate quantities of building debris.

Final infilling of the ditched enclosure (L30.3)
The upper fills L30.3 of the ditch defining the enclosure comprised dark brown-grey and mid-yellow-brown silty clay, with inclusions of occasional small to medium stones and charcoal flecks. Large quantities of building debris were present — a further indication that the aisled building was no longer in use.

Final infilling of quarry pits (L25.3)
The upper fills L25.3 of the quarry pits comprised dark yellow-brown or dark black-grey silty clay. They produced building material, metal artefacts and a large number of cattle bones, the majority of which appear to belong to one animal and do not exhibit any evidence of butchery.

Phase 5: Later Romano-British (Fig. 11)

A new ditched enclosure L9 was established in broadly the same area and on approximately the same alignment as the earlier enclosure L30. Although there were no buildings or obvious domestic foci, three clusters of internal features (pits, gullies *etc*.) were identified. Cluster L10 was in the same location as the Phase 3 aisled building, while L16 was *c*. 30m to the west and L22 *c*. 20m to the south.

Features were assigned to this phase because they were stratigraphically later than Phase 3 or 4 features and/or because they contained later Romano-British artefacts, including 3rd–4th-century pottery and 4th-century coins. The majority of the finds from Phase 5 features are likely to be residual: most of the building materials, including nails, mortar, window glass, wall plaster and stone roof tiles, were probably derived from the earlier buildings. A range of domestic artefacts and a small quantity of animal bone, dominated by cattle, were also recovered.

Enclosure L9 (Fig. 11)
Segments of ditch representing three sides of a probable rectangular, NW–SE aligned enclosure were located during three separate investigations. It was *c*. 80m wide and may have been up to 130m long. The ditches produced small quantities of domestic debris; this suggests that either the enclosure was not intensively settled, or the main domestic foci were away from the ditches. Ditch G120 represents a possible internal subdivision, partitioning off an area *c*. 28m wide at the north end of the enclosure.

Enclosure ditch G9/G23/G106
Segments of ditch were identified on the northwest (G9), northeast (G23) and southwest (G106) sides of the enclosure. The northwest ditch G9, 1.1m wide and up to 0.4m deep, had steep, straight sides and a flattish base (Fig. 11a and b). The northeast

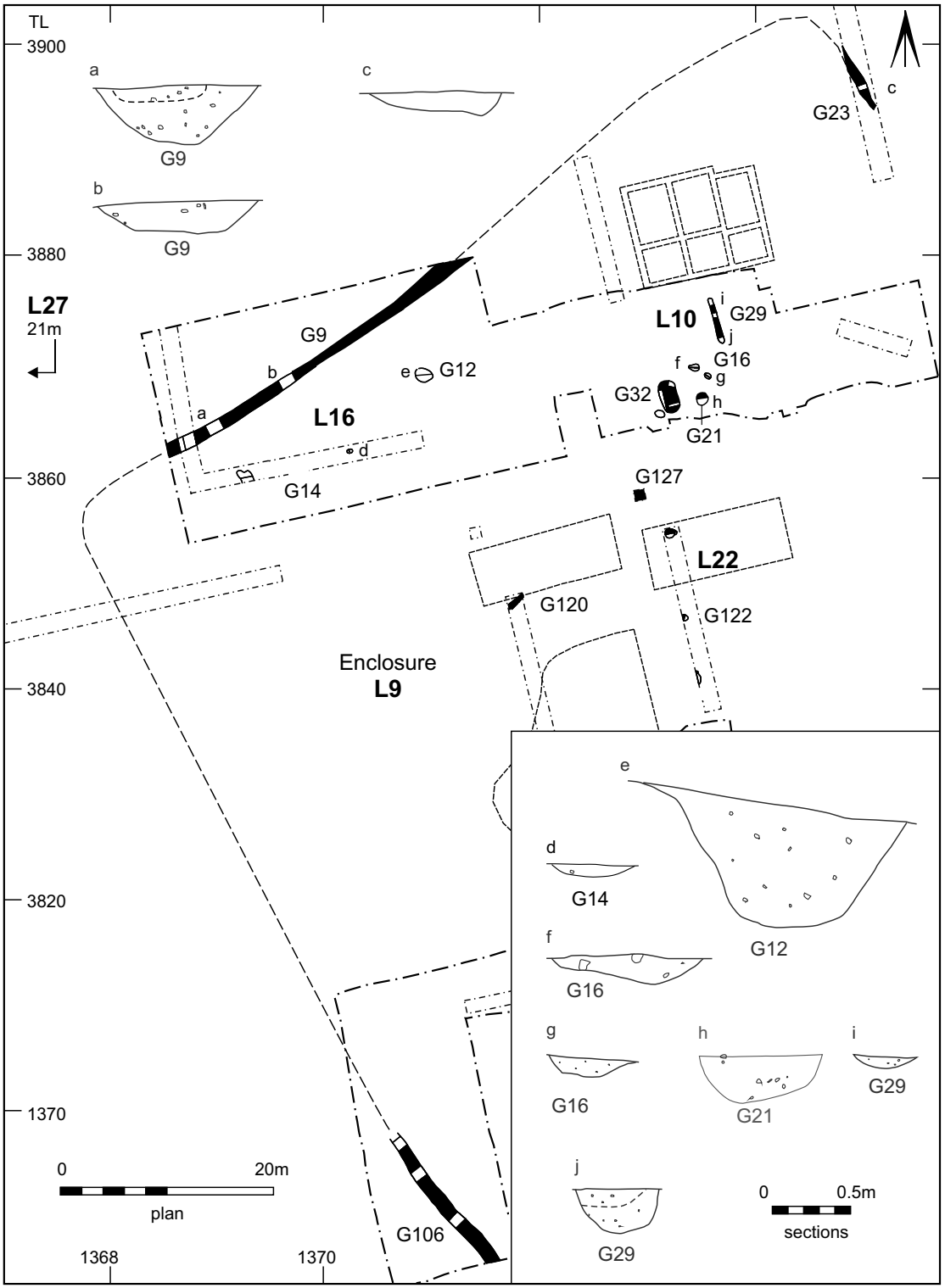


Figure 11: Phase 5: Late Romano-British plan, with sections

ditch G23 was 0.85m wide and 0.1m deep, with a similar profile (Fig. 11c). The southwest ditch G106 was *c*. 1.3m wide and 0.45m deep, with steep, concave sides and a slightly irregular, flattish base.

The sole fill G9.1 of the enclosure ditch mostly comprised brown-grey sandy silt and silty clay. A similar primary fill was also identified in ditch G106.

Internal subdivision G120
Ditch G120 was only revealed in an evaluation trench. It has been assigned to this phase purely on the basis that it was parallel to enclosure ditch G9. It was 0.6m wide and 0.15m deep, with a broad, concave base. Its fill was similar to that of the main enclosure ditch.

Activity focus L10 (Fig. 11)

L10 comprised a possible structural slot and a cluster of pits that were *c*. 13m south of the projected line of the northwest enclosure ditch. The pits comprised two large examples (G21 and G32) to the south and a number of smaller ones (G16). The majority of the finds assemblage is probably residual and derived from earlier activity associated with the aisled building.

Pits G16
Two sub-circular pits G16 were located 0.7m apart. They were 0.65–0.95m long, 0.45–0.6m wide and no more than 0.2m deep, with concave sides and irregular, concave bases (Fig. 11f and g). Their main fills G16.1 comprised dark grey-brown clayey silt.

Pits G21/G32
Three pits were located within 1.5m of one another. The largest pit G32 was oval, 3m long, 1.5m wide and 0.2m deep, with steep, concave sides and a flat base. G21 comprised two pits: one was sub-oval in plan, 0.9m long, 0.6m wide and 0.2m deep, with an irregular, concave profile and base. The other was sub-circular in plan, 1m in diameter and 0.35m deep, with a U-shaped profile (Fig. 11h).

The main fills of these pits (G21.1 and G32.1) ranged from dark brown silty sand to dark grey-brown clayey silt. Amongst a varied finds assemblage, largely derived from the earlier aisled building, were a few sherds of mid-3rd- to 4th-century Oxford and Nene Valley wares, together with a late 4th-century coin of Valens (RA 76).

Possible structural slot G29
North–south aligned slot G29 was located to the northeast of pits G16. It was 4.3m long, with steep-sided terminals to the north and south, perhaps suggesting a structural function. It was c. 0.4m wide and 0.1m deep to the north (Fig. 11i) but increased to 0.6m wide and 0.3m deep to the south (Fig. 11j).

Activity focus L16 (Fig. 11)

A dispersed cluster of pits L16 was located within *c*. 5m of the northwest enclosure boundary, to the west of L10. It comprised two pits (G14) that were revealed in an evaluation trench and an isolated pit (G12) that was dug into the Phase 3 enclosure ditch. A very small quantity of contemporary pottery was recovered, and one of the pits produced a considerable amount of charcoal.

Pit G12
Sub-circular pit G12 was 1.5m in diameter and 0.95m deep, with a U shaped profile (Fig. 11e). Its main fill G12.1 comprised a mid-grey-brown silty clay. Much of its varied finds assemblage probably derived from the Phase 3 aisled building, although it also produced two sherds of mid-3rd- to 4th-century Oxford ware. Ecofactual sample 13 produced a large quantity charcoal, principally hazel with some Pomoideae (hawthorn, apple *etc*.).

Pits G14
G14 comprised two pits located 8m apart; one was oval in plan while the other was more irregular. The oval pit was 0.5m long, 0.3m wide and 50mm deep (Fig. 11d); the other was at least 1.2m long and 0.15m deep with steep, concave sides and a flat base. The main fills (G14.1) of the pits comprised a mid-grey-brown clayey silt and a sandy clay.

Activity focus L22 (Fig. 11)

Located to the south of the internal boundary was a cluster of four pits and a single posthole (G122), identified in an evaluation trench. A large unidentified feature G127, possibly a pit, was found in a nearby test pit. These features, especially G127, produced the largest Phase 5 assemblage of contemporary pottery.

Pits and postholes G122
G122 comprised four pits and one posthole that were all located within 12m of each other. The posthole was circular in plan, 0.25m in diameter and 0.25m deep, with steep sides and a flattish base. The pits were all sub-circular in plan, 0.5–1m in diameter and 0.1–0.7m deep, with either concave or nearly vertical profiles. Not all of these features were contemporary, as the posthole was truncated by one of the pits and two of the pits were intercutting.

One of the pits contained a 0.4m thick lower fill G122.1, comprising mid-yellow-brown clayey silt with frequent charcoal flecks. Overlying this was a dark yellow-brown clayey silt with occasional small stones and frequent charcoal flecks. The remaining features were filled by yellow-brown clayey silt with occasional charcoal flecks and moderate small stones. Sherds of mid-3rd- to 4th-century Nene Valley colour coat ware were found.

Feature G127
This large feature occupied the whole of a small test pit. It was 1.3m deep but its profile and width could not be determined. Its primary fill comprised a 0.5m thick yellow-brown clay, which produced few finds. The overlying fills of dark yellow-brown silty clay (G127.2 and G127.3) produced a relatively large finds assemblage, including residual building material. The latest pottery comprises shell-tempered wares and grey wares, together with twelve sherds of mid-3rd- to 4th-century Nene Valley colour coat ware, complemented by a late 4th-century coin of Gratian (RA R3).

Boundary L27

Boundary L27 was identified in two of the RB365 trial trenches *c*. 60m northwest of enclosure L9. The projected alignment of the boundary would have been parallel to and *c*. 20m from the south-west side of enclosure L9. The boundary ditch (G113) had been re-cut on at least one occasion. It produced a small pottery assemblage.

Ditch G113

The original ditches of G113 were at least 0.7m wide and 0.1m deep, with shallow, concave sides and a flat base. The re-cut was 1.15m wide and 0.25m deep, with a concave profile. They all appeared to be on a NW–SE alignment. The fills G113.1 comprised mid-grey-brown clayey silt that contained occasional small stones.

Phase 6: Modern

The recent investigations identified 19th-century quarry pits L26 (Figs 2 and 3) and the backfilled trenches (L15) of 19th/20th-century archaeological investigations (Fig. 12). In addition, the topsoil, parts of which were excavated by hand (L17 and L18), was assigned to this phase to assist in analysis of the large residual assemblage of building material and other objects that were recovered.

19th-century quarry pits L26 (Figs 2–3)

Quarry pits were identified in several evaluation trenches adjacent to Ampthill Road. Their full extent could not be accurately determined within the narrow trenches; they generally appeared to be sub-circular in plan, measuring at least *c*. 8m in diameter with steep sides. They were often filled by sterile grey-brown sandy loam and clean yellow sand. More rarely, deposits of domestic debris were identified. Although small quantities of Romano-British artefacts were recovered, the assemblage of 19th-century domestic debris, including china, brick, metal and glass, provides a more accurate date for the quarrying. Their significance derives from the fact that the earliest finds reported in this part of Shefford were found in 19th-century quarry pits.

Possible archaeological trenches L15 (Fig. 12)

The nature and location of several features/deposits in the vicinity of the aisled building hint at an association with earlier archaeological investigations. They comprised trench-like features G22, located both to the north and south of a 1937 boundary and an associated area of disturbance G24.

The trenches to the north of the boundary were all situated within the aisled building. They had steep sides, flat bases and were 0.3–0.6m deep and *c*. 0.8–4m wide. To the south of the property boundary, several larger possible archaeological trenches were observed during watching brief RB445. These would have been situated both inside and outside the aisled building.

An area of disturbance (G24) within the aisled building — a mix of dark brown to yellow-brown silty clays — produced large quantities of Romano-British artefacts, especially building material, but also 20th-century material including porcelain and flowerpots.

Layers L17 and L18

The majority of the overburden within the investigations was removed by machine. However, its remnants within and immediately outside the Phase 3 aisled building were excavated by hand, and are designated L17 (G35 and G37) and L18 (G36) respectively. The interior of the building produced large quantities of Romano-British artefacts, especially building material. A few 20th-century artefacts were also recovered.

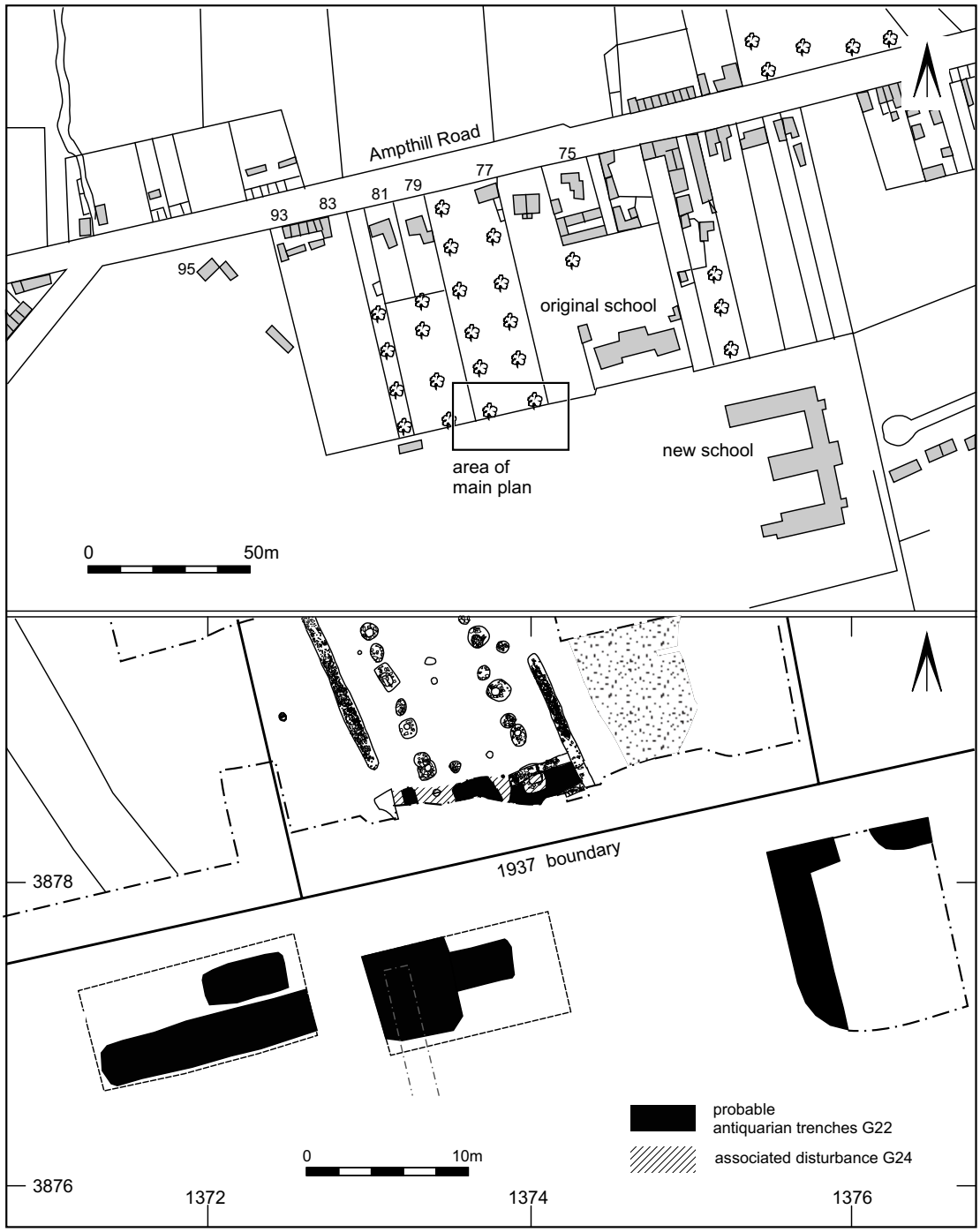


Figure 12: Phase 6: Archaeological/antiquarian trenches with 1937 OS map

POTTERY

Jackie Wells, incorporating report by
Felicity Wild (samian)

Introduction and methodology

Phased deposits produced 2,834 sherds of pottery, representing 1,735 individual vessels, weighing 46.7kg. The pottery was examined by context and seventy-three fabric types (defined either by type and quantity of inclusions, or by finish) were identified (see Appendix 1) in accordance with the Bedfordshire Ceramic Type Series. Form codes were assigned and catalogued by fabric type. Quantification was by minimum vessel and sherd count, and weight. Sherds belonging to the same vessel, but deriving from separate contexts, were quantified as a single vessel. The attributes recorded include decoration, manufacturing techniques, levels of abrasion, and evidence of use, such as the presence/absence of residues, sooting and wear marks.

A sample of the pottery has been illustrated (Figs 13–14). As the assemblage mainly comprises common late Iron Age and Romano-British forms, it was not considered necessary to illustrate many examples. Standard drawing conventions have been used, with vessels shown at one-quarter size, external view on the right and a section and internal view on the left. Hand-made vessels are illustrated with hatched sections and wheel-thrown vessels with solid sections. The pie diagram at the base of each illustration indicates the proportion of the vessel recovered. Omission of the pie diagram indicates illustration of all surviving sherds.

Chronological discussion

The pottery is discussed below by chronological period, and by phase. The proportions of fabric types within each phase and land-use area are presented in Table 1. For clarity, fabric type divisions have been amalgamated where appropriate, and are tabulated using a generic type code. Pottery recovered from unstratified and unphased contexts, including residual sherds pre-dating the late 'Belgic' Iron Age, are not considered in the following discussion.

Late Iron Age/early Romano-British (25.8%)

The late Iron Age/early Romano-British assemblage comprises 733 sherds from 382 vessels, weighing 11.5kg. The material is fairly fragmented, with an average sherd weight of 15g and a vessel:sherd ratio of 1:2. Approximately 85% (by sherd count) of this assemblage comprises sherds containing grog tempering or grog/sand, the latter natural to the local clay sources. Shell/grog- or shell-tempered sherds constitute 12% of the assemblage, and entirely sand-tempered types the remainder. Given the local geology, sources for the former are likely to lie at a greater distance from the site, a possible provenance being the shelly ware kiln sites located in the vicinity of Clapham and Stagsden (Tilson 1973; Slowikowski 2000).

The vessels are in the 'Belgic' tradition and represent a standard range of domestic pottery characteristic of the region, as defined in Thompson's Zone 7 (1982, 15–6). Although most sherds are reduced, ninety-seven type F06 and F09 examples are totally oxidised, presumably in an attempt to replicate oxidised Gaulish imports.

Most of the vessels are wheel-thrown; a small proportion are handmade with a wheel-finished shoulder and rim, and approximately 4% are entirely handmade (mainly shell-tempered lid-seated and large coarse grog vessels, types F07 and F06C respectively). Other forms are wheel-thrown lid-seated bowls and jars (Fig. 13 no.1), everted rim, bead-rim and narrow-necked jars, cordoned jars and bowls (Fig. 13 nos. 3, 8), storage jars, and single examples of a butt beaker, pedestal urn, bowl with suspension loop (Fig. 14 no.10), and a miscellaneous foot-ring base. The forms recorded represent table wares, storage jars and cooking pots. Use for cooking is indicated by the presence of external and internal sooting and black residues (263 sherds). A single sherd has a thick, internal, white residue, possibly representing an accumulation of limescale, and seventy-three sherds have pitted internal surfaces resulting from long-term use. The only wear marks recorded are on the underside of three grog-tempered base sherds.

Decoration comprises incised horizontal and vertical grooves (Fig. 14 no.11), horizontal and vertical combing, random combed patterns, fingernail impressions, scoring, burnishing, rouletting, cordons, and burnished horizontal lines and diagonal strokes. Two vessels have been modified by the addition of post-firing holes to neck and body sherds.

Romano-British (71.7%)

Romano-British pottery comprises 2,030 sherds from 1,287 vessels, weighing 33.1kg. A similar degree of fragmentation to the late Iron Age

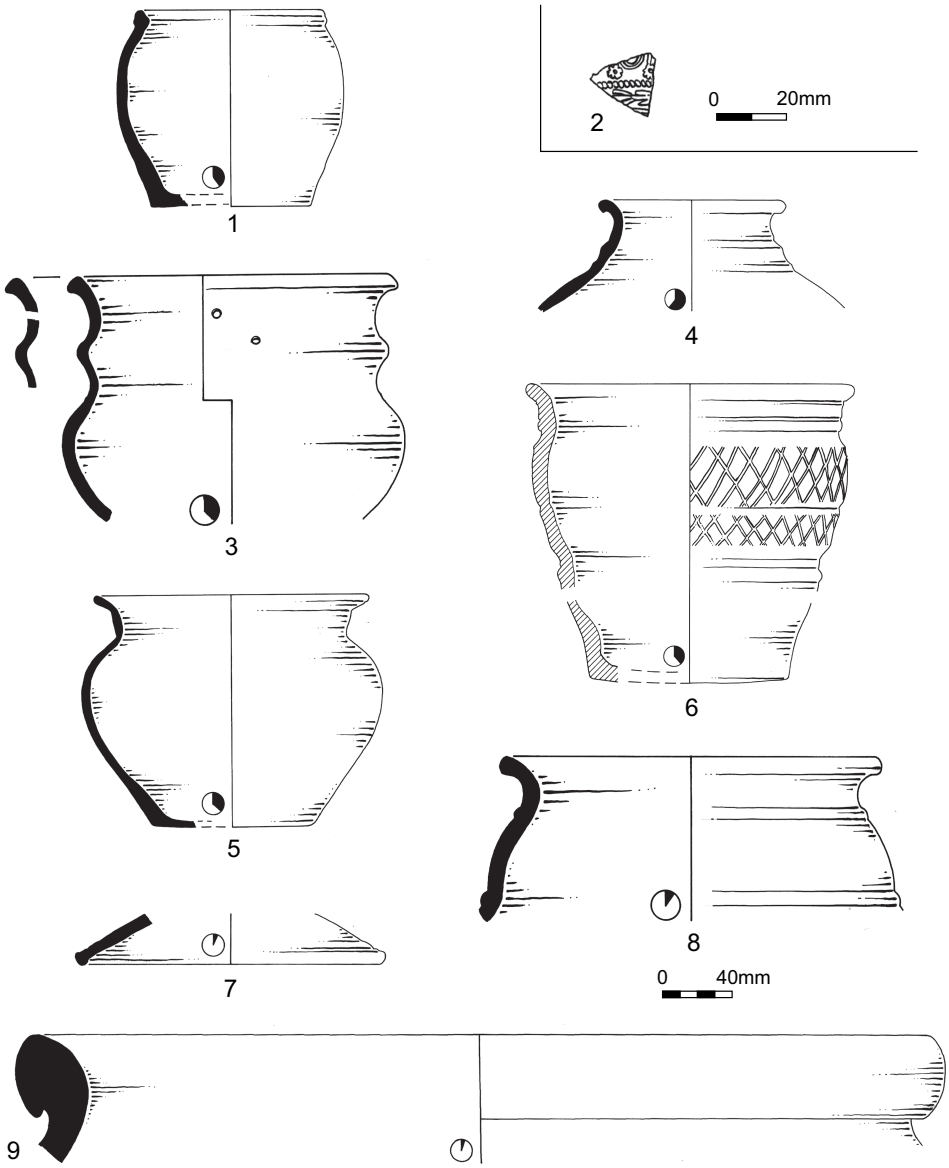
Phase	L	Late Iron Age				1st century			Late 1st–2nd century						C1–3	C1–4
		F05	F06	F07	F09	F34	R01B	R07	R02	R03*	R10B	R33	R18	R08	R19	R13
5	9.1		2:2	1:1	4:4											3:4
	10.1		2:2	1:1			1:1	1:1		2:2						9:9
	16.1		1:1		1:1											1:1
	22.1				1:1			1:1								
	22.2						1:1	5:6								1:1
	22.3		1:1		1:1			10:10			1:1				1:1	14:15
	27.1				1:1											
	27.2	1:1														
4	8		11:12		16:17		1:1	12:16	1:2	1:1	3:4		1:2			18:33
	25.3		3:3					6:9								
	30.3		5:6		6:9			34:50				2:2	1:1			10:13
3	4		4:6		4:4		1:1	7:7	1:1	1:1	1:1		1:1	1:1		4:11
	6	1:1	2:3				2:5	9:13		1:1		1:1		0:19	1:1	6:8
	12	2:2					1:1	3:3	1:1	3:7	3:4		1:2			6:21
	12.1		1:1		1:1					1:1						
	21															
	21.1							1:1								1:1
	23.1		2:2					7:85		2:3			1:1			4:19
	25.1															
	25.2			1:1												1:2
	28.1			1:1				3:9								2:27
	29.1															
	30		2:2		2:3											
	30.1		15:25	1:4	12:35	1:1		14:20		2:2			1:1			6:9
	30.2	1:1	3:5		2:2			31:40		3:10		1:1	2:13			9:18
2	11	2:2	9:13				2:6	1:1								
1	1	1:1	25:49	3:14	11:35		1:1	2:2					1:2			2:2
	1.1	5:10	45:101	6:17	28:59	1:25		43:61		1:1			2:2		2:2	27:30
	1.2	5:7	26:42	3:14	19:45			4:12								10:16
	2				1:1			0:2						1:3		1:1
	2.1	3:6	23:46	4:5	22:31			2:14					1:1			4:6
	3.1			1:1												
	20.2		7:13	1:1	4:11								1:1			
	20.3		6:16	1:1	3:3											
Total		21:31	195:351	24:61	139:264	2:26	10:17	196:363	3:4	17:29	8:10	4:4	13:27	2:23	4:4	139:247

Shaded areas represent contemporary fabric types.
R03* includes types R03A, B, C and E.
R11* includes types R11C, D, E and F.
2nd century+**: excludes types R22A (1 vessel : 1 sherd) / R01C (1:1) / R09A (2:3).
Roman**: excludes types R21 (1:1) / R38 (2:3).

Table 1: Provenance of the pottery fabric types (vessel:sherd count)

2nd century		2nd century +**				2nd–3rd century		Roman**					Mid-3rd–4th century			Total
R01A	R10A	R06	R07C	R11	R07A	R06A	R05	R03	R14	R24	R30	R35A	R11*	R12A	R12B	
	1:1	14:16	1:3				1:1									29:34
		15:31	1:2						4:4				1:1		2:2	41:58
1:1		1:1		1:2					1:2							11:14
	1:1	1:1														3:3
1:1		12:18				1:1			1:1				2:2		2:3	28:36
1:1		30:31	2:2	1:1			2:2		3:3				1:1		4:4	72:74
																1:1
		1:1														2:2
2:3	2:3	88:113	5:5	1:1		1:1	1:1		7:9			0:2			8:9	183:239
2:2		3:3		1:1												17:20
		55:94	1:1	1:2		0:1	3:4		13:18			0:1	1:1		5:5	139:210
1:1		55:74	4:4						6:6						1:1	93:121
2:3		29:44		1:1												57:103
	1:1	57:104	6:7		2:3	1:2	2:2		6:6			1:1			1:1	99:170
		1:1														5:5
		3:3														4:5
	1:1	7:7							2:3							13:14
		14:36	2:3	1:2			2:3						1:1			38:157
									1:1							1:1
		2:3					1:6								1:1	6:13
	2:2	14:22					1:1		1:1	1:3				1:1	1:1	27:68
		2:2														2:2
		1:8											1:1			6:14
	1:1	56:86				2:4	3:3		4:10				1:1		4:5	126:210
3:4		45:76					1:2		4:5						3:3	109:181
		1:1	1:1						2:2						3:3	24:32
	1:1	6:9					1:2									60:127
4:4	1:1	55:68	8:17	2:2			2:4	1:2	20:29			1:2	7:7		8:8	272:456
3:3		31:48	2:7				1:5		2:2						3:5	113:206
		1:1			1:5											5:13
		33:52	3:3				1:1		5:6						1:1	113:185
		1:1					1:1		1:1		1:2	1:1				6:7
		1:1														19:32
																10:20
20:23	11:12	635:956	36:55	9:12	3:8	5:9	23:38	1:2	81:107	1:3	1:2	3:7	15:15	1:1	46:52	**1,735:2,834**

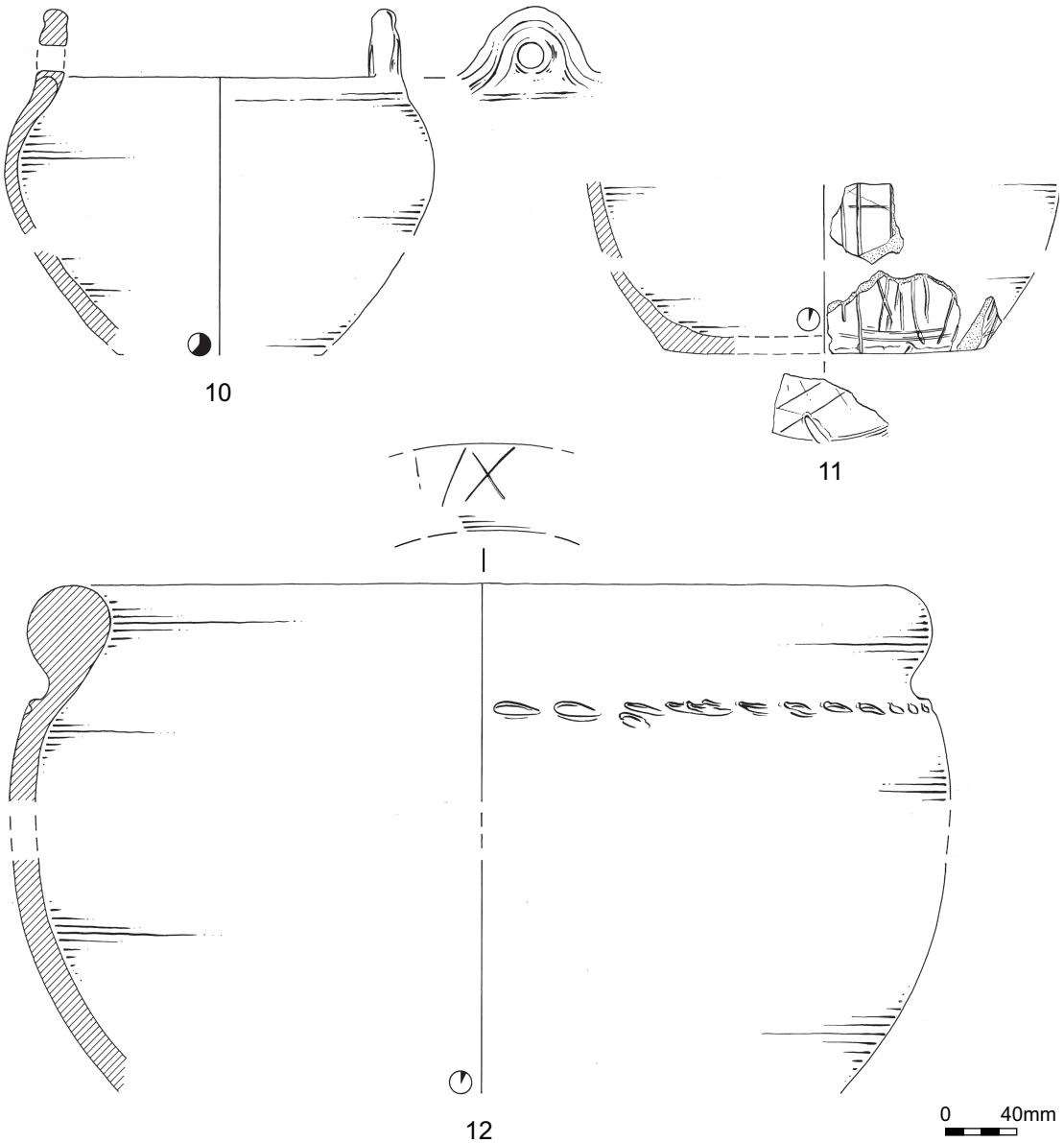
Table 1: continued



Illust.	Fabric	Description	Phase	L	G	Context*
1	F06B	Lid-seated jar	1	2.1	17.1	(253)
2	R01B	Form 37 bowl	6	15.1	22.1	(120)
3	F09	Cordoned bowl with two post-firing holes drilled in the neck	1/3	1/30.1	10.1/10.1/11.1	(128), (130), (133), (134)
4	R06C	Cordoned jar	5	22.2	122.2	RB (109)
5	R07B	Bowl	1	1	10.1/10.2	(206), (207)
6	R07B	Jar with incised lattice decoration	3	23.1	128.1	RB (146)
7	R06B	Lid	1	2.1	17.1	(321)
8	F09	Cordoned jar	1	1.1	10.1	(207)
9	R13	Large jar with undercut rim	4	30.3	11.2	(124)

* ASH unless otherwise stated

Figure 13: Selected pottery (1–9)



Illust.	Fabric	Description	Phase	L	G	Context*
10	F06C	Jar with suspension loop	1/3	1/30.1	10/10.2/11.1	(126), (128), (130), (134)
11	F06C	Vessel with incised decoration	1/3	1/30.1	10/10.1/11.1	(126), (133), (134)
12	R06F	Storage jar with tally/batch mark or graffito on the rim	1/4/6	3.1/8/17	31.1/2.3/35	(65), (102), (111)

* ASH unless otherwise stated

Figure 14: Selected pottery (10–12)

material is indicated by a comparable sherd weight of 16g and vessel:sherd ratio of 1:2.

The Romano-British assemblage is dominated by sand-tempered, reduced and oxidised coarse wares (fabric groups R05, R06, R07, R10 and R14), which constitute 76% of the pottery and reflect the exploitation of raw materials deriving from the Greensand Ridge. As their period of use spans the entire Romano-British period, dating is only possible where diagnostic forms occur. Numerous sources are likely for these types, especially during the earlier Romano-British period, when small scale, localised manufacture would have been the main means of production. Shelly coarse wares constitute 12% of the assemblage, a proportion of which may be products of the Harrold kilns (Brown 1994), located approximately 19km northwest of Shefford.

Diagnostic forms constitute 20% of the assemblage. They date predominantly to the early Romano-British period and are representative of a utilitarian assemblage, comprising a range of storage, kitchen and table wares. Forms include lid-seated jars and bowls; flanged, cordoned (Fig. 13 no. 4), reed-rim, rectangular, triangular and plain-rim bowls; jars with triangular, undercut (Fig. 13 no. 9), beaded and everted rims; cordoned, narrow-necked and neckless jars; storage jars; platters; folded and plain-rim beakers; dog dishes; ring-necked and plain-necked flagons; wide-mouthed bowls (Fig. 13 no. 5); lids (Fig. 13 no. 7); *mortaria; amphorae*; and a carinated jar. Many vessels possess elements similar to the preceding 'Belgic' tradition, in the form of cordons and corrugations. In contrast with other contemporary sites in the vicinity (*cf.* Norton Road, Stotfold (Albion Archaeology in prep. a) and Haynes Park (Wells 2004), both Beds.; Holwell, Herts. (Albion Archaeology in prep. b)), there is no evidence for the specialised use of shelly pottery as cooking pots or kitchen wares, nor for grey wares as table or storage vessels. One hundred and sixty-two vessels (113 grey ware and forty-nine shelly) have external and internal sooting and/or black residues; twenty-two have thick, internal, white residues; twenty-one have pitted internal surfaces resulting from long-term use; and wear marks are present on five base sherds. Two body sherds have been modified by the addition of a post-firing perforation, and one storage jar has a tally/batch mark or graffito on the rim (Fig. 14 no. 12).

Decorated pottery constitutes 12% of the assemblage and comprises a standard range of types, including sherds with burnishing, rouletting, painting, barbotine, roughcasting, stamped motifs, slipping, horizontal rilling, vertical combing and combed patterns, horizontal grooves, burnished vertical lines, zig-zags and lattice motifs (Fig. 13 no. 6), cordons, incised herringbone and circle motifs, stabbing, and embossing.

Regional and continental imports are poorly attested. This is perhaps surprising, given the proximity of the Baldock–Sandy–Godmanchester road and the settlement at Baldock, located approximately 10km southeast of Shefford. Regional imports constitute 4% of the assemblage, and are represented by 2nd-century Verulamium-region wares, black burnished wares, Nene Valley grey wares, and pink-grogged vessels, the latter likely to derive from Caldecotte, Bucks. Later Romano-British regional imports of mid-3rd- to 4th-century date include vessels (mainly fine wares) from the Oxfordshire and Nene Valley industries. Continental imports are represented by miscellaneous *amphora* sherds and a small quantity of samian ware (2% of the total assemblage), the latter ranging in date from the 1st to the late 2nd centuries.

Samian includes plain and decorated (see Appendix 1) sherds of south, east and central Gaulish origin (twenty-two, one and twenty-five sherds respectively). Forms are mainly bowls (forms 18, 18/31, 18/31R, 30, 31 or R variant and 37: Fig. 13 no.2), cups (forms 27, 33 and 35), and carinated bowls (form 29), with single examples of a *mortarium* (form 43 or 45), platter (form 15/17) and dish (Ludowici Tg). No stamped vessels occur. Although the quantity is too small for definitive conclusions to be drawn, the presence of forms 29 and 15/17 suggests that small quantities of samian, including decorated ware, were arriving on the site from the early Flavian period (AD 69+). A trickle of material continued to arrive throughout the first half of the 2nd century, though with less arriving thereafter. Most of the earliest pieces occur residually within later features, suggesting a certain degree of disturbance.

Discussion by Phase

The greatest pottery concentrations derive from features within Phases 1 and 3, which yielded respectively 41% and 48% of the total assemblage. The incidence of residuality is most evident in later Romano-British Phases 4 and 5 (see Table 1).

Phase 1

Features assigned to Phase 1 yielded 1,046 sherds (598 vessels), weighing 19.2kg. The majority of the assemblage derived from main ditch fills G100.2 (5.2kg) and G10.2 (3.8kg) of enclosure L1. Despite containing a large amount of pottery, the fragmented nature of this assemblage is evidenced by a low vessel to sherd ratio of 1:2. Ovens G5 within domestic focus L2 yielded 2.8kg; all other deposits contained less than 1kg.

Late 'Belgic' Iron Age pottery constitutes 47% of the assemblage and early Romano-British material 51%. Vessels from each period share a comparable average sherd weight and vessel to sherd ratio. The Phase 1 assemblage attests both the continuity of late Iron Age traditions and a transition to the use of fully Romanised wares. This is consistent with the established regional pattern, where the longevity of 'Belgic' form and fabric has been demonstrated, in some instances, to extend into the early 2nd century (*cf.* Haynes Park (Wells 2004, 90–1), Stagsden Bypass (Slowikowski 2000) and Biddenham Loop (Wells forthcoming)).

The lower ditch fill G100.1 contained a sherd of south Gaulish samian of Flavian or Trajanic date (AD 69–117), although the material from the main fill (G10.2, G100.2) is exclusively central Gaulish and datable to the Hadrianic or Antonine periods (AD 117–192).

Residual early to middle Iron Age pottery constitutes less than 1% of the Phase 1 assemblage. Approximately 2% comprises intrusive later Romano-British material.

Phase 2

A small assemblage (thirty-two sherds, weighing 413g) derived from layer L11. It comprises late Iron Age grog-tempered sherds (175g) and early Romano-British pottery (224g). The latter includes locally manufactured sand-tempered coarse wares, and six sherds of south Gaulish samian, the latter dating from *c*. AD 81–117. The assemblage is fairly fragmented, indicated by a low average sherd weight of 8g, and a low vessel:sherd ratio of 1:1. Intrusive material comprises three sherds (14g) of late Romano-British Nene Valley colour coat. Two residual sherds of early to middle Iron Age date were also present.

Phase 3

Features assigned to Phase 3 yielded 1,064 sherds (586 vessels), weighing 20.7kg. The majority of the assemblage derived from the fills of the enclosure ditch re-cuts G11.1 and G101.1 (L30**.**1) and G101.2 (L30**.**2), trackway ditch fill G128.1 (L23**.**1) and fills of features G1.8 and G2.7 associated with the rebuilding of the aisled building L12.

There exists a degree of overlap and continuity between the Phase 1, 2 and 3 assemblages, evidenced by their similar composition. The most notable difference is the reduced quantity of late 'Belgic' Iron Age pottery, which in Phase 3 constitutes 9% of the assemblage in comparison to 88% early Romano-British material. Coarse ware forms are similar to those identified in preceding phases, but also include forms of 2nd-century and later date, such as flagons, jars with undercut and triangular rims, and vessels with developed lid-seating. The low proportion of diagnostic forms among the dominant coarse wares prevents a more detailed dating of many of the Romano-British vessels. Samian ware from features associated with the construction of the aisled building includes four south Gaulish sherds of Flavian date (AD69–96), thought to be residual, and seven central Gaulish sherds, of probable early to mid-2nd-century date, suggesting likely construction in the middle of the 2nd century. Cobbled surface G3, adjacent to the aisled building L4, and the secondary fill G101.2 of the re-cut ditch (L30.2) both produced sherds datable to the second half of the 2nd century.

Residual early to middle Iron Age pottery constitutes less than 1% of the Phase 3 assemblage. Intrusive later Romano-British material comprises approximately 2%, and post-Romano-British sherds less than 1%.

Phases 4 and 5

The Phase 4 assemblage comprises 469 sherds (339 vessels), weighing 6.9kg. Sherds are generally small, and few vessels are represented by more than one sherd. The majority of the pottery derives from accumulations of building debris (L8) associated with the disuse of the Phase 3 aisled building, in particular deposit G2.3 and robber trench G2.4, which each contained over 1.0kg of pottery. A further 2.4kg was recovered from the tertiary fills G101.3 of the enclosure ditch which originated in Phase 1. Twenty sherds (272g) derived from the upper fills of quarry pits G114.3 (L25.3).

Features assigned to Phase 5 yielded 222 sherds (187 vessels), weighing 3.3kg. As in the preceding phase, sherds are small (average sherd weight 10g)

and few vessels are represented by more than a single sherd. The majority of the assemblage derives from activity focus L22, particularly fills G127.2 and G127.3, which respectively contained 956g and 939g of pottery.

Contemporary late Romano-British fabric types include regional fine ware imports from Oxfordshire, Essex and the Nene Valley, and a proportion of late coarse ware forms in sand- and shell-tempered fabric types. Residual late Iron Age and earlier Romano-British material constitutes approximately 15% and 78% of the Phase 4 and Phase 5 assemblages respectively, although the lack of diagnostic forms hinders accurate dating. Intrusive Phase 4 material totals less than 1% of the assemblage and comprises four sherds (14g) of medieval and post-medieval date. No intrusive material occurred in Phase 5.

CERAMIC BUILDING MATERIAL

Jackie Wells

Brick and Tile

Introduction and methodology

The investigations produced 1,733 fragments (254.7kg) of Romano-British brick, roof tile and hypocaust tile. The assemblage comprises large, unabraded fragments (average fragment weight 146g) with over 85% constituting recognisable forms. An additional fifty-nine fragments (5.1kg) of late medieval/post-medieval brick and tile were recovered, which have not been included in the following discussion.

The material was examined by context and sorted into fabric and form types. Quantification was by fragment count and weight. Although no complete examples were recovered, measurements were taken where possible on larger fragments and on those retaining a finished edge (after Zeepvat 1987).

Six fabric types were identified and are detailed in Appendix 2. Local manufacture is likely, given the logistical difficulties of transporting heavy, breakable brick and tile, although no sources are documented. Sand- or predominantly sand-tempered tiles, which constitute over 99% of the assemblage, are likely to contain quartz sand derived from the Greensand Ridge. It is interesting that the small proportion of shell-tempered forms comprise mainly flue tiles, although sand-tempered examples also occur.

Phase 3 and 4 features, associated with the construction and disuse of the aisled building L4/L12, produced 40% and 24% of the assemblage respectively (Table 2). Phases 5 and 6 each yielded 11% of the material, and Phase 2 less than 1%. There are no apparent concentrations or distinctions between the distributions of tile types, with all forms occurring across the main investigation area.

Types of brick and tile

Tegulae

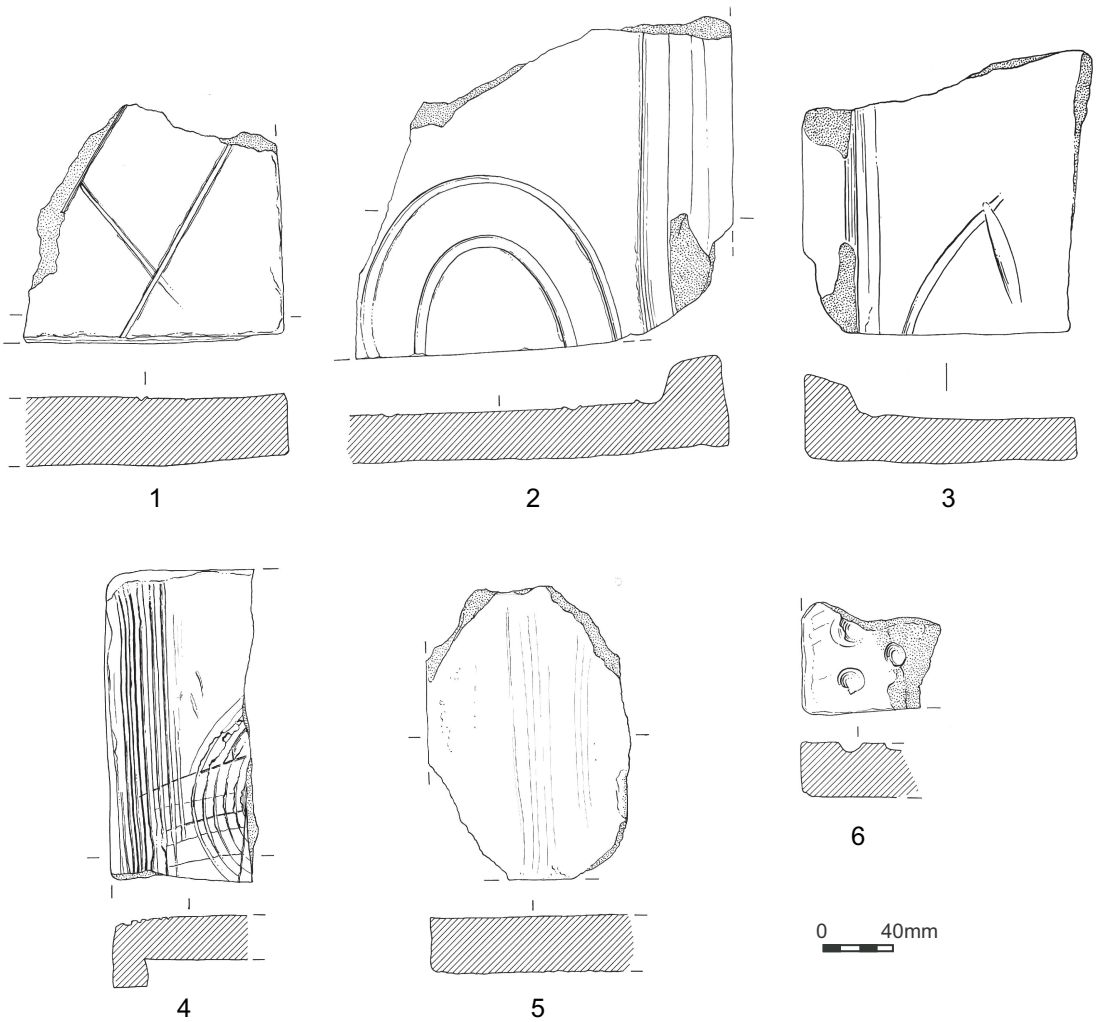
Tegula fragments number 512, weighing 121.4kg, and constitute 58% (by weight) of the diagnostic assemblage. The vast majority were found in deposits in the vicinity of the aisled building L4/12. They occur in all fabric types, with sand-tempered examples predominating. No complete *tegulae* survive, although most fragments are sufficiently intact for some dimensions to be recorded; the length of one tile was noted at 335mm. Body depth ranges from 15–37mm (average 23mm), external flange depth from 30–57mm (average 43mm), and flange thickness from 12–33mm (average 21mm). Flanges display considerable variation in shape and thickness. Eight flange types were recorded (Fig. 16); types 3 and 5 are commonest (twenty-four and nineteen examples respectively). Five rebate forms were noted (Fig. 16), with types 2 and 4 the commonest (eight and ten examples respectively). Both knife-cut and moulded rebates are present.

Thirty-two percent of *tegula* fragments are knife-trimmed, either on the flanges, or on the underside, towards the edges. Eighty-one sand-tempered fragments have a single finger-impressed groove in the angle between the inside of the flange and the tile face. Eleven have a double groove, and a single example has a triple groove. The purpose of such grooves is obscure; it has been suggested that they aided the outflow of rainwater (Brodribb 1987, 16), although their absence from most *tegulae* suggests this may not have been the case.

Signatures occur on thirty-three fragments and comprise single and double concentric rings, or symmetrical semi-circles of varying size, made with the fingertips (Fig. 15 no. 2). One fragment is marked with freehand swirls, a second has a faintly combed surface and a third has a scored lattice pattern (Fig. 15 no. 1). The surface of one fragment has a finger-impressed V-shape, which may represent a signature or graffito (Fig. 15 no. 3). No *tegulae* bear any evidence of stamps or tally marks.

Phase	L	G	Tegula	Imbrex	Flue	Brick	Fragment
6	15	22.1	60:12,872	16:2,062	5:595	14:4,296	55:2,348
	17	35, 37	46:7911	10:1258	54:2376	10:2,584	41:1,638
	18	36				1:1,442	
5	9.1	9.1	8:1,035	2:233	5:58	2:517	5:317
		9.2		1:50			1:37
		23.1					1:6
	9.2	106.2	4:165				
	10	29.1	1:232				
	10.1	16.1			1:227		1:46
		21.1	29:9,488		5:609	2:197	33:754
	16	12	1:870				
	16.1	12.1				3:447	7:1,113
	22.1	127	3:275				
	22.2	122.2	4:361			2:282	
		127.2	10:2,086	7:859		5:554	15:487
	22.3	127.3	14:3,257	6:533	3:173	4:431	22:599
4	8	2.1	7:2,204		3:604	9:5,415	12:3,172
		2.3	3:780	2:168			2:126
		2.4	17:3,982	4:295	22:2,579	5:2,653	79:6,703
		2.6	10:1,444	4:376		3:2,373	23:1,060
		3.1	19:4,683	1:225			17:1,780
	25.3	114.3	13:4,270	4:315	2:448	3:1,623	16:1,107
	30.3	11.2	47:10,350	2:236	1:102	2:512	11:519
		101.3		27:4,114	1:192	4:1,642	58:3,331
3	4	1.1			1:16		2:22
		1.2	21:8,072	1:343	2:688	9:5,771	10:1,477
		1.5	13:4,975			4:1,113	1:7
	6	3	4:722	1:425	1:110	1:342	19:737
		3.2			1:33	5:1,955	2:90
		26					6:186
	12	1.4	16:3,544	1:128	8:619	2:572	61:1,947
		1.8	3:684	3:269	1:225	13:2,831	3:461
		2.7	16:6,867	3:763	1:60	3:2,967	8:469
		33	2:293	2:43	4:195	1:133	15:367
		1.7	3:313			1:149	
	21.1	107.1					2:2
	23.1	105.1	2:1,181	1:71			3:98
		111.1	2:383				
		128.1		2:182		8:976	
	25.1	114	3:318		1:367		
	25.2	114.2	2:605				
	28.1	119.1	4:1,062	3:182		2:58	1:10
	30	11	12:1,226	4:352			7:362
		101	2:338	1:87	1:225	4:1,060	1:39
	30.1	101.1	15:1,871	5:386	1:9	2:670	57:657
		11.1	9:1,806			2:1,059	7:498
	30.2	101.2	13:2,132	13:1,467	2:781	4:401	19:1,674
2	11	25					2:22
1	1	100.1	1:655	3:282			9:877
	1.1	100.2	34:11,283	22:5,628	1:273	11:2,589	60:3,492
	34	126.1				1:133	
	1.2	10.2	25:5,804	12:2,129	5:936	5:2,929	15:2,441
	2	5	17:2,778	1:218		5:940	22:729
		6					1:36
	2.1	4.1	3:1,892	1:144			2:57
		5.1	18:1,862				
		13.2	7:869	1:52	2:41		11:1,465
		17.1					5:97
		17.2	1:476			9:1,999	2:86
			512	**152**	**144**	**134**	**791**
			121,459	**23,005**	**14,410**	**50,808**	**45,052**

Table 2: Provenance of the brick and tile (fragment:weight (g) count)



Illust.	Description	Phase	L	G	Context*
1	Tegula with scored lattice pattern	3	12	1.4	(514)
2	Tegula with finger-impressed decoration	3	24.1	112.1	(150)
3	Tegula with finger-impressed V-shape representing a signature or graffito	1	1.1	100.2	SLS(1077)
4	?Half-box tile with combed and scored decoration	3	4	1.2	(468)
5	Reused tegula which appears to have been deliberately shaped	3	12	2.7	(215)
6	Tegula with finger prints	3	28	119	(124)

* ASH unless otherwise stated

Figure 15: Selected ceramic building material (1–6)

Accidental impressions are not common, and consist of three separate paw prints and a group of three finger prints (Fig. 15 no. 6).

Three circular nail holes of 5mm, 9mm and 10mm diameter were recorded in sand-tempered fragments. These are broadly consistent with the average hole dimensions recorded by Brodribb (1987, 10). All were pierced pre-firing.

The presence of mortar and/or *opus signinum* was noted on fifty-eight *tegula* fragments (14%),

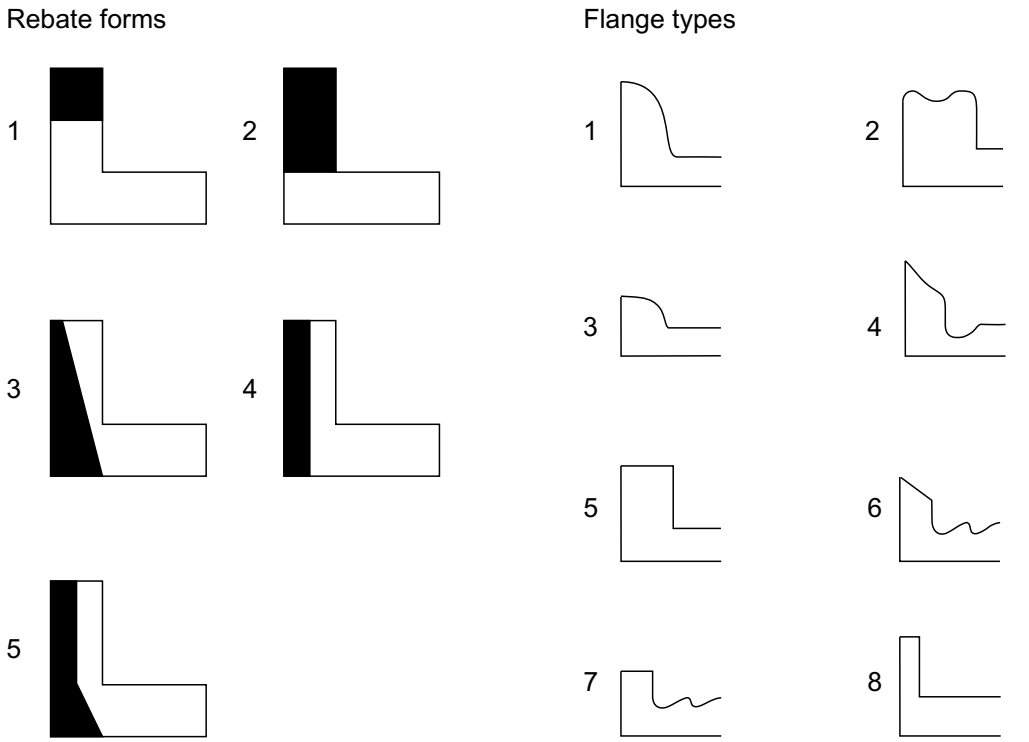


Figure 16: Tile rebate forms and flange types

the majority occurring along the flange tops and upper surfaces, where *imbrices* would have been attached. Six fragments have mortar along their broken edges, indicating either the reuse of broken *tegulae*, or the repair of tiles which had broken *in situ*. Reuse is also attested by one roughly octagonal fragment which appears to have been deliberately shaped (Fig. 15 no. 5).

Imbrices

One hundred and fifty-two fragments were identified, weighing 23kg and constituting 11% of the diagnostic assemblage. The majority were found in deposits in the vicinity of the aisled building L4/12. Two fragments of possible ridge tile were also noted, although their fragmentary nature makes certain identification problematic. Examples in all fabric types were present. As with the *tegulae*, sand-tempered types are prevalent: only three shell-tempered fragments (166g) were recorded. *Imbrices* in all fabrics display a consistency of thickness, ranging from 11–27mm, with an average thickness of 18mm.

Mortar is present on the underside of only two fragments, both over 17mm thick. Five pieces have a patchy mortar spread on their upper surfaces, while three have mortar smeared along broken edges, indicating repair or reuse.

The occurrence of decorative features or accidental or deliberate markings on *imbrices* is rare. One *imbrex* has a wavy combed signature, and a second is marked with wavy finger impressions. Evidence for the smoothing and trimming of the tile sides is attested by the presence of rolls of clay along the bottom edges of many fragments.

Flue tiles

Flue tiles number 144 fragments, weighing 14.4kg, and constitute 7% of the diagnostic assemblage. The vast majority were found in deposits in the vicinity of the aisled building L4/12. Due to the incomplete nature of the examples, it was not possible to distinguish between box-flue and *voussoir* tile. Fragments are present in all fabric types except grog and sand. Thirty-three fragments have mortared surfaces, and eighteen have sooted interiors, indicating use.

Shelly flue tiles are more finely and carefully made than their sand-tempered counterparts. The former are 12–17mm thick (average 15mm), with

an average depth of 85mm, while the sand-tempered examples are slightly larger: 12–23mm thick (average 18mm) and 100mm deep.

Keying patterns noted on flue tiles were achieved by combing and scoring. No roller-stamped pieces were recorded. Fifty-seven fragments have combed surfaces forming either a wavy line or herringbone pattern; the number of prongs per comb varies from four to eight (average prong width 3mm), giving a combing width ranging from 30–50mm. One fragment, tentatively identified as a half-box tile, is combed and scored (Fig. 15 no. 4).

Brick

A total of 134 brick fragments were identified, weighing 50.8kg and constituting 24% of the diagnostic assemblage. The majority derived from deposits in the vicinity of aisled building L4/12. The dimensions of most examples cannot be determined, making identification problematic. One has a breadth of 275mm and is most likely to have been a general purpose brick; those with smoothed and worn upper surfaces may have functioned as floor tiles**.** Others may have been *bessales* (used to create *pilae*), although this cannot be conclusively demonstrated.

Brick fragments occur exclusively in sand- or predominantly sand-tempered fabrics. Thickness ranges from 35–60mm (average 43mm). All are moulded, evidenced by greater thicknesses of clay around the edge and 'oozing' around the undersides of many fragments. Forty-three fragments have knife-trimmed edges, and two have wiped surfaces.

Signatures occur on only three fragments and comprise finger-impressed semi-circles. No bricks bear any evidence of stamps, tally marks or graffiti. Accidental impressions — the paw prints of a rabbit and a cat — occur on a single fragment. Fifteen fragments (11%) have mortared surfaces and/or edges.

Fragments

A total of 791 undiagnostic fragments, weighing 45.1kg, were recorded. The vast majority were found in deposits in the vicinity of the aisled building L4/12. Although definitely of Romano-British origin, it is unclear whether they represent flue tile without keying patterns, thick *tegulae*, or thin bricks, and for this reason they have been recorded as unidentifiable.

Daub, slabs and fired clay

Introduction and methodology

Over 500 fragments, weighing 25.4kg, were collected. Five fabric types were identified and are described in Appendix 3. As with the brick and tile, sand-tempered types predominate, constituting over 94% (by weight) of the assemblage, with organic and grog-tempered fabrics totalling 5% and less than 1% respectively.

Approximately 58% of the total assemblage derived from Phase 3 features, particularly the infilling of the post-pits G2.7 of the original aisled building which produced 11.7kg of material, mainly in fabric type A. Thirty percent of the assemblage derived from deposits L8 associated with the disuse of the Phase 4 aisled building. Smaller quantities (7%) were recovered from the fills of the Phase 1 enclosure ditch L1 and the structural features associated with domestic focus L2.

Daub and fired clay

Recognisable daub fragments are exclusively sand-tempered, either reflecting the exploitation of local resources or suggesting the unsuitability of other tempers for structural use. Most of the larger daub fragments retain impressions of circular wattles and/or laths, the former ranging in diameter from 8–27mm. The majority have one finished surface — the oxidised external wall face — with wattle impressions on the reduced sides and reverse. A high proportion have a skim of white-wash / lime coating on their surfaces. Fragment thicknesses mostly range from 10–45mm, with some pieces exceeding 55mm. Over 95% of the daub derived from Phase 3 and 4 deposits associated with the aisled buildings (Table 3).

Fired clay fragments occur mainly in sand-tempered fabrics and are largely amorphous. It is probable that much of the assemblage represents degraded daub — they are of the same fabric type and large quantities were recovered from features containing daub.

Clay Slabs

Fragments from approximately fifteen handmade, fired clay slabs were recovered, weighing 1.4kg. They range in thickness from 25–40mm and have finger-smoothed faces and edges. Twelve fragments occur in organic fabric type B, two are of type C (organic and sand) and one is of type E (grog and sand). Most fragments have clear grain

Phase	L	G	Daub	Fired clay	Slab	Total
6	15.1	22.1	43		98	141
	17	35, 37	271		143	414
5	10.1	21.1	305	110	57	472
	16.1	14.1		2		2
4	8	2.3	2,306	85		2,391
		2.4	93			93
		2.6	5,203	7		5210
3	4	1.2		22	44	66
		1.5		2391		2391
	6	3		15		15
	12	2.7	8,332	3388		11,720
		33	611			611
	30.1	11.1		48		48
1	1	27			56	56
		10.1	21	28	242	291
		27.1			55	55
	1.2	10.2		6	52	58
	2	13		29		29
	2.1	5.1		220	220	440
		6.1		11		11
		13.2	231	66		297
		17.1		103		103
		18.1		10		10
		20.1			321	321
			17,416	**6,560**	**1,460**	**25,436**

Table 3: Provenance of the daub and fired clay (by weight)

impressions on their surfaces, perhaps suggesting manufacture in the vicinity of cereal processing. The majority were recovered from Phase 1 features (Table 1). Although relatively common finds from sites of this period, the precise function of such slabs remains unclear. Suggested uses include prefabricated components for structures such as hearths, ovens or kilns, and as salt-licks for cattle (Rigby and Foster 1986, 187–8).

NON-CERAMIC ARTEFACTS

Jackie Wells incorporating report by Pete Guest (coins)

Introduction and methodology

The majority of the registered (*i.e.* excavated objects requiring more detailed recording and description in publication than 'bulk' finds such as pottery) and non-ceramic assemblage relates to the fabric and fitting of the aisled buildings. Other artefacts, although rather limited in range, indicate domestic/craft activities, including grain processing, food preparation and consumption, textile working, and small scale metalworking. The ubiquitous personal items and coinage represent casual losses. All iron objects and seven copper alloy artefacts (191 in total) were submitted for x-radiography; the x-ray plates form part of the site archive.

Typologically datable artefacts span the whole Romano-British period, the majority being of 3rd-century or later date, although many long-lived, utilitarian types are not closely datable. Objects are discussed below by functional category and summarised in Table 4. For detailed catalogue entries see Appendix 5. The flint assemblage was entirely residual, and being irrelevant to the Romano-British settlement, is not discussed here.

Non-ceramic building material and fittings

Stone roof tiles

Fragments of fifteen stone roof tiles, weighing 3.1kg, were recovered. The majority were found in deposits in the vicinity of the aisled buildings. The majority are made from medium-grained sandstone, although single fragments in limestone and Micaceous sandstone occur. These are locally obtainable from the Greensand Ridge and from limestone outcrops to the northwest of Bedford.

Thicknesses range from 10–19mm (average thickness 13mm). No fragments are complete enough for further measurements to be taken. One fragment from feature G127 (Phase 5) retains a partial nail hole perforation (diameter 6mm).

Tufa

Two fragments (953g) of calcareous tufa were collected from robber trench G2.4 (Phase 4) and archaeological trench G22 (Phase 6). One is an irregular block, approximately 170mm long, while the second retains a cut face. Due to its comparative lightness, tufa is known to have been utilised as a vaulting material, often in bath suites (Williams 1994, 241), but it rarely survives. No other recorded examples are known from excavated Romano-British sites in Bedfordshire, although its extensive use as a building stone and as floor make-up material is known from Bancroft, Milton Keynes (Williams and Zeepvat 1994, 241). Possible sources for both sites may include oolitic limestone outcrops to the northwest of Bedford or deposits in the vicinity of Milton Keynes (Williams and Zeepvat 1994, 241).

Painted plaster

Sixty-five pieces (1.1kg) of painted wall plaster were recorded. The vast majority were found in

Phase	L	G	Artefact summary
6	15.1	22.1	Bone handle (**32**); Fe nail (**30**, **37–40**, **43**); vessel glass (**41**); Cu alloy stud (**44**); Cu alloy pin (**49**); quern (**114**); *opus signinum* (90g); tufa (275g)
	17	35, 37	Cu alloy brooch (**2, 23**); Cu alloy coin (**11, 15, 16**); Cu alloy finger ring (**18**); Cu alloy ring (**19**); Fe nail (**28, 29, 105–109**); vessel glass (**3, 7, 12, 31**); window glass (**137**); mortar (159g); *opus signinum* (24g); *tessera* (**104**); wall plaster (45g); stone roof tile (41g)
	18	36	Cu alloy coin (**13**)
5	9.1	9.1	Fe nail (**45**); flint core
	10.1	21.1	Fe nail (**48**, **75, 77**); Cu alloy coin (**76**); window glass (**46, 47**)
	16.1	12.1	Window glass (**113, 124**); vessel glass (**122, 123**); Fe nail (**125**)
	22.1	122.1	Wall plaster (20g)
		127	Mortar (34g)
	22.2	122.2	Wall plaster (161g)
		127.2	Fe handle (**R7**); mortar (355g); stone roof tile (620g)
	22.3	127.3	Cu alloy coin (**R3**); Cu alloy bracelet (**R4**); Fe rod (**R5**); mortar (20g); vessel glass (**R8**); window glass (**R9**); Fe nail x3 (**R6**)
4	8	2.1	Mortar (3,798g)
		2.2	Mortar (606g)
		2.3	Vessel glass (**59, 97**), Fe nail (**57, 81–83, 85, 86, 96**); Cu alloy tack (**80**); *tessera* (**138**); mortar (515g); *opus signinum* (140g); stone roof tile (276g); burnt stone (172g)
		2.4	Window glass (**117**); *tessera* (**140**); mortar (4,719g); *opus signinum* (650g); tufa (579g); wall plaster (7g); stone roof tile (46g)
		2.5	Mortar (26g)
		2.6	Mortar (183g); wall plaster (48g)
		3.1	Fe nail (**71–73**); Fe object (**74**); wall plaster (5g); stone roof tile (205g)
	25.3	114.3	Fe chisel (**S3**); Fe nail x5
	30.3	11.2	Fe nail (**51, 52, 55**)
		101.3	*Tessera* (**S4**); Cu alloy hair pin (**S48**); Fe nail x35
3	4	1.1	Slag (6g)
	4	1.2	Fe nail (**67, 79, 87, 89–92**)
	4	1.5	Mortar (202g), *opus signinum* (37g); Wall plaster (353g)
	6	3	Quern (**1**); Fe nail (**95, 99, 100**)
		3.2	Mortar (93g)
	12	1.4	Fe nail (**33, 102**); ceramic unid (**34**); Fe nail (**35**); Pb spindlewhorl (**36**); *tessera* (**139**); mortar (809g); *opus signinum* (402g); wall plaster (37g)
		1.8	Fe nail (**68, 69, 134**); mortar (280g)
		2.7	Vessel glass (**61, 119, 120**); Fe nail (**62-66, 94**, **121, 131–133**); mortar (226g); *opus signinum* (19g); wall plaster (401g); stone roof tile (427g)
		33	Fe nail (**115**); *opus signinum* (246g)
	21.1	107.1	Fe nail x2 (**S1**)
	23.1	111.1	Glass bead (**R2**)
	25.1	114.1	Fe nail x1
	28.1	119.1	Cu alloy toilet spoon fragment (**R1**)
	30.1	101.1	Fe brooch pin (**S49**); Fe nail x28; mortar (4g)
	30.2	101.2	Fe T-clamp (**S5**); Fe sheet fragment (**S39**); Fe nail x24; mortar (21g); wall plaster (13g); window glass (6g); stone roof tile (866g)
1	1	27	Flint flake
		100.1	Fe nail x7; wall plaster (9g)
	1.1	10.1	Burnt stone (86g)
		27.1	Flint flake
	1.2	10.2	Fe nail (**53, 54, 126, 127**)
		100.2	Cu alloy coin (**R10–13**); Fe nail x5; mortar (22g); stone roof tile (112g)
	2	5	*Tessera* (**R14**)
	2.1	5.1	Fe nail (**128**); mortar (1g); slag (13g)
		6.1	Cu alloy sheet fragment (**129**); burnt flint (3g)
		13.2	Fe nail (**93**); mortar (111g); wall plaster (19g); stone roof tile (453g)
		17.1	Fe nail (**112**); mortar (1g); slag (20g)
		20.1	Fe nail (130)

Cu = copper, Fe = iron, Pb = lead. Bold figures denote registered artefact number.

Table 4: Summary of the registered and non-ceramic artefacts

deposits at the southern end of the aisled building; not all are necessarily contemporary. No fragments remained *in situ*, and all are fragmentary and abraded, although surviving in a stable condition. Three fabrics were identified, with type 1 being the most common (Appendix 4).

Fragments in all fabric types have a *c*. 1.0mm thick skim of whitewash underlying a white background, although in several cases this surface is faint and fragmentary. Most pieces are either plain white, buff, maroon, red or blue-grey in colour. A number of type 1 fragments from post-pads G2.7 have linear bands of red bordering white and/or blue-grey, although the small size of the fragments does not allow the width of border(s) to be estimated. This is suggestive of a plain linear pattern or a panel scheme. The surfaces of several of these fragments have been 'furrowed' by the painter's brushstrokes, indicating the application of pigments to damp plaster in the fresco technique (Ling 1985, 53).

One type 2 fragment from levelling deposit G1.5 bears a 16mm wide maroon stripe on a white background, and one from enclosure ditch G101.2 has a thin yellow stripe (4mm) on a red background, again indicating a linear or striped panel scheme. This decoration type represents the simplest kind of panel adornment, known to have been used in subsidiary rooms or generally where a client wished to spend less money (Ling 1985, 26).

A single type 1 piece from topsoil remnants G35 shows red underlying buff-white and maroon freehand shapes, although it is impossible to determine what they represent. Wattle impressions on the underside of a type 1 fragment indicate the plastering and decoration of daub or cob walls.

Opus signinum

Forty-three fragments of *opus signinum*, weighing 1.6kg, were identified. All derived from features associated with the aisled buildings, with the majority from the southern end. They comprise a buff-pink matrix and coarse aggregate of crushed brick/tile, chalk, flint and quartz. Ten fragments retain surfaces, one of which has a skim of whitewash. Thicknesses range from 18–45mm.

Opus signinum was often used as floor material, *e.g*. in the temple-mausoleum at Bancroft (Williams and Zeepvat 1994, 94), but also in cold plunge baths such as Building 7 at Bancroft (Williams and Zeepvat 1994, 139). With its added crushed tile, it would have hardened faster and better than a lime mortar, and would have offered some resistance to the penetration of moisture (Williams 1994, 252).

Mortar

Approximately 284 fragments (13.4kg) of lime mortar were collected, the vast majority in the vicinity of the aisled buildings. Again, not all of it is necessarily contemporary. The majority (10.4kg) derived from Phase 4 features, in particular robber trench G2.4 and building debris G2.1, which yielded 5.2kg and 3.8kg respectively. In addition, fragments were found in enclosure ditch G101 adjacent to building L21. Variations in aggregate size occur, with both fine and coarse aggregates present, the former being prevalent. A small quantity of mortar with a buff-pink matrix was also present, along with a coarse aggregate of red quartz, giving the appearance of *opus signinum*.

Tesserae

The six loose *tesserae* collected (RA 104, 138–140, R14 and S4) suggest the presence of a tessellated floor/pavement in a minimum of three colours: grey-white (limestone and clunch), red (ceramic tile) and brown (sandstone). The limestone and clunch *tesserae* are generally larger (*c*. 35 x 30mm) than the tile (22 x 17mm) and sandstone (19 x 18mm) examples, possibly suggesting a floor executed in grey-white, with a pattern defined in red and/or brown, although this is purely speculative. Four are associated with the aisled buildings, while single examples derived from the tertiary fill of enclosure ditch G101 (adjacent to building L21) and ovens G5 (Phase 1), although the latter is presumed to be intrusive.

Iron Nails

A total of 174 iron timber nails and nail fragments were recovered. The vast majority were found in deposits in the vicinity of the aisled buildings, in particular those associated with the enclosure ditch L30 and the second aisled building L12. In addition, a small number were found in enclosure ditch G101 adjacent to building L21.

Although only eight examples are complete, it was possible to classify thirty examples according to head form (after Manning 1985, 134–7). The remainder are too fragmentary, corroded or distorted through use to be positively identified. All but one are Type 1B examples, 58–75mm in length (average 68mm). This is consistent with the incidence of nail types on other Romano-British sites, where this form is most prevalent, reflecting its

general usefulness. Heads are flat and either circular, square or rectangular (eleven, twenty-two and fifty-three examples respectively). A single example was recovered of a Manning Type 2 nail with a triangular head and shoulders the same thickness as the shank. If the head is aligned with the grain of the wood, Type 2 nails can be completely driven in, making them invisible from a distance. All nails have square- or rectangular-sectioned shanks, tapering to a rounded tip. Nine are clenched, indicating use, and five retain traces of mineral-preserved and/or carbonised wood. Many are heavily encased in corrosion products.

T-clamp
A small, damaged, iron T-clamp, originally with an anchor-shaped head (RA S5), derived from enclosure ditch G101 (Phase 3). T-clamps are commonly recovered pieces of structural ironwork and are known to have fulfilled a variety of functions. Those with anchor-shaped heads are thought to have been most suitable for holding curved wood in place (Manning 1985, 132).

Window glass
Eight fragments of window glass were identified. The majority derived from deposits at the south end of the aisled buildings, in particular pit G21 (Phase 5). Single fragments were also recovered from enclosure ditch G101 (Phase 3), robber trench G2.4 (Phase 4) and topsoil remnants G35 (Phase 6). Seven are of 'matt-glossy' appearance, and are cast — a manufacturing technique known to have been in use until *c*. AD 300 (Allen 1994, 360). Colours are blue-green (six fragments) and pale green (one fragment); a colourless piece of 4th-century cylinder-blown glass (RA R9) derived from the tertiary fill of feature G127 (Phase 5). The fragment is thinner (1.3mm) than those made by casting (2.2–3.9mm).

Household items

Quernstones
Fragments of two querns (RA 1 and RA 114) were recovered respectively from cobbled surface G3 (Phase 3) and possible archaeological trenches G22 (Phase 6). The former is an incomplete, flat rotary quern upper stone made from quartz conglomerate, likely to derive from the Forest of Dean. The latter is an abraded, undiagnostic fragment manufactured from imported lava originating from either the Mayen quarries of Germany or from French lava outcrops found near Volvic (King 1986, 94).

Vessel glass
Of the thirteen vessel glass fragments, four are blue-green and eight colourless, suggesting a 1st- to 3rd-century date for most of the assemblage. Blue-green glass was the most common colour used to produce containers and tableware during this period, while colourless glass began production in the late 1st century, and was used almost exclusively for tablewares during the 2nd and 3rd centuries (Price and Cottam 1998, 15–6). One thin-walled colourless fragment (RA R8) with bubbles in the glass and shallow, horizontal linear decoration is likely to date to the 4th century (Fig. 17). Most of the forms cannot be identified due to fragmentary survival, but may include base (RA 97) and body (RA 12) fragments from two bottles and the shoulder of a possible cylindrical cup (RA 31). Vessel glass was present in Phases 3–6; two fragments (RA 122 and RA 123) from pit G12 (Phase 5) derive from the same vessel.

Handles
RA 32 (Fig. 17) is an incomplete one-piece bone implement handle, fashioned from a long bone shaft. The object is sawn and polished at one end, which has the remains of a transverse groove representing either decoration or a cut-mark. The object has been hollowed along its entire length, which, if for a tool or knife, would allow the tang to be clenched over. Similar examples have been recovered from the Romano-British settlement at Gorhambury, Herts. (Neal *et al*. 1990, fig. 141/975) and Colchester (Crummy 1983, fig. 110/2915), in features datable to the 2nd century. Although the object was recovered from the fill of a possible archaeological trench G22 (Phase 6), its association with securely dated Romano-British material suggests it may be of a similar date.

RA R7 (Fig. 17) is a damaged iron rod encased in a copper alloy sheet; it appears to be a bucket handle (*cf*. Neal *et al*. 1990, fig. 128/258). This utilitarian object is not closely datable, although parallels of 3rd-century date are known. The object was recovered from feature G127 (Phase 5).

Stud
A circular copper alloy stud head (RA 44) was recovered from possible archaeological trench G22 (Phase 6). The object is likely to have functioned

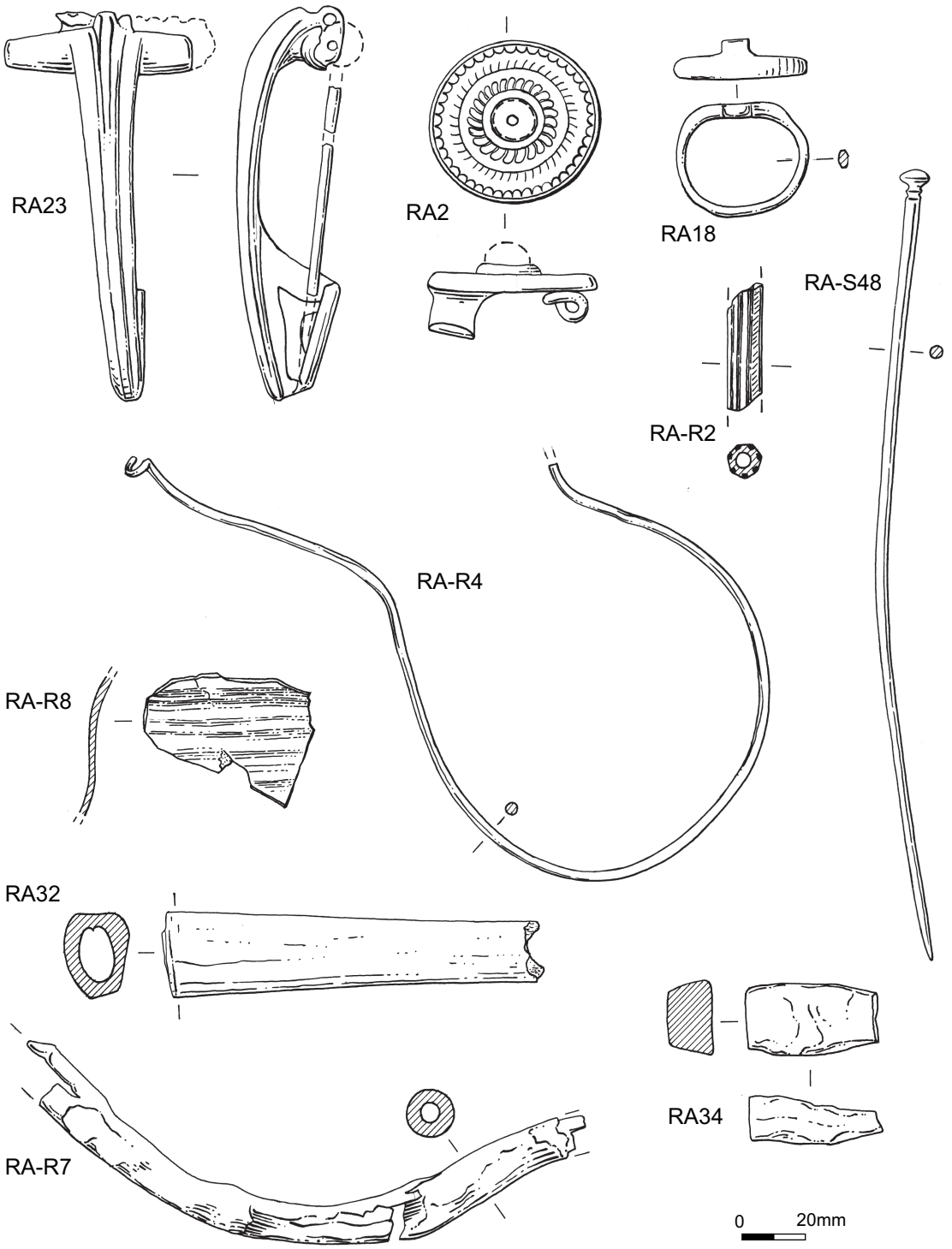


Figure 17: Selected non-ceramic artefacts

as an upholstery stud: its down-turned rim and perforated concave centre, in addition to being decorative, would have provided extra grip on the surface, presumably leather, into which it was set. Comparable examples are known from Gorhambury (Neal *et al*. 1990, fig. 129/286) and Colchester (Crummy 1983, fig. 120/3101).

Craft items

Spindlewhorl
An incomplete lead spindlewhorl (RA 36) derived from the internal walls G1.4 associated with aisled building L12 (Phase 3). The object is lathe-turned, with an estimated diameter of 40mm, but is highly degraded and survives in poor condition.

Mortise chisel
The mortise chisel is the most common form of Romano-British chisel, primarily intended for chopping mortises and for similar heavy work. RA S3 was recovered from quarry pits G114 (Phase 4).

Metalworking residues
A small quantity (39g) of redeposited ferrous slag was recovered, the majority deriving from ditch G17 and ovens G5 (Phase 1). The material is not indicative of a particular type of ironworking, but is more likely to be associated with small-scale smithing.

Personal items

Brooches
Two incomplete copper alloy brooches (RA 2 and RA 23) were recovered from topsoil remnants G35 (Phase 6). RA 2 (Fig. 17) is a 2nd-century disc brooch with a central blue glass stud and punched decoration. The brooch has a sprung pin as opposed to a hinged pin, suggesting native British manufacture (Hattatt 1987, 187). RA 23 is an undecorated Colchester two-piece bow brooch datable to the late 1st century (Fig. 17). This is one of the most common types recovered from Romano-British sites, while the disc brooch, although less prolific, is also a well represented type. An incomplete iron hinged brooch pin (RA S49) derived from re-cut boundary ditch G101 (Phase 3).

Bracelet
An incomplete, single-strand copper alloy wire bracelet with notched decoration (RA R4) was recovered from G127 (Fig. 17). The object is typical of the 4th century, and is similar to a find from Verulamium (Frere 1972, fig. 32 no. 35).

Bead
Trackway ditch G111 (Phase 3) contained an incomplete, cylindrical, opaque red glass/vitreous paste bead (RA R2, Fig. 17). The object is of unusual colour and manufacture. Opaque rust-red or terracotta cylinder beads are known from the late 3rd and 4th centuries (Guido 1978, 92), although cylindrical beads of this period are normally of green glass.

Hair pin
A complete copper alloy decorative hair pin (RA S48, Fig. 17) derived from the re-cut boundary ditch G101 (Phase 4). Dated to the 2nd century, this type is reminiscent of Type 2 bone pins which were also in production at that time (Crummy 1983, 30). Comparable examples are known from Colchester (Crummy 1983, fig. 30), Gorhambury (Neal *et al*. 1990, fig. 123/92) and Verulamium (Waugh and Goodburn 1972, fig. 34/60).

Finger Ring
Topsoil remnants G35 (Phase 6) yielded a cast copper alloy finger ring (RA 18, Fig. 17). The object is square-sectioned, and thickened on one side with a rectangular setting for a stone. Comparable examples are known from Gadebridge Park, Hemel Hempstead (Neal and Butcher 1974, fig. 60/117) and from a feature of 2nd-century date at Gorhambury (Neal *et al*. 1990, fig. 122/67).

Coins
Ten copper alloy coins of late Romano-British date were identified (Table 5). The small assemblage shows a 'normal' Romano-British concentration of coins from the late 3rd and 4th centuries. Four were recovered from topsoil remnants G35 and G36, with single coins from pits G21 and feature G127 (Phase 5). Four derived from enclosure ditch G100 (Phase 1) but are clearly intrusive.

Miscellaneous Objects

Ring
Topsoil remnants G35 (Phase 6) yielded a cast copper alloy annular ring (RA 19). The object is of sub-rounded section (37mm in diameter) and may

Phase	L	G	RA	Denom.	Date range	Comments
6	17	35	11	Radiate	268–274	Victorinus / Tetricus
	17	35	15	AE3	4th century	Illeg.
	17	35	16	AE3	4th century	Illeg.
	18	36	13	Radiate	260–268	Postumus
5	10.1	21.1	76	AE3	364–378	Valens
	22.3	127.3	R3	AE3	367–383	Gratian. Rev. GLORIA NOVI SAECVLI
1	1.1	100.2	R10	AE3 copy	353–364	as Hse of Constantine. Rev. FEL TEMP REPARATIO
	1.1	100.2	R11	AE3	347–348	Hse of Constantine. Rev. VICTORIAE DDNN AVGG QNN
	1.1	100.2	R12	Barb. radiate	270–290	as Victorinus
	1.1	100.2	R13	Barb. radiate	270–290	Uncertain emperor

Table 5: Provenance of the Roman coins

have functioned as a harness or cart ring, or a ring handle on furnishings. The object is typologically undatable and it is possible that it may be of post-Romano-British date.

Dress pin or sewing needle
A distorted section of a copper alloy tapering shank (RA 49) was recovered from possible archaeological trench G22 (Phase 6). As the object lacks both a head and tip, its precise function can only be suggested. It is likely to have been part of a dress pin or sewing needle, the shanks of which are of similar dimensions.

Toilet implement
Ditch G119 (Phase 3) contained a strip of folded sheet copper alloy (RA R1), possibly representing the shaft of a toilet spoon. RA R1 is similar to an example recovered from Colchester (Crummy 1983, fig. 64, 1898), although is too fragmentary to be fully identified.

Tack or nail
The lower portion of a square-sectioned, tapering copper alloy shank (RA 80) was recovered from building debris G2.3 (Phase 4). Recorded dimensions are comparable with those of small nails or tacks recovered from Colchester (Crummy 1983, figs 118 and 119), and it is possible RA 80 is an incomplete example.

Unidentified objects

Iron
Phase 4 layer G3.1 yielded an incomplete artefact (RA 74) which may be part of a drill-bit. The object comprises a small portion of a square-sectioned, tapering iron stem, expanding into a lozenge-shaped terminal.

Ceramic
RA 34 (Fig. 17) was recovered from internal walls G1.4 (Phase 3) in association with a quantity of building material (mortar, *opus signinum*, wall plaster and a *tessera*). It is a small, wedge-shaped piece of fired clay, which has one smoothed face with a possible whitewash skim, and retains traces of mortar on all other faces. A suggested function may be as a spacer or wedge in a tessellated pavement, or even as a small *tessera* (dimensions 10 x 10mm).

ANIMAL BONE
Mark Maltby

Introduction and methodology

All the animal bones recovered from both hand-collected and sieved samples were examined as part of the post-fieldwork assessment. The small size of the assemblage from each phase restricted the analysis to a consideration of species representation in the different periods and comments upon other interesting aspects of the assemblage. The bone from all phased contexts was recorded on to a database, which is retained with the assessment and final report in the project archive.

Quantification and preservation

A total of 1,556 fragments were recovered (including 276 from sieved ecofactual samples), of which 738 (48%) could be identified to species. The identified specimens include 235 from associated bone groups representing six partially preserved skeletons or other discrete depositions.

Most of the assemblages survive in a moderate state of preservation, although it does vary slightly

across the different projects. Over 14% of the ASH773 assemblage shows evidence of surface erosion and nearly 4% can be described as weathered. The assemblages from the other projects are slightly better, particularly from SLS893. The highest incidence of erosion and weathering was found on the Phase 1 assemblage, reflecting greater surface damage.

Gnawing damage was recorded on 10% of the identified specimens. This is in fact a relatively low incidence of damage compared with many sites. The discovery of a number of partial skeletons undamaged by gnawing indicates that these belonged to animals probably buried shortly after death.

Burnt fragments form almost 9% of the ASH773 assemblage. Higher percentages of burnt fragments from Phases 1 and 3 largely reflect the greater incidence of calcined and charred bones amongst the sieved samples. Unsurprisingly, the highest concentrations of burnt bones were found in contexts associated with the fills of the Phase 1 ovens G5.

Species present

Species present in the main assemblage include cattle, sheep/goat, horse, pig, dog, red deer, roe deer, hare, and bird, including domestic fowl (Table 6). Among the fragments identified to species, cattle remains are the most abundant (52%), followed by sheep/goat (25%), horse (9%), pig (8%), then dog (3%). The majority of the bird assemblage is represented by domestic fowl, and, together with other species such as small mammals, deer, hare and frog/toad, represents 3% of the identified species.

Provenance

The bone assemblage comprises material from contexts within all the identified phases (Table 6). The bulk of the material is of Romano-British date with the majority (291 fragments) coming from Phase 3 deposits (mid-2nd to 3rd century) associated with the aisled building. The later Romano-British period (Phases 4 and 5) produced a total of 259 identified fragments with the smallest sample (186 fragments) from Phase 1 (late Iron Age/early Romano-British).

There is an increase in the presence of cattle in Phase 3 compared to Phase 1 along with a slight increase in the relative abundance of sheep/goat. Horse was found in Phases 1, 3, 4 and 5 and its representation is fairly typical of rural Romano-British assemblages (Maltby 1994). There was a decrease in the presence of pig after Phase 1, although the samples are too small to confidently suggest a genuine decline in importance over time. This pattern of species representation is fairly

	Phase					Total
	1	2	3	4	5	
Cattle	74	1	107	102	28	312
Sheep/Goat	39	-	35	32	10	116
Pig	17	1	13	2	5	38
Horse	5	-	20	12	6	43
Dog	45	-	99	24	9	177
Red Deer	2	-	1	-	1	4
Roe Deer	-	-	-	2	1	3
Hare	-	-	-	3	1	4
House Mouse	-	-	1	-	-	1
Shrew	-	-	-	-	1	1
Small Mammal	-	-	3	1	9	13
Frog/Toad	1	-	3	-	1	5
Dom. Fowl	1	-	7	3	4	15
Duck	-	-	1	-	1	2
Goose	1	-	-	-	-	1
Wader	-	-	1	-	-	1
Corvid	1	-	1	-	2	4
Unid. Mammal	188	1	341	190	93	813
Unid. Bird	-	-	1	2	2	5
Total	374	3	597	90	174	1,556

Table 6: Animal species by Phase (fragment count)

typical of Romano-British rural settlements, which are usually dominated by sheep/goat and cattle with a low incidence of pigs (King 1999) and tend to have horse occurring more commonly than on urban settlements (Maltby 1994). The relative species abundance in the Romano-British phases is similar to other assemblages of this date from the region, *e.g.* Milton Keynes (Mynard 1987, 180–91), Luton Road, Wilstead (Luke and Preece, this volume) and, in particular, Marsh Leys Farm, Bedfordshire (Albion Archaeology 2002).

Cattle

Cattle bones are the most commonly identified species in Romano-British assemblages, and provide over half of the identified fragments in each phase. This evidence could suggest that beef was the most important component of the meat diet.

Five cattle vertebrae and a rib from the same animal were found in the Phase 3 enclosure ditch G11 (L30). The final infilling of one of the quarry pits G114 (L25, Phase 4) contained sixty-seven cattle bones, many of which appear to belong to the remains of one adult animal. No evidence of butchery was identified on these assemblages and although it is possible that the cattle remains from the enclosure ditch may be butchery waste, the bones from the quarry pit appear to be from a single carcass that was originally buried elsewhere.

Out of the seventeen cattle mandibles and maxillae that provided tooth eruption evidence, six (five from Phase 1 and one from Phase 3), were killed prior to the full eruption of the second molar and belonged to cattle under eighteen months of age. Another Phase 1 specimen belonged to a slightly older animal with early wear on the second molar. A Phase 3 mandible also has only the first two molars in wear and another from the same phase has only early wear on the third molar. Eight (three from Phase 1, three from Phase 3 and two from Phase 4) have fully erupted tooth rows and belonged to adult cattle. This is an unusually high incidence of immature cattle for a Romano-British settlement; however, this is based on a small sample. The epiphysial fusion data confirm that both immature and mature cattle were present.

Metrical data include a fairly complete cattle humerus (G13, Phase 1), which provides a withers height estimate of 113cm (von den Driesch and Boessneck 1974). This falls within the range of measurements obtained from contemporary sites in the region. A metacarpal from the Phase 1 enclosure ditch G100 was of a similar size (114cm) while a radius from Phase 3 ditch G119 belonged to a substantially larger animal with an estimated withers height of 138cm.

Sheep/Goat

Sixteen of the 116 sheep/goat bones and teeth were positively identified as sheep, whereas only four bones were tentatively identified as goat. Therefore, most of the sheep/goat assemblage can be assumed to have belonged to sheep. Five of the seven mandibles with toothwear evidence belonged to relatively old animals, all having heavy wear on their first molars. One mandible still possesses its deciduous premolars and belonged to a sheep under eighteen months old. A lamb of about 3–4 months old is also represented.

Butchery marks were recorded on four sheep/goat bones. Two humeri (one each from Phases 3 and 5) bear knife cuts on their shafts. Another humerus (from Phase 5) was chopped through the distal end in a similar way to a radius from Phase 4. Only six sheep bones provided measurements, all of which fall within the range of measurements from contemporary sites. Two sheep horn cores were recovered. There is no evidence for the presence of hornless sheep.

Horse

Horse was found in Phases 1, 3, 4 and 5. The proportion of horse to cattle (15% excluding associated bone groups) is relatively high and is fairly typical of rural Romano-British assemblages (Maltby 1994). No butchery marks were observed on any of the horse bones. Estimated withers heights of 152cm and 144cm were derived from lateral length measurements (245m and 230mm) of metacarpals (Phase 3 and 4 respectively). A Phase 3 radius and tibia with greatest lengths of 333mm and 342mm respectively also belonged to quite large individuals of about thirteen hands. A mandible from Phase 3 belonged to an adult animal. A second mandible from Phase 4 still possesses some of its deciduous teeth and belonged to a male animal that died around 3–4 years of age. The limited fusion data indicate that nine of the bones came from adult animals whereas two belonged to immature beasts under four years of age.

Pig

Although pig was represented in all phases, their relatively low percentage is typical of most Iron Age and Romano-British samples from

Bedfordshire. They are better represented (13%) in Phase 1 deposits but this and later samples are too small to be confident that they declined in importance in the subsequent phases. Only four mandibles (three from Phase 1 and one from Phase 3) provide tooth ageing data; they all belonged to immature animals probably culled in their second year. Knife cuts were observed on the distal end of a humerus and a proximal end of a radius (both Phase 1), made during disjointing.

Dog

Apart from the partial skeletons described below, dogs are represented by only fifteen bones. A left femur, tibia and fused fibula of a fairly small, stocky specimen were found in Phase 5 enclosure ditch G106. No butchery marks were noted on any of the dog bones.

A partial dog skeleton, of which forty-three bones were recovered, was found in the Phase 1 enclosure ditch G100. However, most of the small bones and the head are missing. Epiphysial fusion data indicate that the skeleton belonged to an immature animal that died in its second year. Ninety-two bones of a dog skeleton were recovered from a Phase 3 quarry pit G115. The skeleton survived largely articulated, although the head and upper part of the neck were absent. A further twenty-two bones from the skeleton of an adult dog were found in the Phase 4 robber trench G2.4 and five bones from the jaws and skull of another dog were found in a Phase 5 pit G12.

The presence of these dog skeletons indicates that this species was not exploited for food as their carcasses were buried shortly after death, nor do any of the dog bones exhibit evidence for butchery or gnawing. However, as only two of the dogs were found to have the head associated with the body there is a possibility that the others may have been decapitated. This could just be a coincidence, but the idea that these dogs were associated with ritual deposition cannot be ruled out.

Domestic fowl

Fifteen of the twenty-two bird bones recovered were identified as domestic fowl. Although represented by only a few bones, the percentage of domestic fowl in this sample is high compared with many rural Romano-British assemblages. The sample includes three bones of immature fowl, implying they were being kept at the settlement. Five bones provided measurements, all of which confirm that the fowl were quite small, typical of the period.

Wild species

Bones of at least five other avian species were recorded. A corvid femur, probably from a crow, was found in the Phase 1 enclosure ditch G10, while a scapula and coracoid of a smaller corvid (*cf.* jackdaw) were recovered from Phase 5 enclosure ditch G106. A tibiotarsus of a duck was found in one of the post-pits G2.7 of the Phase 3 aisled building. The bone is incomplete, so it was not possible to identify it to species, although its size suggests it is either from a small mallard or a slightly smaller species such as widgeon. A duck tarsometatarsus was found in Phase 5 pit G122; its length (47.3mm) indicates it probably belonged to a mallard or domestic duck. A tarsometatarsus of a grey lag or domestic goose was recovered from Phase 1 ditch G102. A segment of a tibiotarsus of a wader was found in a post-pit G1.2 of the Phase 3 aisled building; again, it was not possible to identify this to species. No evidence of butchery was noted on any of these bird bones.

Four bones of red deer were identified, one of which comprises the distal end of a metacarpal from the Phase 1 enclosure ditch G11. The bone has been sawn transversely through the shaft and the marks suggest that it is an offcut from bone-working. Other specimens identified as red deer consist of a first and second phalanx and a metatarsal shaft. Three bones were identified as roe deer and two small fragments of roe deer metatarsals were recorded from Phase 4 and 5 deposits. A sieved sample from Phase 4 quarry pit G114 produced a fragment of roe deer antler, along with two lumbar vertebrae of a hare.

The mandible of a house mouse was recovered from one of the post-pits G2.7 of the Phase 3 aisled building. A mandible of a shrew was recovered from Phase 5 pit G122 and five frog/toad bones were recovered, including four from sieved samples. Frog was positively identified in a Phase 5 sample.

HUMAN BONE

Mark Maltby

Two fragments from a human femur and a tibia were recovered from the Phase 4 robber trench G2.4 associated with the aisled building. Both are unfused and very porous and almost certainly belonged to the same individual. The femur has a diaphysial length of 78.6mm and a distal diaphysial breadth of 21.2mm. The length provides

an age estimate of 39.5 +/- 2.08 weeks. The diaphysial length of the tibia is 69.1mm, providing an age estimate of 40.5 +/- 2.12 weeks (Scheuer & Black 2000). In addition, comparison with published length measurements suggests that these bones are the size of, or slightly larger than, those in a ten-month foetus (Fazekas & Kosa 1978). Therefore, these remains appear to belong to a perinatal mortality.

CHARRED PLANT REMAINS

Jenny Robinson

Introduction

A total of twenty-nine ecofactual samples were taken for charred plant remains. Although control samples were taken, the low number reflects the small number of deposits that visibly contained charred remains. Following assessment, fifteen samples were subject to further analysis and are reported on below.

Methodology

Samples were processed by bulk flotation on to a 0.25mm mesh, dried and then scanned under a binocular microscope. Macroscopic plant remains other than charcoal were identified at up to x50 magnifications. The results are presented in Tables 7 and 8, nomenclature following Clapham *et al*. (1987). Charcoal from these samples was broken transversely and examined at up to x50 magnifications. If necessary, it was also sectioned radially and tangentially and examined at up to x40 magnifications using a petrological microscope.

Discussion

Phase 1: Late Iron Age/early Romano-British
The majority of the late Iron Age/early Romano-British samples examined were associated with ovens G5 and associated pits G13. Ecofactual samples 8/9 and 10/11 from one of the ovens contained glumes of *Triticum spelta* (spelt wheat), which may have been waste from the de-husking process. A single grain of *Hordeum* sp. (hulled barley) was also present. The oven also contained seventeen stones of *Crataegus* cf. *monogyna* (hawthorn). It is possible that their occurrence was the result of hawthorn branches with berries on them being used as fuel rather than representing food being processed. Only a small quantity of charcoal was recovered.

Ecofactual sample 4 from two of the pits G13 contained cereal grain including *T. spelta* (spelt wheat). A few weed seeds commonly associated with cereal cultivation and a nut shell fragment of *Corylus avellana* (hazel) were also present, along with a high quantity of charcoal of Pomoideae (hawthorn, apple *etc*.). Ecofactual sample 15, taken from enclosure ditch G10, contained cereal grain including *Hordeum* sp. (hulled barley) and a single *Triticum* sp. (wheat). Charcoal of *Fraxinus excelsior* (ash) was found in one of the G6 pits (ecofactual sample 18).

Phases 3 and 4: Romano-British
Ecofactual samples 1, 2, 5, 6, 22 and 24 (not all analysed) were taken from the post-pits/pads G1.2 and G1.8 and their subsequent infilling G2.7 and G2.6, respectively, of the first and second aisled buildings. All contained large quantities of *Quercus* sp. (oak) charcoal, but no other species were present. This suggests that the wood used for the aisle posts was oak and that some had been burnt *in situ*. Only sample 24 contained cereal grain, including *T. spelta* (spelt wheat).

Phase 5: Late Romano-British
Only ecofactual sample 13 from pit G12 was analysed. It contained a large quantity of *Corylus avellana* (hazel) charcoal and some of Pomoideae (hawthorn, apple *etc*.).

MOLLUSCS

Jenny Robinson

Marine mollusc shells of *Ostrea edulis* (oyster) and *Mytilus edulis* (common mussel) were recovered by both hand excavation and from ecofactual samples. They were mainly identified in Romano-British deposits (Phases 3 and 4), a period when there was a large-scale trade in oysters from the coast. However, both oyster and common mussel shells were also found in late Iron Age/early Romano-British deposits (Phase 1). Their presence in this phase would support the view that the Phase 1 settlement continued in use after the Roman conquest.

		Phase 1			Phase 3		
	Sample	4	8/9	10/11	15	24	
	Land-use area	2.1	2.1	2.1	1.2	4	
	Group	13.2	5.1	5.1	10.2	1.2	
	Volume (litres)	20	23	45	30	10	
CEREAL GRAIN							
Triticum spelta L.	spelt wheat	8	–	–	–	1	
T. dicoccum Schübl. or *spelta* L.	emmer or spelt wheat	35	–	3	–	4	
Triticum sp.	wheat	7	–	–	1	–	
Hordeum sp. — hulled	hulled barley	–	1	–	7	–	
Hordeum sp.	barley	–	–	–	2	–	
Cereal indet.			59	4	1	11	7
CEREAL CHAFF							
Triticum spelta L. — glume	spelt wheat	–	31	–	–	–	
T. dicoccum Schübl. or *spelta* L.— glume	emmer or spelt wheat	–	38	–	–	–	
OTHER SEEDS							
Vicia or *Lathyrus* sp.	vetch or tare	3	–	–	–	–	
Crataegus cf. *monogyna* Jaq.	hawthorn	–	–	17	–	–	
Corylus avellana L.	hazel	1	–	–	–	–	
Galium aparine L.	goosegrass	1	–	–	–	–	
Bromus cf. *secalinus* L.	brome grass	–	1	–	–	–	
weed indet.		3	–	–	–	1	
Total		**117**	**75**	**21**	**21**	**13**	

Table 7: Charred Plant Remains (excluding charcoal) from analysed samples

		Phase 1		Phase 3			Phase 4		Phase 5
	Sample	18	4	5	1	2	6	22	13
	Land-use area	2.1	2.1	12	12	12	8	8	16.1
	Group	6.1	13.2	1.8	2.7	2.7	2.6	2.6	12.1
	Volume (litres)	15	20	8	25	20	8	10	40
Pomoideae indet.	apple, hawthorn, *etc.*	–	+++	–	–	–	–	–	++
Corylus avellana L.	hazel	–	–	–	–	–	–	–	++++
Quercus sp.	oak	–	+	+++	+++	+++	+++	+++	–
Fraxinus excelsior L.	ash	+++	–	–	–	–	–	–	–

+ present, ++ some, +++ much, ++++ very much

Table 8: Charcoal from analysed samples

DISCUSSION OF THE ROMANO-BRITISH SETTLEMENT

Mike Luke and Tracy Preece

INTRODUCTION

The majority of the recently uncovered archaeological remains reported on in this article are associated with a late Iron Age/Romano-British settlement (Phases 1–5). They correspond with discoveries made in this part of Shefford in the 19th and 20th centuries — unfortunately not all published in detail. The most significant of these was made by Thomas Inskip in the first half of the 19th century, when he identified in two separate locations what he believed to be a walled cemetery and temple (Inskip 1844 and 1850; Dryden 1845). Investigations undertaken by Mr Gray in the 1940s also located a building (Davis, undated).

Where relevant, the results of the earlier investigations are incorporated in the following discussion. It should be borne in mind that the information on the earlier work is limited, and that the more recent investigations were undertaken in a piecemeal fashion, as part of several different building developments.

Origins and development

Despite the presence of late Bronze Age/early to middle Iron Age pottery, the earliest firm evidence for settlement is late Iron Age/early Romano-British in date (Phase 1). It comprised a large ditched enclosure which contained a possible roundhouse and domestic foci. The 'Belgic' pottery assemblage which it produced is characterised by wheel-thrown vessels tempered with grog or grog/sand. The settlement originated prior to the Roman conquest, although the longevity of 'Belgic' forms and fabrics makes precise dating impossible, as on other sites in the area, *e.g.* Haynes Park (Wells 2004, 90–1). Some of the samian, including decorated material, appears to have been arriving on the site by the early Flavian period (AD69+), and early Roman influences are further indicated by the presence of oyster and common mussel shells, which became much more common after the Roman conquest.

During the 2nd century AD (Phase 3), the original enclosure remained in use and may have been part of a larger enclosure system that included a trackway. An aisled building and two other timber buildings were constructed within the original enclosure. Notably less 'Belgic' Iron Age pottery was recovered; the assemblage spans the entire Romano-British period, suggesting the enclosure continued in use until the late 3rd century (Phase 4), but diagnostic forms are predominantly datable to the late 1st and 2nd centuries.

In the later Romano-British period (Phase 5), a new enclosure was established on a similar alignment to that of the earlier system. Probable domestic activity is indicated by the presence of pits and postholes, although no buildings were identified. The pottery assemblage does not provide a precise date for this activity, but does include imported late Roman regional fine wares and characteristically later forms amongst the coarse wares. Other than noting their presence, nothing can really be said about the recovery from the 1820s investigations of two gilt bronze saucer brooches of the Anglo-Saxon period (Kennett 1970, 203).

Settlements and roads in the vicinity (Fig. 1)

At the time of Simco's survey of the Roman period in Bedfordshire, published in 1984, very few remains were known in the vicinity of Shefford. The evidence was dominated by the antiquarian discoveries discussed here and the site of Stanfordbury, the latter comprising mid 1st-century burials, including vaults, which were presumably associated with a high status settlement (Simco 1984, 116–7). The nearest site with evidence for settlement throughout the Romano-British period was in Meppershall; like Shefford, its origins lay in the pre-conquest period (Wilson 2003). However, many of the nearby undated cropmark enclosures, visible on aerial photographs, may also be contemporary settlements. The most dramatic evidence for possible settlement densities in this area was found in the vicinity of extensive investigations at Broom, where crop-marks have identified a series of Romano-British settlements spaced at *c.* 400m intervals along the River Ivel floodplain (Cooper and Edmonds 2007, fig. 6.4).

A brief mention should be made of the Roman roads proposed in this area by the Viatores (1964). They suggested that Shefford was on a crossroads between west–east road 176 (Viatores 1964, 288 and map on 446) and north–south road 210 (Viatores 1964, 252 and map on 456). However, the majority of their road layout has been convincingly dismissed by Simco (1984, 78–9): much of their evidence comprised straight roads, tracks and hedgelines which 'were only created at the time of Enclosure and could not be Roman in origin' (Simco 1984, 78). The Viatores also suggested that another road, 223, headed north from the area of Inskip's and Gray's discoveries (Viatores 1964, 262 and map on 482); this would be broadly in the position of trackway L23 within the investigations. Again, however, their evidence, at least south of the River Flit, was based on a straight hedgerow which was not shown on the 1799 map and is therefore likely to be later in date. It is more probable that L23 was a trackway providing access through the settlement to the floodplain to the north, and not part of a larger road system.

Extent and nature of the settlement (Fig. 18)

The combined results of the antiquarian and recent archaeological investigations suggest that the settlement was probably *c.* 3ha in extent. Evaluation trenches have established the limits of the settlement to the north, east and south but not to the west. Only 0.22ha, *c.* 7% of the probable settlement area, has been subject to open area excavation, with some additional evidence from

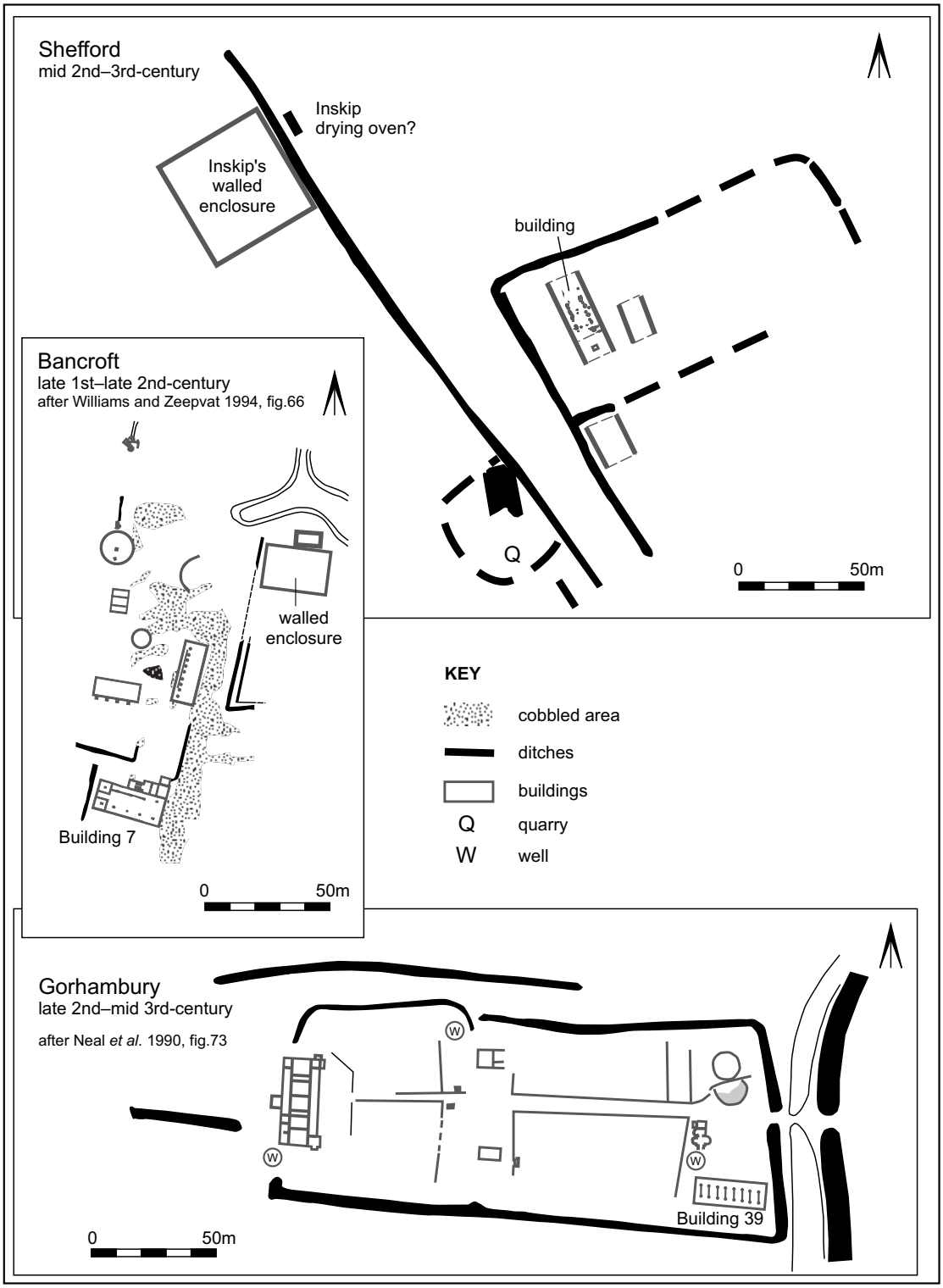


Figure 18: Comparison of settlement plans for Shefford, Bancroft and Gorhambury

evaluation trenches. These limiting factors should be borne in mind in the following discussion.

The precise nature and date of the Phase 1 late Iron Age/early Romano-British ditched enclosure L1 is uncertain because only two sides were identified with any degree of confidence. If the identification of a third side in an evaluation trench is correct, an area of 126m SW–NE by at least 100m NW–SE would have been enclosed. This is comparable to the enclosures at Gorhambury, Herts., which also originated in the late Iron Age (Neal et al. 1990, 11–14 and fig. 12). No gaps or any other evidence for entranceways were identified in the Shefford enclosure ditches.

The large enclosure at Shefford featured an internal subdivision, approximately 55m from the northern ditch. This part of the enclosure contained domestic activity foci L2 and L3, c. 15m apart, which included a possible roundhouse, a hearth, ovens and pits. The internal division was maintained for some time as its ditch was re-cut at least twice. The absence of other ditched subdivisions within the enclosure is comparable to Gorhambury (Neal et al. 1990).

Evidence for activity within the Phase 3 early Romano-British enclosure L30 is dominated by the construction of an aisled building L4. Separating this from the adjacent possible timber building L41 was a cobbled yard L6, with another possible post-built building L21 situated 30m to the south.

A trackway L23 was defined by the western ditch of the large enclosure and several other ditches c. 24m to the west. It was considerably wider than trackways associated with other farmsteads in the vicinity, e.g. Biddenham Loop (Luke 2008), and no surfacing was identified. However, the absence of contemporary features between the ditches does suggest that this land was used as a routeway. Similarly sized examples associated with the Roughground Farm (Glos.) villa complex were interpreted as droveways (Allen et al. 1993, 199 and fig. 115). At Shefford, this routeway may have provided a means to move animals onto and off the floodplain to the north. Such an arrangement has been identified at numerous late Iron Age/early Romano-British settlements adjacent to river floodplains, e.g. Biddenham Loop (Luke 2008) and Broom (Cooper and Edmonds 2007, fig. 6.4). The land to the west of the routeway at Shefford was utilised for quarrying and, on the evidence of Inskip's investigations, for burial. There is also sufficient domestic debris in the western routeway ditches to suggest additional buildings may have been located in this area.

Settlement continued into the later Romano-British period (Phase 5), when a new enclosure L9 was established. It was situated in the same location as the earlier one, and on approximately the same alignment. Only the northern part of the enclosure, in the vicinity of the earlier aisled building, produced evidence for contemporary activity, which comprised pits, postholes and gullies L10, L16 and L22.

Components of the settlement

All the components of the settlement, *e.g.* buildings, cobbled surface/yard, ovens/hearths, quarry pits, other pits, postholes and Inskip's walled enclosure, are discussed below, irrespective of their phase assignment.

Aisled buildings L4 and L12

An aisled building and its replacement were the most substantial buildings to be identified (Fig. 19). The main surviving evidence comprised stone footings for the two side walls and two rows of internal post settings (pits in the earlier building, pads in the later). The front cover shows a representative illustration of how the later building may have appeared.

Layout

The building and its successor were orientated NW–SE, and were 12.5m wide and at least 18m long. Their full length could not be accurately determined because they continued beyond the limit of the ASH773 excavation. However, there is some evidence to suggest that the posts settings located within the ASH773 watching brief defined the northern end (see below). The evidence from the antiquarian investigations to the south extends the length of the building by at least 6m (based on their published measurements) but more probably by at least 10m (based on their plan) (Fig. 19). Therefore, with a length of at least 28m, the Shefford building is comparable to building 7 at Bancroft (Fig. 20), which was 29m by 12.5m (Williams and Zeepvat 1994, 135–40), and building 39 at Gorhambury, which was 29m by 11m (Neal *et al*. 1990, 61).

The Shefford building featured external walls, of which only the foundations survived, and substantial internal posts which would have supported

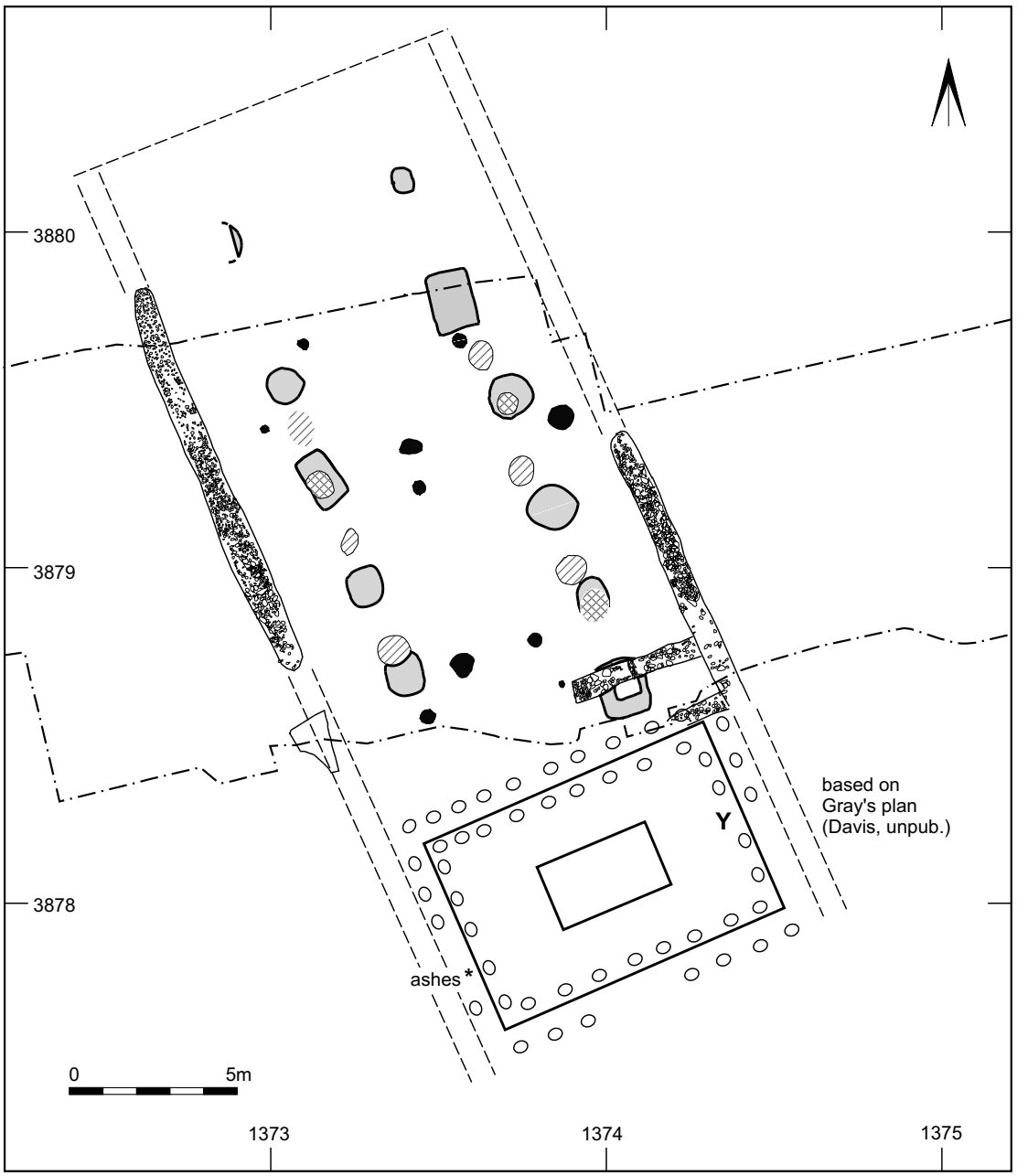


Figure 19: Combined plan of aisled building showing antiquarian information

the weight of the roof. It was a 'classic' aisled building, of which many are known from Roman Britain (Morris 1979, 66–70; Hingley 1989, 39–45), although this is the first from Bedfordshire. The posts divided the interior into a *c*. 6m wide central nave and two *c*. 2.5m wide aisles. A nave that was at least twice the width of the aisles is common to the majority of aisled buildings known in Britain (Morris 1979, 64).

As revealed within the ASH773 excavation, much of interior of the Shefford building comprised a large, apparently undivided room. This is common to most aisled buildings, *e.g*. building 7 at Bancroft (Williams and Zeepvat 1994, 135 and fig.

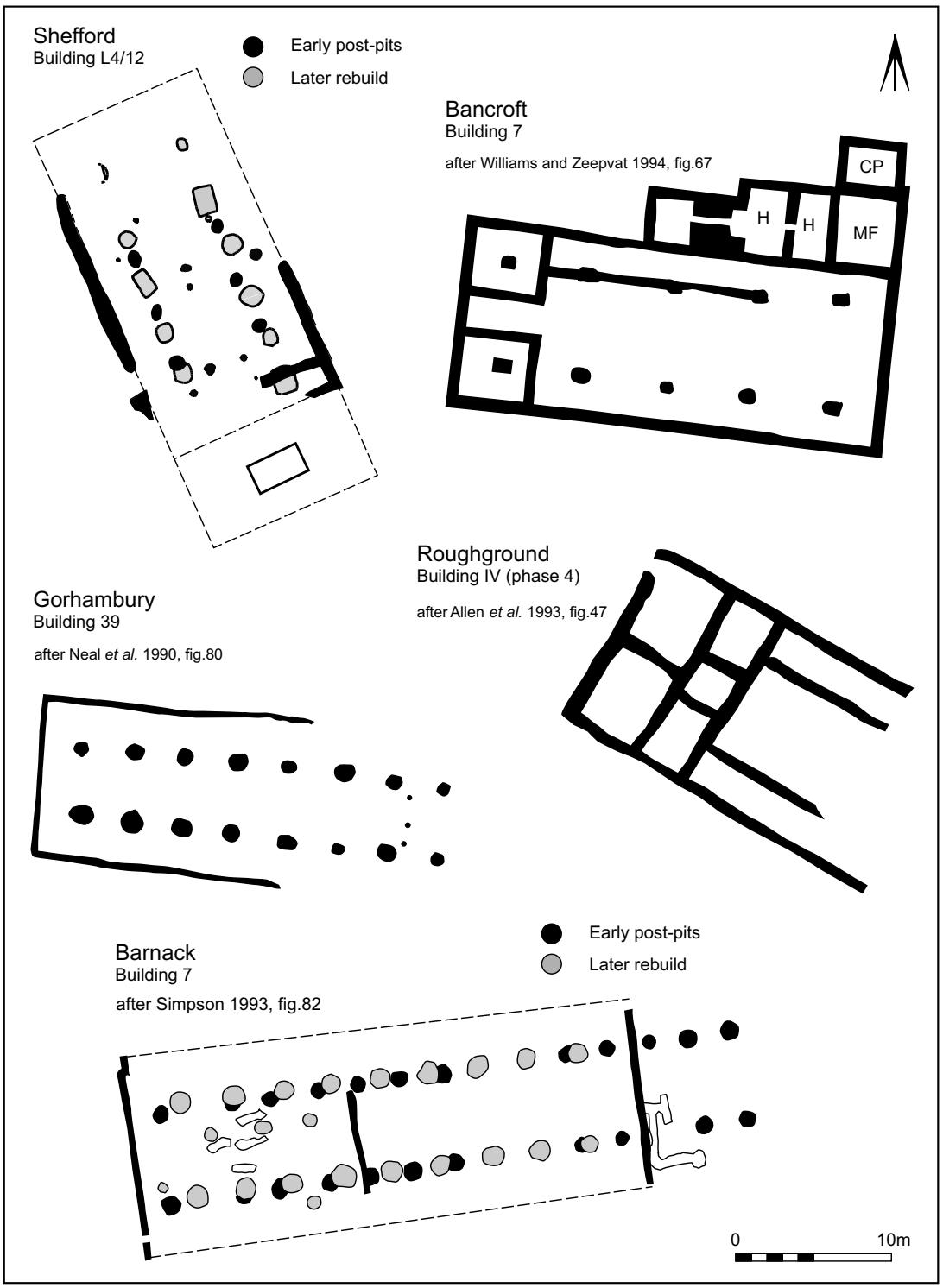


Figure 20: Comparison of aisled building plans for Shefford, Bancroft, Barnack, Gorhambury and Roughground

67), building 39 at Gorhambury (Neal *et al*. 1990, fig. 80) and Barnack, Cambs. (Simpson 1993, figs 81 and 82) (Fig. 20). Stone footings are evidence for an internal partition towards the south of the building, while a number of small postholes also survived. However, the floor levels did not survive, and it is possible that evidence for further wooden partitions might have been lost through truncation

The southern part of the building appeared to have been disturbed by the earlier investigations of Inskip and Gray. The results of both their work and the recent investigations suggest that the southern part of the building was significantly different to the northern part (see below).

Dating

The pottery assemblage from packing within the post-pits is dominated by 2nd-century material. More specifically, seven sherds of central Gaulish samian of probable early to mid 2nd-century date were recovered from secure and uncontaminated packing deposits, suggesting a construction date in the middle of the 2nd century AD. Building 7 at Bancroft was dated to the late 1st to late 2nd century, and building 15 at Gorhambury to the early Roman period (Neal *et al*. 1990, 32 and 34). Hingley believes that, while aisled buildings were known in 1st- and early 2nd-century Britain, they did not became common until the second half of the 2nd century (Hingley 1989, 39).

There is no conclusive artefactual dating for the alterations to the aisled building. However, it was probably abandoned by the late 3rd/early 4th century, as no artefacts of a later date were recovered.

External walls

Although the side walls of the building were located, the end walls did not fall within the ASH773 excavation. The surviving stone footings within the wall trenches G1.1 were 0.8m wide (Fig. 7). They comprised a lower course of closely packed flint cobbles and, in the eastern wall only, a second course of sandstone slabs. The surviving footings were not mortared, although fragments of mortar were found in the vicinity of the building. The absence of large quantities of stone rubble in and around the building might suggest that the walls were mainly wooden. The side walls of many aisled buildings often appear to have been insubstantial: building 40 at Gorhambury displayed 'impressions of sleeper beams' (Neal *et al*. 1990, 61), while no obvious trace of the side walls survived at Barnack (Simpson 1993, 107 and 109). The external walls of those buildings were probably not load-bearing, but the more substantial nature of the Shefford footings suggests that they may have been.

Possible entrances

Although two entrances into the Shefford building are postulated, neither is particularly convincing. An apparent 1.5m gap in the west wall trench could indicate the position of an entrance (Fig. 7); however, the north stretch of the trench narrows and shallows towards this point, suggesting that the gap may be the result of truncation. It would certainly be unusual for a gap to be left in a foundation trench in anticipation of the later construction of a doorway. The evidence provided by stone setting G3.2, adjacent to the eastern wall, is slightly more credible (Fig. 7). It was 1m long by 0.7m wide and contained fragments of sandstone and tile set in mortar. Similar features have been found elsewhere, *e.g*. building 30 at Gorhambury (Neal *et al*. 1990, fig. 64), and they may be the foundations for external steps associated with doorways. Where comparable settings occur in pairs, *e.g*. Rapsley, Surrey, they have been interpreted as projecting doorposts (Hanworth 1968, 23 and fig. 6). The building at Rapsley also featured similar, regularly spaced settings that were interpreted as buttresses. The presence of only one makes this interpretation unlikely in the case of the Shefford building.

Aisle posts of building L4

Eleven post-pits G1.2 are interpreted as part of the original roof support (Fig. 9). They were spaced at 3m intervals, a significantly smaller distance than the 5m spacings of building 7 at Bancroft (Williams and Zeepvat 1994, 135–40) (Fig. 20). This may reflect the fact that the Shefford building had less substantial external walls. Although investigated within a watching brief, it may be significant that the northernmost pair of aisle posts were 4.2m from the next pair; at Barnack, the last pair of posts at one end of the building were 'almost twice the usual distance from their neighbours' (Simpson 1993, 124).

The Shefford post-pits were mostly oval in plan and around 1m long. It is unclear why two were rectangular, *c*. 1.2m by 1.7m in size; they may originally have been dug as inspection pits or they may indicate the replacement of original post settings. All the post-pits were *c*. 0.9m deep with

nearly vertical sides and fairly flat bases. The oval pits were closely comparable in shape, profile and size to those at Barnack (Simpson 1993, 107).

The post-pipes were typically 0.4–0.5m in diameter, larger than both the 0.3m posts of building 40 at Gorhambury (Neal *et al*. 1990, 61) and the *c*. 0.4m posts at Barnack (Simpson 1993, 107). At least four of the post-pipes at Shefford had evidence for stones or tiles at their base. This is likely to have been deliberate and was also noted at Barnack, where they were interpreted as 'levelling-up stones' (Simpson 1993, plates XXVI and XXVII). They would also have helped to preserve the posts by slowing down rotting of the base. The substantial nature of the Shefford posts again suggests that they were designed to support virtually the whole weight of the roof.

The packing material comprised clay, sandstone and some flint, all of which would have been available locally. Clay and stones were also used to pack the posts of building 40 at Gorhambury (Neal *et al*. 1990, 61) and at Barnack (Simpson 1993, 107).

Amendments to the aisle posts of building L4

At least three of the original posts (including one pair) were subject to alteration, with stones G1.3 being placed over the post-pipes (Fig. 9). The arrangement of the stones — especially in the pair, where there was evidence for rough coursing — suggests that they were post-pads. It is possible that the original posts had been completely removed, with the pair perhaps indicating major changes to a cross-beam. However, it is also possible that the posts had simply been sawn off at ground level and the stones packed in underneath. At Barnack, stones were 'piled on top of' posts that had been sawn off, but no explanation is suggested (Simpson 1993, 109).

Aisle posts of the reconstructed building L12

The aisle posts of the original building L4 were replaced by posts set on stone pads G1.8 (Fig. 9). The dating and reason for the rebuild is uncertain, but there is evidence to suggest that some of the original posts were burnt in situ.

The overall plan and dimensions of the building remained the same, and it is possible that the side walls, at least at foundation level, were unaffected. Two rows of paired post-pads were constructed at 3.5m intervals in between the original post-pits. The pads were typically circular, *c*. 0.85m in diameter and 0.2m deep. They contained at least one course of sandstone, generally laid flat and set in a silty clay. One of the post-pads had a stratigraphic relationship with an original post-pit, demonstrating that it was later in date. The fact that the original positions of the posts were not reused could suggest that they, along with the roof, remained intact in some form while the new posts were inserted.

Rebuilds of aisled buildings have also been identified elsewhere. At Barnack, the original aisled building was replaced by a shorter version with new, deeper post-pits and thick gable walls. It was suggested that this was an attempt to make the new building more stable than the original (Simpson 1993, 124). Building 15 at Gorhambury was rebuilt on numerous occasions; two of the rebuilds required the digging of new post-pits (Neal *et al*. 1990, 32–3 and fig. 41). However, in contrast to Shefford, the replacement post settings at Barnack and Gorhambury usually truncated the earlier post-pits.

The post-pipes and pits of the original Shefford building were infilled with a mix of domestic and building debris. It is possible that the presence of building materials indicates a more extensive re-build, perhaps affecting the walls, roof and individual rooms.

Internal features/activity within the aisled building

A variety of post settings, presumably contemporary, were found within the Shefford building, although it is not clear with which phase of the building they were associated (Fig. 20). They comprised two post-pads and eight postholes, the majority of which were in the nave (Fig. 9). They do not form any obvious wall lines in their own right. It is possible that the two on the same alignment as the aisle posts are either extra roof supports or part of a partition. Two of the post settings to the north of internal wall G1.4 lie between a pair of aisle posts, perpendicular to the building, and could also have been part of a partition.

Post settings are frequently found within aisled buildings but, as at Shefford, it is often difficult to be certain that they were contemporary. Some of the internal postholes within building 39 at Gorhambury were believed to have been associated with stalling animals, although this was largely based on evidence from other sites (Neal *et al*. 1990, 63). The buildings at Barnack contained two groups of postholes, three regularly spaced within the nave and five smaller ones in the

south aisle, which were interpreted as being associated with 'subsidiary structures' (Simpson 1993, 109).

Ovens are frequently found within aisled buildings, *e.g.* building 39 at Gorhambury (Neal *et al.* 1990, 63 and fig. 80) and Barnack (Simpson 1993, 109–15 and fig. 81). No such features could be firmly identified at Shefford. Two ovens G5 and a hearth G4 were situated within the area of the buildings; however, these are thought to be late Iron Age/early Romano-British because they were sealed by deposit G25, which is considered to predate the building (Fig. 5). One was also clearly truncated by one of the post-pads of the later building. If the ovens were actually contemporary with one of the aisled buildings, they would lie on the west side of the nave towards the north end of the building. The ovens were keyhole shaped, 1.1m long, 0.3m wide and 0.2m deep, with nearly vertical sides and flat bases.

Ovens within aisled buildings are often considered to be associated with drying crops, metalworking or cooking. Although not conventional drying ovens, such as that at the east end of the Barnack building, those at Shefford did contain small quantities of charred grain and glumes, possibly waste derived from the de-husking process.

Southern part of the building

The building clearly continued beyond the southern limits of the ASH773 excavations but it was not located in the RB445 watching brief to the south (Fig. 3). However, possible archaeological trenches and disturbance were located both south and north of the present hedgeline (Fig. 12), which are likely to be associated with Inskip's and Gray's investigations.

The southern part of the building was defined by an internal wall G1.4, identified within the ASH773 excavation (Fig. 7). It survived as two courses of sandstone, the upper course exhibiting a slight herringbone pattern. A possible second parallel wall, *c.* 1.4m to the south, lay largely beyond the limit of excavation. Both walls may have been later additions: they abut the eastern external wall; and one overlay an original post-pit G1.2. These walls may have defined a room, stairway or even a corridor.

Both Inskip and Gray record finding a building 9m by 6m in extent. Although the longer measurement is slightly short, it probably correlates to the width of the aisled building (now know to be 12.5m). The shorter measurement may correlate to the dimensions of a room or suite of rooms defined by one of the internal walls G1.4. The account of Gray's investigations does not specifically state that the 'building' was defined by walls on all sides; however, there are enigmatic references to 'sandstone foundations' (labelled Y on Davis's plan, see Fig. 19) and it is stated that at least one wall was 0.3m high. It is therefore probable that this description does relate to the southern end of the aisled building.

Davis's account states that Gray located the 'floor of hypocaust', 'tiles forming floor' that were 0.3m square and 'pillar? tiles'. All these descriptions would be consistent with the presence of *pila*, which are used to support floors within rooms with hypocausts, *e.g.* Rooms 9 and 10 in building 7 at Bancroft (Williams and Zeepvat 1994, 139). The Shefford tiles would match exactly the dimensions for *pedales* given by Brodribb (1987, 36). No clearly identifiable *pilae* tiles were recovered from the ASH773 excavations, but it is quite possible that, due to the fragmentary nature of the assemblage, some of the pieces identified as brick are actually *pilae* tiles. Davis's mention of charcoal and burnt tiles also hints at the presence of a hypocaust.

Davis describes 'cement' which was 15mm thick. Given he uses the word 'mortar' elsewhere, it might reasonably be assumed that he is here referring to opus signinum. Forty-three fragments of which were found in association with the aisled building during the ASH773 excavations. Although Davis's phrasing is ambiguous, he seems to suggest that the opus signinum was in situ and at the same depth as the pilae. If this is correct, one possible interpretation is that the opus signinum was used in the cold plunge of a bath suite. Inverted tegluae were laid in opus signinum within Room 2 (the cold plunge) of building 7 at Bancroft (Williams and Zeepvat 1994, 139). It is uncertain if the probable hypocaust extended over the entire area of Gray's building; a central rectangular area is shown on both of Davis's plans, but this would be only c. 2m by 3.5m in extent (Fig. 19). Although labelled 'hypocaust', if this actually referred to the 'cement' then it would correlate quite well with the size of the cold plunge bath at Bancroft which was 3.1 by 2.4m.

Teasingly, a label on Davis's close-up plan, apparently near the west wall, states 'ashes here' and could, therefore, indicate the location of a stokehole (Fig. 19). Also confusingly, a series of sub-circular shapes shown on the close-up plan appear to define the extent of the 'building'. It is

uncertain what, if anything, they represent. Although they could indicate the position of *pilae*, it is perhaps more likely that they are meant to be representative of stone wall foundations.

What is clear from Davis's account of Gray's work is that the southern part of the Shefford aisled building was more richly appointed and contained rooms with hypocausts. This accords with Morris's conclusion that 'the main domestic rooms were usually grouped at one end of the building' (1979, 56), *e.g.* building IV at Roughground Farm (Allen *et al.* 1993, 58–71). However, with regard to the tentative suggestion of the existence of a bath suite within the nave in the southern part of the Shefford building, it is clear that this would not have been in the preferred location suggested by Morris. He believes that 'the baths are often in one aisle at the furthest end from the living rooms' (1979, 56).

Building materials

A wide range of building materials was recovered, principally in the vicinity of the aisled building. It is assumed that they were associated with this building, rather than with another, as yet undetected one. If so, they provide an insight into the nature of the roof, walls, windows, floors and interior of the building. It is impossible to determine whether this material was used in the original building L4 or its rebuild L12.

The presence of *tegulae* and *imbrices* could suggest that at least part of the roof was tiled. This would appear to be supported by the presence of mortar on 14% of the *tegulae*, mostly along the flange tops and upper surfaces where *imbrices* would have been attached. As described above, *tegulae* are sometimes used in floor construction; this is a possibility at Shefford, particularly as some of the *tegulae* retain traces of a material similar to *opus signinum*. Only a small proportion of the *imbrices* have mortar on their undersides and, therefore, uses other than for roofing are possible.

Approximately 11% of the bricks have mortared surfaces and/or edges. While these might have been used in wall or floor construction, it is also possible that some were *pilae* within hypocausts. The presence of flue tiles, some sooted on the interior, supports the other evidence for the existence of a hypocaust.

Stone roof tiles, like those found at Shefford, could have been used either in selective parts of the roof or for repair purposes. The latter is perhaps more likely, given the small quantities recovered. Stone roof tiles were present at Bancroft (Zeepvat 1994, 225), although mostly in limestone rather than the sandstone which occurred at Shefford.

More direct evidence for flooring comes in the form of a small number of *tesserae* and fragments of *opus signinum*. With the exception of one *tessera*, all this material was found within the aisled building. The *tesserae* occurred in a minimum of three colours, possibly suggesting a floor executed in grey-white, with a pattern defined in red and/or brown. Although *opus signinum* could be used within cold plunge baths, as discussed above, it was also commonly used as floor material, *e.g.* the temple-mausoleum at Bancroft (Williams and Zeepvat 1994, 94).

Window glass was found in small quantities. Most came from the south end of the building, suggesting that at least some of the windows there were glazed.

Although small in number, the presence of two fragments of tufa is significant. Because of its comparative lightness, this material is typically used for vaulting, often in bath suites (Williams 1994, 241). Both fragments were found at the south end of the building.

A relatively large quantity of mortar was recovered from features in the vicinity of the building, but sometimes also from deposits assigned to later phases. It may have been used in the floor, external walls or roof. The presence of painted plaster suggests that some of the walls of the building were decorated in white, buff, maroon, red or blue-grey. The majority of the fragments comprise plain linear or striped panel schemes, the former representing the simplest kind of panel adornment (Ling 1985, 26). Wattle impressions on the underside of one fragment indicate the plastering and decoration of daub or cob walls.

The function of the aisled building

Aisled buildings appear to have been used for both domestic (Hingley 1989, 39–45) and agricultural (Morris 1979, 55–65) purposes. Interpretation of function is often based on layout, internal features and flooring, and associated artefacts. At Barnack, the lack of domestic features was used to suggest an agricultural function (Simpson 1993, 124), which was supported by both the absence of rooms and the types of artefacts recovered. Although many of the aisled buildings at Gorhambury were interpreted as barns, some like Building 39 contained ovens, a quern and other items of domestic rubbish (Neal *et al.* 1990, 63).

It is clear that at least the southern part of the Shefford building was domestic in nature. Hingley considers that 'the majority of aisled buildings had a domestic function' (Hingley 1989, 39). Unfortunately, the aisled building at Shefford only survived at foundation level, and much of the information on its south end, which contained rooms with hypocausts and possibly even a bath suite, is derived from early investigations. The presence of *opus signinum*, *tesserae*, painted plaster and window glass suggests that some rooms were well appointed. The majority of the building at Shefford appears to have comprised an open area, in common with most aisled buildings; Morris suggests that this was 'presumably for some communal activity' (1979, 57).

Household items recovered from the Shefford building include storage pots, kitchen- and tableware, and glass vessels. Personal items such as brooches, a bracelet, hair and dress pins, a finger ring, and a toilet implement were also found. These complement the other evidence for domestic use of at least part of the building.

The Shefford building would, therefore, fall into Hingley's category of 'developed aisled building', where 'a distinct suite of rooms had been defined at one end of the building' (Hingley 1989, 41). He compares an aisled building to a medieval hall house with an upper (hypocaust and mosaics) and lower (open) end. The former, he proposes, 'represented the private apartments of the Roman equivalent of a medieval lord'; the latter was where 'family, guests and servants lived and slept' (Hingley 1989, 42).

Summary

The Shefford aisled building is, therefore, comparable to others found in Roman Britain. Aisled buildings of its type can occur in a range of settlements: as villa buildings; as outhouses associated with villa buildings; at local centres; and in non-villa settlements (Hingley 1989, 39). Although fragmentary, the evidence from Shefford suggests that the aisled building was part of a larger settlement, perhaps comparable to the villa complexes at Bancroft (Williams and Zeepvat 1994, fig. 66) and Gorhambury (Neal *et al*. 1990, fig. 73).

Other buildings

Three other buildings were identified within the interior of the large enclosure: a possible late Iron Age/early Romano-British roundhouse L3 (Phase 1) and two Romano-British timber buildings L21 and L41 (Phase 3). In addition, a number of possible structural features were identified, *e.g*. structural slot G18 (Phase 1).

Roundhouse L3

Roundhouse L3 (Phase 1) was identified on the basis of a curvilinear gully G31, probably for drainage, and two postholes G141 in a gap in the gully, which may indicate the position of a door (Fig. 4). The projected diameter of the building is *c*. 12m. Unusually, the doorway faces west; Hill (1995, 54) and others have suggested, for the Iron Age at least, that houses were normally entered from the direction of the rising sun, *i.e*. east to southeast. The pottery from the drainage gully of the Shefford building suggests that it continued in use into the 2nd century. Hingley (1989, 31) believes that roundhouses may have been very common throughout lowland Britain during the 1st and 2nd centuries AD; examples include Stagsden Bypass G2, G5 and G6 (Dawson 2000, 33–6), Gorhambury B5, 6, 23 and 24 (Neal *et al*. 1990, 25–6; 40) and Marsh Leys Farm (Albion Archaeology 2002).

Timber buildings L21 and L41

Two possible timber buildings, *c*. 38m apart (Fig. 6), were assigned to Romano-British Phase 3. The evidence for both is slightly tenuous, and, if genuine, they would appear to exhibit different building techniques.

Possible building L21 was identified on the basis of two rows of parallel postholes G107/G108, although the eastern one was heavily truncated (Fig. 10). They appear to have defined a large building, 13m wide and at least 12m long. Romano-British buildings of this size usually feature aisles, *e.g*. building L4/L12 at Shefford (see above) and building 15 at Gorhambury (Neal *et al*. 1990, 32). However, this seems unlikely in the case of building L21 because the post-pipes indicate that the posts were only *c*. 0.15m in diameter, and there was no evidence for large post settings within the interior.

Three postholes offset from the main western wall line suggest the wall was repaired or replaced. The small concentration of shallow pits G109 and postholes G110 in the eastern part of the building may have been contemporary but they did not produce any dating evidence. However, similar features have been observed in some of the buildings at Gorhambury (Neal *et al*. 1990, 32).

Small quantities of *imbrex*, brick, unidentified tile or brick, mortar and nails were found in enclosure ditch G101 adjacent to the building. However, it is uncertain what (if any) of this material might have been used in a building of this type.

The assignment of the Shefford building to the 2nd century is based on its pottery assemblage and because some of the posts were dug into the earlier enclosure's subdivision ditch. There is no indication of function, although the limited artefactual assemblage and absence of features in the vicinity could suggest it was a barn or storehouse rather than a domestic building.

Direct evidence for building L41 is limited to two features that may have defined its western wall: shallow structural slot G28, which would have held a ground beam, and posthole G140. However, the way that cobbled surface G3 stops abruptly at the slot is strongly suggestive of the presence of a building (Fig. 9). It would have been at least 7.5m by 5m, but it is impossible to determine if it was parallel or perpendicular to the adjacent aisled building L4/L12. Ephemeral slots, sometimes associated with postholes, are often interpreted as foundation trenches for walls set on or in beams, *e.g*. building 22 at Gorhambury (Neal *et al*. 1990, 39 and fig. 49).

Cobbled yards or paths

A cobbled surface G3, interpreted as a yard or path, was located between aisled building L4/L12 and building L41 (Fig. 9). It was 8m long, continuing beyond the limit of the ASH773 excavation to both north and south. Another area of cobbles G3.3 was located to the north. Although on a different alignment, it was probably contemporary. Similar surfaces, albeit in limestone, were identified within the villa complex at Bancroft (Williams and Zeepvat 1994, 156–7 and fig. 82), where a major cobbled routeway, in places defined by a ditch, linked most of the buildings, the farmyard and smaller yards (Fig. 18).

Ovens/hearths

Inskip's 19th-century investigations provide tentative evidence for the presence of a drying oven in the vicinity of his 'cemetery', near the western ditches of trackway L23 (Fig. 18). Although his description (see introduction) is inconclusive, it would match the flue of a drying oven like structure 48 at Gorhambury (Neal *et al*. 1990, 74 and fig. 98).

Quarry pits

An area of quarrying L25 was located to the west of the possible trackway L23 (Fig. 18). It covered at least 28m by 11m and comprised a series of sequential, intercutting pits rather than one large pit. They were dug to extract sand, possibly for use in the construction of the buildings to the east. Areas of similar intercutting quarry pits (for gravel) were associated with a farmstead at Marsh Leys Farm (Albion Archaeology 2002). Gravel quarry pits were also located at Roughground Farm adjacent to a field boundary c. 150m from the main villa buildings (Allen et al. 1993, 109–10).

Inskip's walled enclosure

Inskip located a walled enclosure which he considered to define a cemetery. However, it is clear that at least one grave lay outside the walled area. While it is of course possible that burials took place outside the cemetery, it is equally possible that the occurrence of graves and the walled enclosure was nothing more than a coincidence.

There appear to be many similarities with the walled enclosure at Bancroft (Williams and Zeepvat 1994, 154 and fig. 80), which was located on the periphery of the villa complex, *c*. 100m from the main house, next to a stream (Williams and Zeepvat 1994, fig. 66). A similar, peripheral setting could be argued for the Shefford enclosure (Fig. 18). Where located, the walls of the Bancroft enclosure were 0.9m wide without substantial footings again, not dissimilar to Shefford where the 'rough wall' was 3ft (0.92m) wide (Dryden 1845, 10). At Bancroft, the interior 'was covered with a dark humic soil, varying in depth between 400–600mm' (Williams and Zeepvat 1994, 154), which again accords with Dryden's description. Finds from the enclosure at Bancroft included artefacts spanning the entire period that the villa was occupied. The main difference between the two enclosures was that the Bancroft one was rectangular, not square, and, at 27m by 18.3m, much smaller. Environmental samples from the Bancroft enclosure produced evidence for 'brassicas, celery, mustard, coriander, summer savory and caper spurge', leading the excavators to conclude that it was a kitchen garden (Williams and Zeepvat 1994, 154). A similar interpretation is possible for the Shefford enclosure, with the presence of the cemetery either coincidental or representing a reuse of the enclosure.

RITUAL AND RELIGION

The majority of the evidence for ritual and religion within the Shefford settlement derives from the cemetery located by Inskip. Although the cemetery and its associated grave-goods are referred to in several publications (*e.g.* Page 1908, Fox 1923, Simco 1984, Philpott 1991), they have never been discussed in detail since Dryden's report of 1845. They form the bulk of this section, although evidence for other human and animal burials from the more recent investigations are also considered.

Inskip's cemetery

The 19th-century investigations located a cemetery to the west of trackway L23, *c.* 120m from the aisled building (Fig. 18). Unfortunately, neither the more recent watching brief nor the trial trenching in the vicinity produced any additional information. Therefore, we are dependant on the descriptions provided by Inskip (1844 and 1850) and Dryden (1845).

On the basis of Dryden's description of Inskip's investigations, all the graves appear to have contained cremation burials. Although only eight graves can be clearly identified from Dryden's description, it is likely that the actual figure was much higher because he only described those with significant grave-goods. It is also unclear how many were destroyed by the quarrying before Inskip was in attendance.

All the graves contained pottery vessels, although Dryden states that none of them held cremated bone. A similar occurrence was noted at Walls Field, Baldock (Stead and Rigby 1986, 61–75), *c.* 10km from Shefford. The range of vessels recorded by Dryden comprises 'samian', 'whitish earthenware bottle', 'coarse black' and 'amphora', which is also similar to that recorded at Walls Field. There is no suggestion that the amphora at Shefford was an urn, and Philpott argues that incomplete vessels often served a largely practical role, protecting cremated remains and grave furniture (Philpott 1991, 25). The majority of the Shefford graves contained two or three samian vessels, but one contained eleven bowls; several at Walls Field had up to four samian vessels, and one, burial 6, contained eight. Given the presence of grave-goods within both cemeteries, the unurned nature of these Roman burials is likely to be a reflection of tradition rather than wealth. Philpott believes this type of unurned burial 'echoes the wealthy cremations of Welwyn type' (1991, 47).

At least five of the graves at Shefford contained glass vessels, variously described by Dryden as 'jugs', 'bottles', 'vases' and 'funnels' (1845, 11–13). The graves typically contained a single vessel, although one may have contained a 'jug', a 'funnel' and a 'lachrymatory'. Also known as phials, lachrymatories are usually believed to have contained luxury products such as perfumes, oils or cosmetics (Philpott 1991, 117). The only glass vessel illustrated by Dryden (1845, pl. I, 2) is similar to a globular jug from burial 5 at Walls Field, Baldock (Stead and Rigby 1986, 61–3 and fig. 27, 3). The presence of glass vessels is thought by Philpott to be an indicator or wealth.

One grave contained a bronze 'dish', which may be the object referred to by Philpott as 'a two-handled bronze bowl' (Philpott 1991, 124). However, the illustration in Dryden's article clearly shows that it was a dish or saucer with one obvious handle (1845, 12 and pl. I, 3). The presence of bronze jugs and skillets is often considered to be an indicator of high status (Philpott 1991, 123). Although two bronze brooches were discovered by Inskip, they are not explicitly identified as grave-goods and appear to be Saxon in date (Kennett 1970, 203). Other probable grave-goods, as opposed to residual or intrusive objects, include an iron lamp, hammer and knife, an ivory pipe, a silver pipe and 'copper moulds for pastry'.

The presence of samian and glass vessels suggests a Roman date for the cemetery because it was only then that they became much more widely available. Philpott believes that glass vessels become increasingly common in cremation burials from the late 1st century (Philpott 1991, 115). There is also very little evidence for glass phials in pre-Roman Britain (Philpott 1991 117), and very few examples postdate AD 200. Therefore, the cemetery is likely to have been in use during the late 1st and 2nd centuries, making it contemporary with the original aisled building. The cemetery fits into the La Tene/early Roman tradition of small, unenclosed cremation cemeteries (Whimster 1981). Such graves, with large numbers of pottery vessels and other grave-goods, may be regarded as outlying examples of the group of relatively richly furnished La Tene III burials found in the North Thames area, particularly Essex and Hertfordshire.

Inskip believed that the cemetery was enclosed by a wall, delimiting an area 45m x 45m in extent (Dryden 1845, 10). While cemeteries or family groups within ditched enclosures are known, *e.g.*

King Harry Lane (Stead and Rigby 1989, 80), walled cemeteries are rare in Roman Britain, hence the suggestion that the walled enclosure is more likely to have been a kitchen garden.

Other human remains

No formal human burials were identified within the recent investigations. However, two fragments of human bone, probably from the same individual, were recovered from a robber trench G2.4 (Phase 4) associated with the aisled building. They appear to represent the remains of a 10-month old foetus. Infants, including foetuses, were rarely buried in formal cemeteries and were disposed of in a variety of locations; at Baldock, for example, infants were found in quarry pits, gullies and pits (Stead and Rigby 1986, 393). Philpott notes that 'a recurrent feature of infant burials throughout the Roman period is their association with buildings' (1991, 97). Although the Shefford burial had clearly been disturbed, it could have been placed within the foundation of the west wall of the aisled building; however, it is impossible to be certain whether or not it represents a 'foundation burial' (Philpott 1991, 100–1).

Ritual animal burials

The identification of three separate, partial dog skeletons, two of which had missing skulls, and a partial cattle skeleton is of interest. No evidence of butchery was identified on these bones. The dog skeletons occur in different phases and in different feature types: enclosure ditch G100 (Phase1); quarry pit G115 (Phase 3); and robber trench G2.4 (Phase 4). The robber trench, which produced some dog skull fragments, also contained remains of a human foetus (see above). Pit G12 (Phase 5) contained fragments from the same dog skull but no other bones. The partial cattle skeleton derived from the upper fill of quarry pits G115 (Phase 4).

It is always difficult to determine whether deposits like these are the result of burial within convenient hollows or religious practices. However, rituals involving animals, including sacrifices, are known to have taken place in the Romano-British period (Woodward 1992, 78–9). At Shefford, the relative completeness of the skeletons and the absence of butchery marks or gnawing indicate that the dogs were not exploited for food or their pelts, and were buried shortly after death. Although dogs were not the most common animals to be sacrificed (Woodward 1992, 78–9), they do occur in deposits suggestive of, at the very least, ritual activity. For example, two dogs, one 'perhaps skinned', were found associated with a partial sheep skeleton in an early Romano-British pit at Stagsden, Beds. (Roberts 2000, 122). Although no cut marks indicative of decapitation were observed on the Shefford bones, there is plenty of evidence from other contemporary sites that this occurred; the 'head of an old dog' was found within a late Iron Age pond at West Stagsden, for example (Roberts 2000, 122).

Inskip's temple

In the mid-19th century, Inskip located a Romano-British building which he believed to be a temple. He made this interpretation purely based on its apparent proximity to the cemetery described above. However, it is now clear that the 'building' he located was in fact the southern end of the aisled building L4/L12 and did not serve a religious function.

Economy

The topographical location of the Shefford settlement — just above the floodplain of the River Flit — was ideal for a mixed farming economy. Much of the adjacent land would have been suitable for cultivation, while the floodplain would have provided both hay meadows and grazing for livestock. The small assemblages of charred plant remains and animal bone add a little detail to this general picture.

Cultivation

Evidence for cultivated cereals is indicated by the presence of charred wheat and barley grain and chaff. These principally derive from late Iron Age/early Romano-British (Phase 1) and, albeit in smaller quantities, Romano-British (Phase 3) deposits. The ovens G5 (Phase 1) contained glumes of spelt wheat that may have been waste from the de-husking process. Inskip's description of a structure in the vicinity of the cemetery could suggest that he found a drying oven (Fig. 18). The processing of cereals within the settlement is also attested by the presence of two rotary quernstones (RA 1 and RA 114). Ovens G5 also produced stones of hawthorn — possibly a result of the burning of branches with berries on. Charcoal of Pomoideae (hawthorn, apple *etc*.) and hazel were also found in later Romano-British pits G12 (Phase 5).

Although it has been suggested above that Inskip's walled enclosure might have been a kitchen garden, like that at Bancroft, no evidence for the cultivation of garden plants was recovered from the Shefford investigations.

Animal husbandry

The majority of the animal bone assemblage comprises cattle and sheep/goat. It is likely that the proximity of the floodplain would have provided excellent conditions for the raising and pasturing of cattle. Access to the floodplain through the settlement was probably one of the main functions of trackway L23, which was positioned perpendicular to the River Flit: the trackway would have prevented animals from straying into domestic enclosures or arable fields. Overall, the assemblage is fairly typical of the kind found on other Romano-British rural sites (Maltby 1994). However, an unusually high incidence of immature cattle was detected. This may imply an increase in the intensity of meat production, with a consequent decrease in the importance of cattle for traction purposes. In addition, at least one substantially larger cow was identified in Romano-British Phase 3; this appears to be evidence for the introduction of improved stock.

Pigs were present in relatively low numbers, which is again typical of this period in Bedfordshire. Horses and dogs were kept, but there is no evidence from butchery marks to suggest that either was exploited for meat. Domestic fowl were quite well represented when compared with contemporary rural sites; the presence of bones of immature birds suggests they may have been reared within the settlement.

Some exploitation of wild mammals and birds is suggested by the presence of red and roe deer, hare, jackdaw, duck and goose. The numbers and types are greater than those observed on contemporary farmsteads in Bedfordshire, *e.g.* Luton Road, Wilstead (Luke and Preece, this volume) and at Biddenham Loop (Luke 2008) *etc*. This may indicate that the inhabitants of the Shefford settlement had a relatively diverse meat diet perhaps a reflection of higher status (see below). However, the assemblage is small and the absence of fish is noticeable, when compared to sites such as Gorhambury (Locker 1990).

Craft

As is so often the case, there is little evidence for non-agricultural activities. Craft items include a spindlewhorl, a mortise chisel and a possible drill-bit. The presence of ferrous slag in the late Iron Age/early Romano-British ovens G5 (Phase 1) is indicative of small-scale smithing.

STATUS/WEALTH

Throughout its history, the settlement appears to have had relatively high status, at least in parts. This is clearly indicated by the wealth of grave-goods from Inskip's cemetery and by the well appointed south end of the aisled building. Both these themes have been discussed in detail above. Additional evidence for status comes from a number of sources, but does not all lead to the same conclusion.

The occupants had a slightly more diverse meat diet than is usually found on Romano-British farmsteads in Bedfordshire, perhaps indicating a high degree of access to wild resources. However, the pottery assemblage from the settlement is utilitarian in nature and, unlike that from the cemetery, does not suggest a particularly high status. It predominantly comprises locally made types with few regional (4%) or continental (2%) imports. These percentages are comparable to sites interpreted as low-status farmsteads, *e.g.* Luton Road, Wilstead, where regional imports represent 8% and continental imports 3% of the assemblage (Luke and Preece, this volume). A wide range of other everyday objects were also recovered from the Shefford settlement, including brooches, a finger ring, a bracelet, hair and dress pins, a bead, a toilet spoon, glass vessels, a bone handle and ten coins. Again, these are all objects found more commonly on low status farmsteads such as Luton Road, Wilstead, rather than on villa sites such as Gorhambury (Neal *et al*. 1990, 113). The range and quality of artefacts at Shefford is perhaps surprising, given the proximity of both the Baldock–Sandy–Godmanchester road and the large Roman settlement, presumably with markets, at Baldock, *c*. 10km distant.

CONCLUSION

Mike Luke

The results of the investigations reported on in this article, especially the aisled building, are important in their own right. However, they have also allowed the intermittent discoveries made over the

last two hundred years in this part of Shefford to be placed in the context of a Romano-British settlement, which is now known to cover at least 3ha. There is no basis to the suggestion by Inskip that he had located a temple; in fact, it is now clear that the Roman building investigated by both Inskip and Gray was the same as that located in the recent ASH773 investigations.

Evaluations in the vicinity appear to have identified the limits of the settlement to the north, east and south. However, its full extent to the west is still uncertain. The settlement comprised a large rectangular enclosure divided from quarrying and a cemetery by a trackway. The large enclosure contained at least three buildings one of them the aisled building and may represent the domestic core of the settlement (Fig. 18). However, evaluation trenches near the cemetery contained significant quantities of domestic debris, suggesting that additional buildings may have existed in this area.

The nature of the cemetery and the aisled building suggests that the settlement was of relatively high status. It could be characterised as a villa complex but, if so, it was perhaps less wealthy than other regional examples, such as Bancroft (Williams and Zeepvat 1994) and Gorhambury (Neal *et al*. 1990). Comparison with the latter does, however, indicate that only a small area of the Shefford settlement has been examined; there is a high probability that further buildings and enclosures await discovery.

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APPENDIX 1: POTTERY TYPE SERIES
Jackie Wells

Fabrics are summarised below by chronological periods, using type codes and common names in accordance with the Bedfordshire Ceramic Type Series, held by Albion Archaeology. Full fabric descriptions are given only for those types not previously published. Bracketed figures after each fabric type denote a percentage (by sherd count) of the total excavated assemblage. Percentages are only noted for fabric types constituting over 1% of the total assemblage.

Pre-late 'Belgic' Iron Age
The pre-late 'Belgic' Iron Age pottery assemblage comprises fifteen undiagnostic sherds from twelve late Bronze Age/early Iron Age vessels (40g) and twelve undiagnostic sherds from eleven early to middle Iron Age vessels (90g). The pottery was entirely residual in Roman features within the ASH773 investigations. It is described in the site archive.

Late 'Belgic' Iron Age

Type F05 Grog and shell (1.1%)
Fabric: Slowikowski (2000, 62).
Forms: everted-rim jar and lid-seated bowls.

Type F06 Grog (11.1%)
Fabric: Slowikowski (2000, 62); three subdivisions of this type have been defined, based on the size and frequency of the grog inclusions. All occur at Shefford.
Forms: *F06A*: (fine): bead-rim jar, undiagnostic vessels with incised horizontal grooves, cordons and burnishing.
Forms: *F06B*: (medium): cordoned jars and bowls, bead-rim and narrow-necked jars, lid-seated vessels with burnished horizontal lines, combed patterns and incised horizontal grooves. One body sherd is modified by the addition of a post-firing perforation. Some vessels appear to be deliberately oxidised.
Forms: *F06C*: (coarse): bead-rim and narrow-necked jars, storage jars and a bowl with suspension loop. Decoration comprises horizontal and vertical combing, incised horizontal grooves, scoring, burnished diagonal strokes and combed patterns. Some vessels appear to be deliberately oxidised. Predominantly wheel-thrown, although hand-made examples are known.
Illustrations: Fig. 13 no. 1; Fig. 14 nos 10, 11.

Type F07 Shell (1.8%)
Fabric: Slowikowski (2000, 62).
Forms: hand-made, sometimes wheel-finished, lid-seated vessels, with vertical and/or horizontal combing, random combed patterns and fingernail-impressed rims.

Type F09 Sand and grog (9.2%)
Fabric: Slowikowski (2000, 62), *cf*. also Milton Keynes fabric group 47 (Marney 1989, 193–4).
Forms: cordoned bowls and jars, bead-rim and narrow-necked jars, lid-seated bowls and jars, butt beakers and a pedestal urn. One bowl is modified by the addition of two post-firing holes in the neck. Decoration comprises horizontal and vertical combing, cordons, burnishing, combed patterns, incised horizontal grooves and burnished diagonal strokes. Some vessels appear to be deliberately oxidised.
Illustrations: Fig. 13 nos 3, 8.

Type F34 Sand-tempered
Fabric: Fine, hard-fired fabric with buff–orange surfaces and variable grey core. Contains sparse, well-sorted, sub-rounded quartz 0.1–0.5mm, and occasional mica.
Forms: cordoned jars.

Type F Non-specific Iron Age
Three sherds which could not be assigned a fabric type, but whose form or context suggest an Iron Age date. Described in the site archive.

Romano-British
Samian identifications by Felicity Wild.

Type R01A Central Gaulish samian ware
Fabric: Tomber and Dore (1998, 30–2).
Forms: bowls (forms 18/31, 18/31R, 30, 31, 31R and 37), cups (form 27), conical cups (form 33), mortarium (form 43 or 45) and a dish (Ludowici Tg).
Decorated ware:
1. Form 37, showing the ovolo (Rogers 1974, B144) and beaded borders of a panel with a small circle in the corner. The ovolo is that used by Cerialis and in the early style of Cinnamus, and it is to their style that this should be assigned. Rogers (1999, pl. 30, 14, 24) illustrates other examples of bowls in their style where the vertical border runs across the horizontal border and into the ovolo, as here. *c*. AD 135–60.
2. Form 30, small scrap showing part of a Venus (Oswald 1936–7, 281). Potters of this date who used the type and who made form 30 include X9 (*cf.* Stanfield and Simpson 1958, pl. 30, 355, 361) and the Quintilianus group. The fabric is possibly that of Les Martres-de-Veyre, suggesting X9 (*c*. AD 120–35). It is impossible to reliably assign a potter to so small a scrap, but the piece is likely to be Hadrianic.

Date: 2nd century.

Type R01B South Gaulish samian ware
Fabric: Tomber and Dore (1998, 28–9).
Forms: platter (form 15/17), plates (form 18), cups (forms 27 and 35), carinated bowls (form 29) and hemispherical decorated bowls (form 37, see below).
Decorated ware:
1. Form 37, small scrap showing the ovolo with large rosette tongue used by Frontinus and occurring in the Pompeii Hoard and on first century sites in Scotland. Beneath is a straight wreath of a trifid bud. The same ovolo occurs with a fractionally larger version of the wreath on a sherd from Inchtuthil (Hartley 1985, D19). *c*. AD 75–90. Illustration: Fig. 13 no. 2.
2. Form 37, small scrap showing part of a leaf arcade, probably containing the satyr with grapes (Oswald 1936–7, 597). These figures occur together on bowls by Biragillus (Mees 1995, Taf. 11,1) and C. Cingius Senovir (Mees 1995, Taf. 186, 10). *c*. AD 90–110.

Date: 1st century.

Type R01C East Gaulish samian ware
Fabric: Tomber and Dore (1998, 34–41).
Forms: body sherd from dish.
Date: mid- to late 2nd century.

Type R02 Mica gilded wares
Fabric: Slowikowski (2000, 64); Marney (1989, 185: fabric 34c).
Forms: undiagnostic body sherds, some embossed.
Date: late 1st to 2nd century.

Type R03 Unidentified white ware
Fabric: separately described in the site archive. Possible imports or long-distance traded wares.
Forms: narrow-necked jar and white-slipped body sherd.
Date: uncertain.

Type R03A Verulamium-region white ware
Fabric : Tomber and Dore (1998, 154).
Forms: flagon or jar base.
Date: late 1st to 2nd century.

Type R03B Gritty white ware (1.2%)
Fabric: Slowikowski (2000, 64).
Forms: flagons and a lid-seated jar.
Date: late 1st to 2nd century.

Type R03C Smooth white ware
Fabric: Hard-fired smooth fabric, cream–buff throughout. Contains common, well-sorted, sub-rounded clear or opaque quartz, 0.1–0.5mm, and occasional red iron ore.
Forms: undiagnostic fine-walled body sherd.
Date: late 1st to 2nd century.

Type R03E Fine white ware
Fabric: Hard-fired soapy fabric, cream–buff throughout. Contains common, well-sorted, sub-rounded clear or opaque quartz, 0.1–0.5mm. Similar to type R03C, but less smooth.
Forms: undiagnostic body sherds.
Date: late 1st to 2nd century.

Type R05A Orange sandy
Fabric: Hard-fired fabric, orange–buff throughout, although surfaces are often slipped white. Contains frequent to abundant sub-angular quartz inclusions, 0.5–1.0mm.

Forms: everted-rim jar, flagon and lid-seated jar with external white slip.
Date: 2nd to late 3rd century.

Type R05B Fine orange sandy
Fabric: Hard-fired fabric with buff–orange surfaces (often slipped white) and variable pale grey core. A finer version of type R05A, containing frequent, well-sorted sub-angular quartz inclusions, 0.1–0.5mm.

Forms: jar or flagon base.
Date: 2nd to late 3rd century.

Type R06A Nene Valley grey ware
Fabric: Marney (1989, 179: fabric groups 12 and 14).
Forms: burnished 'dog' bowls.
Date: 2nd to 3rd century.

Type R06B Coarse grey ware (18.3%)
Fabric: Harsh gritty fabric, with variable reduced core and surfaces, the latter often smoothed and/or burnished. Contains abundant, ill-sorted, sub-rounded quartz, 0.5–1.0mm.
Forms: lid-seated bowls and jars, triangular-rim bowls and jars, 'dog' bowl with upright rim, dishes, narrow-necked flanged bowls, storage jars, bead-rim cordoned and neckless jars, bowl with burnished zig-zag along rim, lids, and a single platter.
Decoration includes vertical combing, horizontal grooves,

cordons, overall burnishing and burnished lattice motifs.
Date: 2nd century+.
Illustration: Fig. 13 no. 7.

Type R06C Fine grey ware (10.7%)
Fabric: Hard-fired, smooth fabric with variable reduced surfaces and paler core. Contains frequent, well-sorted fine quartz, 0.1–0.5mm.
Forms: reed-rim, cordoned, rectangular and triangular-rim bowls, 'dog' bowls with upright rim, bead-rim, cordoned and everted-rim jars, lid-seated and triangular-rim jars, neckless and narrow-necked jars, plain rim beakers and a platter. One sherd is modified by the addition of a post-firing hole. One bowl sherd is totally oxidised and badly fired, suggesting a possible waster.
Decoration comprises horizontal grooves, burnished horizontal lines, arcs and lattice design, cordons and overall burnishing.
Date: 2nd century+.
Illustration: Fig. 13 no. 4.

Type R06D Micaceous grey ware (3.9%)
Fabric: Soft-fired fabric with mid-grey surfaces and paler core. Contains common, well-sorted, sub-rounded fine quartz, 0.1–0.5mm, and sparse inclusions of larger grains. Also occasional red iron ore.
Forms: flanged, triangular and rectangular-rim bowls, 'dog' dishes, bead-rim, cordoned and everted-rim jars, miscellaneous fine-walled vessels, and single examples of a plain-rim beaker, carinated jar, lid, and platter.
Decoration comprises burnished horizontal and vertical lines, stabbing, combed patterns, horizontal grooves, cordons, overall burnishing, overall external black slip and slipped bands / zones.
Date: 2nd century+.

Type R06E Calcareous grey ware
Fabric: Hard-fired fabric with variable reduced surfaces and core, characterised by a vesicular appearance resulting from the leaching or burning-out of calcareous inclusions, up to 0.5mm in size. Also contains abundant clear or opaque white quartz, 0.1–0.5mm.
Forms: burnished storage jar.
Date: 2nd century+.

Type R06F Grog and sand grey ware (1.1%)
Fabric: Hard-fired, dense fabric, smooth to the touch, with variable grey-brown surfaces and core. Contains frequent well-sorted sub-angular quartz, 0.1–0.3mm, powdery buff grog particles, 0.5–1.0mm, and sparse black iron ore.
Forms: storage jars, one with graffito on the rim (?tally or batch mark). Decoration comprises horizontal grooves, stabbing, burnished lattice, cordons and overall burnishing.
Date: ?2nd century+.

Type R06G Silty grey ware
Fabric: soft-fired dense fabric, smooth and soapy to the touch, with mid–dark grey surfaces and paler core giving a characteristic sandwich appearance in break. Contains sparse, moderately sorted, clear rounded quartz 0.5–1.0mm (some up to 3.0mm), sparse, moderately sorted sub-angular shell 0.5–1.0mm and sparse, moderately sorted red iron oxide.
Forms: burnished 'dog' bowls, narrow-necked jar and miscellaneous fine-walled beaker.
Date: ?2nd century+.

Type R07A Black burnished ware
Fabric: Tomber and Dore (1998, 127).
Forms: burnished bead-rim jar and flat-rimmed bowl.
Date: late 2nd century+.

Type R07B Sandy black ware (11.6%)
Fabric: Hard-fired fabric, with black surfaces and grey-black core, often with red margins. Contains frequent well-sorted, sub-rounded fine quartz, 0.1–0.5mm, and sparse inclusions of larger grains.
Forms: flanged bowls, 'dog' bowls with upright rims, lid-seated jars and bowls, triangular-rim bowls, narrow-necked and neckless jars, cordoned jars, wide-mouthed bowls, miscellaneous fine-walled vessels, and a lid. Decoration comprises overall, zonal, linear and zig-zag burnishing, incised chevron and circle motifs, vertical combing, horizontal grooves and cordons.
Date: late 1st century+.
Illustration: Fig. 13 nos 5, 6.

Type R07C Gritty black ware (2.1%)
Fabric: Coarse, hard-fired fabric with black, often burnished surfaces and grey–black core. Contains abundant, ill-sorted, sub-rounded quartz, 0.1–1.0mm.
Forms: flanged bowls, 'dog' bowls with upright rims, narrow-necked jar and miscellaneous bead-rim vessel. Decoration is restricted to overall burnishing, horizontal grooves, and burnished horizontal lines.
Date: 2nd century+.

Type R07F Silty black ware
Fabric: Marney (1989, 177: fabric 9f).
Forms: undiagnostic body sherd.
Date: ?1st to 2nd century.

Type R08 Black micaceous
Fabric: Fine, smooth, hard-fired dark grey-black fabric, characterised by presence of abundant mica, particularly visible on surfaces. Also contains sparse poorly-sorted quartz 0.1–0.4mm. *cf.* Marney (1989, 180: fabric 15).
Forms: platter with horizontal groove, decorated 'London ware' copies.
Date: ?late 1st to 2nd century.

Type R09A Pink grogged
Fabric: Marney (1989, 174: fabric 2a).
Forms:storage jar.
Date late 2nd century+.

Type R10A Buff gritty
Fabric: hard gritty fabric, with buff surfaces and variable buff to grey core. Contains frequent, poorly sorted sub-angular quartz, 0.5–1.0mm (some up to 1.5mm).
Forms: lid-seated jar and miscellaneous everted-rim vessels with horizontal grooves.
Date: ?2nd century.

Type R10B Fine buff gritty
Fabric: fine smooth fabric with soft, often micaceous surfaces, generally buff throughout. Contains moderate, poorly sorted sub-angular quartz *c*. 0.1–0.3mm. Some vessels retain traces of a dark slip.
Forms: beaker, platter, bowl, triangular-rim jar, cordoned body sherd and burnished flanged bowl.
Date: late 1st to late 2nd century.

Type R11 Oxford oxidised ware
Fabric: Young (1977, 185).
Forms: flagon.
Date: late 1st century+.

Type R11C Oxford Parchment ware
Fabric: Young (1977, 80).
Forms: painted base sherd.
Date: mid 3rd to 4th century.

Type R11D Oxford colour-coat
Fabric: Young (1977, 123).
Forms: flanged bowl.
Date: mid 3rd to 4th century.

Type R11E Oxford white mortaria
Fabric: Young (1977, 56).
Forms: wheel-thrown body sherds.
Date: mid 3rd to 4th century.

Type R11F Oxford colour-coat mortaria
Fabric: Young (1977, 123).
Forms: wheel-thrown body sherd.
Date: mid 3rd to 4th century

Type R12A Nene Valley mortaria
Fabric: Tomber and Dore (1998, 119).
Forms: wheel-thrown body sherds.
Date: mid 3rd to 4th century.

Type R12B Nene Valley colour-coat (1.5%)
Fabric: Tomber and Dore (1998, 118), Marney (1989, 176: fabric 6).
Forms: plain-rim and folded beakers. Decoration comprises rouletting, barbotine and horizontal grooves.

Date: late 3rd to 4th century.

Type R13 Shell-tempered (8.5%)
Fabric: Brown (1994) for products of the Harrold kilns. Also includes a small proportion of 'soapy' variants, which may derive from a different source.
Forms: range from the 1st century, with lid-seated, narrow-necked and bead-rim jars, to the 4th century, represented by jars with everted, triangular and undercut rims, large storage jars and bowls. All are wheel-thrown. Surface finishes range from simple smoothing or wiping, to combing or rilling, the latter being more common on vessels of later date. Decoration is rare, and comprises horizontal grooves.
Date: 1st to 4th century.
Illustration: Fig. 13 no. 9.

Type R14 Sand-tempered (red–brown harsh) (3.7%)
Fabric: Harsh, hard-fired fabric with variable orange–grey–brown surfaces and core. Contains abundant, fine, clear or opaque quartz, 0.3–1.0mm, and sparse red iron ore.
Forms: bead and everted-rim jars, cordoned, lid-seated and narrow-necked jars. Decoration comprises diagonal combing and horizontal grooves.
Date: uncertain.

Type R18A Pink Gritty
Fabric: Slowikowski (2000, 66).
Forms: plain-necked and ring-necked flagons.
Date: ?late 1st to 2nd century.

Type R19 Unidentified amphorae
Fabric: hard-fired fabric, pale buff–orange throughout. Contains frequent well-sorted, sub-angular quartz, 0.1–0.5mm, and white mica visible on the surfaces.
Forms: body sherds.
Date: ?1st to 3rd century.

Type R21 Unidentified mortaria
Fabric: hard-fired with buff surfaces and dark grey core. Contains abundant, well-sorted sub-rounded quartz, *c*. 0.2–0.5mm. Trituration grits are poorly-sorted opaque, grey–white quartz. Possibly from the Oxford region.
Forms: wheel-thrown body sherd.
Date: uncertain.

Type R22A Hadham oxidised
Fabric: Tomber and Dore (1998, 151), Marney (1989, 186: fabric 37).
Forms: undiagnostic body sherd.
Date: mid- to late 2nd century+, with the widest distribution occurring in the 4th century.

Type R23 Roughcast colour-coat
Fabric: hard-fired, occasionally powdery, pale orange–buff to cream fabric. The colour-coat is variable pale brown–orange matt, and often mottled in appearance. Contains sparse, well-sorted very fine sub-angular quartz, *c*. 0.1mm.
Forms: single beaker sherd.
Date: ?late 2nd to early 4th century.

Type R24 Red quartz
Fabric: hard-fired, gritty fabric with dark grey–black surfaces and core, the latter sometimes with red margins. Contains abundant well-sorted, sub-angular red quartz, *c*. 0.5mm and occasional red and black iron ore.
Forms: narrow-necked jar.
Date: uncertain.

Type R30 Fine micaceous
Fabric: hard-fired sandy fabric with smooth buff–orange surfaces and a grey core. Contains frequent well-sorted sub-angular quartz, 0.1–0.5mm, and abundant mica, particularly visible on the surfaces.
Forms: rouletted fine-walled beaker sherds.
Date: uncertain.

Type R33 Verulamium-region mortaria
Fabric: Tomber and Dore (1998, 154).
Forms: wheel-thrown body sherds.
Date: late 1st to 2nd century.

Type R35A Grog with mica
Fabric: hard-fired with hackly fracture, uniform grey surfaces and core. Characterised by abundant white mica visible on surfaces and in break. Also contains frequent poorly sorted angular grey/white grog, average size 0.5–3.0mm, some ranging up to 5.0mm, and sparse angular white quartz, 0.1–0.3mm.
Forms: storage jars and a lid-seated vessel.
Date: uncertain.
Illustration: Fig. 14 no. 12.

Type R38 Unidentified colour-coat
Fabric: separately described in the site archive. Includes single sherds possibly deriving from Colchester and the Nene Valley.

Forms: miscellaneous beakers, one rouletted with a metallic finish.
Date: uncertain.

Type R Non-specific Romano-British
Six sherds which could not be assigned a fabric type, but whose form or context suggest a Romano-British date. These are fully described in the site archive.

Post-Romano-British (73 sherds)
Post-Romano-British pottery comprises eleven early or high medieval sherds (60g), nineteen post-medieval sherds (116g) and forty-three modern sherds (117g). These are described in the site archive.

APPENDIX 2: BRICK AND TILE TYPE SERIES

Jackie Wells

Fabrics are summarised below using common names in accordance with the Bedfordshire Ceramic Type Series, currently held by Albion Archaeology. Bracketed figures after each fabric type denote a percentage (by weight) of the total excavated assemblage.

Sand (75.1%)
Fabric: fine- and hard-fired, orange throughout, turning to brick-red where over-fired. Generally finely tempered, although some fragments are coarsely made and contain angular quartz of up to 6.0mm in size. Contains frequent, well-sorted, sub-angular multi-coloured quartz *c*. 0.2–0.5mm and dark red and black iron ore *c*. 0.1–0.3mm. Also occasional angular flint inclusions of up to 5mm in size.
Forms: *tegulae*, *imbrices*, flue tiles and bricks.
Illustration: Fig. 15 nos. 1–6.
Source: although no production centres are known in the immediate vicinity, it is likely that the quartz inclusions found in sandy types derive from the Greensand ridge.

Sand and calcareous inclusions (0.3%)
Fabric: fairly hard-fired, often gritty fabric, with variable orange to light red–brown surfaces and core. Contains frequent, ill-sorted calcareous inclusions of up to 2.0mm, frequent, well-sorted, sub-angular multi-coloured quartz *c*. 0.1–0.3mm and dark red and black iron ore *c*. 0.1–0.3mm. Also occasional angular white flint inclusions of up to 5mm. Examples in this type are often characterised by a vesicular surface appearance, caused by the firing or leaching out of calcareous inclusions.
Forms: *tegulae, imbrices,* and bricks.
Source: as Sandy type.

Blue–grey-cored sandy (12.5%)
Fabric: hard-fired, fairly smooth fabric with bright orange to dark red–brown surfaces, and characterised by a distinctive blue–grey core. Contains variable multi-coloured quartz, 0.1–0.5mm, and unevenly sized red iron ore inclusions, 0.5–1.0mm.
Forms: *tegulae, imbrices,* flue tile and brick..
Source: as Sandy type.

Micaceous sandy (11.1%)
Fabric: fairly hard-fired fabric, orange–brown throughout, characterised by abundant, well-sorted gold mica visible on surfaces and in core. Also contains frequent, well-sorted, sub-angular multi-coloured quartz *c*. 0.2–0.5mm, dark red and black iron ore *c*. 0.1–0.3mm, and occasional angular flint inclusions of up to 5mm in size.
Forms: *tegulae* and flue tiles.
Source: as Sandy type.

Grog and sand (0.6%)
Fabric: fairly hard-fired fabric, orange–brown throughout, characterised by frequent, ill-sorted sub-rounded buff–orange grog fragments of up to 3.5mm in size. Also contains frequent, well-sorted, sub-angular multi-coloured quartz *c*. 0.1–0.3mm and dark red and black iron ore *c*. 0.1–0.3mm.
Forms: *tegulae, imbrices,* and bricks.
Source: as Sandy type.

Shell (0.4%)
Fabric: Brown (1994).
Forms: *tegulae, imbrices* and flue tiles.
Source: Uncertain. However, the fabric is comparable to those from kilns at Harrold Lodge, Beds. Although these are *c*. 25km to the NW of Shefford, this kiln complex is known to have exported its shell-tempered building material and pottery widely within the Ouse Valley and its tributaries (Brown 1994, 104–5). Shell-tempered vessels within the Shefford pottery assemblage are also in a fabric comparable to those from the Harrold kilns.

APPENDIX 3: DAUB AND FIRED CLAY TYPE SERIES

Jackie Wells

Five fabric types were identified; all are likely to have derived from locally extracted clay. Bracketed figures after each fabric type denote a percentage (by weight) of the total excavated assemblage.

Type A Sand (90.9%)
Coarse, friable mid- to dark orange–red fabric with variable dark grey–black patches where reduced. Inclusions are abundant sub-rounded and sub-angular quartz *c*. 0.1–0.5 mm and occasional red iron ore *c*. 0.5 mm. Some larger fragments contain sub-angular / angular flint or chert pebbles ranging in size from 1–2 cm.
A finer sand-tempered variant was also noted, but does not occur in sufficiently large quantities to merit a separate fabric type.

Type B Organic (5.9%)
Soft buff–yellow fabric with soapy texture, containing frequent, poorly-sorted organic material (?straw), evidenced by elongated voids where the latter has burnt out. Also occasional, poorly-sorted red iron ore *c*. 0.2 mm. Mainly used for the manufacture of slabs and / or handmade bricks.

Type C Organic and sand (2.1%)
Fine pink–orange–buff fabric, dark blue–grey where reduced. Inclusions are moderate, poorly sorted, sub-angular, multi-coloured quartz *c*. 0.1–0.5 mm, occasionally increasing to 1.0 mm, and frequent organic material (?straw), evidenced by elongated voids where the latter has burnt out.

Type D Sand and calcareous inclusions (0.6%)
Coarse, friable pink–orange–buff fabric with variable dark grey–black patches where reduced. Inclusions are as type A, but the fabric is also characterised by the addition of moderate sub-rounded calcareous (?chalk) pieces *c*. 0.5–1.0 mm. Some larger fragments contain sub-angular / angular flint or chert pebbles ranging in size from 1–2 cm.

Type E Grog and sand (0.2%)
Hard orange–brown fabric with smooth texture. Inclusions are occasional, poorly-sorted, sub-angular multi-coloured quartz *c*. 0.1–0.5 mm and occasional orange–buff grog mostly *c*. 0.3–0.5 mm, up to a maximum of 4.0mm.

APPENDIX 4: PAINTED PLASTER FABRIC TYPES

Jackie Wells

Type 1: fine buff–pink matrix containing abundant, well-sorted, multi-coloured, sub-angular quartz, *c*. 0.1–1.5mm, occasional sub-angular black iron ore, *c*. 0.1–0.5mm and occasional, sub-rounded calcareous (?chalk) inclusions, *c*. 1.0–2.0mm. Also occasional degraded and friable tile inclusions. Fragments range from 8–15mm thick. Wattle impressions on the underside of one fragment indicate the plastering and decoration of daub or cob walls.

Type 2: coarse buff–white matrix containing abundant, poorly-sorted, multi-coloured, sub-angular quartz, *c*. 1.0–5.0mm, frequent angular flint, *c*. 0.3–6.0mm, and frequent, sub-rounded black iron ore, up to 10.0mm. Fragments range from 10–36mm thick.

Type 3: medium buff–white matrix containing abundant, well-sorted, multi-coloured, sub-angular quartz, *c*. 0.1–1.5mm, and frequent, angular and sub-rounded calcareous (?chalk) inclusions, *c*. 1.0–5.0mm. The single type 3 fragment is 17mm thick.

APPENDIX 5: REGISTERED ARTEFACT CATALOGUE

Jackie Wells

The catalogue is organised by Registered Artefact (RA) number. The 155 registered artefacts recovered were assigned broad terms and functional categories, in accordance with the Bedfordshire Artefact Typology. Only those objects relevant to the publication are listed, although individual descriptions are omitted for the iron carpentry nails, and for the copper alloy coins, which are discussed above. Full details of unstratified and post-Romano-British artefacts are contained within the site archive.

The coding which prefixes each catalogue entry contains the following information:

RA 112	G17.1	L2.1	Phase 1	Fig. 17
Registered Artefact no.	Group	L. No.	Phase	Illustration

Note: letters preceding the registered artefact number indicate the projects from which the artefacts derived, *i.e*. R = RB365 and S = SLS893. Artefacts with no prefix are from ASH773. In all cases, measurements denote the maximum surviving artefact length unless otherwise stated.

RA 1 G3, L6, Phase 3. *Quartz conglomerate rotary quern*. Incomplete upper stone; approximately one-third of the central feeder survives, diameter 60mm. A 15mm band encircling the feeder appears to have been pecked, forming a slightly sunken channel. The current outer edge of the quern is slightly bevelled, diameter 320mm. Grinding surface convex and worn smooth. Thickness 40mm; weight 1.3kg.

RA R1 G119.1, L28.1, Phase 3. *Copper alloy toilet spoon*. Narrow sheet fragment with edges folded inwards along its length to form a strip. Both ends are broken off and the sheet is bent. Possible shaft of toilet spoon; *cf*. Crummy 1983, 59–60 and fig. 64, no. 1898. Length 46mm.

RA 2 G35, L17, Phase 6. Fig. 17. *Copper alloy disc brooch*. Cast with raised rim, central blue glass stud and punched decoration. Intact catchplate; missing sprung pin. Diameter 25.8mm. 2nd century.

RA R2 G111.1, L23.1, Phase 3. Fig. 17. *Glass bead*. Cylindrical opaque bead of rust-red vitreous paste with seven narrow rods of clear glass, trailed or threaded flush on to the external surface, forming stripes along the length. Both ends of the bead are missing. Central teardrop-shaped perforation running along the length. Length 20.5mm. Late Romano-British.

RA 3 G35, L17, Phase 6. *Vessel glass*. Colourless body fragment; tableware of indeterminate form. Thickness 0.7mm.

RA S3 G114.3, L25.3, Phase 4. *Iron mortise chisel*. Flat rectangular head, solid rectangular-sectioned handle, tapering in thickness; the edge of the chisel is formed by a bevel from one side of the blade. Length 90.6mm; head width 17mm; handle width 13mm. Romano-British.

RA R4 G127.3, L22.3, Phase 5. Fig. 17. *Copper alloy bracelet*. Single strand, copper alloy wire bracelet, one hooked terminal surviving, opposite end broken. The ends are decorated with closely spaced notches; six survive on the complete end and five on the incomplete. A series of broadly spaced notches decorate the length of the object. Oval in cross-section. Width 1.6mm, thickness 1.9mm. *cf*. Frere 1972 (Verulamium I) fig. 32, no. 35. 4th century.

RA S4 G101.3, L30.3, Phase 4. *Tessera*. Sub-rectangular ceramic block (reused tile) with abraded edges. Length 38.2mm; width 25.1mm; thickness 15.5mm

RA R5 G127.3, L22.3, Phase 5. *Unidentified iron object*. Curved iron rod, sub-triangular in cross-section, one end broken. Length 79.0mm.

RA S5 G101.2, L30.2, Phase 3. *Iron T-clamp*. Small clamp originally with anchor-shaped head, ends of head damaged. Tapering, rectangular-sectioned shank, lower shank bent at an acute angle. Heavily encased in corrosion products. Length 85mm

RA 7 G35, L17, Phase 6. *Vessel glass*. Colourless body fragment; tableware of indeterminate form. Thickness 0.8mm.

RA R7 G127.2, L22.2, Phase 5. Fig. 17. *Iron handle*. Handle fragment comprising an iron rod of rounded cross-section encased in a copper alloy sheet, now damaged and sprung open. *cf*. Wardle 1990 (Gorhambury), fig. 128, no. 258. Length (straightened) 103mm.

RA R8 G127.3, L22.3, Phase 5. Fig. 17. *Vessel glass*. Colourless glass beaker fragment, comprising a portion of the upper body and a slightly out-turned rim. The latter is damaged but appears to be knocked off and unworked. Numerous faint, shallow, horizontal lines have been cut into the external surface. The metal has 'pinhead' bubbles in it (and a series that follow along the cut lines) *cf*. Frere 1972 (Verulamium I) fig. 76 no. 61. Thickness 1.6mm. 3rd to 4th century.

RA R9 G127.3, L22.3, Phase 5. *Window glass*. Fragment of clear, colourless window glass, sub-rectangular in plan, no original edges. Surfaces laminating and iridescent. Small, elongated bubbles present in the metal indicate the glass was cylinder-blown. Thickness 1.3mm. 3rd to 4th century.

RA 12 G35, L17, Phase 6. *Vessel glass*. Blue–green ?bottle body fragment. Thickness 3.4mm.

RA R14 G5, L2, Phase 1. *Tessera*. Rectangular ceramic block (reused tile), with abraded edges. Length 45mm; width 33mm; thickness 25mm.

RA 18 G35, L17, Phase 6. Fig. 17. *Copper alloy finger ring*. Incomplete cast square-sectioned ring, thickened on one side with a rectangular setting for a stone. Diameter 20.3mm.

RA 19 G35, L17, Phase 6. *Copper alloy ring*. Cast annular ring with sub-rounded section. Diameter 37mm; internal diameter 28.5m.

RA 23 G35, L17, Phase 6. Fig. 17. *Copper alloy bow brooch*. Colchester two-piece; plain tapering bow with undecorated central rib and wings; perforated catchplate. Pin, chord and spring fragments survive separately. Length 61.9mm. AD 50–70.

RA 31 G37, L17, Phase 6. *Vessel glass*. Colourless body (?shoulder) fragment; ?cylindrical cup. Thickness 1.6mm.

RA 32 G22.1, L15.1, Phase 6. Fig. 17. *Bone one-piece handle*. Modified long-bone shaft, sawn and polished at one end, broken at the other. Polished end has remains of a transverse groove representing either decoration or cut-mark. Length 59.1mm; diameter 12.4mm.

RA 34 G1.4, L12, Phase 3. Fig. 17. *Unidentified ceramic object*. Wedge-shaped piece of fired clay, which has one smoothed face (10 x 10mm) with a possible whitewash skim, and retains traces of mortar on all other faces. A suggested function may be as a spacer or wedge in a tessellated pavement, or even as a small *tessera*. Length 20.5mm, width 10mm, thickness 3.5–10mm.

RA 36 G1.4, L12, Phase 3. *Lead spindlewhorl*. Lathe-turned fragment; highly degraded and in poor condition. Estimated diameter 40mm; weight 5g.

RA 41 G22.1, L15.1, Phase 6. *Vessel glass*. Colourless body fragment with large air bubble; tableware of indeterminate form. Thickness 0.9mm.

RA44 G22.1, L15.1, Phase 6. *Copper alloy stud*. Circular stud head with concave perforated centre. Diameter 8.2mm.

RA 46 G21.1, L10.1, Phase 5. *Window glass*. Blue-green cast 'matt-glossy' fragment with finished edge. Same as RA 47. Thickness 3.3mm.

RA 47 G21.1, L10.1, Phase 5. *Window glass*. Blue-green cast 'matt-glossy' fragment. Same as RA 46. Thickness 3.3mm.

RA S48 G101.3, L30.3, Phase 4. *Copper alloy hair pin*. Complete hair pin with groove and cordon below a flattened spherical head. Length 124mm. 2nd century.

RA 49 G22.1, L15.1, Phase 6. *Copper alloy pin or needle*. Tapering shank of sub-rounded section, bent and broken at both ends. Estimated length (straightened) 61mm.

RA S49 G101.1, L30.1, Phase 3. *Iron hinged brooch pin*. Curved in profile, narrow rectangular tapering brooch pin, tip missing. The opposing end retains about half of a small circular perforation. Length 24mm

RA 59 G2.3, L8, Phase 4. *Vessel glass*. Colourless body fragments x2 (joining); tableware of indeterminate form. Thickness 0.8mm.

RA 61 G2.7, L12, Phase 3. *Vessel glass*. Colourless body fragment with greenish tinge; tableware of indeterminate form. Thickness 0.9mm.

RA 74 G3.1, L8, Phase 4. *Iron object*. Small portion of square-sectioned, tapering stem, expanding in lozenge-shaped terminal. Length 81.0mm. Possible drill-bit terminal.

RA 80 G2.3, L8, Phase 4. *Copper alloy tack or nail*. Lower portion of square-sectioned, tapering shank, broken at both ends. Length 15.3mm.

RA 97 G2.3, L8, Phase 4. *Vessel glass*. Blue–green ?bottle base fragment. Thickness 5.5mm.

RA 104 G37, L17, Phase 6. *Tessera*. Dressed ?sandstone cube, very worn. Length 19.1mm; width 18.1mm; thickness 16.6mm.

RA 113 G21.1, L10.1, Phase 5. *Window glass*. Blue–green cast 'matt-glossy' fragment. Thickness 3.5mm.

RA 114 G22.1, L15.1, Phase 6. *Lava quern*. Worn fragment retaining no diagnostic features. Weight 7g.

RA 117 G2.4, L8, Phase 4. *Window glass*. Blue–green cast 'matt-glossy' fragment. Thickness 2.2mm.

RA 119 G2.7, L12, Phase 3. *Vessel glass*. Colourless body (?shoulder) fragment with greenish tinge; indeterminate form. Thickness 1.7mm.

RA 120 G2.7, L12, Phase 3. *Vessel glass*. Colourless body fragment with greenish tinge; indeterminate form. Thickness 0.9mm.

RA 122 G12.1, L16.1, Phase 5. *Vessel glass*. Blue–green fragment; ?tableware of indeterminate form. Same vessel as RA 123. Thickness 1.5mm.

RA 123 G12.1, L16.1, Phase 5. *Vessel glass*. Blue–green fragment; ?tableware of indeterminate form. Same vessel as RA 122. Thickness 1.5mm.

RA 124 G12.1, L16.1, Phase 5. *Window glass*. Pale green cast 'matt-glossy' fragment. Thickness 3.1mm.

RA 129 G6.1, L2.1, Phase 1. *Copper alloy sheet*. Degraded sub-triangular fragment, probably broken off a larger object. Length 8.5mm

RA 137 G35, L17, Phase 6. *Window glass*. Blue–green cast 'matt-glossy' fragment. Thickness 2.9mm.

RA 138 G2.3, L8, Phase 4. *Tessera*. Clunch block with traces of mortar / *opus signinum* adhering to surfaces. Length 38mm; width 32mm; thickness 32.6mm.

RA 139 G1.4, L12, Phase 3. *Tessera*. Ceramic block (reused tile) with mortar adhering to all surfaces. Length 22.6mm; width 17.3mm; thickness 20.6mm.

RA 140 G2.4, L8, Phase 4. *Tessera*. Limestone block with one worn surface. Length 33.2mm; width 27.3mm; variable thickness ranging from 11.1–20.5mm.

A Romano-British site at Meppershall: investigations, 2001/2002

Nigel Wilson and Bob Zeepvat

with contributions by Andrew Fawcett, John Giorgi and James Rackham

SUMMARY

Following an initial evaluation, excavation of a site off High Street, Meppershall was undertaken in late 2001 and early 2002, prior to housing development. Investigations revealed mainly agricultural features of Roman date, including ditches, pits and postholes, and part of an enclosure ditch. Several small intercutting pits surrounded a spring in the centre of the excavation area. Samples taken from these pits revealed that the manufacture of bone plates or plaques was taking place on the site. Evidence for iron smithing was also identified. Although no buildings or other structural evidence were found during the excavation, from the number of features and quantity of pottery present it is likely that a farmstead lies in the immediate vicinity, probably on rising ground to the east of the site.

INTRODUCTION

In response to proposals for housing development, Archaeological Services & Consultancy (ASC) carried out an archaeological evaluation in October 2001 on the site of a derelict nursery on the south side of Meppershall High Street (Fig. 1). This revealed a concentration of Roman features in the central part of the site (King 2001). Based on the results of the evaluation, an area of *c*. 0.6 hectares was identified for excavation. This work was carried out by ASC between December 2001 and February 2002.

Geology and Topography

Meppershall is situated on a low-lying ridge in central Bedfordshire about 3km south-west of Shefford, between the rivers Hiz and Ivel. The village is a ribbon development extending for roughly 1.25km along the High Street. The land rises gradually from *c*. 70m OD at the north end of the village to *c*. 85m OD by the church, the highest part of the village. The site is located on the south side of the High Street. In its approximate centre a spring rises, surrounded by boggy ground. Immediately west of the excavation area, a small stream flows almost northward from the spring. The geology of the area is a mixture of Gault clay, boulder clay and decalcified boulder clay, with chalk marl to the south. Surface deposits have been identified as belonging to the Evesham 3 Association (Soil Survey 1983, 411c). While most of the soils on the site are clayey, an area of sand was located towards the southern boundary.

Archaeological & Historical Background

Little is known of prehistoric and Roman activity in the Meppershall area (Simco 1984, fig. 7; Dawson 2000, fig. 10.4). A Roman villa has been recorded at Shefford, 3km to the north (Scott 1992, BD26), and a number of sites are known to the south and south-west, but none have been recorded in the immediate area of Meppershall, between the rivers Hiz and Ivel. It has been suggested that most Romano-British sites were concentrated on the lighter soils of the river valleys, but evidence of Iron Age and Romano-British activity on the heavier soils is now coming to light in Bedfordshire, mainly through plough erosion (Clark & Dawson 1995, 62). Before the evaluation of this site, the only evidence for Iron Age or Roman activity in Meppershall comprised a few sherds of Iron Age and Roman pottery and a few Roman coins, discovered in gardens along the High Street (HER 16317, 16318).

During much of the post-medieval period a substantial house and gardens fronted onto the High Street to the west of the site, extending

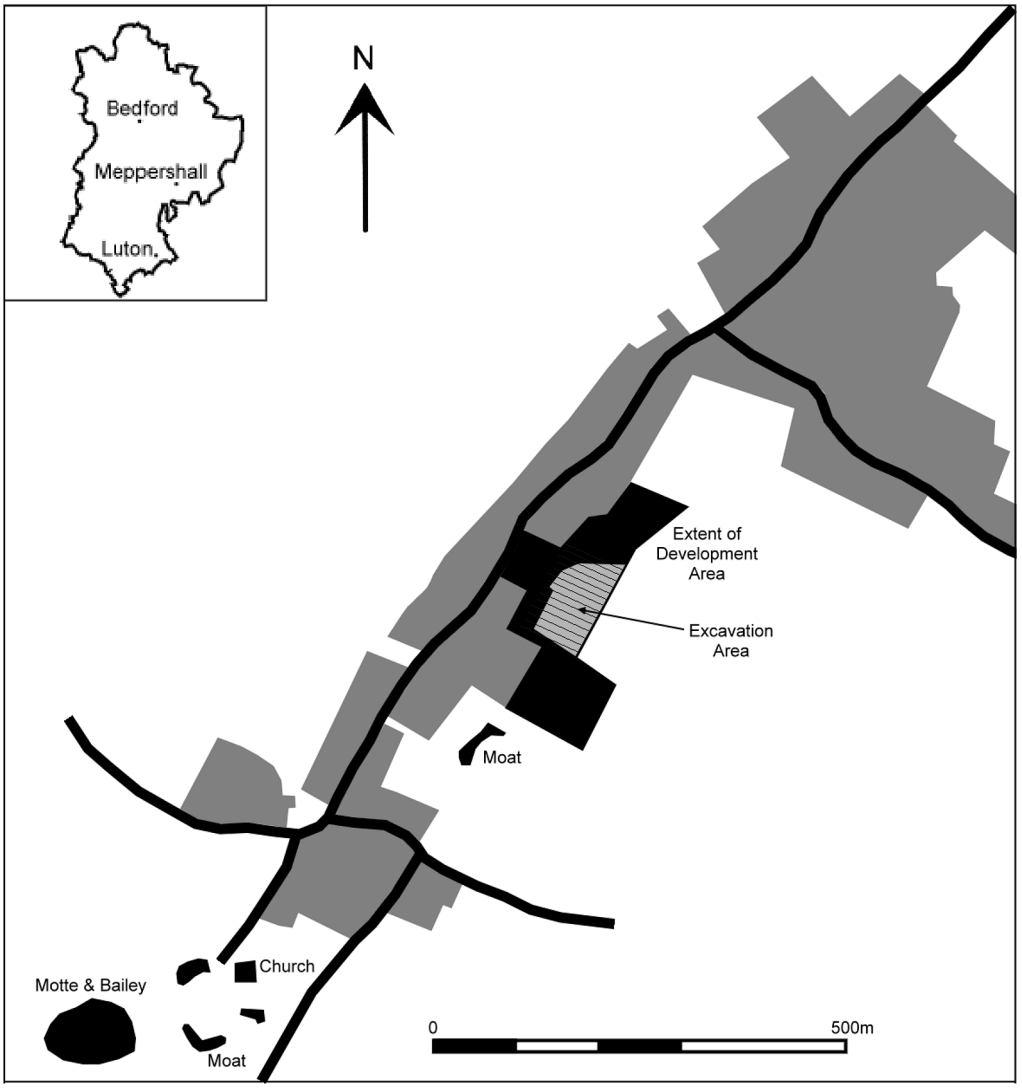


Figure 1: Site location

south-eastwards to the boggy area around the spring. The remainder of the site seems to have remained in agricultural use until the 20th century, when the nursery was established.

For the evaluation, eleven trial trenches were excavated across the proposed development area. Those at the north end of the site proved to be archaeologically sterile, while the trenches in the central and south-west parts of the site revealed a number of Roman ditches, and small pits or post-holes. The greatest concentration of features occurred in the central part of the site. Ceramic evidence provided a date range for the site from the 1st to mid 4th centuries AD.

Aims & Methods

The aim of the project was to establish the date and character of the archaeological remains present, in order to provide a detailed archaeological record of the site prior to its destruction by the development. Particular attention was to be paid to the nature of the archaeological sequence and the spatial pattern of occupation on the site.

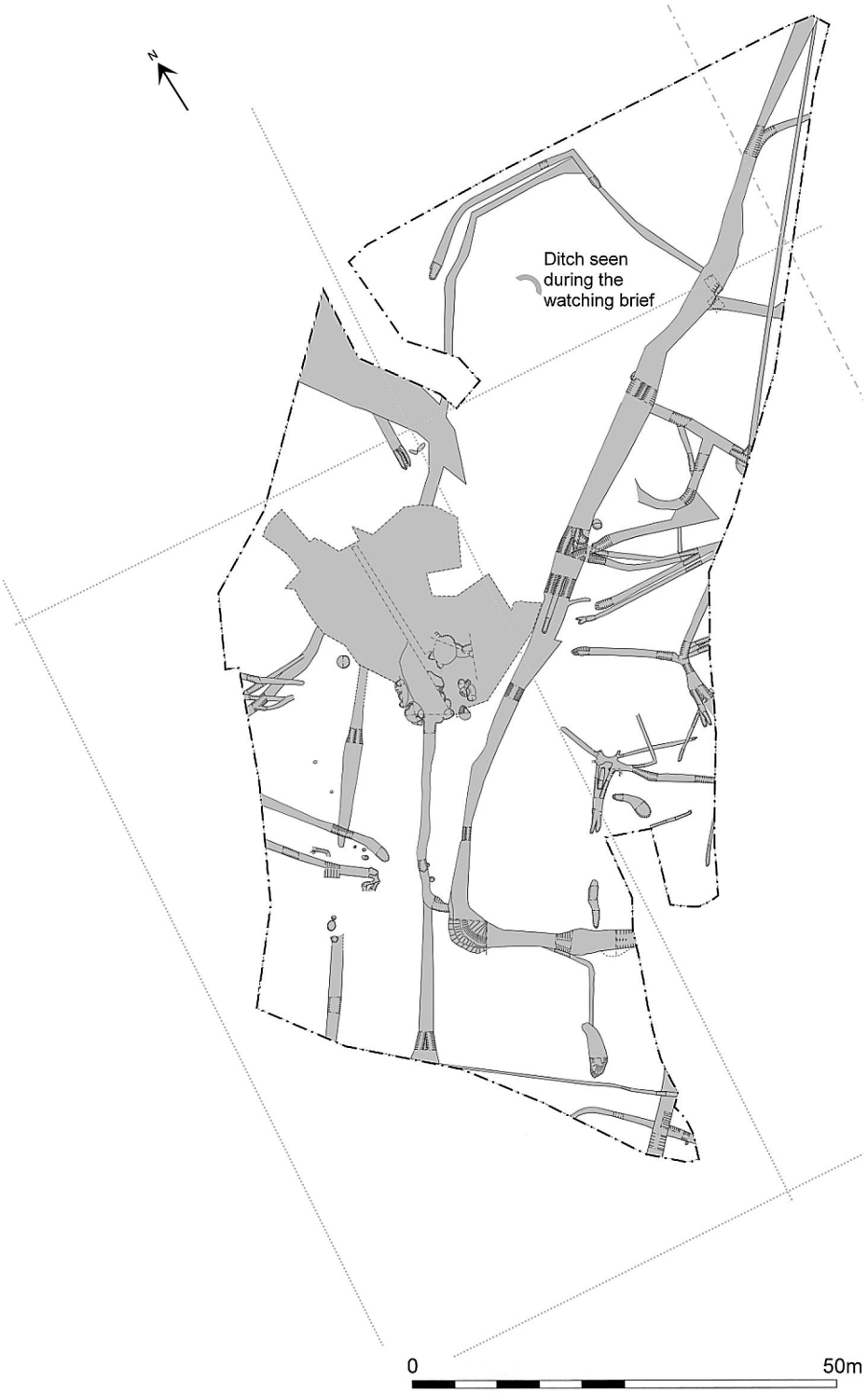


Figure 2: Overall site plan

The area designated for excavation measured *c*. 100 × 60m, and was located in the centre of the development area (Fig. 1). Modern structures, topsoil and overburden were mechanically removed to the top of the archaeological levels or natural deposits, whichever was encountered first. The site was then rapidly cleaned by hand to a level sufficient for a pre-excavation plan to be prepared. Subsequent hand excavation was carried out following a strategy agreed with CPM, the developer's archaeological consultants, and the County Archaeology Office.

THE ARCHAEOLOGICAL EVIDENCE

PHASING

The development of the site is described within a framework of four phases, ranging from the pre-Belgic Iron Age (Phase 1) to the late Roman or early Saxon (Phase 4). The phasing was arrived at by examination of the stratigraphic sequence, supplemented by dates obtained from analysis of the pottery. Numbers in square brackets are group feature numbers, allocated during the post-excavation process and shown on the accompanying figures.

Phase 1: pre-Belgic Iron Age (600–100BC)
The earliest evidence for activity on the site comprised an east-west ditch [8013], *c*. 0.48m deep and 1.4m wide (Fig. 3: Fig. 7, S1). The eastern end of this ditch became indistinct where it entered the spring area, while its western end extended beyond the excavated area. No specific function can be assigned to this feature but it is likely to be agricultural in origin. Though no dating evidence was recovered from the fill of the adjacent ditch [8015] it is likely to be of a similar date to [8013] because of its similar nature.

Phase 2: mid/late 1st to late 2nd century AD
Phase 2 (Fig. 4) represents the earliest substantial activity on the site. It is represented by a series of ditches aligned north-east to south-west [8002, 8003, 8006, 8043], to the south-east of which were a number of smaller linear features [8007, 8010, 8022, 8028, 8029 8033, 8038], aligned either north-east to south-west or north-west to south-east. On the north-west side of the site, two apparently unconnected small ditches [8011, 8014] have been assigned to this phase on the basis of ceramic evidence.

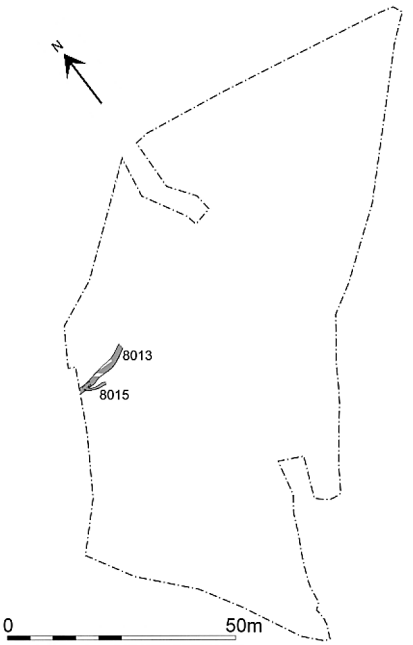


Figure 3: Phase 1 features

Ditches [8003] and [8043] were typically 1.5–1.8m wide and approaching 1.0m deep (Fig. 7, S2), and had been recut at least once during their lifetimes. Though now unconnected, they can be seen on plan to form part of a boundary or enclosure with [8002] and [8006], possibly the earliest phase of a farmstead, which appears to have lain to the east of the site. Pottery from the ditch fills indicates that they had gone out of use by the 4th century.

The small ditches to the south-east of this possible enclosure ditch were also fragmentary, truncated by later activity, but appeared to be on similar or perpendicular alignments. Insufficient of these features remained to allow their functions to be determined, but it seems likely that they either marked subdivisions of the enclosed area, or were part of a drainage system.

Phase 3: late 2nd to mid 4th century
During this period, the Phase 2 enclosure seems to have been replaced by a much more substantial enclosure ditch [8001] following a slightly different alignment to the south-east, and turning at right angles at its south end (Fig. 5). Within this enclosure a number of smaller ditches and gullies [e.g. 8020, 8021, 8025], some linked to [8001], and probably representing subdivisions of the

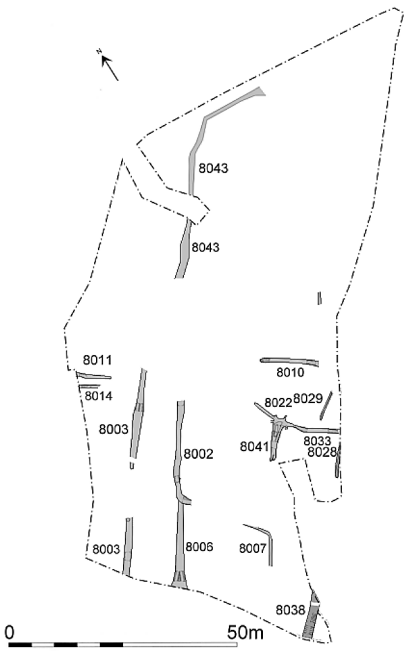


Figure 4: Phase 2 features

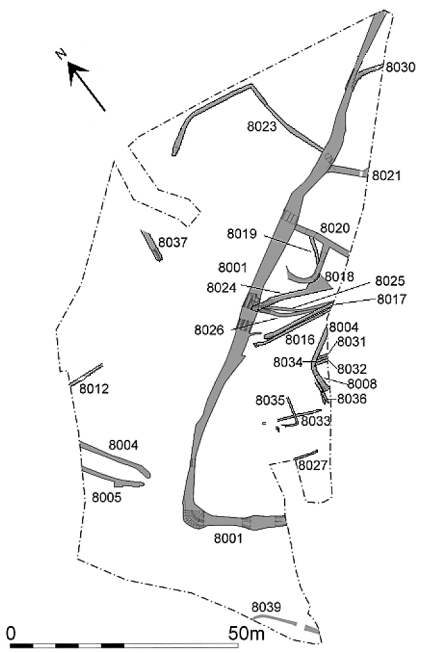


Figure 5: Phase 3 features

enclosure. Other linear features in this area [e.g. 8004, 8017, 8018], followed alignments apparently unrelated to the enclosure and its subdivisions, but appeared from the ceramic evidence to fall within the same date range.

Toward the south-west corner of the enclosure, [8027] (Fig. 7, S3), [8033] and [8035] were of particular note as they had vertical sides and flat bases. These features could represent slots for sleeper beams associated with buildings, though they do not form a recognisable building plan.

The most substantial feature revealed during the excavation, ditch [8001] was up to 1.0m in depth, and was orientated south-west to north-east. Ten sections were excavated along the length of the ditch. From these it was apparent that ditch [8001] had been recut several times (Fig. 7, S5 & 6). This amount of recutting probably indicates that the ditch was open and maintained for a significant period of time.

Other ditches assigned to this phase included [8004] and [8005], towards the western side of the site, and [8039], in the south corner of the site. Ditches [8004] (Fig. 8, S7) and [8005] were parallel, on a similar south-east to north-west alignment. Both terminated *c*.9.0m north-west of the south-western corner of the Phase 3 enclosure. Their rounded terminals were slightly inturned, the gap between them being *c*. 2.0m. It is possible that these ditches define the edges of a track leading away from the farmstead.

Phase 4 (mid 4th-century onwards)

Three small roughly circular pits [204, 210, 237] were identified in the vicinity of the spring in the centre of the excavated area (Fig. 6). These pits ranged from *c*. 0.9–1.6m in diameter, with a typical depth of 0.45m. The pits were intercutting, and it seems likely that digging them took place over a prolonged period. Analysis of environmental samples taken from these pits indicates that they were used to dispose of material from the manufacture of plates or plaques from horse ribs.

During the 4th century the site seems to have been less well maintained, and the area around the spring became increasingly boggy. Environmental analysis indicates that the spring was a managed feature throughout the Roman period, but as the ditches fell in to disuse during the second half of the 4th century the surrounding area became waterlogged. Sealing the pits was a 0.2m deep layer (Context 189/198) of dark greyish brown silty clay. This was directly below the topsoil and seems to have been laid down after the site was abandoned towards the end of the Roman period, possibly at a time when many of the ditches were



Figure 6: Phase 4 features

silting up and the ground was becoming more saturated.

The only feature of archaeological significance that might post-date the Roman period was Pit [157] (Fig. 8, S9) situated to the immediate west of the spring. This was roughly oval, measuring 1.60 × 0.85m, with a depth of 0.75m. A sample taken from the fill produced evidence for iron smithing, a small bone plate, waterlogged and part mineralised grape pips, blackberry seeds, legumes and the remains of small mammals, which may have fallen in when the pit was open. Sediment concretions in the sample and the part mineralised grape pips suggest that this feature may have been a cesspit, although it is located only about 10m from the spring. The grape pips are perhaps more consistent with a Roman context, but as so few early Saxon sites with waterlogged preservation have been excavated, an absence of the evidence is not indicative of the lack of availability of grapes in that period.

Two adjacent pits located in the north-west part of the site were each found to contain complete pig skeletons, and were originally assigned to Phase 4 by the excavator, on the evidence of pottery recovered from their fills. However, subsequent examination of the pig skeletons has revealed that the character of the bones suggests animals of a more recent date. As the pottery from these features is all abraded and therefore probably residual, it is likely that these pits are of more recent date, possibly post-medieval. Consequently neither pit is shown on the Phase 4 plan (Fig. 6).

Watching Brief

During the construction of the estate a watching brief was maintained on areas of extensive ground disturbance. Four small pits or postholes and a shallow SE-NW orientated ditch or gully were observed close to High Street. No artefacts to date these features were recovered during the watching brief, but it is likely that they are contemporary with the features investigated during the excavation. The only other feature observed during the watching brief was a 0.6m wide ditch curving from north to south-west. This ditch was located towards the northern boundary of the excavated area (Fig. 2). The fill comprised dark grey silty clay. During the excavation this feature was masked by a layer of re-deposited subsoil, and was only seen when a new road corridor and service trench were cut.

THE POTTERY

A. R. Fawcett

A total of 2104 sherds weighing 39522g with a total r.eve (estimated vessel equivalent, by rims) of 43.02 were recovered during the excavation. To enable comparison with sites of a similar nature in Bedfordshire and neighbouring counties, the fabric codes used (Table 1) are based upon those developed by Bedfordshire County Council (i.e. R22a) and those employed by Tomber and Dore (1998), and Going (1987).

Pottery form matches are utilised from a number of sites, principally the kiln site at Harrold (Brown 1994), Baldock (Stead & Rigby 1988), Chells (Waugh 1999), Verulamium (Wilson 1984) and Chelmsford (Going 1987). Other form matches (e.g. Thompson 1982) are also used where necessary. Unless specified below, all prefix form codes (i.e. G for jar) relate to the Going corpus (1987). All the pottery was examined at ×20 magnification. Specific detail such as unsourced coarseware division and detailed fabric division is recorded in the site archive.

Overall the condition of the pottery may be described as being abraded to slightly abraded,

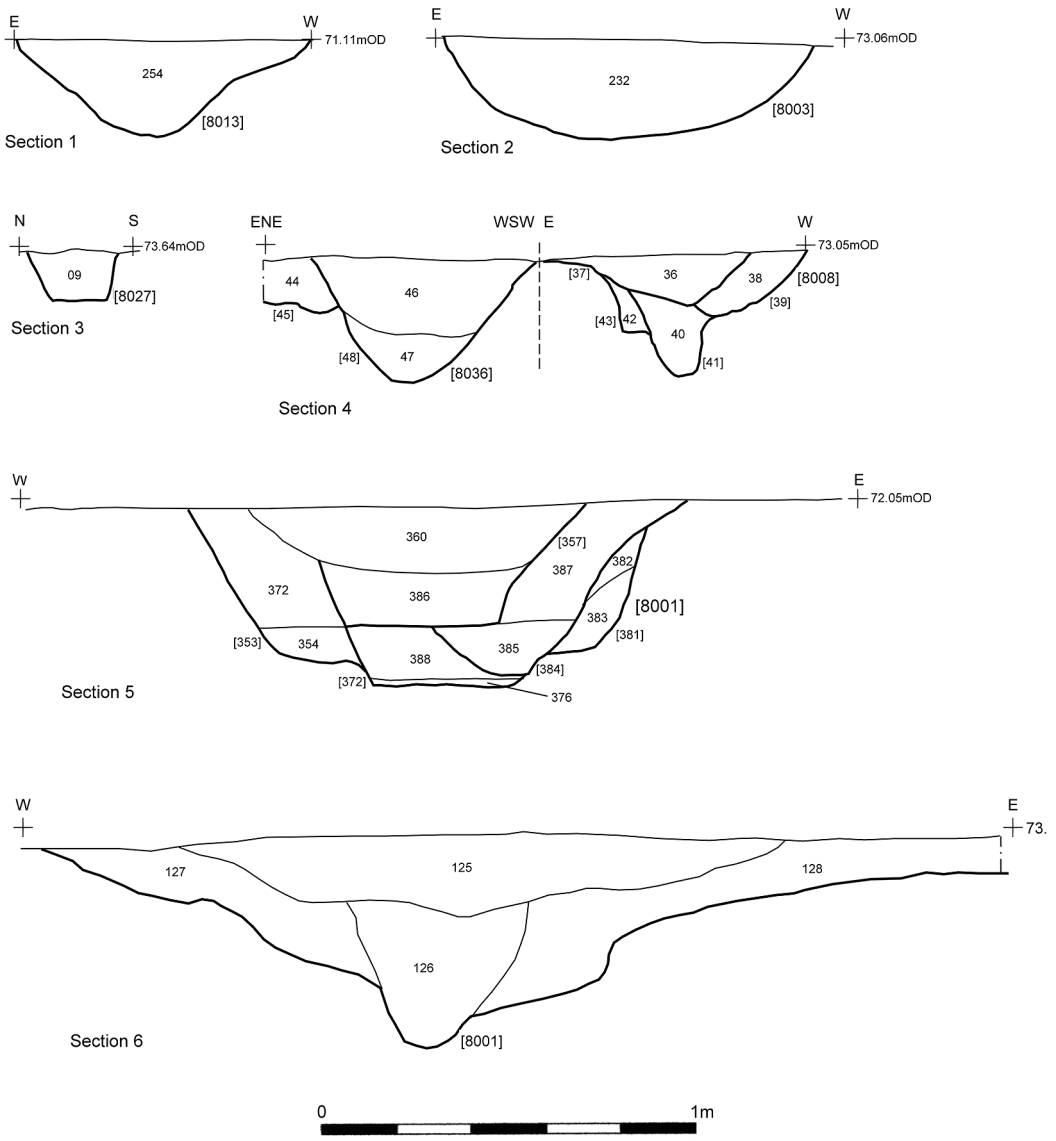


Figure 7: Sections 1–6

with a fairly high diagnostic survival rate. Therefore, most of the pottery is considered to be in its original place of deposition. However, some pottery deposits do contain mixed material from different periods within the Roman era: a typical example is pit 153. The ceramics are spread over a large number of contexts, many containing less than 20 sherds. Naturally, features containing fewer sherds are not considered to be well dated, especially in cases where there is a lack of diagnostic data. A full catalogue of pottery is available within the site archive.

Phase 1: Pre-Belgic Iron Age

This period is represented by a single context (254) containing distinct hand-made organic-based fabrics. A single upright rim was noted.

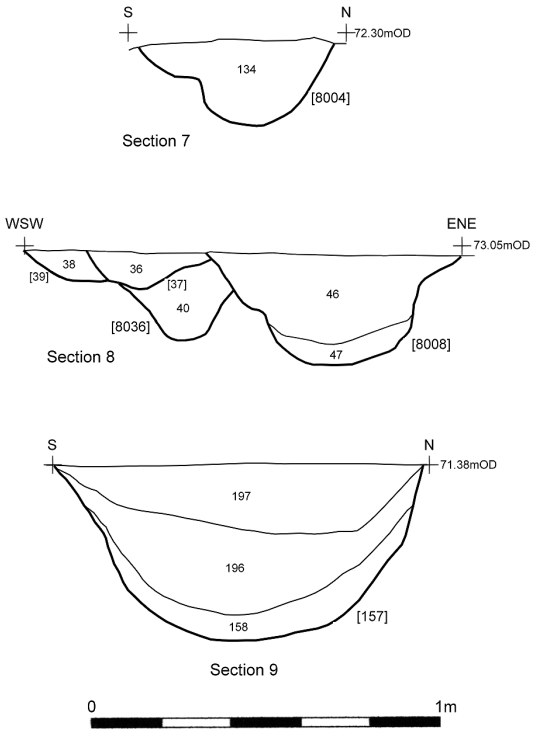


Figure 8: Sections 7–9

PHASE 2: MID/LATE 1ST TO LATE 2ND CENTURY AD

In the early part of this period (mid to late 1st century) the only non-local fabric originates from Verulamium, and the sherds are from a single bead-rimmed flagon. Although this example appears to have no direct match (Fig. 9.**1**), two-handled versions with a similar rim are dated to the Flavian period, and indeed the Cam 167b at Colchester is a good example (Symonds & Wade 1999, 474). Remaining fabrics correspond to local production, of which 77% by weight is represented by the Romanising fabric BSW. With the exception of two lid fragments and a beaker, all the identified forms are jars. Of note within the jar category are two globular lid-seated types (Fig. 9. **2** & **3**), an everted squared and slightly undercut style (Fig. 9.**4**), two more globular forms with dished rims (Fig. 9. **5** & **6**) and three that display a variety of cordon and bulge decoration (Fig. 9. **7–9**).

The assemblage demonstrates a continuation of activity on the site into the later part of this period, though no large well-dated groups are present. A few non-diagnostic samian sherds are noted from La Graufesenque in southern Gaul, after which the sourced coarse wares are characterised by VER WH, and LES FR. A C10 bowl is present in the latter fabric, which probably originates from the Hertfordshire-Essex border area. This period sees the introduction of the early HAR SH fabric, represented by G5 lid seated jars, as well as Hadham products; an early plain dish being the only form in the latter fabric. The two main unsourced fabric groups are UNS BW and GRS. Again, only jars occur within these fabrics: of interest is a type for which the only parallel can be found at Chells (Waugh 1999, no.119). It has a small beaded and rolled rim and displays a groove on its internal surface: rilling is also present on the body surface (Fig. 9.**10**).

There appears to be a slight intensification in land use towards the end of Phase 2 (early/mid to later 2nd century), demonstrated by an increase in the number of contexts containing ceramics. Nonetheless, the vast majority only contain between ten and sixteen sherds and must be considered as not well dated. However, at this time there is a distinct change in the economy of the site. Firstly there is an increase in the samian supply, spearheaded by the central Gaulish fabric LEZ SA 2 in the form of two Drg37 and an 18/31 or 31 type. Other samian fabrics in this phase originate from eastern Gaul (ARG SA and RHZ SA): again, the dominant form is the Drg37 bowl. The first Romano-British fine ware recorded on the site is COL CC. This fabric occurs in two different contexts and is represented by beaker body sherds.

The sourced coarseware category demonstrates not only an increase in number, but also a more varied geographical origin. The most common fabric on the site is VER WH, mainly represented by a selection of reed-rim bowls. An example of this style is found in enclosure ditch 8001, context 376, and has no direct match. It displays three grooves and four ridges on the rim (Fig. 9.**11**). Two jar forms are also present, one dished type and another similar to Ver 2260 (Wilson 1984).

HAR SH is the second largest sourced fabric group, containing a number of bead-rim jars and a single plain-rimmed dish. The Hadham kilns provide three fabrics, HAD OX, HAD RE 1 and 2. The only diagnostic forms, all well-documented jar types, are found in HAD RE 1. A single E2 bowl-jar form in BB1 fabric originates from Dorset. Finally, a small number of non-diagnostic sherds are sourced to the Cambridgeshire kilns at Horningsea.

Tomber & Dore 1998, & Going 1987	Beds CC type-series	Description
SOB GT	F06b	Southern British grog tempered ware
UNS FT	F01a	Unsourced flint tempered ware
UNS SC	F30	Unsourced grog and calcite ware
LGF SA	R01b	La Graufesenque samian ware (southern Gaul)
LEZ SA 1	R01a	Lezoux samian ware category 1 (central Gaul)
LEZ SA 2	R01a	Lezoux samian ware category 2 (central Gaul)
LMV SA	R01a	Les Martres-de-Veyre samian ware (central Gaul)
ARG SA	R01c	Argonne samian ware (eastern Gaul)
RHZ SA	R01c	Rheinzabern samian ware (eastern Gaul)
UNS EG	R01c	Unsourced eastern Gaulish samian ware
COL CC	R04e	Colchester colour coated ware
LNV CC	R12b	Lower Nene Valley colour coated ware
NFO CC	–	New Forest colour coated ware
OXF RS	R11g	Oxford red/brown slipped ware
UNS CC	R38	Unsourced colour coated ware
VER WS	R10c	Verulamium white slipped ware
UNS WS	R06h	Unsourced white slipped ware
LNV WH	R12a	Lower Nene Valley white ware
OXF WH	R11e	Oxford white ware
VER WH	R03a	Verulamium region white ware
UNS W H	R03	Unsourced white ware
HAD OX	R22a	Hadham oxidised ware
UNS OX	R05a	Unsourced oxidised ware
LES FR	R37	London/Essex fine reduced ware
BSOUTH-WEST	R06f/09d	Black surfaced or Romanising grey wares
DOR BB 1	R07a	Dorset black burnished ware category 1
UNS BB	R07b	Unsourced black burnished ware
GRF	R06c	Unsourced fine sandy grey wares
GRS	R06b	Unsourced sandy grey wares
GRS	R06e	Unsourced sandy grey wares (calcareous)
HAD RE 1	R22b	Hadham reduced ware category 1
HAD RE 2	R22c	Hadham reduced ware category 2
HOR RE	–	Horningsea reduced ware
LNV CC	R06a	Lower Nene Valley reduced ware
PNK GT	R09e	Pink grog tempered ware
HAR SH 1	R13	'Harrold' shell tempered ware category 1

A = platter, B = dish, C = bowl, D = mortaria, E = bowl-jar, G = jar, H = beaker, J = flagon, K = Lid, Ste = Stevenage (Chells), Che = Chelmsford, GD = Great Dunmow, Ver = Verulamium, Bal = Baldock, Col = Colchester, Perrin = Dubrobrivae, Bro = Harrold, Tho = Thompson, Corp = Hadham Corpus, italics = unsure identification/date.

Table 1: Fabric codes

By far the largest unsourced group are UNS BW. However, the form types show no diversion from those already encountered, consisting of jars, a plain-rimmed dish and reed-rimmed bowl. The next largest fabric category is GRS, the only form present being a beaded dish. The remaining fabrics are UNS OX, represented by a Ver. 2075/8 beaker (Wilson 1984); BSW, containing a single beaker rim, and PNK GT, represented by a very abraded mortaria rim.

Phase 3: Late 2nd to mid 4th century

The ceramic evidence for the late 2nd to 3rd century seems to indicate a decrease in activity, though in the absence of reliable dating tools the 3rd century is often hard to detect. Only eighteen sherds account for this period: as might be expected, little can be said about the range of fabrics present, though the period marks the introduction of LNV CC and Oxford products. All the illustrated examples come from the mixed deposit (155), which has a significant late 2nd to 3rd-century component. These examples have been chosen because they are unusual: they may not necessarily be from this period. Firstly in UNS OX is an unusual form, which could either be a narrow-necked jar or flagon. It displays a very flat rim with two grooves on the surface (Fig. 9.**12**). Next is a HAR SH St jar showing a very pointed upright rim, with a slight but sharp undercut: the

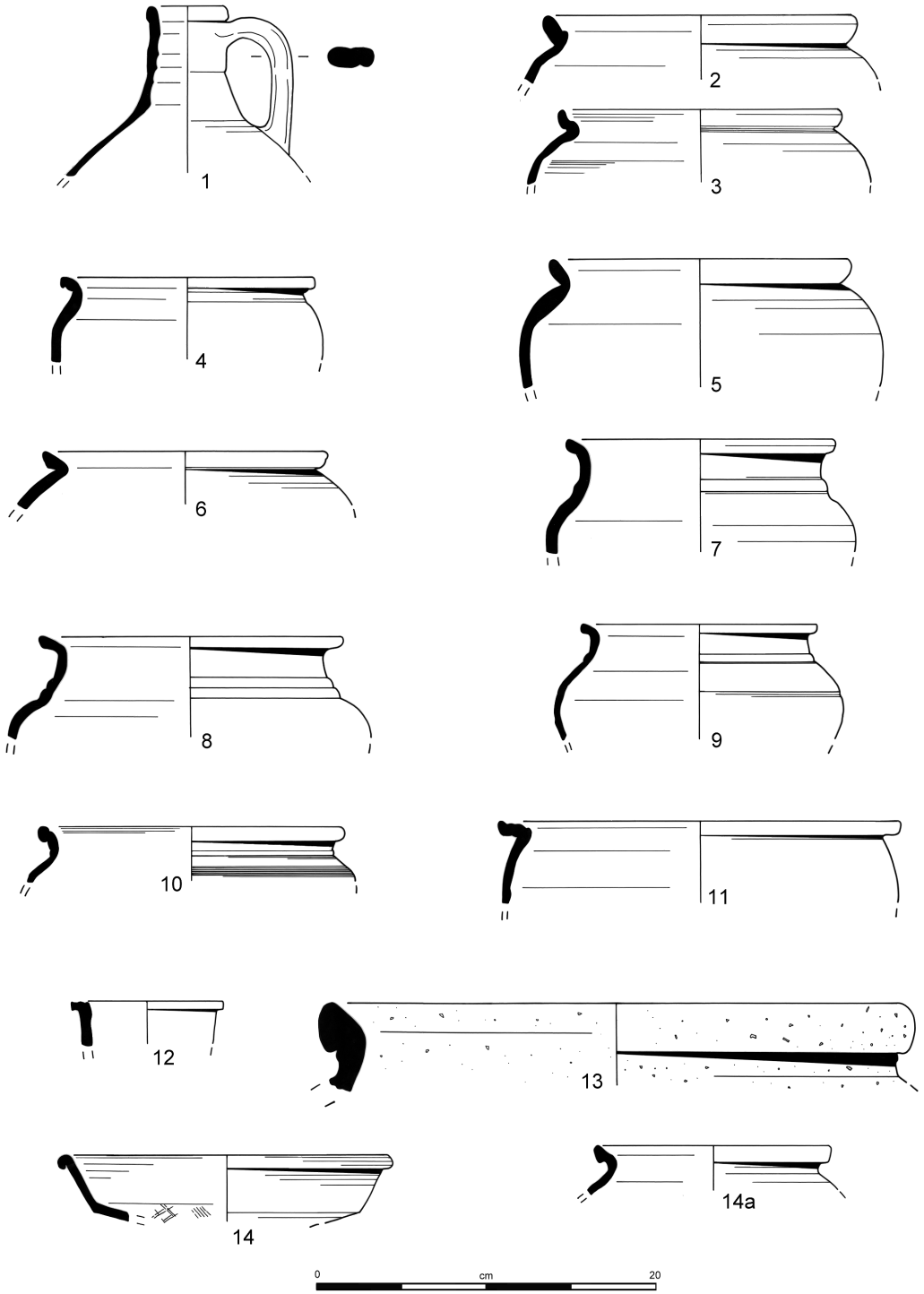


Figure 9: The pottery, 1–14a

fabric is light brown (Fig. 9.**13**). The last two forms are in GRS. The first is a dish in the style of Ver. 2551 (Wilson 1984). It has a rolled and undercut rim with lattice patterning on the inner base surface (Fig. 9.**14**). The second is a lid-seated jar with no match (Fig. 9.**14a**). This displays a slightly down-turned and undercut rim; and also a groove at the internal base of the rim.

The 4th century undoubtedly represents the main period of activity on the site: nineteen contexts are assigned to it. Generally the pottery is in a good state of preservation, with an average sherd weight of 18g and a reasonable diagnostic survival rate. Although no foreign imports are evident Romano-British fine wares are present, typically characterised in this phase by LNV CC and OXF RS (Table 2). A useful percentage comparison for LNV CC in this later period can be seen at Chells, Stevenage (Waugh 1999, 108) where the same order of sherd number and weight are respectively 4.93 and 4.82%.

Perhaps the most surprising fabric noted is NFO CC, all the sherds belonging to a single flask form (Fig. 10.**15**). This appears to have no direct match, although Fulford types 1.3/1.6 are similar (Fulford 1975). The surface has a metallic black colour coat (slip is dripped internally) with double groove decoration on top: the fabric is a very pale grey/white.

Of the sourced coarseware fabrics HAR SH 2 is the most prevalent, accounting for 40% by weight. In north Hertfordshire during the same period the normal fabric percentage (by weight) is just under 16% (Waugh 1999, 110). The form assemblage is almost entirely composed of jars, mostly with down-turned and hooked rims, the exception being a single bowl,. A typical example equates to Brown 300 (1994): it displays fine rilling on a light brown surface (Fig. 10.**16**). None of the storage jar versions were large enough to identify beyond their general class.

The next largest providers to the site were the kilns at Hadham, who typically supplied bowl-jars, thick-rimmed jars, and plain and flanged rim dishes. Only one form merits further comment: an unusual jar in HAD RE 1, which is neck-less with a triangular thick rim in a burnished medium grey (Fig. 10.**17**).

A small number of DOR BB 1 sherds are present, accounting for three plain-rimmed dishes as well as a flanged type (Fig. 10.**18**). The latter has close matches at Verulamium (Wilson 1984, no. 2492) and Baldock (Stead & Rigby 1986, no. 734). It has a beaded flange and intersecting arc decoration.

The final sourced fabric (HOR RE) contains no diagnostic element. However this little understood industry is noted particularly for large jars with out-splayed and often bifid type rims.

Fabric	Sherd No	%	Weight	%	Rim eve	%
LNV CC	28	7%	470g	6%	2.88	23%
NFO CC	4	1%	123g	2%	1.00	8%
UNS CC	1	Pres	5g	Pres	–	–
OXF RS	18	4%	347g	5%	0.35	3%
OXF WS	2	Pres	56g	1%	0.07	1%
OXF WH*	1	–	43g	–	0.07	–
VER WH	1	Pres	4g	Pres	–	–
UNS WH	4	1%	32g	Pres	0.08	1%
HAD OX	24	6%	471g	6%	0.93	7%
UNS OX	7	2%	53g	1%	0.12	1%
BSW	3	1%	20g	Pres	–	–
UNS BB/BW	45	11%	763g	10%	0.63	5%
UNS BW St*	1	–	62g	–	–	–
DOR BB 1	17	4%	507g	7%	0.96	8%
GRF	4	1%	35g	Pres	0.11	1%
GRS	64	15%	996g	13%	1.41	11%
HAD RE 1	35	8%	436g	6%	0.53	4%
HAD RE 2	4	1%	110g	1%	0.06	Pres
HOR RE	7	2%	110g	1%	–	–
HAR SH 2	148	36%	3085g	40%	3.42	27%
HAR SH St*	12	–	740g	–	0.39	–
Totals	**416**		**7623g**		**12.55**	

* not used in percentage calculations.

Table 2: Summary of the 4th-century ceramic assemblage

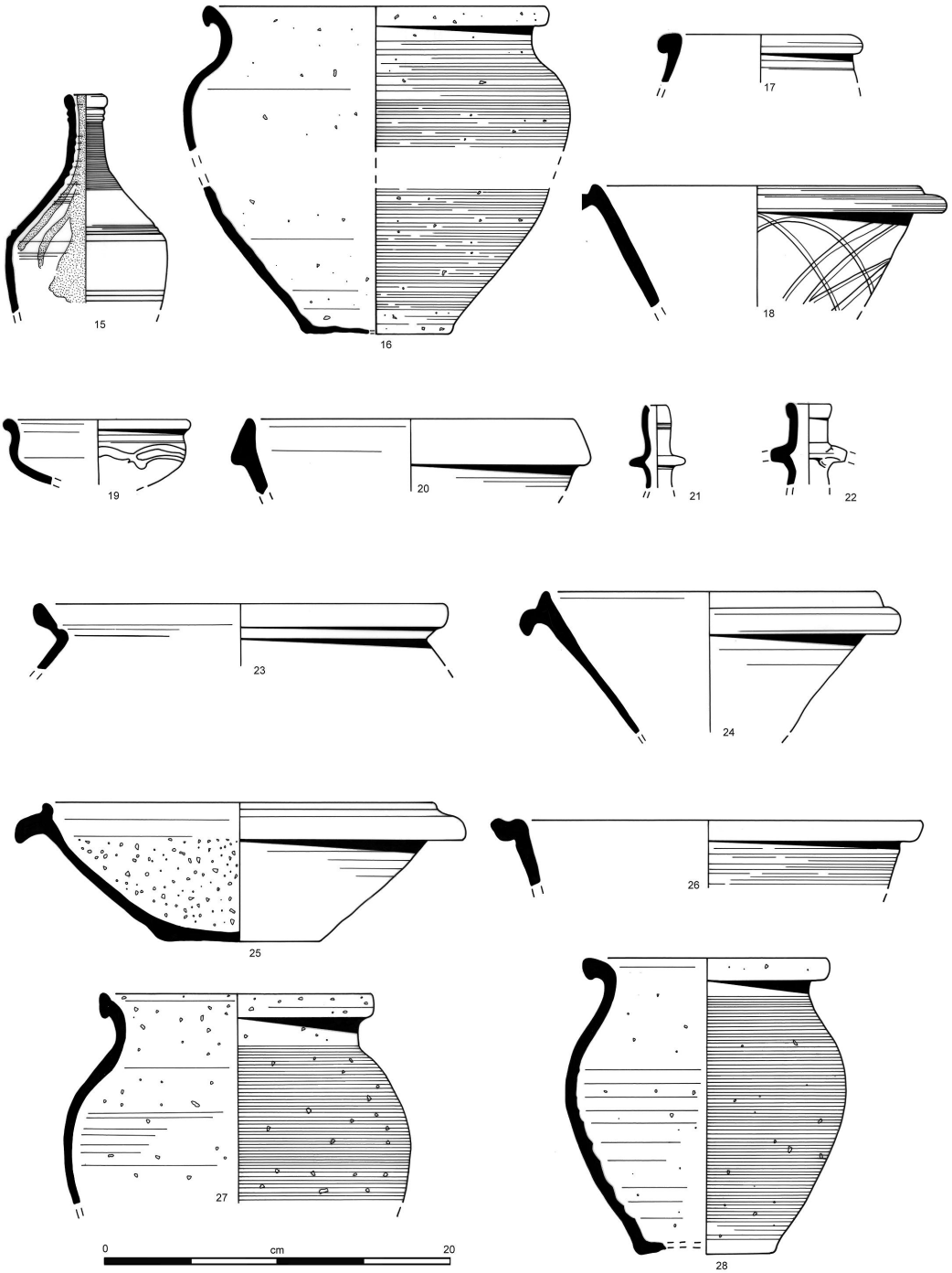


Figure 10: The pottery, 15–28

The LNV CC assemblage is made up mainly of plain and moulded rimmed dishes. Apart from a hemispherical bowl there are other interesting forms. First is a necked and everted rimmed bowl that shares some similarities with Perrin 269 (1999). It has a light brown colour coat with applied white slip decoration (Fig. 10.**19**). Next is a lid with no direct match (Fig. 10.**20**) in a coarse version of the fabric, with a very light brown colour coat. Two late flagon necks are also noted, again with no direct match: both have brown colour coats (Fig. 10, **21** & **22**). The Oxford red/brown colour-coated fabric is represented by a bowl, a *mortaria* and a Drg36 copy: all the forms are well known. The other Oxford variants are represented by two *mortaria*.

In general the unsourced fabrics mimic the same form range as the sourced versions: plain and flanged rim dishes, bowl-jars and a range of jar types. GRS and UNS BW are the two most common fabrics. A single kind stands out in GRS, a lid-seated jar with a large, almost exaggerated dished rim: it also has an internal groove at the rim base (Fig. 10.**23**).

Phase 4: Mid 4th century onwards

This phase marks the end of the Roman ceramic sequence. Its date is based upon the UNS WS bowl (*below*) though the other diagnostic sherds, from context 134 (ditch 8004), follow a similar fabric pattern to those encountered in the previous phase. Of note amongst the form assemblage is a LNV CC deep bowl with a down-turned flange, and a black slightly metallic colour coat (Fig. 10.**24**). There is also a *mortaria* in OXF WS, which has a close parallel at Verulamium (Wilson 1984, 2625). Its flange has a slight groove on its lower part (Fig. 10.**25**). A bowl (Fig. 10.**26**) in UNS WS has a very thick and dished rim: the nearest match can be observed at Chells (Waugh 1999, no. 311). Finally there are two HAR SH 2 jars with down-turned and undercut rims and fine rilled surfaces (Fig. 10, **27** & **28**). Close matches can be seen in the kiln *corpus* (Brown 1994, no. 302) and at Verulamium (Wilson 1984, no. 2194).

Pit [157] (context 158) contained three non-diagnostic hand-made body sherds with calcite and organic inclusions. Apart from their general appearance and mineral content, their association with late Roman ceramics perhaps indicates an early Saxon date. Only these three sherds identify this feature as distinct from the other pits around the spring.

Conclusions

The examination of the pottery clearly indicates that the main activity on the site is Roman. It commences in the mid 1st century AD, and land use increases from around the early 2nd century to about AD190. There appears to be a 3rd century decline, but the most important and intense phase of occupation is the 4th century. Negligible site use also exists either side of the Roman period.

There is nothing within the ceramic assemblage that suggests high status activity: the samian and other fine wares could have easily been purchased at existing local market centres. Indeed most of the economic data suggests that local and nearby regional pottery industries were mostly utilised throughout the history of the site. This is particularly evident in the 4th century. The presence of fabric NFO CC runs contrary to this trend, though Dorset BB1 is fairly common and the presence of a single flask in the former fabric may be the result of 'piggyback' trade. A simpler reason for such a northerly outlier may be that it was a gift or personal possession, the contents of the vessel being the most important factor.

Examination of the form assemblage equally does not throw any light upon specialist areas of activity or status. Although flagons, beakers, bowls and *mortaria* are present they do not occur in unusual numbers. It is the jar that dominates alongside the plain-rimmed dish, the latter from the 2nd century onwards.

This is the first Roman site examined in the area, and in general the pottery indicates a standard rural economy. The absence of building materials suggests that these assemblages were on the periphery of the main focus of activity. At the time of writing (2003), the lack of quantified and phased ceramic data available in Bedfordshire hinders any accurate statement or comparison with other Bedfordshire sites at any time within the Roman period.

Catalogue (Figs 9 & 10)

Sherds have been selected for illustration using the following criteria:
(i) An unpublished or new form. (ii) A form whose date range has been modified due to the presence of a well-dated

stamp/stamp. (iii) Where there is no direct match or the match is not perfect.

Context 391, Ditch 8017 (Mid to late 1st century AD)
1. VER WH J no direct match [possibly 2nd century intrusive]
2. BSOUTH-WEST G lid Bal 182 style (i)
3. BSOUTH-WEST G lid Bal 182 style (ii)
4. BSOUTH-WEST G no match
5. BSOUTH-WEST G Bal 330-452 style
6. BSOUTH-WEST G lid Bal 468 style
7. BSOUTH-WEST G Bal 321
8. BSOUTH-WEST G Bal 289/346 styles
9. BSOUTH-WEST G Bal 346 style

Context 108, Ditch 8024 (Late 1st to early/mid 2nd century AD)
10. GRS G style Chel 119

Context 376, Ditch 8001 (Early to mid/late 2nd century)
11. VER WH C reed rim no match
Layer 155 (Mid 2nd to 4th century)
12. UNS OX G/J no match
13. HAR SH St G no match
14. GRS B Ver 2551 style
14a. GRS G lid seated, no match

Context 221, Ditch 220 (4th century)
15. NFO CC Flask, no direct match. Pale grey/white fabric with some quartz and organic voids, metallic black colour coat; bead rim beneath double groove, double groove at base of neck and again at girth, spilt internal slip)
16. HAR SH G Bro 300

Context 163, Ditch 162 (4th century)
17. HAD RE 1 G Chells 9
18. DOR BB 1 B flanged Bal 734/Ver2492

Context 023, Ditch 8001 (4th century)
19. LNV CC C Perrin 269

Context 125, Ditch 8001 (4th century)
20. LNV CC Lid no match

Layer 198 (Late 3rd–4th century)
21. LNV CC J no direct match (i)
22. LNV CC J no direct match (ii)

Unstratified (Late Roman)
23. GRS G lid seated no match

Context 134, Ditch 8004 (AD350–410)
24. LNV CC B flanged Perrin 258/260 style
25. OXF WS D Ver 2625
26. UNS WS C Chells 311 style
27. HAR SH 2 G Bro 302 (i)
28. HAR SH 2 G Bro 302 (ii)

OTHER FINDS
Bob Zeepvat

Excavations at Meppershall produced a small quantity of finds. Others were discovered in the course of metal detecting during topsoil stripping. A detailed catalogue is retained in the site archive: the following objects have been included in the final report either because of their significance for dating, or for intrinsic interest.

Coins

The excavation produced three coins. A further three coins, fused together, were recovered by metal detecting during topsoil stripping (Table 3). All were in a poor condition. Four of the coins appeared to be late 3rd-century radiate bronzes, the fifth was a late 16th–early 17th-century Nuremberg *jetton*, and the last was broken and illegible.

Copper Alloy

1 Brooch, pin and catch-plate missing. The spring has four coils. Plain bow, rounded Section. L. 43mm. This simple type of one-piece brooch, with 4-coil spring, internal chord and solid catch-plate is very common in Britain. Examples have been recorded at Baldock (Stead & Rigby 1986, 109, 15–22) and King Harry Lane (Stead & Rigby 1989, 88, A1–4), all dated before *c*. AD50.
Cont 291, SF3519: fill of Ditch 8001

2 Bracelet fragment, cable type, two circular-sectioned strands. Th. 3mm. Part of hooked terminal remains. Similar bracelets have been

No.	Description	Dia (mm)	Date [Feature]	Context	SF No.
1-3	Three coins corroded together. One is a radiate bronze	18, 18, 16	Late 3rd	u/s	3513
4	Worn: possibly radiate bronze	16	Late 3rd	073 [8018]	3514
5	Three fragments of badly corroded illegible coin	–	–	115 [116]	3516
6	Nuremberg jetton, Hans Krauwinckel	25	Late 16th–early 17th	u/s	3520

Table 3: Coin identification

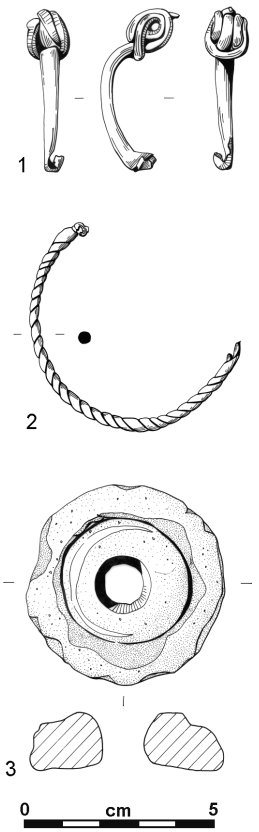


Figure 11: Finds of copper alloy (1, 2) and ceramic (3). Scale 1:2

found at Baldock (Stead & Rigby 1986, 127, 182) and Gorhambury (Neal *et al* 1990, 123, 80), in 3rd and 4th-century contexts respectively.
Cont. 221, SF3521: fill of Ditch 8004

IRON

Ironwork from the site consists almost entirely of nails and scrap, all of which is in a poor state of preservation. None appeared to be of intrinsic interest, or of use in interpreting the site. A full list is retained in the site archive.

CERAMIC

3 Spindle whorl. Base of pot, dia. 55mm, wt 45gm, black sandy, slightly micaceous fabric, approximating to fabric RO7B (see pottery report).
Cont. 369, SF3517: fill of Ditch 8001

STONE

Quern stones are commonly found on Roman rural sites. The millstone grit quern (**4**), probably originating from a quarry in the Peak district, is of a ubiquitous type. The beehive quern of Hertfordshire Puddingstone (**5**) is of a type largely limited to Hertfordshire, from where the stone is supposed to originate.

4 Fragment of rotary quern lower stone, Millstone grit. Th. 48mm, dia. 260mm.
Cont. 291, SF3518: : fill of Ditch 8001

5 Upper stone of rotary beehive quern, Hertfordshire puddingstone. Dia. 270mm, height 90mm, tapered central hole 70–45mm. Similar examples have been recorded at Baldock (Stead & Rigby 1986, 180, 790–792). Possibly 1st century AD.
Unstratified: SF3515.

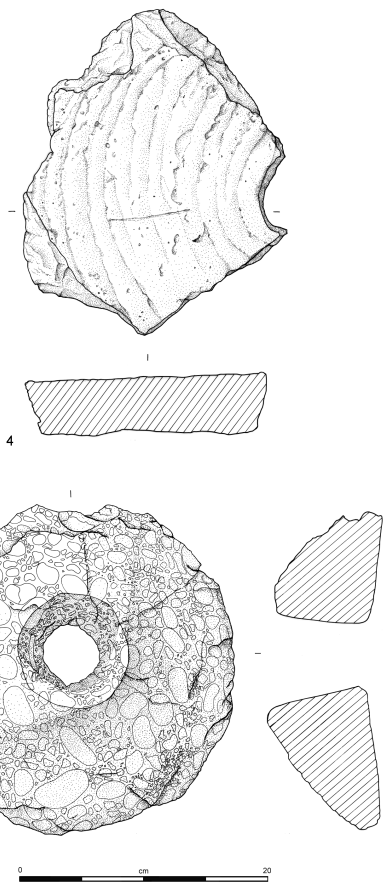


Figure 12: Finds of stone (4, 5). Scale 1:4

In addition to the above objects, the excavation produced several small fragments of millstone grit and lava, which probably came from querns.

Tile

A small assemblage of tile, amounting to *c*. 2.0kg, was recovered from the excavation. The assemblage was scanned visually to determine the range of tile types and fabrics present, and any other features such as glazing and nail holes. Much of the assemblage consisted of small undiagnostic fragments, in a range of fabrics typical of Roman tile (shelly, grogged, sandy). Peg tile of post-medieval or later date was present in three contexts (198, 239, 373).

ENVIRONMENTAL SAMPLING

James Rackham

Introduction

During excavations at Meppershall twenty-seven soil samples were collected from securely stratified features for environmental analysis. Most of the samples are assigned to Phase 3, which spans the late 3rd to 4th century and the 4th century AD. An assemblage of animal bone was recovered by hand from stratified excavated deposits. The samples were processed and assessed and the animal bone assessed and reported (Rackham 2003). Detailed studies were instituted on all the samples and the bone assemblage. Detailed catalogues and reports on the analysis of this material are retained in the site archive.

Evidence for Smithing

During the sample processing a magnet was run over the residue of all the samples and the magnetic fraction obtained in this way then checked for hammer-scale. These are tiny plates and spheroids of iron rich slag produced when hot iron is worked at the anvil, and when present in any quantity are positive evidence for iron smithing on the site. Almost all the samples taken from the southern half of the site produced some hammer-scale, while those in the north produced none. Concentrations are highest in the 4th-century pits around the spring and two Phase 3 ditches in the south-west part of the site. Three of the Phase 4 pits also produced slag during excavation and from the samples, while two other features, pit [153] and enclosure ditch [8001], produced slag during excavation. None of these concentrations were high, but their distribution does suggest some limited smithing activity may have been taking place adjacent to the spring in the 4th century, and smithing may have been undertaken at the site in all phases.

Evidence for Bone Working

Bone-working evidence was recovered from Phase 4 contexts in the southern part of the spring area, layer (198) and the fills of pits [204] and [210]. This comprised primarily sampled material from the pits (204 = 1480g; 210 = 662g), and excavated bone from layer 198. The assemblage comprises several hundred pieces of bone, consisting of strips or small plates, some with parallel grooves or ridges, and one with a ring and dot motif. The unusual aspect of this assemblage is that the plates are clearly made from horse ribs. In each context the worked pieces are accompanied by numerous fragments of horse rib, several of which are the proximal ends of the shaft with the mid and distal shafts (the straighter portion) of the rib sawn off. The use of a saw on the ribs at this date is a clear indication of craft work not butchery, and the small width of all the unfinished or discarded plates supports their derivation from the horse ribs rather than any other species. The mid and distal shaft of the rib has been sawn from the proximal end. Its edges have then been 'shaved' off and the two sides of the rib shaft then split apart. The internal cancellous tissue is then 'shaved' off and also sometimes the outer surface to make the basic strip approximately 10mm wide and perhaps 100mm long, although few of this length were recovered. No more than half a dozen fragments carry any decoration.

By analogy with other Roman sites (Crummy 1981, 1983) decorated strips of bone of the type recovered here were used as casings or inlays on wooden furniture such as caskets or boxes. In the Saxon and medieval periods cattle ribs are generally used. These are broader and allow the manufacture of much larger plates. The author is not aware of any other workshop of Roman or medieval date in this country that has been shown to use horse ribs for bone working. Since 95% of the bone working evidence was recovered from

soil sampling it is likely that these deposits must have contained considerably more material, but it is difficult to estimate the scale of production of such a workshop. Its location next to the spring suggests that water was an essential resource for the workshop, perhaps for soaking the ribs before working, but the occurrence of such a workshop on what appears to be a rural late Roman farmstead, rather than the more characteristic urban setting is also unusual. In addition to the ribs ten fragments of cancellous and cortical material from deer antler were recovered but no clear evidence of any antler objects or offcuts. While the antler fragments have not been specifically identified they almost certainly derive from red deer. Antler does not appear to have been an important material at the workshop and these fragments may derive from incidental use of antler. A considerable number of very small fragments of bone-working waste were not extracted (but were retained) from the <2mm residue. This is a positive indication that the bone working was carried on at this location since such small fragments are unlikely to be deposited away from the workshop. As such it is likely that there would have been a building in the immediate vicinity, but no evidence of buildings was located during the excavation.

Animal Bone and Shell

Ninety-one contexts produced a total of 1540 hand-collected fragments of animal bone, weighing 41.321kg. Environmental sampling produced a further 2917 bone fragments weighing 5.675kg. The fragmentation level of the excavated bone is relatively low with an average fragment weight of 27g, while that of the sample bone is just under 2g per fragment. This discrepancy (Table 4) is entirely explained by the different efficiencies of recovery between hand collecting and sieving down to a mesh size of 2mm. These two assemblages are considered separately, except for the data on age at death. The detailed report and catalogue of animal bone and shell is retained in the site archive.

Most of the contexts that produced hand-collected bone (40% of the total) were related to the Phase 3 enclosure and associated features. The quantities of bone from the individual phases (Table 5) allow little or no analysis of evidence for changing husbandry during the occupation of the site, so detailed analysis was restricted to the Phase 3 3rd and 4th-century deposits. In these cattle bones dominate, followed by sheep, horse, and pig. The fragmentation index (Rackham 1986a: Watson 1979) for each species (cattle 1.15: sheep/goat 1.15: pig 0.35: horse 1.78) suggests similar levels for cattle and sheep, higher fragmentation for pigs, and much lower for horse bones. This suggests that most horse bones probably entered the deposits as whole bones, perhaps as part of a carcass. The high fragmentation of the pig bones indicates that this species will be underrepresented by simple bone counts, but this is unlikely to be of a sufficient scale to change their relatively low contribution at the site.

Fragment numbers indicate a ratio of 1:4:15 pig:sheep:cattle, while zone counts suggest a ratio of 1:15:63, which seriously reduces the contribution of pigs to the assemblage. As the pig bones are highly fragmented, this latter figure certainly under-represents the pig contribution. If the most frequent zone of any paired element is used (ignoring left or right side) then the ratio is 1:2:7, which markedly improves the contribution of pig. It is clear that cattle were economically the most important, with sheep three to four times less abundant and a very much smaller contributor to the meat diet, while pig appear to have made only a minor contribution. The five chicken bones and the presence of eggshell are testament to another minor contributor. There is no evidence that horse was eaten at the site. The only butchery other than the sawing of the ribs associated with the bone working is a chop mark on a complete tibia. Fragmentation is much lower than the other species and the bones are less gnawed: it is probable that many derive from re-worked horse burials disturbed as new ditches or pits were dug. Dog scavenging has impacted on the sheep bones to a greater degree than other species, such that their relative presence on the site may be underestimated. Not surprisingly a greater proportion of cattle bones carry evidence of butchery (twice the proportion of sheep bones) since cattle carcasses require more butchery to render the meat into manageable sized units.

Dogs are evident from their scavenging activities as well as their bones: small and medium sized dogs only are indicated. A single femur from a human baby was recovered from the upper fill (054) of ditch [8040] suggesting disposal of a body outside of a burial ground.

The two pig skeletons were recovered from adjacent pits (not shown on plan) in the north-west part of the site. The pits were clearly dug for the

Species	Hand collected	Samples	Bone working waste-collected	Bone working waste-sieved
Fragments				
Human	1			
Horse	32	4	65	70
Cattle	330	35		
Cattle size	254	55	14	1241
Sheep/goat	95	39		
Sheep	6			
Sheep size	46	76		
Pig	17	5		
Pig skeleton	2			
Dog	8	2		
Fox		2		
Deer				10
Chicken	5	2		
Snipe		1		
Thrush		2		
Bird indet.		2		
Eel		7		
Small fish, indet.		9		
Oyster		1		
Common mussel		4		
Unidentified	6	1376		
Total	**800 + 2 skeletons**	**1622**	**79**	**1321**
Individuals *				
Small carnivore		1		
Rabbit		1		
Rat		1		
House mouse		2		
Wood mouse		2		
Mouse		3		
Water vole		1		
Bank vole		2		
Field vole		9		
Vole		4		
Common shrew		3		
Lizard		1		
Great Crested newt		1		
Newt		3		
Frog or toad		26		

* no. of individuals based upon the sum of individuals in each sample- bones of small vertebrates were not counted individually.

Table 4: Frequency of each taxa in the hand-collected and sieved assemblages

Species	Phase			
	2	3	4	unphased
Human	1			
Horse	3	17	68	9
Cattle	32	185	25	77
Cattle size	22	124	44	75
Sheep/goat	14	44	6	22
Sheep	1	4	1	0
Sheep size	6	27	3	9
Pig	4	10	1	1
Pig skeleton	0	0	2	0
Dog	1	4	0	2
Chicken	0	4	0	0
Unidentified	0	1	1	0
Total	**86**	**420**	**151**	**195**

Table 5: Frequency of fragments of hand excavated bone by phase

disposal of these carcases and their juxtaposition suggests that they may have been buried at the same time. Although these two pits were originally assigned to Phase 4, the character of the pig bones suggests animals of much more recent date than late Roman. Only very abraded pot was recovered from the fill of one of the pits and on this basis and the bones it is much more likely that these two burials are post-medieval in date.

We can consider the age at death of the cattle herd at the site, but the sample sizes for other taxa are too small. The post-cranial remains of cattle indicate a few calves were killed at the site, but most animals survived until their metapodial and phalangeal epiphyses had fused, perhaps in their third year an appropriate age for animals being slaughtered for meat and hides. The assemblage indicates that most of the bones could have derived from animals of this age, but that a few animals survived to adulthood. Dental analysis provides a different picture. Of the 22 jaws recorded, in five the third molar is either not formed or not erupted, indicating an age under 2–3 years; in four the tooth was erupted but had not undergone any appreciable wear indicating an age of about 2.5–3 years. In ten this tooth had reached Grant's (1982) wear stage 11 or 12, indicating adulthood, and in three it had reached stages 14–16, which represent elderly animals. Combining the epiphyseal and dental evidence the following is indicated: a small number of calves, a significant slaughter of animals at 2–3 years for meat and hides, the retention of a substantial proportion of the herd until adult, and a few animals being kept on until elderly.

Interestingly a number of these cattle are large. Withers or reconstructed shoulder heights calculated using factors in Prummel (1983) indicate a range of 1150–1280mm, with a mean of 1222mm. These are of similar size to cattle found in Colchester (Luff 1982), but suggest slightly larger animals than those from late Roman deposits at Causeway Lane, Leicester (Gidney 1994). One or two unmeasurable fragments indicate even larger animals. No characteristic 'Celtic shorthorns' were identified, though horn cores and skull fragments indicate smaller cattle were present. These larger cattle are a result of Roman introductions and breeding and indicate that the farmstead at Meppershall had benefited from these developments. Slightly expanded distal condyles on the metapodials of some of the cattle suggest that these beasts may have been draught animals. Five cattle bones show pathological features. Extra bone growth is present around the distal articulation of a first phalanx and the proximal facet of a metatarsus: both could have been caused by the stresses of draught. Eburnation and pitting occurs on the posterior facet of a lumbar vertebra, and a femur head also shows eburnation of the facet. One fragment of frontal with the base of a 'healed' horn core suggests that the animal was polled artificially.

Much less can be deduced for other species. Sheep mandibles indicate the presence of immature, adult and very old animals. The size and gracility of some of the sheep bones indicate that these still include the relatively undeveloped native stock, although one or two unmeasurable fragments clearly derive from larger animals, perhaps rams. Four complete horse bones allow some assessment of these animals. A withers height range of 1328–1399mm is indicated on two metatarsi and two tibiae, with a mean of 1380mm, or approximately thirteen and a half hands. This is typical of Roman horses in Britain (Rackham 1995) and is similar to modern ponies. There is no evidence for any juvenile horses at the site, but the proximal end of one metacarpus shows the growth of bone around the joint consistent with spavin and one rib shows a healed fracture.

The soil samples have yielded a somewhat different bone assemblage, for reasons that have already been examined. One of the most dramatic results is that, in total, identified sheep (or goat) bones exceeded those of cattle. This contrasts markedly with the hand-collected assemblage and suggests that, owing to their gracility and the small size of many sheep bone fragments, hand collection has been heavily biased towards the cattle and horse bones. The fragmentation index of 1.15 for cattle and sheep reflects an unusually low level of fragmentation (0.5 to 0.7 is more typical for hand-collected assemblages) and together with the sample data suggests that the hand-collected bones do not reflect the material deposited on site. It may be that sheep bones were as abundant as cattle or nearly so, but most of the smaller identifiable fragments of sheep/goat bone were missed during excavation. This poses a problem and suggests that we cannot with any confidence estimate the relative proportions of these two species. Pig bones occur in five of the samples and horse bones in six, although two of the latter include the bone-working debris. Dog and fox bones were both found in one sample, as were probable chicken phalanges, and the deer antler fragments found have been noted above.

The samples have also produced a small number of bones from small wild species that were almost certainly exploited for food. These include part of a snipe bill, two bones of thrush family similar in size to a song thrush, two unidentifiable bird bones, seven eel vertebrae and nine small fish vertebrae, probably small freshwater taxa. A very small number of oyster and mussel shell fragments were recovered, and three samples produced bird eggshell, almost certainly chicken, with one fragment from a much thicker shelled species. While it is not impossible that the snipe and thrush are part of the natural death assemblage on the site, and the post-Roman spring may well have attracted both species, their contexts could readily indicate that they form part of the domestic food waste, as the other remains clearly do.

In contrast to the bones discussed above, the small mammal, reptile and amphibian remains do reflect the natural fauna of the site. A single rabbit bone is certainly intrusive but the remainder of the fauna is probably contemporary. One unusual element for a rural site is a single carpus of a rat. Unfortunately this bone is not readily identified to species (*i.e*. black or brown rat) and we cannot establish whether it is a contemporary black rat or a later intrusive brown rat bone. On the other hand, two finds of house mouse indicate contemporary Romano-British habitation or buildings on or near the site. The other taxa, wood mouse, field vole, water vole, bank vole, common shrew, lizard, great crested newt, smooth or palmate newt, frogs and toads are not sufficiently restricted in range to afford a clear indication of the contemporary environment, but the suite generally reflects an open environment with perhaps the wood mouse, bank vole and the newts suggestive of scrub, hedgerows or woodland. The only other indicators of the contemporary environment are the snails. These are relatively rare, possibly a factor of the pH of the soils but the fill (432) of ditch [8023] contained shells which include taxa primarily of grassland habitats (Table 6) and other species typical of a damp ditch environment such as *Carychium* sp., *Lymnaea truncatula* and *Planorbis leucostoma*. In other samples, single shells or small groups reflect a variety of habitats but give little clue to the immediate environment. A single shell of *Hydrobia ventrosa* was found in the fill (016) of ditch [8008], a species associated with brackish water, but not uncommon in ditches.

Charred and Waterlogged Plant Remains
John Giorgi

Identification
The charred plant remains (except charcoal) had already been sorted from all but a few exceptionally rich flots, the latter being divided by size

Feature	172	353	440	8001	8001	8008	8009	8023	8023	8036	8040
Context	173	354	439	126	425	016	005	432	430	014	060
Grassland/open country											
Cecilioides acicula			+	+				+			
Pupilla muscorum								+			
Helicella sp.								+			
Vertigo pygmaea								+			
Vertigo sp.		+									
Vallonia costata				+				+	+		
Vallonia excentrica								+			
Catholic											
Tricia hispida				+				+			
Cochlicopa sp.					+		+				
Shaded and woodland											
Discus rotundatus	+								+		+
Retinella sp.							+			+	
Oxychilus sp.						+	+	+			
Carychium sp.		+						+			
Damp ground and marsh											
Lymnaea truncatula								+			
Planorbis leucostoma								+			
Brackish water											
Hydrobia ventrosa						+					

Table 6: Snail taxa identified from the samples

through a stack of sieves for ease of sorting. A binocular microscope was used together with modern and charred reference material and reference manuals for the identification of the botanical material. All the sorted and identifiable charred plant items were counted except for material that was difficult to quantify (cereal fragments smaller than 2mm, nut shell and fruit stone fragments, stem and cereal awn fragments, charcoal and indeterminate items). Tables showing the results of detailed analysis of the charred plant remains and waterlogged plant remains are retained in the site archive. Taxonomic order follows *The Flora of the British Isles* (Clapham *et al* 1987) and the ecological information is also taken from this work. The charred and waterlogged plant remains are discussed separately.

Charred Plant Remains

All samples produced charred plant remains: a total of 4066 items were quantified. Item frequency and species diversity between the individual plant assemblages varied greatly, with most of the samples containing less than 100 quantified items. Two samples, both from Pit 270, contained just over 57% of all the quantified remains.

Cereals

Most of the plant assemblages consisted of a mix of cereal grains, chaff fragments and seeds of other plants, mainly weed seeds. Cereal grains accounted for 33% of the quantified remains, chaff fragments for 39% and seeds of other plants for 28%. The seeds of other plants were mainly from weeds, though there were also a few other food plants, for example pulses, fruit seeds and stones, and nutshell fragments. Very fragmented charcoal was present in all the samples and, although numerically generally much more abundant than the charred seed and cereal remains, only seven samples produced a charred flot greater than 50ml.

Cereals were well represented on the site, both by grains and by a slightly higher percentage of chaff fragments, though this does not take into account cereal grain fragments smaller than 2mm, which were not quantified. Cereal grains appeared in all the samples, though generally in low quantities, while 56% of the quantified grains came from pit 270. The grains were generally not well preserved and 66% could not be identified to species.

Most (82%) of the identifiable grains were wheat (*Triticum* spp.), followed by significantly smaller amounts of barley (*Hordeum sativum* – 11%) and oats (*Avena* spp. – 6%). There were also possible traces of rye (cf. *Secale cereale*), accounting for less than 1% of the quantified grains.

Chaff fragments were present in 22 samples, almost 76% of them coming from pit 270 and ditch [8023]. Most of the remaining samples contained only small numbers (20 items or less) of chaff fragments. Over 99.5% of the chaff came from wheat, mostly from hulled wheat in the form of glume bases and spikelet forks/bases. A very small number of barley rachis fragments and a few oat awns were also present. Other possible cereal residues present included very small quantities of rounded stem fragments. These may either be from cereal straw or large wild grasses, though it is not possible to distinguish between the two (van der Veen 1991, 353).

Wheat was identified in all but one sample on the basis of 373 grains and 1571 chaff fragments. The morphological characteristics of the well-preserved wheat grains showed the presence of the hulled wheat, spelt (*Triticum spelta*) (15% of the grains in 16 samples), and emmer (*T. dicoccum*) (5% of the wheat grains in 12 samples). Some of the hulled wheat grains could only be classified as either emmer or spelt. However, 69% of the wheat grains could not be reduced to species.

The presence of large quantities of diagnostic spelt chaff (mainly glume bases plus a smaller number of spikelet forks/ bases and occasional rachis fragments) showed the predominance of spelt wheat on the site. Only three possible emmer glume bases were identified in all the samples.

Forty-one free-threshing wheat grains also were present in eight samples, representing 11% of the wheat grains from the site. Eight wheat rachis fragments in two samples suggest that these grains were from hexaploid free-threshing bread wheat (*Triticum aestivum* s.l.).

Barley was represented in thirteen samples by forty-nine grains and seven rachis fragments. The well-preserved barley grains included some twisted and hulled grains, indicating that six-row hulled barley (*Hordeum vulgare*) was present. Twenty-nine oat grains from nine samples were counted, though the absence of oat floret bases made it impossible to establish whether these were wild (*Avena fatua*) or cultivated (*A. sativa*) oats. A small number of oat awn fragments were also present in the rich plant assemblages from pit 270. The four grains that were tentatively identified as rye were from Ditch 8004 (Context 060) and Ditch 8040 (Context 221).

The relative proportion of the cereals at the site with a predominance of spelt wheat reflects results from other Romano-British sites. Spelt wheat appears to be the main wheat grain being used by this period on rural and urban sites (Greig 1991), in both southern and northern England (van der Veen 1992). Emmer wheat, on the other hand, tends to decline in the Roman period with the emergence of spelt wheat, and it is possible that emmer was growing as a relic of previous harvests. Bread wheat is less common on Romano-British sites, and abundant at very few sites (Greig 1991, 309) though this cereal may be under-represented because it is a free-threshing grain.

Barley is also usually well represented on Romano-British sites, though this is certainly not the case at Meppershall. The tentative presence of rye corresponds to previous archaeobotanical research, which shows that it is only occasionally found on other Romano-British sites and never in large quantities, suggesting it was not an important crop in the Roman period. Oat grains are also only usually found in low numbers on Romano-British sites, and in this instance probably represent cereal weeds rather than crops. Indeed, historical evidence suggests that oats were better known in their wild form in the Roman period (Spurr 1986, 61).

Cereals may have had a number of uses; for bread, porridge, gruel and cakes (Wilson 1991, 234). Spelt wheat and barley were used for gruel, known as *puls* or *pulmentus*, which was roasted, pounded, and cooked in water to make porridge, similar to Italian *polenta* (Renfrew 1985, 22). Bread wheat may have been used for making light leavened bread known as *artophites*. Bread was also used in the preparation of other Roman dishes, as shown in the recipes of Apicius, while flour could have also been used for cakes (Wilson 1991, 234). Wheat was probably used exclusively for human food, while barley may also have been used for animal fodder, particularly for horses, and possibly brewing. No sprouted barley grains were found on the site to indicate the latter activity. A small number of the spelt wheat grains from pit 270 did show evidence of having germinated, though not in sufficient quantity to suggest deliberate germination for brewing.

Other Potential Economic Plants

Some of the other charred plant remains from the site may represent economic plants. Twenty-seven leguminous seeds were recovered from thirteen contexts, including two tentative identifications of pea (cf. *Pisum sativum*) from ditch [8008] (Context 016), and pit [270]. Cultivated pulses are poorly represented as charred remains on Romano-British sites (Greig 1991, 311), peas being used for both human and as animal feed. However, most of the pulses were too poorly preserved or fragmentary to be identified: most could only be classified as vetch or vetchling/pea (*Vicia*/*Lathyrus*/ *Pisum* spp.), and may represent weeds rather than a cultivated variety.

Wild fruits that may have been exploited as food included small amounts of hazelnut (*Corylus avellana*), represented by charred shell fragments in four samples, a single elder seed (*Sambucus nigra*), and a fruit stone fragment of *Prunus* sp.

Wild Plants

The other botanical material in the charred assemblages comprised seeds of wild plants, mainly weeds, which appeared in virtually every sample. However, species diversity and item frequency in the individual samples was not particularly high, with generally low numbers of seeds (51 or less) in all but the two samples from pit 270, which accounted for 65% of all quantified weed seeds from the site.

The wild plants represented consisted mainly of weeds of disturbed (including arable) ground and waste places, though most of these seeds could not be reduced to species, thereby limiting ecological interpretation because species within a genus may grow in significantly different habitats. However, the association of most of the charred weed seeds with cereal grains suggests that they are probably mainly cereal weeds, imported onto the site incidentally with the harvested grain rather than growing wild in the vicinity of the site.

The best represented species in terms of item frequency and occurrence were wild grasses, which accounted for almost 55% of the quantified weed seeds. Bromes (*Bromus* spp.) were particularly well represented, while rye-grass (*Lolium* spp.), rye-grass/fescue (*Lolium*/*Festuca* spp.) and poa (*Poa* spp.) were also identified, together with a large number of indeterminate grass seeds. Other well represented weeds were docks (*Rumex* spp.), including sheep's sorrel (*R. acetosella*), stinking mayweed (*Anthemis cotula*), medick/trefoil (*Medicago*/*Trifolium* spp.), sedges (*Carex* spp.) and buttercups (*Ranunculus acris*/*repens*/*bulbosus*). Other characteristic arable weeds appearing only occasionally and represented by

only small numbers of seeds included knotgrass (*Polygonum aviculare*), black bindweed (*Fallopia convulvulus*), cleavers (*Galium aparine*), goosefoots etc. (*Chenopodium* spp.) and scentless mayweed (*Tripleurospemum inodorum*).

A number of the plants in the assemblages are typical of grassland environments. These include the leguminous species medick/trefoil, while some of the wild grasses and buttercups may also grow in grassland habitats. Sedges also grow in wetland habitats, along with other more typical grassland species occasionally represented in the samples, including lesser stitchwort (*Stellaria gramineae*), ribwort (*Plantago lanceolata*) and self-heal (*Prunella vulgaris*). These plants could be interpreted as collected hay fodder residues, but their association with grains suggests that they are probably cereal weeds. Indeed, it has been suggested that the appearance of these grassland plants in charred cereal assemblages recorded on other Iron Age and Romano-British sites may be an indication of different levels of soil disturbance, and thus different arable weed communities compared to today (van der Veen 1992; Hillman 1984). For example, sedges and spike-rush (*Eleocharis* spp.), also identified at Meppershall, have been found in Roman granary deposits of spelt and bread/club wheat at South Shields (van der Veen 1992, 76). The significance of these wild plants with regard to aspects of crop husbandry is discussed below.

Crop Husbandry

Charred by-products from crop processing, particularly the weed seeds found in association with the cereals, may provide information on aspects of crop husbandry. Evidence from the Meppershall weed assemblage is limited because most of the weed seeds could not be reduced to species.

Arable weeds may provide an indication of the soil types being cultivated around a site. Stinking mayweed, which was well represented, is most frequently found on heavy clay and clay loam soils. There were virtually no other strong indicators of the range of soils being cultivated other than occasional records of sheep's sorrel, a plant that is common on acidic soils but infrequent on calcareous soils, and a single seed of annual knawel (*Scelaranthus anuus*) which is found on dry sandy and gravelly soils.

Spelt wheat, the main cereal at the site, is a particularly hardy grain and can grow in a wide range of both heavy and light soils. Barley can also grow in a range of soils, though it is best suited to light loams. However, it cannot tolerate areas of poor drainage, or locations where the acidity is less than pH6 (Jones 1981, 105). Bread wheat is normally associated with deep clay loams and requires greater soil fertility than spelt (*ibid,* 107). Rye may not have been intentionally cultivated at the site, but it can grow in poorer acidic soils.

Sowing times may be determined by examining the germinating times of arable weeds. Thus cleavers, an autumn germinating weed, which was identified in several samples, suggests the autumn sowing of cereals. This weed has been found together with the remains of spelt from other Romano-British sites (Hillman 1984). It does not exclude the possibility that some of the cereals at the site were sown in the spring; indeed, both barley and pulses are traditionally spring-sown.

Waterlogged Plant Remains

All the samples from the site contained varying amounts of 'waterlogged' seeds, and it is difficult to separate those remains that result from intrusive activity (with large amounts of rootlets in some samples) from seeds that may be contemporary with the sampled deposits. Only four samples with high item frequency and species diversity and the presence of insect remains were considered for analysis of their waterlogged plant remains. The remaining samples did show a consistency in the range of species represented as waterlogged material, with mainly elder and blackberry/raspberry (*Rubus fruticosus*/*idaeus*) seeds and to a lesser extent, nettles (*Urtica* spp.), goosefoots etc/oraches and black nightshade (*Solanum nigrum*). Interestingly, most of these species were well represented in the organic samples, while the fruit seeds are fairly robust and could be a reflection of differential preservation and survival, rather than representing intrusive material.

The four samples examined for waterlogged plant remains were from pit [259] (context 250), layer (198), and ditch [8001] (context 425) and ditch [8023] (context 430). The richest waterlogged plant assemblages were from pit [259] and layer 198, both of which were within the spring area. Both contained a large quantity of very fragmented wood, moss, and some thorns and bud fragments and a similar range of fruits and seeds from plants associated with a range of habitats.

Wetland plants, including aquatics, were well represented in these two samples, with particularly large numbers of *Apium* seeds, along with watercress (*Rorippa nasturtium-aquaticum*),

celery-leaved crowfoot (*Ranunculus sceleratus*), crowfoots (*R*. subgen. *Batrachium*), sedges, and rushes (*Juncus* spp.), the latter only being present in layer (198). There was also a wide range of plants of waste places and disturbed (including cultivated) ground. Well-represented species included goosefoots etc/oraches, docks, stinging nettle (*Urtica dioica*), small nettle (*U. urens*) and chickweed (*Stellaria media:* mainly in pit [259]), with occasional records of other weeds including *Polygonum* species, e.g. knotgrass (*P. aviculare*).

A small number of grassland plants were also represented in the two samples, with large numbers of self-heal (in pit [259]), buttercups, thistles (*Carduus/Cirsium* spp.), hawkbit (*Leontodon* spp.) and indeterminate grasses (in layer 198). While some of these plants may have been growing as arable weeds, there were few charred cereal remains in these two samples, so this range of plants may reflect a grassland habitat close by, or possibly the residues of hay fodder (*c.f.* Greig 1984). Finally, there was a shrub/hedgerow component to these two assemblages, with a good representation of both elder and blackberry/raspberry, and also occasional records of sloe/blackthorn (*Prunus spinosa*), hazel nutshell fragments and hawthorn (*Crataegus monogyna:* in layer 198).

The samples from ditches [8001] and [8023], both taken from the northern part of the site produced much smaller waterlogged plant assemblages in terms of both item frequency and species diversity. These consisted of mainly elder and blackberry/raspberry seeds and a range of plants of disturbed ground and waste places, particularly stinging nettle and henbane (*Hyoscyamus niger*), plus a small number of other weeds including dyer's rocket (*Reseda luteola*), thistles, fool's parsley (*Aethusa cynapium*) and chickweeds. Some of these may be arable weeds associated with the large quantity of charred plant remains present in both these samples. Only a small number of wetland plants were present, e.g. occasional records of hemlock (*Conium maculatum*) and sedges.

Another interesting find in the sample from Pit 157 was six uncharred grape seeds (*Vitis vinifera*). It is difficult to establish whether or not these seeds are intrusive, though the pit is located close to the spring area. Finds of grape seeds from numerous sites in Roman Britain, particularly from London, testify to the consumption of this fruit, though it is not possible to establish whether the grapes are from imported dried fruit or locally grown produce. Viticulture in Roman Britain has been suggested on the basis of grape skins from Gloucester, and vine rods at Boxmoor villa, Hertfordshire (Renfrew 1985, 24), while excavations at Wollaston, Northamptonshire, have revealed possible evidence for an extensive Romano-British vineyard (Meadow 1996). Therefore, the cultivation of grapes on or near the site cannot be completely ruled out.

DISCUSSION

Although a small amount of Iron Age pottery was recovered from the site, it seems likely that its development commenced in the late 1st to early 2nd century AD. Though no structural remains were discovered during the excavation it appears that the site formed part of a small Romano-British farmstead, founded at this time. From the configuration of features revealed in the excavation, the farm was almost certainly located on the slightly higher ground to the south and east of the site, within the area defined by the two phases of enclosure ditch. From the ceramic evidence it seems likely that the site reached its peak during the 3rd and early to mid 4th centuries. During the second half of the 4th century the farmstead was abandoned, probably as ground conditions became wetter, owing to either climatic change or failure to maintain drainage systems. A significant finding from 4th-century contexts was evidence of bone working.

Ditches [8002], [8003], [8006] and [8043] appear to represent the earliest enclosure on the site, possibly dating from the late 1st or early 2nd century AD (Phase 2). With these are associated a number of linear features (e.g. [8010], [8022], [8028], [8029]), possibly representing activity within the enclosure. This pattern is repeated in Phase 3, with the cutting of enclosure ditch [8001], and ditches [8020], [8021], [8025] and [8026] to the east of it. Also part of this phase are several small linear features ([8020], [8021], [8025]) with almost vertical sides and flat bases, suggesting that they might have been sleeper beam slots. However, as no occupation surfaces or other structural evidence was identified in the vicinity this identification remains uncertain. While ditch [8001] was in use it seems to have been maintained, as successive re-cuts were identified. During the mid to late 4th century maintenance of the enclosure ditch seems to have ceased, and it was allowed to silt up, along with other ditches on

the site. As a result, the area around the spring seems to have rapidly become waterlogged.

The range of pottery recovered from the site shows that the settlement had trading links with other regions in Britain and abroad. Coarse wares were being brought in from the surrounding areas including production centres at Harrold to the north and Hadham in Hertfordshire. As one would expect the geographical sources of the Roman fine wares were much wider, and pottery from the Nene Valley, Oxfordshire and Hampshire areas has been identified. As on most Roman sites some Samian ware from Gaul was also present in the assemblage.

While excavations at Meppershall did not provide any direct (e.g. structural) evidence relating to the occupation of the site, they did reveal information regarding the economy of the site. It is clear that, in addition to farming, the site's inhabitants were also engaged in bone working. Evidence of iron-smithing, whether connected with agricultural activities or a totally separate enterprise, was also recognised.

Bone Working

Evidence was recovered from the 4th-century pits around the spring indicating that horse ribs were being sliced into small platelets, of which several hundred fragments were found. This is very unusual, and it is not clear what these platelets were being used for. Though a few fragments have incised parallel grooves or ridges, and one carries a ring and dot motif, most of the assemblage appears to comprise unused or unfinished strips of bone plate or off-cuts. The fact that the bones were worked with a saw, a blade that split the edges off the ribs and a tool that was used to shave down both faces of the plates implies a professional or semi-professional craftsman. The quantity of material from the samples, given that these represent only a small proportion of the deposits in the pits, suggests that the workshop functioned for some time, particularly since the level of discard of part worked material suggests that a very considerable number of successful plates must have been manufactured or the craftsman was a very poor apprentice! The large numbers of uncounted tiny fragments in the residue suggesting *in situ* waste and trampling is a good indication that the workshop was located adjacent to the pits and it seems probable that it was associated with a structure of some sort. It is possible that decorated strips of bone of the type recovered here were used as casings or inlays on wooden furniture such as caskets or boxes (Crummy 1981, 1983). Boxes or furniture with casing or inlay are not cheap 'everyday' items, and if the craftsman was at the site to manufacture something for the occupants this suggests some social status. Pieces of bone inlay are not common finds and few waste assemblages such as this have been published. Unusually at Meppershall, the plates are made from horse rib. The plates were made from the mid and distal shafts (the straighter portion of the rib) with the proximal ends sawn off and discarded. The use of a saw on the ribs at this date is a clear indication of craftwork not butchery, and the narrowness of all the unfinished or discarded plates further shows that they derive from horse ribs rather than any other species. In the Saxon and medieval periods cattle ribs are generally used for plate making, as they are broader and allow the manufacture of much larger plates.

Iron Smithing

Evidence for iron smithing in the form of hammer-scale was recovered from across the southern half of the site, the highest concentration coming from the features around the area of the spring. Hammer-scale comprises tiny plates and spheroids of iron rich slag produced when hot iron is worked at the anvil. Four of the late Roman pits and enclosure Ditch 8001 also produced iron slag. None of the concentrations are high, but their distribution does suggest that some limited smithing may have been taking place adjacent to the spring during the later part of the 4th century. It is also suggested that some itinerant smithing was taking place throughout the occupation of the site.

Agriculture

The charred and waterlogged plant remains from the site provide both an insight into the arable agricultural economy of the site and the character of the local environment. Spelt wheat appears to have been the main cereal cultivated at the site, while bread wheat and barley appear to have been grown on a smaller scale; the oats were probably cereal weeds while little comment may be made on the few rye grains.

Other food plants included possible evidence for the cultivation of pea, while grapes may have been consumed, although the origin of this fruit as either imported dried fruit or locally cultivated fruit cannot be established. Some of the wild fruits, elder, blackberry/raspberry, hazel nut, sloe/blackthorn, represented by both charred and waterlogged plant remains, may have been gathered and consumed from time to time.

The composition of the individual charred plant assemblages is fairly similar, consisting mainly of the residues from the latter stages of crop processing, including both the by-products (from sieving and de-husking of the glume wheats) and products (accidentally charred grain). The nature and distribution of the larger charred plant assemblages does not show any significant variation. There is, however, a greater concentration and range of crop-processing waste in the central part of the site, adjacent to the spring area; while debris from only de-husking of the glume wheats (possibly from piecemeal processing of stored spikelets) occurs in the two rich charred plant assemblages from the northern part of the site and in the ditch fill to the east, in deposits assigned to the two previous phases of activity.

The cereal weeds provide little information on crop husbandry practices with some evidence for the cultivation of heavy clay soils and only extremely tentative evidence for the cultivation of sandy soils. There is also evidence to indicate the autumn sowing of at least some of the cereals. Finally, the waterlogged plant remains suggest a generally disturbed environment with indications of a shrub/hedgerow community and a wet habitat (including bodies of water, albeit possibly temporary) in the central part of the site. Whether or not some of these latter plants derive from deposits that post-date the use of the site is problematic. Since several of the pits in this area did not produce significant evidence for waterlogging (Rackham 2003), this suggests that during their use this area of the site was reasonably dry. Layer 198 sealed the pit fills, so it must at least post-date the pits and probably the Romano-British occupation of the site. Perhaps the lack of channelling of the water from the spring and the debris of occupation around it lead to the development of the marshy conditions evident from later deposits after occupation ceased. Only Ditch 8023 produced sufficient snails to allow any environmental reconstruction, and it is clear from this assemblage that the environment adjacent to the sampled ditch was open grassland, accompanied by a fauna that might be expected in the ditch itself. A scatter of shade-loving taxa in other samples cannot be interpreted but is not inconsistent with what would be expected under hedges alongside the field ditches excavated.

The animal husbandry on the site appears to have been focused on cattle, although sheep may have been much more important than the hand-excavated bone assemblage suggests. Pig seems to have made the smallest contribution of the major farm animals except chickens, which are infrequent in both excavated and sampled assemblages. Some cattle were slaughtered at a 'prime age' for meat production, but apparently a fairly large proportion was kept until adult. This indicates other economic uses for the herd, probably included milking, breeding and draught. It is possible that the older profile suggested by the dental data reflects younger stock leaving the farm on the hoof for markets elsewhere. There is in fact no direct evidence for animal breeding at the site, other than the two piglet skeletons, which are certainly of much later date. The youngest beasts reflected in the assemblage are three cattle of about six months, not young enough to indicate breeding on site. Much of the bone debris derives from consumption and food waste, and has been butchered and subsequently scavenged after discard. Farm casualties, such as still-born calves or later deaths, were perhaps disposed of elsewhere. While the cattle show clear evidence for improvements over native stock, the sheep are still fairly small gracile animals. Some of the cattle were almost certainly used for ploughing or other draught, leading perhaps to the pathologies of the feet and hip that were noted. Other food items in the assemblage include oysters, mussels, hens' eggs, eels, possibly other small fish, snipe and thrush. There is no clear indication that the horse bones derive from food waste and these animals were probably used for riding or driving (alternatively as 'harness animals'). Horse ribs were also being used for bone working.

A few of the food items, such as oysters, mussels and possibly grapes, suggest trade, and presumably the products of the bone workshop were traded off site, along with the agricultural produce. The domestic character of much of the debris in the samples and the evidence for the bone workshop, and the latter stages of the crop processing in the samples near the spring indicate that at least in the mid-late 4th century the spring was a focus for

activity. This appears to have included craft and domestic activities and must have been associated with buildings on this part of the site. To the north-east of the site activities may have been more specifically related to agricultural activities and earlier stages in the crop processing cycle in an earlier phase, although domestic debris was entering these deposits also.

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A Roman ditch and late-Saxon boundary ditches at King William Road, Kempston

Charlotte Walker and Anthony Maull

with contributions by
Karen Deighton, Val Fryer and Anna Slowikowski

and illustrations by Carol Simmonds and Charlotte Walker

SUMMARY

A small open area to the rear of 1 King William Road, Kempston was excavated prior to the construction of housing. Evaluation had revealed what appeared to be late Saxon property boundaries, and the excavation aimed to examine the nature of these features more fully. The excavation unexpectedly revealed a large Roman ditch, dated to the 1st to early 2nd centuries AD, probably an enclosure ditch. No other Roman features were present, but only the north-east corner of the enclosure was examined. The late Saxon ditches traversed the whole width of the area and appear to have formed a plot boundary system that was retained throughout the medieval period. Further gullies, pits and postholes were also present, which reinforces the suggestion that the area was situated to the rear of tenement plots. A number of post-medieval and Victorian features were found which related to backyard activities, and included construction trenches for a small building, and at least one well. At the eastern extent of the site, the metalled surface of the old lane linking Kempston High Street to the corn mill adjacent to the River Great Ouse was seen.

INTRODUCTION

An archaeological excavation was carried out by Northamptonshire Archaeology in August 2005 to the rear of 1 King William Road, Kempston (NGR TL 0245 4739; Fig. 1). The work was commissioned by CgMs Consulting on behalf of O'Neill Homes. The excavation was undertaken as part of the mitigation strategy fulfilling a condition placed on planning permission for a small housing development on the site. A brief issued in April 2004 (Mather 2004) outlined a staged approach to the archaeological investigation of the site. An initial field evaluation, to assess whether further work was required, was undertaken in June 2004 by Northamptonshire Archaeology on behalf of CgMs Consulting (CgMs 2004). This demonstrated the survival of archaeology dating from the late Saxon to the post-medieval periods.

As a result of the potential revealed by the evaluation stage, a project design was prepared detailing the scope of works necessary to fulfil the condition attached to the planning permission (NA 2005). All works were approved by the Bedfordshire County Archaeological Officer prior to excavation commencing.

The archive will be deposited with Bedford Museum (Accession No. BEDFM 2004.136), and the client report is available online with the Archaeology Data Service, OASIS/ADS No. 15136.

TOPOGRAPHY AND GEOLOGY

Kempston is situated on the south bank of a prominent bend of the River Great Ouse, which flows from west to east towards the county town of Bedford. The geology of the area consists predominantly of Oxford Clay and Kelloway Beds (www.bgs.ac.uk/magazine/geology/home.html). The site lies in the north-west part of Kempston known as Bell End. The area of application encompasses 906m^2 comprising waste ground and part of a lawn currently attached to 1 King William Road. It is bounded on all sides by residential

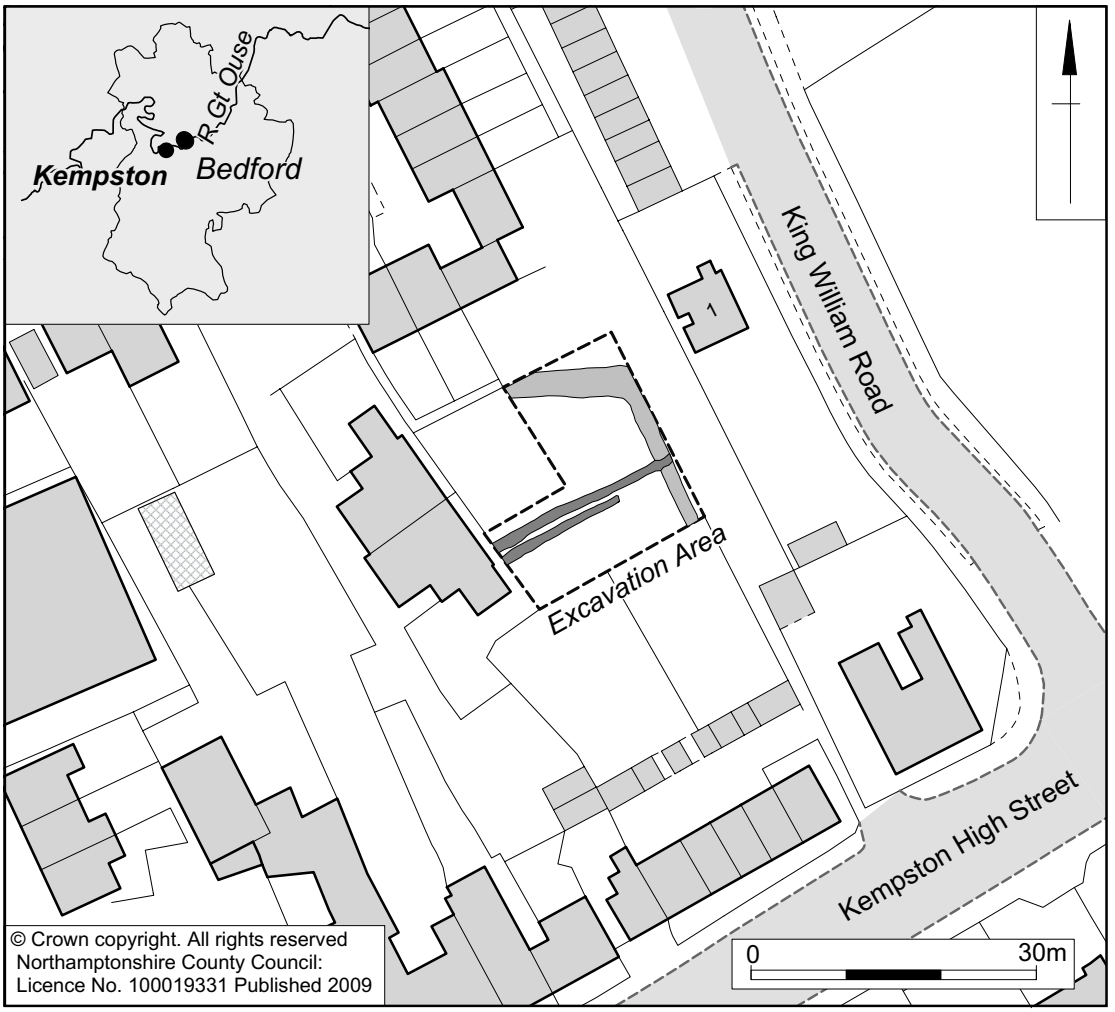


Figure 1: Site location

development, with the High Street located to the south (Fig. 1).

The development lies approximately 300m south of the present river course on the first gravel terrace at about 28m OD. The soil profile encountered on site included a horizon of alluvial silty clay interspersed with patches of river-borne gravel through which features were cut, and similar horizontal deposits of subsoil and topsoil. The topsoil was humus-rich from the site's previous use as an orchard.

Archaeological and historical background

Although the site was not known to contain any archaeological remains, the area around the site is rich in prehistoric and Roman settlement and activity, in common with other river valley locations. Many chance finds of prehistoric flint tools have been made in the vicinity and there is cropmark evidence for the existence of possible Bronze Age round barrows to the west of the site. Iron Age and Roman finds from the area indicate a densely occupied region taken up by multiple small farmsteads and settlements. To the west of the current site an excavation was carried out on what may exemplify a planned Roman village, with a gridded network of roads and remains of farm buildings (Dawson 2000). There is some evidence that there was a villa at Kempston Church End to the north-west. The existence of a Roman ford to the north of the site is disputed, the probability being that the ford is, in fact, modern in

origin. An excavation undertaken in 1985–7 at King William Close to the north-east of the current site found a Palaeolithic handaxe, Neolithic and Bronze Age pottery, as well as Roman to medieval ditches, gullies and post-pits (Kennett 1986, 26).

Dawson (1999) states that the origins of the parish may have followed a model in which an Anglo-Saxon palace (or *villa regalis*), which was supported by a number of hamlets, grew out of a Roman estate. Kempston was situated just within King Alfred's territory when the Danelaw was defined in the 9th century. By the late 10th century Kempston was at the centre of an estate held by Earl Tostig, which was later seized by Edward the Confessor. The manor of Kempston was held by Countess Judith, niece of King William, by the time of the Domesday Survey in 1086. In addition to the estate centre, there were, according to Domesday records, two thegns resident at Church End, Box End or Hardwick.

Excavation at Kempston Manor, to the east of the site, has identified evidence of probable high-status, manorial Saxo-Norman structures. These are possibly part of Countess Judith's holding (Crick and Dawson 1996). A medieval cemetery, dating to the 11th and 12th centuries, was excavated in the 1860s at Up End, near the manor site. A further cemetery dating to the same period was recovered and subsequently investigated in Brook Drive, to the south-east of the site. Thought to be situated too far from the manor complex, it was suggested that the site represented an early settlement pattern, probably the graveyard of a previously unknown missionary chapel.

Excavation methodology

The site was stripped of topsoil and subsoil, under archaeological supervision, using a 360° excavator fitted with a toothless ditching bucket to reveal significant archaeological deposits, or where these were absent, the natural substrate. All archaeological recording was carried out in accordance with standard procedures. A metal detector survey was undertaken during the excavation.

SUMMARY OF CHRONOLOGY

Human presence in the area during the Neolithic period is attested by ten worked flints which were found as residual items in later features. The presence of three blades, one of which was in the process of being worked as a leaf-shaped arrowhead, suggests that the material is at least predominantly of Neolithic date and perhaps specifically dating to the early to middle Neolithic (A Chapman pers. comm.).

The corner segment of a large Roman ditch lay in the eastern part of the excavated area (Fig. 2). The ditch was probably part of an enclosure, and may have enclosed a small settlement such as a farmstead. The relative lack of finds and ecofactual evidence suggests that any settlement activity was not in the immediate vicinity of the site.

A pair of parallel late Saxon ditches which had been recorded in the evaluation were further investigated. The ditches were aligned east to west and probably formed some sort of boundary, possibly demarking the rear of peasant tenement plots aligned along what became Kempston High Street. Although the southern ditch was interrupted, both ditches continued across the whole width of the excavation. The pottery assemblage recovered from the ditches is primarily 10th to 11th-century in date, although 13th, 15th and 16th-century sherds were also recovered. This suggests that although the boundary was in origin late Saxon, it remained in use until much later. A fairly large quantity of domestic debris was recovered from the fills of the ditches, including one or more dumps of refuse destroyed by fire, suggesting domestic activity was taking place close to the site.

Several pits were also dated to the late Saxon period. There was part of a possible timber structure in the north-east corner of the site.

A number of post-medieval and modern features were also found, including the remains of a small structure; one, or possibly two, wells; and a number of pits.

THE ROMAN ENCLOSURE DITCH

A broad ditch [166] was located in the eastern half of the site (Fig. 2). The ditch measured up to 2.80m wide to the north, but was narrower to the south, at *c*. 1.3m wide. It was consistently 0.83m deep. The primary and secondary fills, (190) and (165), comprised firmly compacted greyish-brown clay silts with occasional inclusions (Fig. 3; section 2). A segment of the ditch [115] was excavated close to the corner and the primary fill here was partly made up of limestone fragments and irregularly

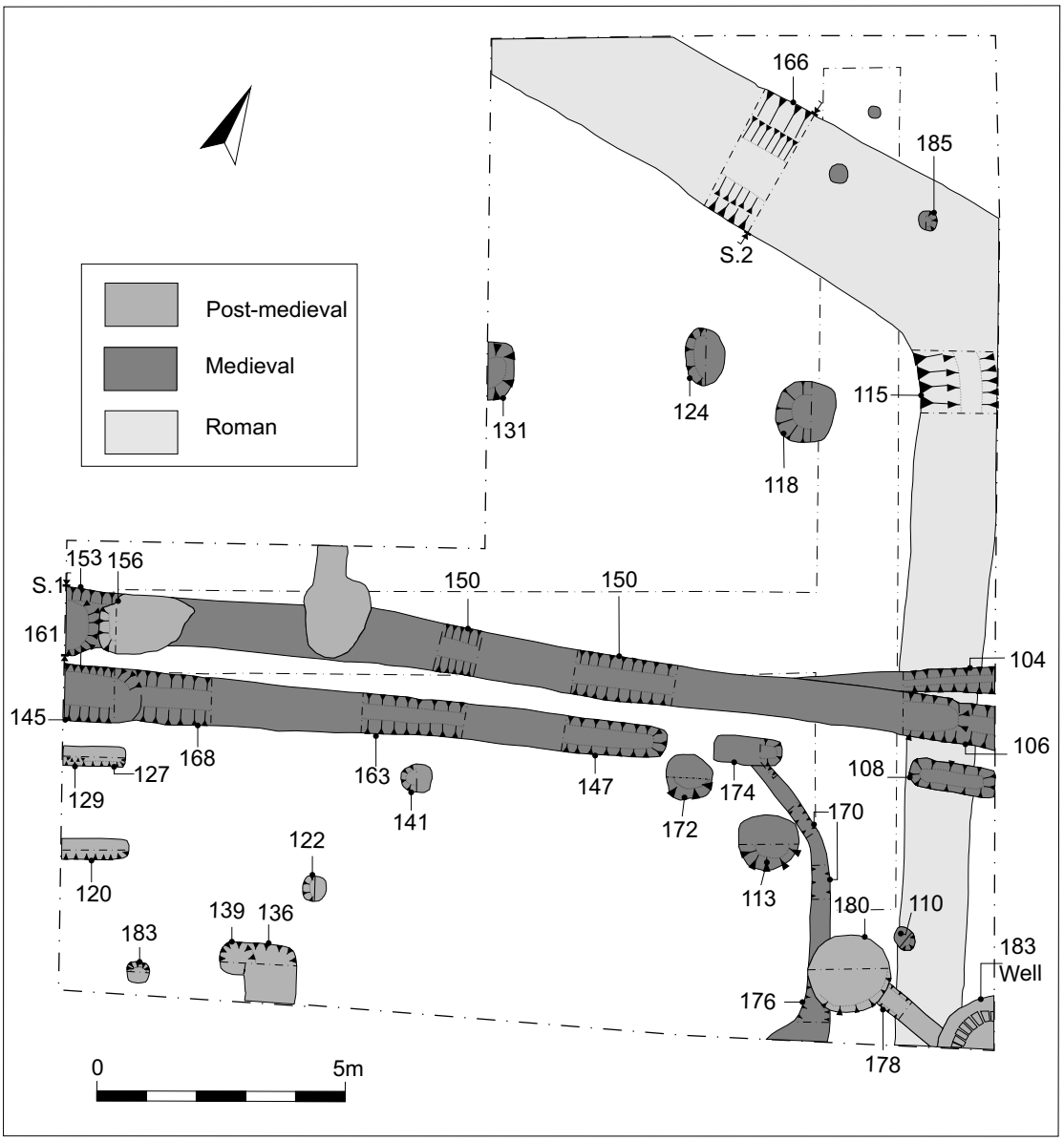


Figure 2: The excavated features

shaped rocks. It is possible that this debris was derived from a nearby structure. Both of these fills had clearly defined boundaries with the surrounding natural. The uppermost fill (164), however, was very similar to the light orange-brown clay silt natural, and it was for this reason that the ditch had not been identified in the evaluation stage of the investigation. The pottery found in the ditch fills was all early Roman in date and mainly of local origin.

ROMAN POTTERY
Anna Slowikowski

Although some contexts contained the odd residual sherd of Roman pottery, only the ditch [166] could be securely dated to the Roman period from the absence of any other pottery. This assemblage of eleven sherds, weighing 78g, is probably early Roman in date, from the absence of any diagnostically late pottery.

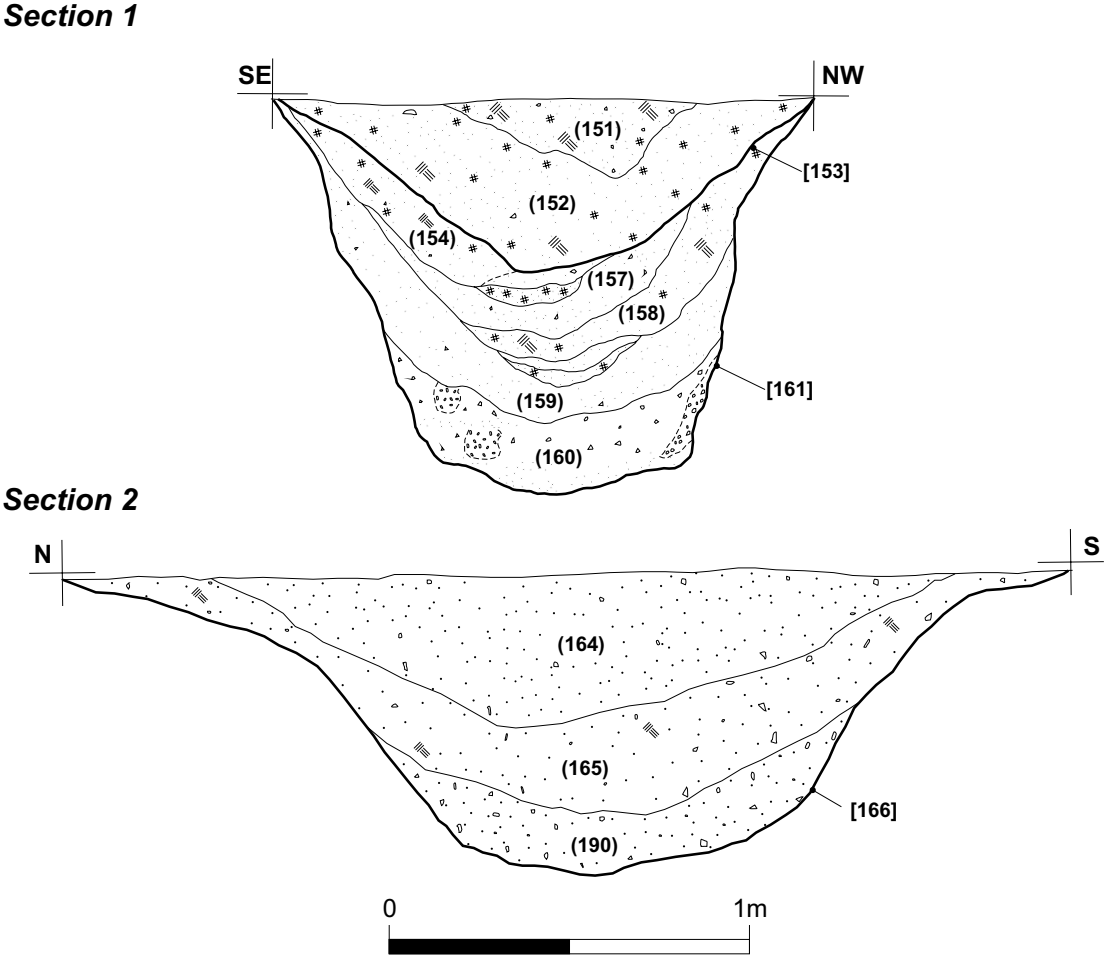


Figure 3: Section 1, late Saxon ditch [153] cutting [161]; Section 2, Roman ditch [166]

The earliest pottery is a sherd of possibly 1st-century grog- and shell-tempered fabric. The Roman assemblage is small and comprises largely grey and orange wares, which are likely to be local. Regional or continental imports are present in the form of a sherd of Verulamium-region ware and central Gaulish samian, possibly from Les Martres de Veyre. A single Roman sherd is sooted externally.

ENVIRONMENTAL EVIDENCE
Val Fryer

The two samples from the Roman ditch both appear to contain high densities of modern intrusive material and, as a result, it is not possible to state with any certainty whether the remaining macrofossils are contemporary with the ditch or not. However, the low density of charred grains and weed seeds recorded may indicate that this ditch was peripheral to any main centre of activity during the Roman period.

THE LATE SAXON AND MEDIEVAL FEATURES

There were two parallel late Saxon ditches aligned east to west (Fig. 2, Plates 1 and 2). Three segments of the southern ditch were excavated, [163], [168] and [147]. The ditch terminated to the east and beyond this the alignment was defined by two short lengths of ditch [108] and [174]. Less



Plate 1: View of late Saxon ditches, looking west

substantial than its northern counterpart, this ditch measured up to 0.75m wide and 0.25m deep, with a wide U-shaped profile. It appeared that much of the fill of this ditch was associated with rubbish deposal, possibly long-term, but more probably as a single episode of dumping at a change of use. To the west, possible faecal concretions were found in the fill, suggesting it was close to domestic areas. Many of the soil samples taken were from this ditch, and the material found seems to have derived from at least one batch of semi-processed grain that had been destroyed by fire.

A dump of daub was found in one of the excavated segments of this ditch. The presence of wattle impressions on two of the fragments suggests that it was derived from some sort of structure, although there was too little evidence to say whether this was a building or something less substantial such as an oven or boundary wall. Two limestone tiles were also recovered, which may indicate that there was a relatively substantial structure in the vicinity. A largely complete St Neots ware jar, which probably dates to the 11th century, was found in the terminal end of this ditch, [147].

Little more than a metre to the east was a short length of ditch, [174], which was 1.35m long and contained a yellow-brown clay silt fill similar to the fill of [163]. A further 2.5m to the east another was another short length of ditch [108], with a wide but shallow U-shaped profile. The gap between these short ditch lengths may have formed an entrance into the plot. If so, the northern and southern boundary ditches would have had to have been of different phases.

The southern ditch [168] was re-cut at the western edge of excavation by [145], which was a more substantial boundary. The ditch was 1.30m deep and had an odd asymmetrical profile; the northern edge was almost vertical, while the southern edge was much shallower. This suggests that the southern edge had been subject to more erosion, perhaps by stock being kept in the area. The primary fill (144) was made up of dark grey-brown silty clay with a fairly large amount of flint and some organic material. The secondary and tertiary fills of the ditch were much the same, although the uppermost fill had a larger organic component. All the segments of this boundary were 10th or 11th-century in date.



Plate 2: Late Saxon ditches, [145], left, and [153] cutting [161], looking west

At the western edge of the site, a large pit or ditch terminal, [161] (Fig. 3, section 1; Plate 2), was 1.10m deep and 0.80m wide and had a wide U-shaped profile. Its fills were made up of successive periods of natural inwash caused by weathering of the edges, interspersed with episodic dumping of organic material. The relatively large number of different fills suggests that the feature may have been open for a long time. At the eastern edge of the site, there was a small gully [104]. Both of these features were late Saxon in date, and they may have been remnants of an earlier phase of the boundary system that was largely replaced by a continuous northern ditch.

The later northern ditch [153] / [150] / [106] extended unbroken across the excavated area. It was 1.45m wide and 0.48m deep to the west, but only 1.03m wide and 0.18m deep to the east. To the west the fills consisted of dark grey-black silty clays with a large organic content, mostly composed of charcoal lumps and flecks. This indicates dumping of refuse, possibly from hearths, which may point to the presence of buildings nearby. To the east the ditch fill was, similarly, a dark grey-black silty clay, but without the organic content. Pottery retrieved from the fills of the ditch is generally dated to the 10th or 11th centuries, although at the eastern end the pottery appeared to consist of 13th-century material, with residual sherds of 11th-century pottery and also some 15th and 16th-century sherds.

There were a number of scattered pits and postholes on either side of the boundary system. Three of the postholes in the north-east corner of the site, including [185], may have formed part of a structure. They were dated by a single sherd of late Saxon pottery, and were up to 0.33m in diameter and 0.09m deep. The rest of the structure may have lain beyond the edge of excavation.

The pits were all fairly similar in terms of size and fill make-up. None had a diameter of more than 1.30m. Pits [131] and [124] were fairly shallow, while [113] and [118] were more substantial, being up to 0.56m deep. Pits [113] and [118] were 10th or 11th-century in date, while pit [124] was dated to the 15th to 16th centuries.

There was a very heavily truncated curvilinear gully [170] / [176] to the south-east, the function of which is unclear. About 4.2m long, it was 0.35m wide and 0.08m deep and contained pottery of 15th-century date.

Late Saxon and Medieval pottery
Anna Slowikowski

The bulk of the assemblage, 160 sherds weighing 723g, ranges from the late Saxon period (10th–11th centuries) to the late medieval period (15th–16th centuries), with the late Saxon pottery predominant. This is generally a poor, abraded and very fragmentary assemblage, although the lower-fired shelly wares naturally abrade more than the harder sandy wares. The average sherd weight is only 4.7g.

The late Saxon pottery comprises mainly St Neots ware or its variants, although a small sherd of Stamford ware was identified. This St Neots pottery is particularly fragmentary and abraded, although there is one substantially surviving jar, made up of twenty-eight sherds, weighing 295g, from the upper fill of ditch [147]. It is probably of 11th-century date.

A smaller part of the assemblage is dated to the 12th to 14th centuries, although all this pottery appears to have been residual in later contexts. Among the fragments are sherds of shelly, Potterspury and Hedingham wares, as well as a number of sandy wares. Only the Hedingham sherd is glazed and comes from a jug.

Two features, pit [124] and the curving gully [170] contained assemblages which could be dated to the late medieval period from the presence of 15th or 16th-century pottery: late medieval oxidised and reduced wares. The fill of pit [124] also contained residual late Saxon pottery.

All the pottery is likely to be domestic in nature, although there is little in the way of evidence for use surviving. Among the St Neots wares, pitting on the interior, an internal white residue and a sooted exterior are found on single sherds.

The ceramic building material
Anna Slowikowski

A small quantity of daub came from ditch [168], which is dated by the pottery to the 11th or 12th centuries. The presence of two wattle impressions, 10mm and 20mm in diameter, confirms that this was daub, although it is uncertain whether it was used as part of a building or another structure, such as a boundary wall or oven. The fabric is coarse and sandy with abundant quartz, moderate quantities of red iron ore and flint, and calcareous inclusions particularly obvious to the naked eye. The uniformity of fabric suggests it all came from the same structure.

Environmental evidence
by Val Fryer

The samples were bulk floated by Northamptonshire Archaeology, and the flots were collected in a 500 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16, and the plant macrofossils and other remains noted were listed (Table 1). Nomenclature within the tables follows Stace (1997). All plant remains are charred. Modern contaminants including fibrous and woody roots, seeds and arthropod remains are present throughout.

Plant macrofossils

Cereal grains/chaff and seeds of common weeds are present at varying densities. Preservation is very variable; some macrofossils are extremely well preserved, while others appear to have been subjected to extremely high temperatures during combustion, resulting in severely puffed and distorted grains and seeds.

Oat (*Avena* sp.), barley (*Hordeum* sp.), rye (*Secale cereale*) and wheat (*Triticum* sp.) grains were recorded, with wheat being predominant in the fills of all but pit [118]. Chaff is not common (possibly due to the high temperatures of combustion, which may have destroyed many of the more delicate chaff elements), but rachis nodes of bread wheat (*T. aestivum*/*compactum*) type were recorded from most samples. Of particular note is the presence of rare rivet wheat (*T. turgidum*) type rachis nodes within the fills of ditch segments [163], [168], [145], and [161]. Although rivet wheat has been recorded from medieval deposits throughout the eastern region, records remain comparatively rare and it has yet to be determined whether free-threshing tetraploid wheats were a pre- or post-Conquest introduction. Oat grains were common within [145] and [161], and were the principal grain recorded from pit [118]. However, only a single floret base was recorded, from [161], and as this lacked the diagnostic basal abscission scar, it is not possible to ascertain whether wild or cultivated species are present. Remains of other food plants are extremely sparse, although fragmentary large pulse (Fabaceae) cotyledons were noted within the fills of ditches [150] and [168].

Sample	1	2	3	4	6	7 / 8	9 / 10
Context	116	146	148	162	167	143/144	158/159
Feature	118	147	150	163	168	145	161
Feature type	pit	ditch	ditch	ditch	ditch	ditch	pit/ ditch
Cereal and other food types							
Avena sp. (grains)	xxx	x	x	x	x	x / x	xx / xx
(awn)	–	–	–	x	x	– / –	– / –
(floret base)	–	–	–	–	–	– / –	– / x
Large Fabaeae indet.	–	–	x coty	–	x coty fg	– / –	– / –
Hordeum sp. (grains)	x cf	x	–	x cf	x	x / x	x / –
Hordeum/*Secale cereale* type (rachis nodes)	–	–	–	–	x	x / x	x / –
Secale cereale L. (grains)	–	x cf	–	–	x	– / –	x / x
(rachis nodes)	–	x cf	–	x cf	x	– / –	– / –
Triticum sp. (grains)	–	xxx	xx	xx	xxx	xxx / xx	xx / xx
(rachis node frags.)	–	–	–	x	x	– / /–	– / –
(rachis internode frags.)	–	–	–	–	–	x / x	x / x
T. aestivum/*compactum* type (rachis nodes)	–	x	x	x	xx	x / x	xx / x
T. turgidum type (rachis node)	–	–	–	x cf fg	x	x / x	x cf / –
Cereal indet. (grains)	x	xx	xx	xxx	xx	xx / xx	xx / xx
(rachis node frags.)	–	x	–	x	–	– / –	– / –
(rachis internode frags.)	–	x	–	–	–	– / –	– / –
(basal rachis nodes)	–	–	–	–	–	x / x	– / –
(detached embryos)	–	–	–	–	–	x / –	– / –
Herbs							
Agrostemma githago L.	–	–	–	–	–	x / x	– / x
Anthemis cotula L.	–	x	x	x	x	x / x	– / xx
Asteraceae indet.	–	–	–	x	–	– / x	– / –
Bromus sp.	x	–	–	–	x	x / –	– / –
Chenopodium album L.	–	–	x	–	–	x / –	– / –
Chenopodiaceae indet.	–	–	x	–	–	x / x	x / x
Fabaceae indet.	x	x	x	–	–	x / x	xx /–
Fallopian convolvulus (L.) A. Love	x	x	–	–	–	– / x	– / –
Galium sp.	–	x	–	–	x	– / –	– / –
G. aparine L.	–	–	–	–	x	– / –	x / x
Lapsana communis L.	–	–	–	–	x	– / –	– / –
Lithospermum arvense L.	–	–	–	–	–	– / –	–/ x fg
Medicago/*Trifolium*/*Lotus* sp.	–	–	–	–	–	x / x	x / –
Plantago lanceolata L.	–	–	–	–	x cf	– / –	– / –
Small Poaceae indet.	–	–	x	x	x	x / x	x / x
Polygonum aviculare L.	–	–	–	x	x	– / –	– / –
Polygonaceae indet.	–	x	–	–	–	– / –	– / –
Ranunculus acris/*repens*/*bulbosus*	–	–	–	–	x	– / –	– / –
Raphanus raphanistrum L. (siliquae)	–	–	–	x	x	– / –	– / –
Rumex sp.	–	–	x	x	x	x / –	x / x
Silene sp.	–	–	–	–	x	– / –	– / –
Stellaria graminea L.	–	–	–	–	–	– / –	– / x
Vicia/*Lathyrus* sp.	–	–	x	x	x	xx / x	xx / xx
Wetland plants							
Carex sp.	–	–	–	–	x cf	– / x	– / –
Eleocharis sp.	–	–	–	–	x cf	– / –	– / –
Sparganium sp.	x	–	–	–	–	– / –	– / –
Sample volume (litres)	20	20	20	20	10	20/ 20	10 / 10
Volume of flot (litres)	0.1	0.2	<0.1	0.2	0.2	0.1/ 0.1	<0.1/<0.1
% flot sorted	100%	50%	100%	50%	50%	100%	100%

Key: x =10 specimens, xx =10–100 specimens, xxx =100+ specimens, coty = cotyledon, fg=fragment

Table 1: Samples from the Saxo-Norman pit and ditch fills

Weed seeds were recorded throughout at a low to moderate density. Segetal *taxa* occur most frequently and include corn cockle (*Agrostemma githago*), brome (*Bromus* sp.), indeterminate small legumes (Fabaceae), black bindweed (*Fallopia convolvulus*), goosegrass (*Galium aparine*), small grasses (Poaceae), wild radish (*Raphanus raphanistrum*), dock (*Rumex* sp.) and vetch/

vetchling (*Vicia/Lathyrus* sp.). The occurrence of seeds of stinking mayweed (*Anthemis cotula*) in all but three samples may indicate that most crops were being grown on the local clay soils. Wetland plant macrofossils comprising sedge (*Carex* sp.) and spike-rush (*Eleocharis* sp.) nutlets and bur-reed (*Sparganium* sp.) fruits were only recorded as single specimens within three samples, pit [118] and ditches [168] and [145].

Charcoal fragments are abundant throughout, along with small pieces of charred root or stem. Other plant macrofossils are exceedingly rare, but indeterminate culm nodes and inflorescence fragments were noted from ditch segments [163], [168], [145] and [161].

The fragments of black porous and tarry material noted within all assemblages are probably mostly residues of the combustion of organic remains (including cereal grains) at extremely high temperatures. However, some fragments had the appearance of porous fuel residues (?coke) and may be modern in origin. Other remains are rare, although small pieces of coal occurred in most assemblages, and possible faecal concretions were noted within sample 7.

Discussion

Cereal grains are common or abundant in all nine samples along with chaff and weed seeds, the latter two possibly indicating that the material is derived from at least one batch of semi-processed grain. As a high density of the recorded weed seeds (for example the corn cockle, brome, black bindweed and wild radish) are of a similar size to the grains, this may suggest that processing was at an advanced stage. Many of the smaller seeds and much of the chaff would have been removed by winnowing, but these larger specimens would persist until removed by hand at the end of the cleaning process. As wheat is predominant in all but one assemblage, pit [118], it is assumed that this was the staple crop, with the oats, barley, rye and the large pulses probably being present as either main-crop contaminants or possibly relicts of earlier cropping regimes. The abundance of small legume seeds within the assemblages is interesting, as it may be indicative of the rotational cropping of the fields with plants which have nitrogen-fixing capabilities, a practice which became widespread from the 13th century as soils became nitrogen-depleted due to prolonged use.

Conclusions

The samples strongly suggest that the production and processing of cereals were of considerable importance to the local economy during the late Saxon and Saxo-Norman period. Wheat was almost certainly the staple crop, as it was best suited to production on the local clay soils, and there may be evidence that some soils were being improved by rotational cropping with leguminous plants. Hexaploid wheat varieties appear to have been grown most frequently, although new tetraploid varieties were slowly being introduced, and the assemblages — though relatively small — provide an important additional record of the early post-Conquest cultivation of rivet type wheat. Although the original provenance of the material is unclear, it would appear most likely that the assemblages are derived from batches of stored grain, which were destroyed during one or more catastrophic fires, the residues from these fires being dumped within any available open feature.

THE ANIMAL BONE

Karen Deighton

A total of 474g of animal bone were collected from a range of contexts during excavation and from sieved samples (mesh sizes 1mm and 3.4mm; sample sizes 20 litres). This material was examined using standard zooarchaeological methods (Stace 1997).

Fragmentation is fairly heavy, with most bones in the form of shaft cylinders or shaft splinters. Surface abrasion is low, which could suggest that bone was buried rapidly after deposition. Only four examples of canid gnawing were noted. No evidence of butchery was seen. Small burned fragments were noted from ditch [150]. A single ovicaprid neonatal element was noted from ditch[145].

The assemblage largely represents the common domesticates, *i.e.* cattle, sheep/goat (no distinctions are made here due to the fragmentation and paucity of the material) and pig (Schmid 1972). The presence of amphibian and vole remains could be intrusive as both *taxa* have burrowing habits. Beyond this, discussion and interpretation of the assemblage are precluded owing to its size and condition.

THE POST-MEDIEVAL AND MODERN FEATURES

Two parallel slots, [120] and [127], at the western edge of excavation (Fig. 2; Plate 1) lay 1.50m apart and were 0.45m wide by 0.17m deep with vertical sides and flat bases. There was a posthole [129] in the base of slot [127]. The slots would have supported a small structure such as an animal shelter that may have had an open end. The fill of the slots and posthole was devoid of any inclusions, which suggests that the structure was dismantled rather than being left to rot *in situ*. The structure was probably late 18th-century in date.

Three postholes of post-medieval date were possibly the remains of a fence-line, [122], [183] and [141]. They were clearly contemporary, since the profiles and fills were uniform. There were a number of post-medieval pits. Two were intercutting, [136] and [139], and dated to the 18th or 19th centuries. A brick-lined well [183] and a nearby pit or unlined well [180] at the south-eastern corner of the site, were 18th or 19th-century in date. The remains of Mill Lane, the former lane leading from Kempston High Street to the corn mill on the River Great Ouse to the north, were seen in section in the eastern baulk of the site.

DISCUSSION

The small excavation in this part of Kempston has provided further evidence of continuity of settlement. The small amount of flint tools recovered attest to some degree of human activity in this area in the Neolithic period, although, given that all the flint tools were residual finds, the nature of the activity cannot be deduced.

The large Roman ditch probably formed part of an enclosure in use in the 1st to early 2nd centuries AD. No other structural evidence from this period was recovered, so it is not possible to define the character of the remains. However, environmental evidence suggests that the area of the excavation was situated away from any main centre of activity. The small pottery assemblage would tend to agree with this conclusion. The discovery of Roman features attests to the density of occupation in the Roman period of this area in general.

The nature of the late Saxon and medieval occupation is poorly defined since the excavation only revealed lengths of ditch and some pits and postholes, but some form of settlement would have been located in the immediate vicinity of the current site, given the amount of rubbish recovered from the ditches and pits.

A major reorganisation of the landscape is evident in many places in the late Saxon period, associated with the process of village formation. The 10th and 11th-century ditches probably relate to this process, forming a boundary which, from the evidence of the domestic rubbish, probably marked the rear of a row of tenement plots established along the northern side of the High Street. That the formation of this site coincides with the first phase of structural evidence found at the manorial complex to the north-east, is further evidence of a major reorganisation of the late Saxon landscape. The extensively excavated moated manor at Tempsford Park exhibited similar expansion and reorganisation in the 9th and 10th centuries with the formation of an extensive system of regular rectangular plots, which formed the basis of settlement for the next 300 years (Maull and Chapman 2005).

The environmental data from the site provides evidence for the growth in population that is thought to have taken place during the late Saxon period and continuing post-Conquest, since the presence of stinking mayweed seeds shows that the less productive local clay soils were being utilised for cultivation. It also appears from the environmental evidence that the inhabitants of this area were practising a rotational cropping system, indicating the establishment of common fields. The evidence for an early post-Conquest occurrence of rivet type wheat adds important information to the corpus of knowledge regarding medieval agriculture in Bedfordshire.

The post-medieval and modern features found during the excavation relate to backyard activities, with the construction of wells, a small structure which may have been used for storage or for penning livestock, and the excavation of pits for the disposal of domestic refuse.

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The remains of Robert de Waudari's adulterine castle, Castle Street, Luton

Joe Abrams and Drew Shotliff
with contributions by Wesley Keir, John Giorgi and Alan Pipe
and illustrations by Joan Lightning

SUMMARY

An adulterine motte and bailey castle was built by the mercenary Robert de Waudari at Luton in 1139. It was only in existence until 1154 when it was demolished under the terms of the Treaty of Winchester, signed the previous year by King Stephen and his agreed successor, Henry of Anjou. In 1963 construction works on the Luton News printing works revealed the remains of a large ditch south-east of Castle Street. It was suggested that this represented part of the bailey ditch of Robert de Waudari's castle. Recent redevelopment of the site has provided a second opportunity to study these remains through open area archaeological excavation.

The excavation has confirmed the existence of the castle ditch and an attempt has been made to map its known, and putative, extent. The topographical reasons behind the castle's location are discussed and the later history of this part of Luton is considered.

INTRODUCTION

As part of their redevelopment at Luton's Holly Street and Castle Street, Bellway Homes' commissioned Albion Archaeology to carry out a programme of archaeological investigation, consisting of watching brief, trial trenching and open area excavation. All work was carried out between 2004 and 2005 (Albion Archaeology 2005a, 2005b) in accordance with a project design prepared by Albion Archaeology (2004), in response to a brief issued by the County Archaeological Officer of Bedfordshire County Council (2004a, 2004b). The project archive will be deposited with Luton Museum, under accession number 2005/48.

SITE LOCATION AND DESCRIPTION

The development area is located *c*. 500m south-west of the historic core of Luton, bordered by Castle Street, Holly Street and Latimer Road (Figs 1 and 2). It is *c*. 0.66ha in extent and centred on grid reference TL 0920 2075. It lies at an average height of *c*. 115m OD.

The historic core of Luton lies on the south side of the Lea where it developed around a series of crossing points over the river (Fig. 3). In contrast to this valley bottom site, the development area lies higher up the valley side where only a relatively thin deposit of terrace gravel seals the underlying chalk (Fig. 4).

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Remains dating to the prehistoric, Roman, Saxon, medieval and post-medieval periods are known to exist within this part of Luton (Albion Archaeology 2003). However, on this particular site, interest mainly focussed on the possibility that the development area preserved part of Robert de Waudari's early medieval, adulterine castle. Robert de Waudari himself was a mercenary who fought for King Stephen against Matilda, during the Anarchy, a period of civil war and unsettled government that characterised Stephen's reign (1135–1154). The king granted both the manor and church at Luton to de Waudari, who subsequently built a castle in 1139 on the strategically important south-western approach to the town (Figs 1 and 3). A large number of castles were constructed during this period; they are collectively known as adulterine, *i.e*. unlicensed.

Such castles were deeply resented by sections of the population, as this extract from the Anglo-Saxon Chronicle for the year 1137 (de Waudari's

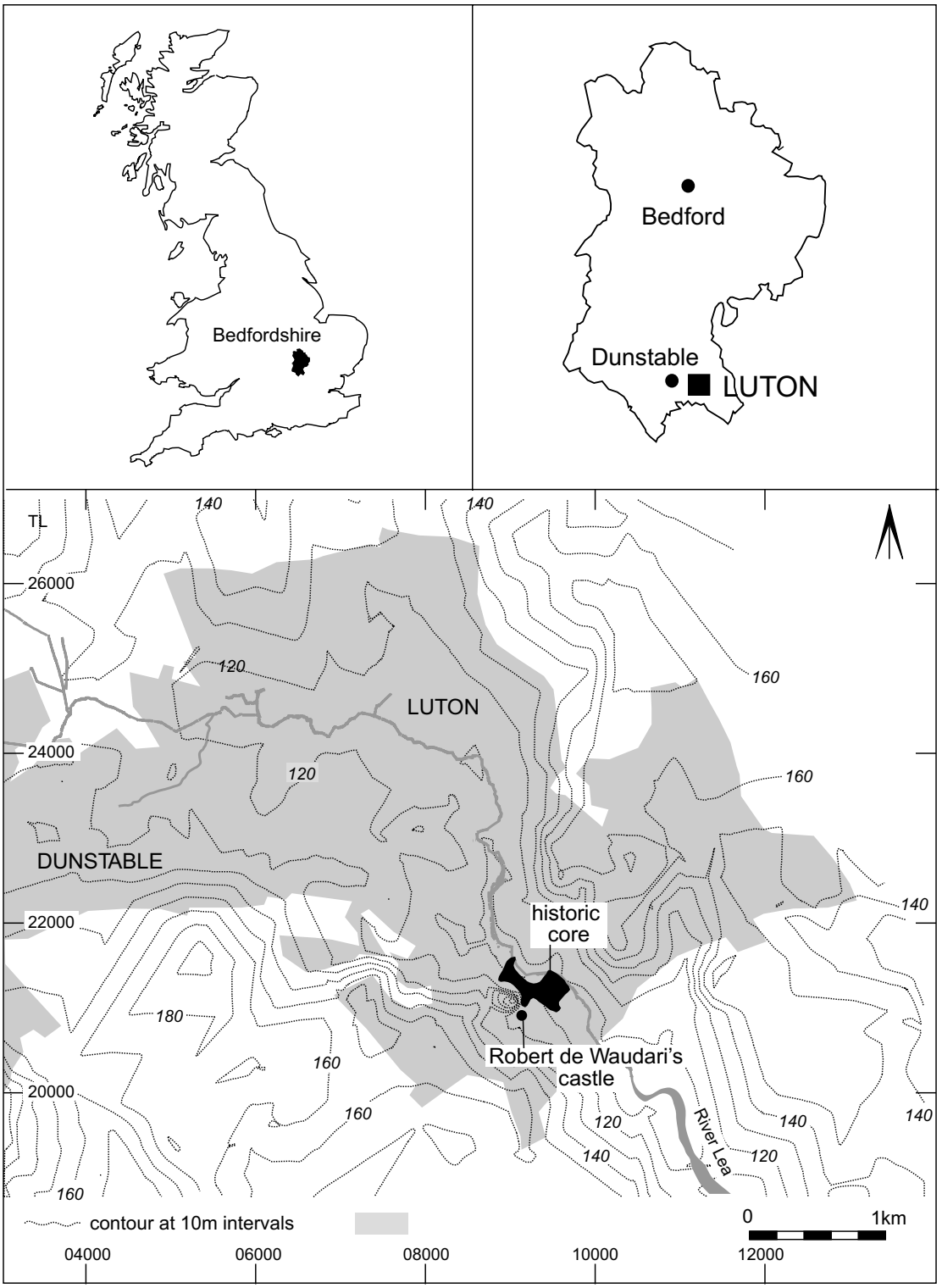


Figure 1: Site location and local topography

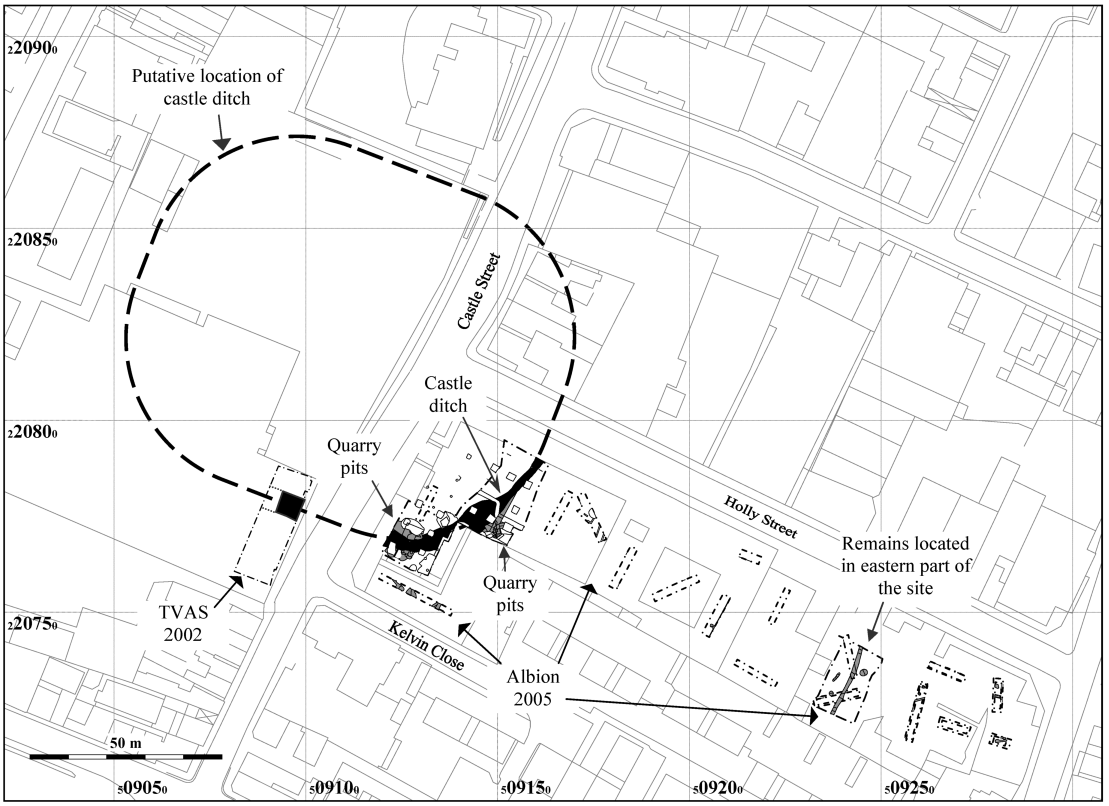


Figure 2: All features plan

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castle was built just two years later) illustrates.

> *'And they filled the whole land with these castles. They sorely burdened the unhappy people of the country with forced labour on these castles. And when the castles were made, they filled them with devils and wicked men'* (Austin 1928, 74; Brittania.com website).

In the Treaty of Winchester in 1153, when Stephen recognised Henry of Anjou as heir to the English throne, it was agreed that all adulterine castles would be destroyed (Higham and Barker 1992, 132). Many of them, including de Waudari's, which had only been in existence for fifteen years, were demolished.

The reasoning behind the association of this part of Luton with the site of de Waudari's castle is set out by Austin (1928, vol 1, 74–75 and vol 2, 81–82). Late 18th-century title deeds for a piece of land adjacent to Holly Lodge, which formerly stood on Castle Street immediately to the south of St Mary's RC Church, state that "the castle ditch" formed part of the boundary of the plot (Figs 5 and 6), which was itself referred to as "Castle Ditches Close" (see also Kennett 1976, 18). The title deeds of Holly Lodge itself state that it stood on an ancient enclosure called "the castle close". Austin suggested that the mound on which Holly Lodge was built might have been the remains of the motte of de Waudari's castle. (In the early 12th century the style and materials with which castles were constructed varied by region. Here, they typically took the form of a motte, or mound, raised from material taken out of a ditch which defined a more extensive bailey, or courtyard. The motte was surmounted by a fortified, two or three storey house, surrounded by a timber palisade (Salter 2000, 5).

It has never been possible to test this hypothesis by archaeological investigation. A possible earthwork was still present on the site around 1948.

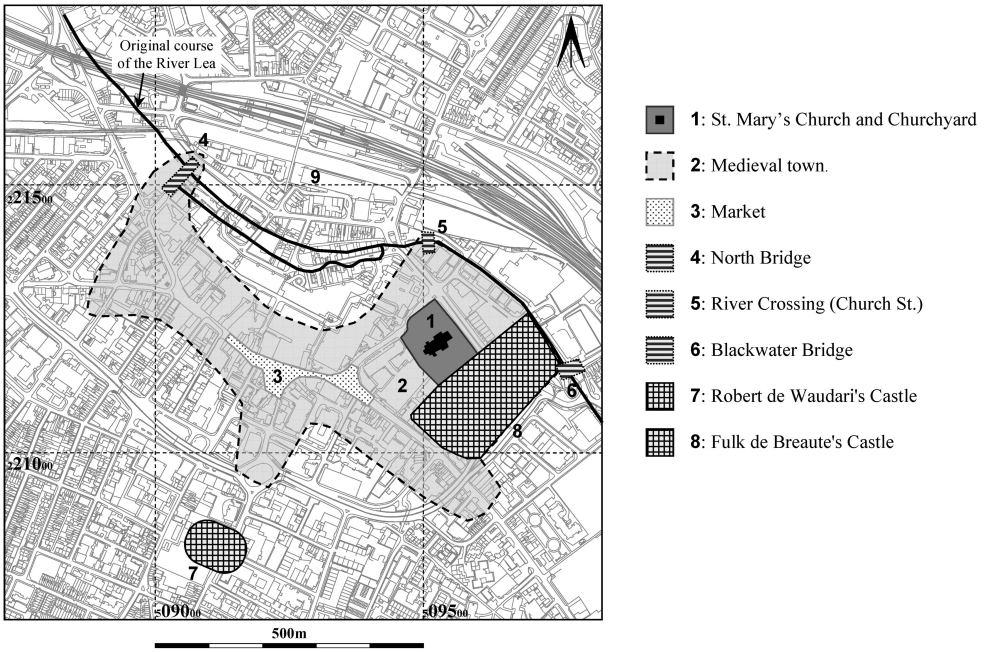


Figure 3: Archaeological components of medieval Luton

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It took the form of a low irregular mound, which supported a number of trees and a modern one-storey building which had replaced the 19th-century Holly Lodge (demolished in the 1930's). Over the next decade, the site was incrementally incorporated into the Luton Bus Depot and the mound was gradually levelled (Fig. 7). Since then the site has been completely redeveloped and all traces of the mound removed. However, if castle ditches were still identifiable in the late 18th century, it is certainly feasible that the motte of de Waudari's castle could also have survived. Unfortunately, it will probably never be known for sure if the Holly Lodge mound can be identified with the motte of the castle.

Archaeological investigation has provided some physical evidence for the location of de Waudari's castle. In 1963, the western end of the present development area was redeveloped. The remains of a substantial ditch, cut into the underlying chalk, were observed. It was suggested that this feature might represent part of the bailey ditch of de Waudari's castle (Dony and Dyer 1975, 40–41). More recent work to the west of the development area, during redevelopment of the former bus depot, also led to the discovery of a substantial ditch which produced a small quantity of 12th–13th century pottery (Fig. 2). Again, it was concluded that this ditch formed part of de Waudari's castle, although a note of caution was sounded about the dangers of drawing over-ambitious conclusions from relatively slight archaeological evidence (Coles 2005, 206).

However, on the balance of probability, this combination of historical and archaeological evidence leads to the conclusion that Robert de Waudari's castle did indeed straddle this part of present-day Castle Street. It is, therefore, argued that the large ditch running across the western end of the development area, described in this article, represents the south-eastern corner of the castle's bailey ditch.

RESULTS OF THE INVESTIGATIONS

Phase 1: Early Medieval Castle Ditch and Associated Quarrying

The south-eastern corner of the bailey ditch of Robert de Waudari's castle (L1) (Fig. 2) represents the most significant archaeological remains

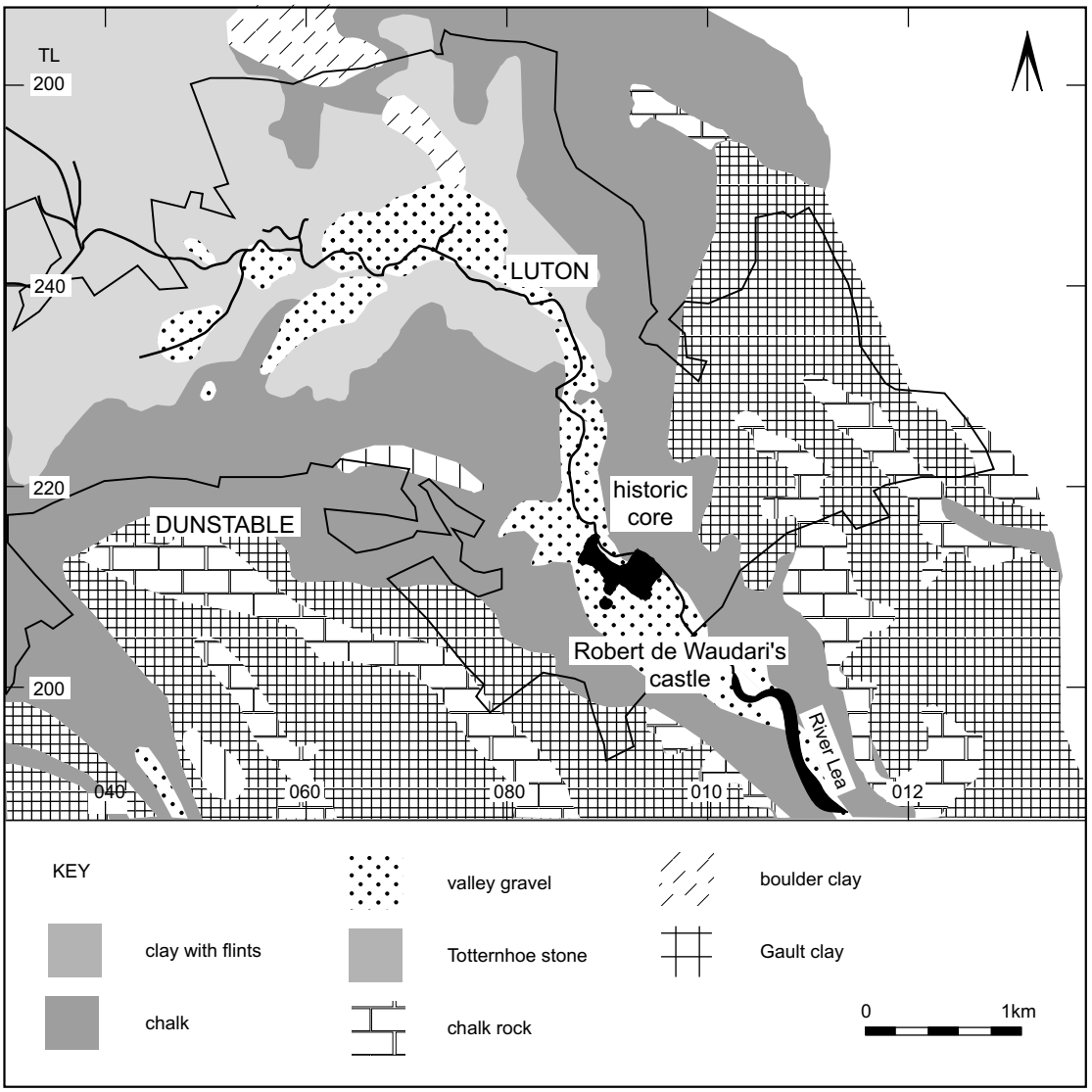


Figure 4: Site location and local geology

encountered in the development area. This part of the ditch became infilled in three distinct episodes, largely as a result of erosional processes but, perhaps, partly as a result of deliberate human action. It was never re-cut but did survive as a distinct depression in the landscape until well into the post-medieval period. The ditch was finally levelled before the construction of various buildings and walls in the 19th and early 20th centuries. Following extensive sampling, only a small quantity of charcoal was retrieved from its fills.

The ditch partly truncated a quarry pit (L1), which had been rapidly backfilled and is assumed to have been broadly contemporary with the construction of the castle.

The castle ditch L1

A *c*. 48m length of the curving castle ditch was recorded. It was aligned WNW–ESE for *c*. 8m and then turned NE–SW for the remaining *c*. 40m (Fig. 8). To the NE its surviving extent had been greatly reduced by modern truncation (Fig. 9, Section 3). Where best preserved, it was 4.5m wide and 2.3m deep (Fig. 10, Section 7; Fig 11). The sides had a *c*. 45 degree slope and the base varied from V-shaped to slightly rounded. A *c*. 0.4m thick deposit

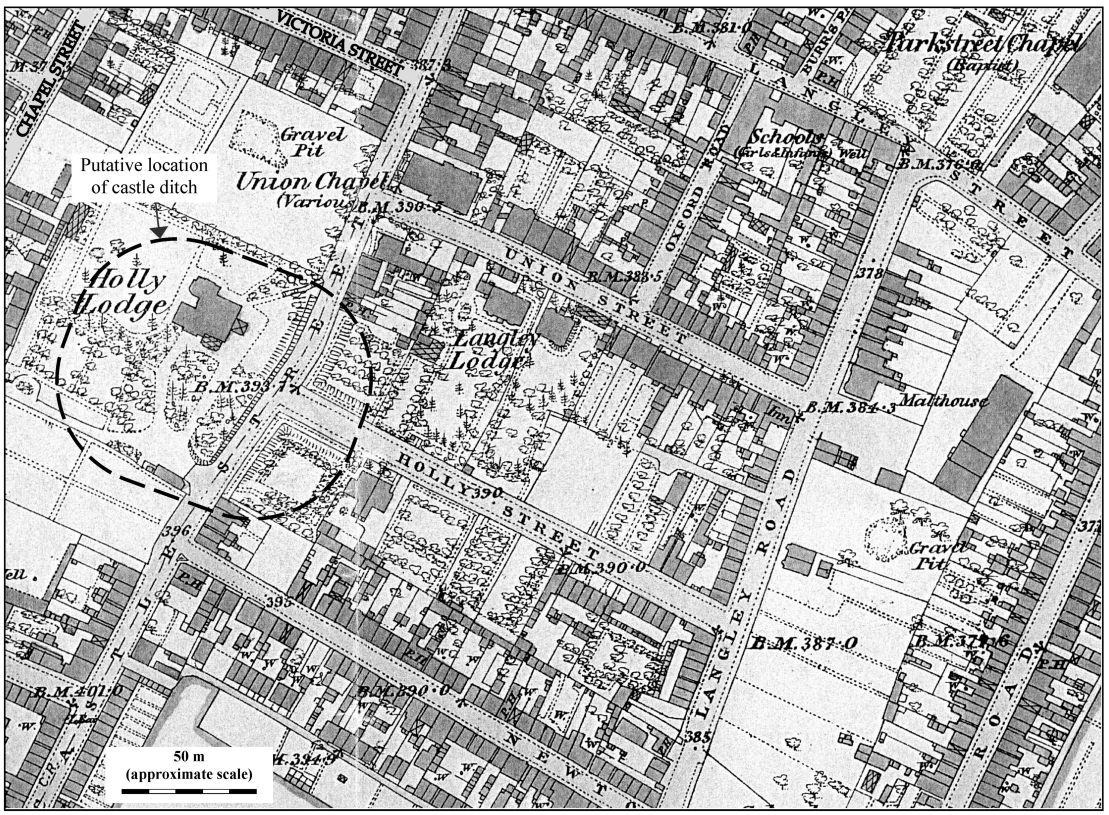


Figure 5: 1st edition 25-inch OS map with putative castle location

of chalk and silt (G1.00) in the base of the ditch represents material eroded from the sides shortly after it was dug. Environmental sample (7) taken from this deposit produced only occasional flecks of charcoal.

Gradual erosional infilling of the ditch continued with the progressive accumulation of a further *c*. 0.6m of material (G1.01) in its base. This included both chalk and silt derived from the sides of the ditch and soil and organic matter from the surrounding land surface. Although it is assumed that the castle was occupied at this time, no attempt appears to have been made to maintain the ditch through re-cutting. However, its defensive qualities were probably not significantly impaired: it was still steep sided and at least *c*. 1.7m deep.

The next series of deposits within the ditch (G1.02) differed slightly from the gradually accumulated, initial silting. They were more massive in character and appear to have accumulated more rapidly. They may represent more extensive collapse of the upper part of the ditch. However, it is also possible that they represent deliberate partial infilling of the ditch, associated with the slighting of the castle following the Treaty of Winchester. Unfortunately, no dating evidence was recovered from these deposits to substantiate this possibility. Environmental sample (6) from these deposits produced only very small amounts of very fragmented charcoal.

The final non-modern series of deposits within the ditch (G1.03) were again slightly different in character (Fig. 10, Section 7). They included relatively wide bands of compacted, clean chalk, which may represent deliberate infilling and levelling. By this time, the ditch was only *c*. 0.7m deep and would certainly have ceased to perform a defensive function. Once more, no datable artefacts were recovered from these deposits and it is impossible to know whether or not they were associated with the 12th-century slighting. Similarly, environmental sample (1) also produced only very small amounts of very fragmented charcoal.

The overall paucity of artefacts and ecofacts from all the deposits within the castle ditch is in itself

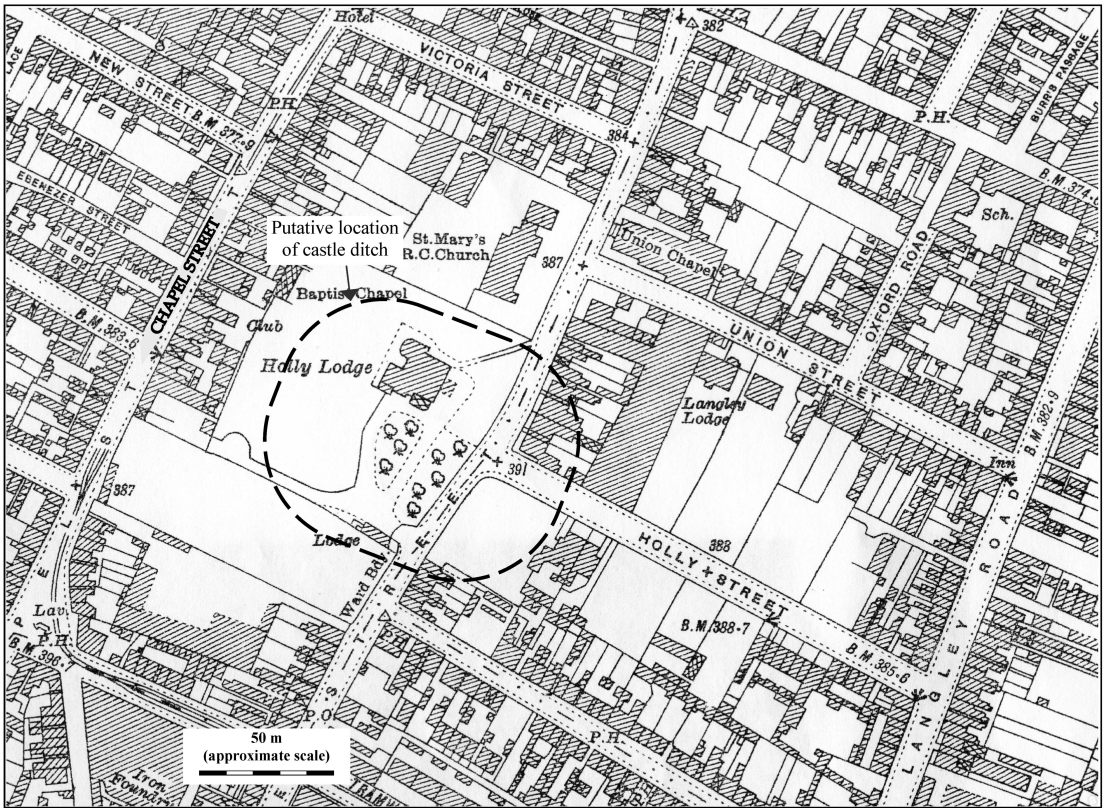


Figure 6: 3rd edition 25-inch OS map with putative castle location

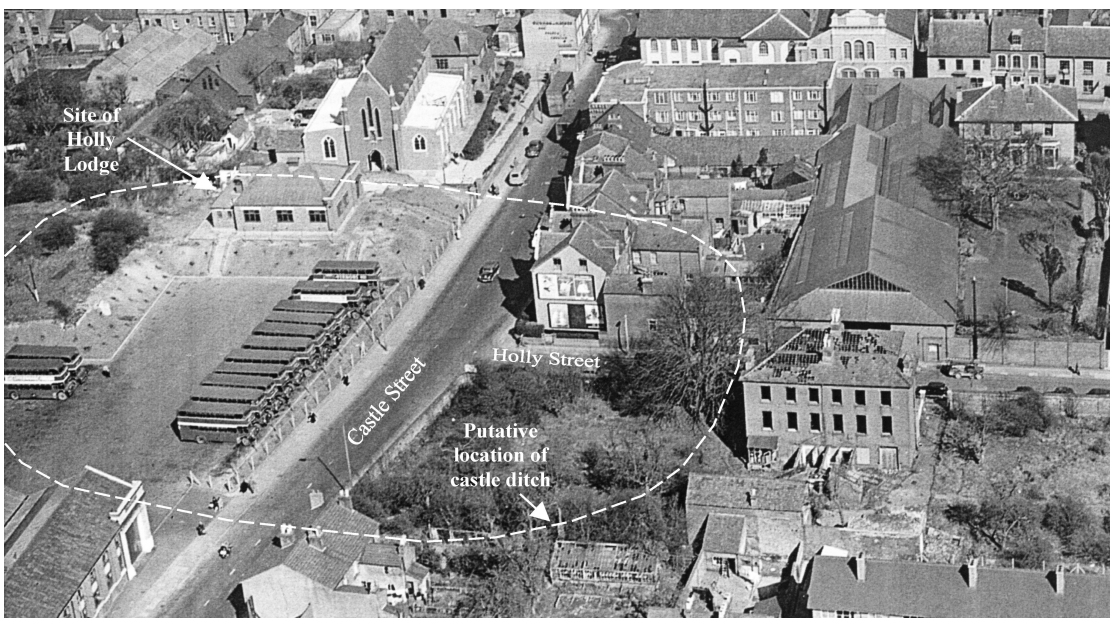


Figure 7: Aerial photograph of Castle Street looking north towards Holly Lodge (1959). Reproduced with kind permission of Luton News (Ref G3582T)

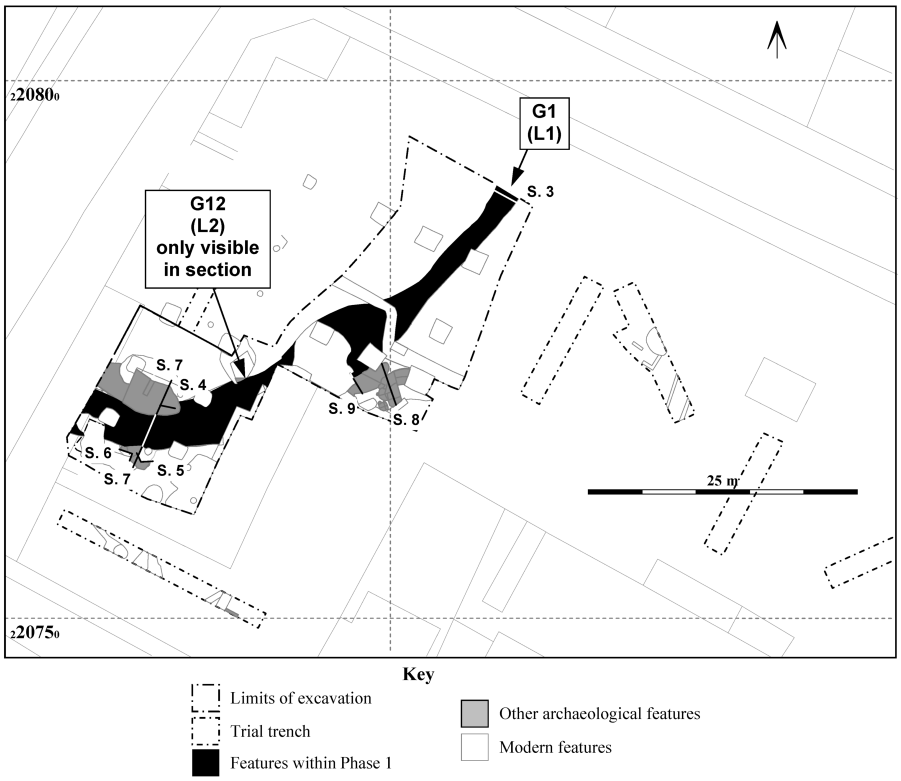


Figure 8: Phase 1 early medieval castle ditch G1 and quarrying G12

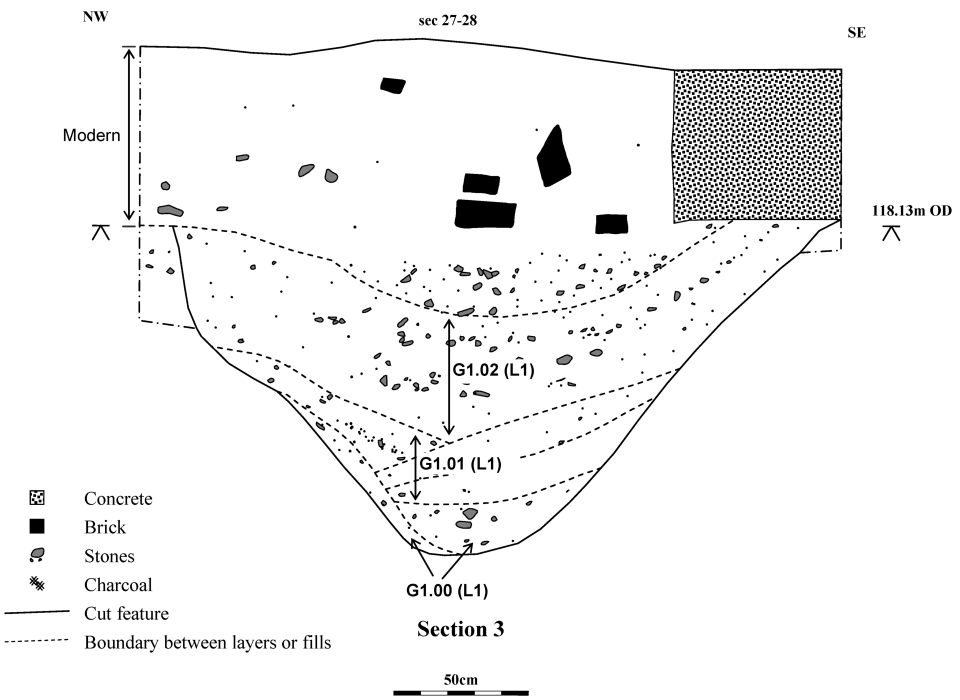


Figure 9: Castle ditch G1, Section 3

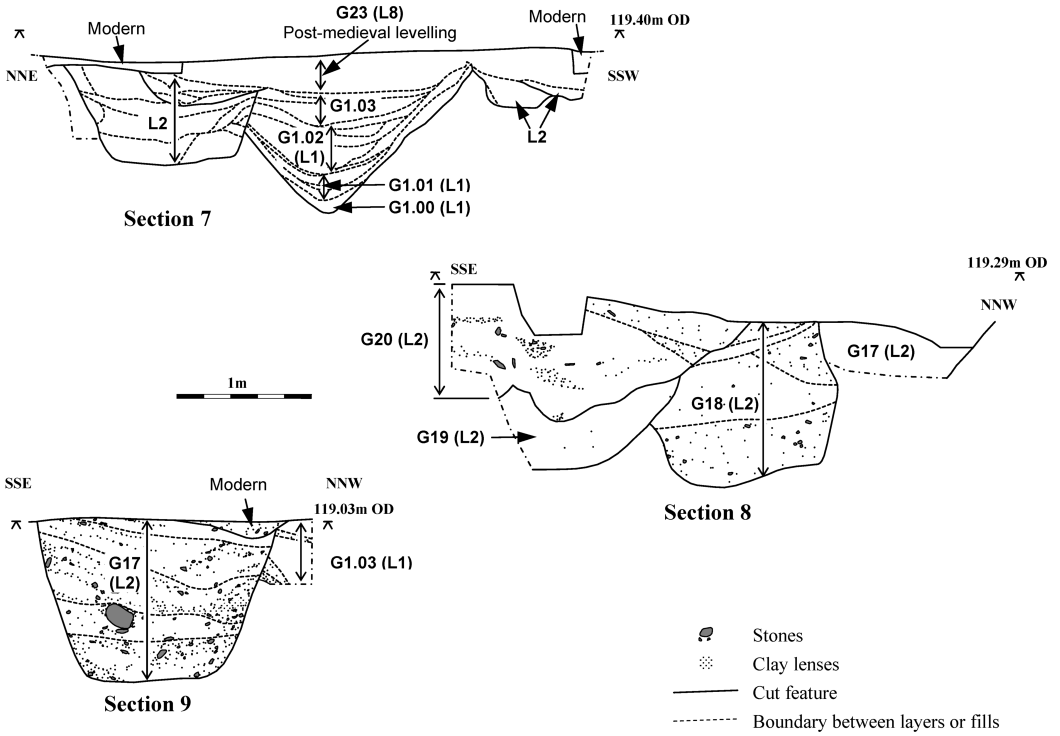


Figure 10: Castle ditch G1, Section 7; quarry pits L2, Sections 8 and 9



Figure 11: The castle ditch during excavation

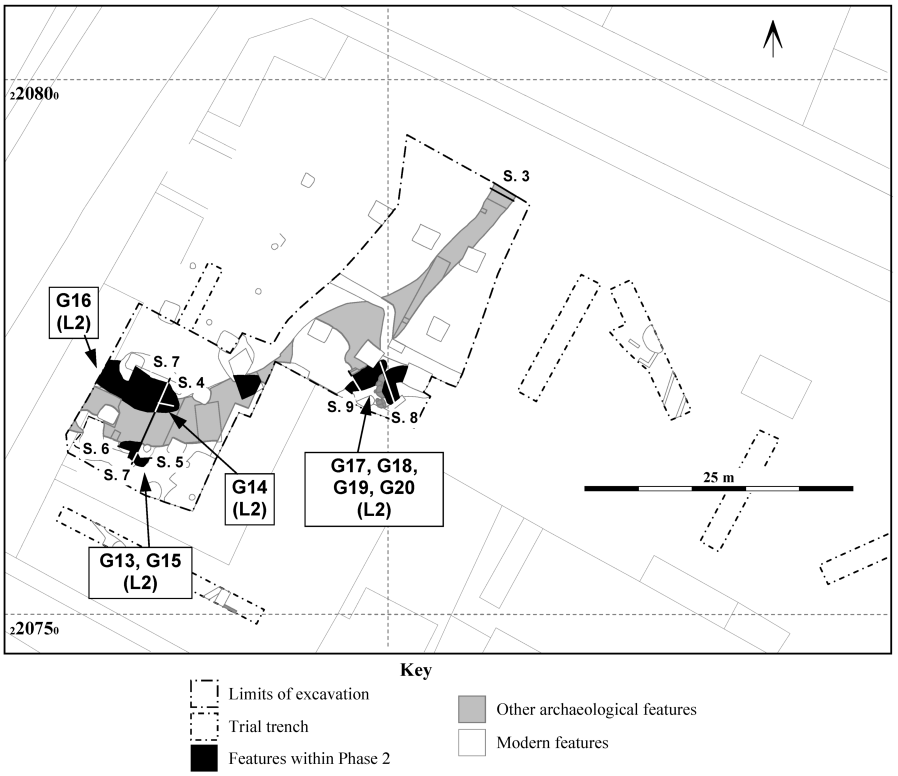


Figure 12: Phase 2 medieval / early post-medieval quarrying L2

significant. The small quantities of fragmentary charcoal probably represent debris blowing around the site, from activities possibly at some distance from the ditch. The absence of artefacts in the rapidly accumulating initial fills (G1.00, G1.01) is not unexpected. However, their absence from the great bulk of the ditch fills (G1.02, G1.03) is more surprising and may be attributable to the fact that the site was some distance from any settlement or human activity of any kind.

Quarrying L1

Quarry pit G12 was only recorded in section; it was truncated by the castle ditch and a modern intrusion. With gently sloping, straight sides and a flat base, it survived to a depth of 0.90m. Significantly, it had been cut into the underlying chalk, presumably to quarry building material. Its mixed fills suggest it may have been rapidly backfilled. It is assumed to have been broadly contemporary with the excavation of the castle ditch.

Phase 2: Medieval / Early Post-medieval Quarrying

Twelve intercutting quarry pits (L2) were dug on the site of the former castle (Figs 10, 12, 13). Several of them truncated the uppermost deposits within the infilled ditch (Fig. 10, Sections 7 and 9). They may have been dug along the edges of the ditch because it afforded easier access to the underlying chalk. They varied in size but the biggest was at least 4.5m long, nearly 2m wide and 1.20m deep.

The quarry pits were infilled with a mixture of re-deposited chalk and silts, which did not produce any artefactual material. An environmental sample (4) from the fill of one of the pits produced several charred cereal grain fragments including two tentatively identified as oat (*cf. Avena* sp.); the other two cereal fragments were too poorly preserved for further identification. There was also a trace amount of very fragmented charcoal. These remains are interpreted as background debris blowing around the site, possibly from cooking

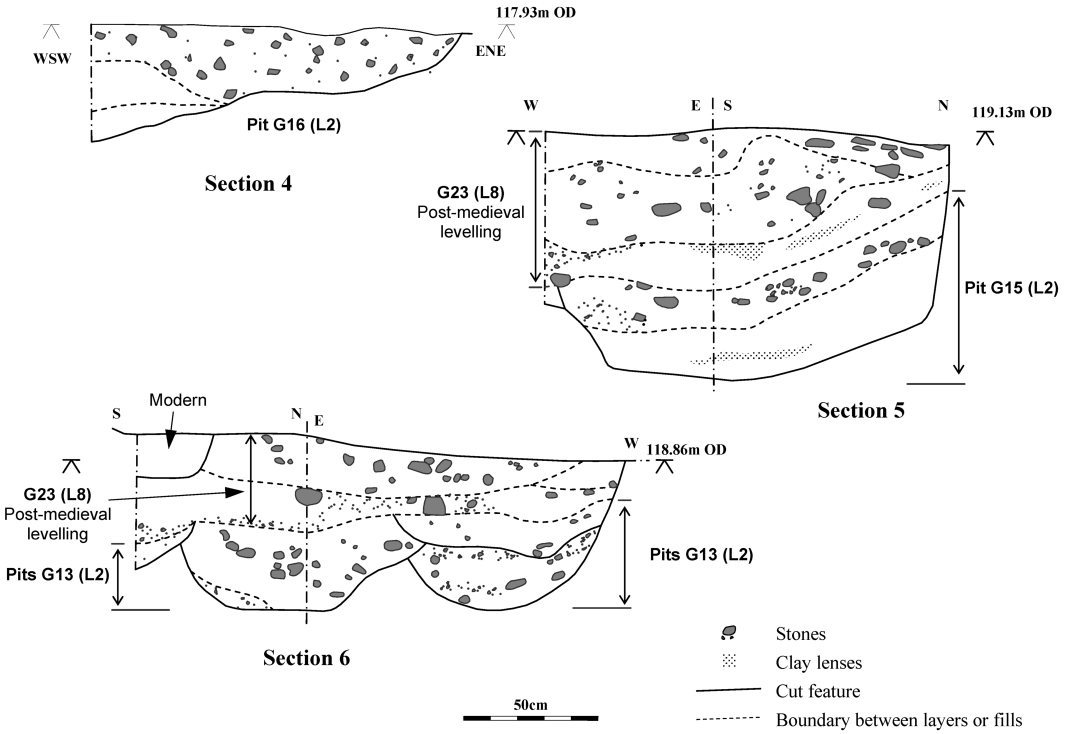


Figure 13: Quarry pits L2, Sections 4, 5 and 6

accidents, which may have taken place at some distance from the quarry pits.

A single shell of blind (or agate) snail *Cecilioides acicula* was recovered. This subterranean species is common in lowland southern England, occurring at depths down to 2m or more in unwooded calcareous places, particularly rock crevices, cracks and rootlet holes in well-drained soils. It commonly occurs in the cavities of buried bones (Kerney 1999, 168) and is commonly recovered from archaeological sites.

Despite the absence of dating evidence, a broadly medieval / early post-medieval date seems probable for these quarry pits. They were relatively small in scale, compared, for example, to the gravel pits shown in the vicinity on the first edition 25-inch OS map (Fig. 5). If they were late post-medieval or modern in date, they would almost certainly have contained brick or tile, which are generally ubiquitous on urban sites of this date. Worked-out quarry pits are also often used for the disposal of rubbish. Its absence here suggests that the pits were dug in what was still essentially a rural location, some distance from the limits of the town.

PHASE 3: LATE POST-MEDIEVAL

Isolated features

Two sub-square postholes (L3, G10) were recorded cutting a layer of buried subsoil in the eastern part of the development area (Fig. 14). They were 1.50m apart and were similar in size (0.25m deep and 0.55m wide) and shape. They contained identical deposits, which produced a post-medieval tile fragment and a 17th–18th century pottery sherd (glazed red earthenware, fabric type P01, as defined in the Bedfordshire Ceramic Type Series, held by Albion Archaeology). They are likely to have formed part of a fenceline, possibly demarcating property boundaries in the post-medieval period.

A cluster of three postholes and an associated gully (L3, G21) cut the backfilled quarry pits on the south-eastern corner of the former castle ditch (Fig. 14). The postholes were 0.75m deep and 0.25m to 0.40m wide, and were similar in shape. The gully was 0.80m long, 0.22m wide and 0.14m deep. All these features were infilled with a very similar deposit. They may represent elements of a short-lived structure, built during the late post-medieval period.

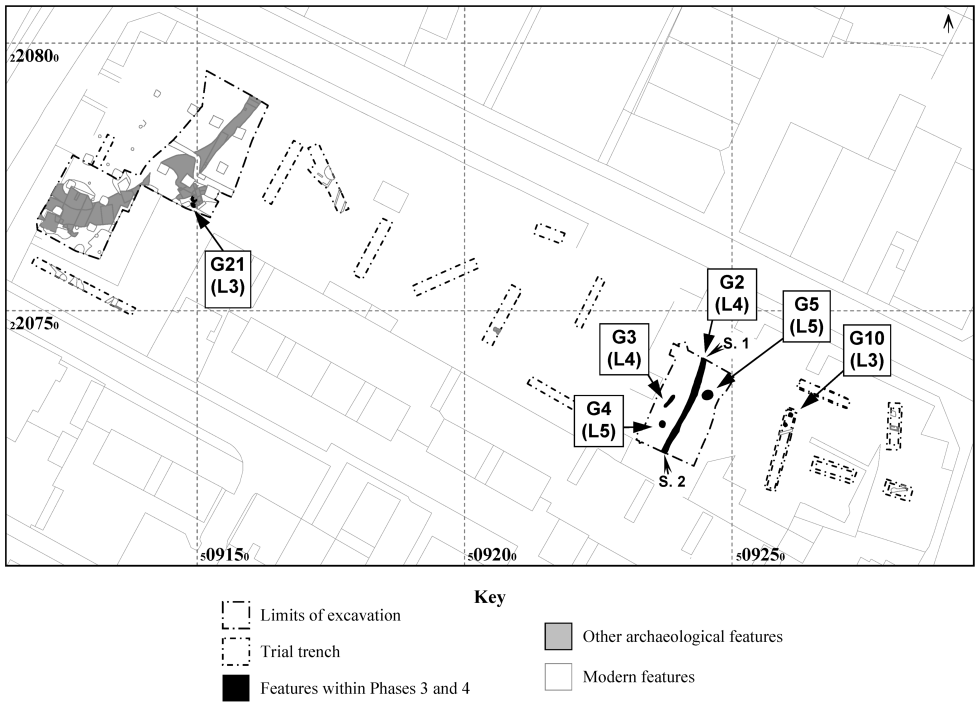


Figure 14: Phases 3 and 4; late post-medieval and undated remains

Final levelling of the site of the castle ditch

A varied collection of nineteen post-medieval/modern layers (L8, G23) represent a significant levelling episode across the development area (Fig. 15, Section 2; Fig. 9, Section 3; Fig. 10, Section 7). They had a combined maximum depth of 0.90m and incorporated significant quantities of crushed chalk. They were probably associated with the 19th century expansion of Luton. What had until then been a marginal, possibly derelict, piece of land was incorporated into the suburban residential and industrial town, as it spread south-westwards from its historic core.

The significance of these deposits is that they levelled a landscape, pockmarked not only by former quarry pits but also by the castle ditch, which even at this late date still survived (at least in its south-eastern quarter) as a *c*. 0.4m deep linear depression (Fig. 9, Section 7).

Phase 4: Undated Remains in the Eastern Part of the Development Area

A significant characteristic of this part of the site is that it contained archaeological remains associated with use of the area in the pre-modern era before it was subsumed within the rapidly expanding town. Modern truncation was severe but tended to be localised. In places, extensive deposits of subsoil associated with the former ground surface survived beneath more modern levelling. In themselves, the archaeological remains were disparate and difficult to interpret. However, their very presence is important because it indicates that even previously developed parts of the town can still retain considerable archaeological potential.

Two parallel ditches L4 were recorded on a NE–SW alignment (Fig. 14). The bigger and better preserved of the two (G2) was 17m long, 1.2m wide and up to 0.7m deep (Fig. 15, Sections 1 and 2). Both ditches were sealed by subsoil. The only artefactual material for dating, however, was a small, abraded sherd of sand and grog tempered Iron Age pottery (fabric type F09) and a 2nd-century Roman flagon rim sherd (fabric type R03B), which are both likely to be residual. Four residual worked flints of probable late Neolithic/early Bronze Age date were recovered from ditch G2.

Two environmental samples (2) and (3) from ditch G2 produced a small number of charred cereal grains (see Appendix 1). These included

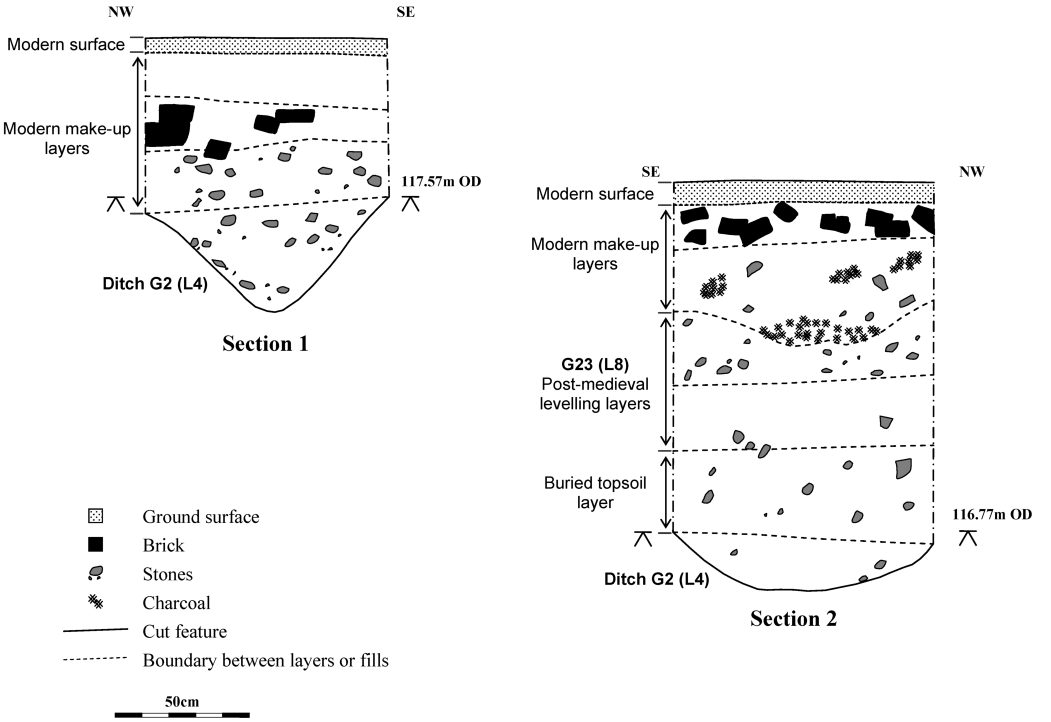


Figure 15: Ditch G2, Sections 1 and 2

four wheat grains, one of hulled wheat, either emmer or spelt, and one possibly belonging to free-threshing wheat. One grain tentatively identified as barley was recovered from sample (3) while the presence of an awn fragment in the same sample also pointed to the presence of oat. A charred fragment of hazelnut shell was also retrieved from sample (2). Small amounts of very fragmented charcoal were also present.

The grains may have become accidentally charred during the latter stages of crop-processing, for instance while being dried before storage or milling or de-husking, or possibly during cooking of whole grains. The small amount of remains suggests that these activities may have taken place at some distance from the ditch. It is possible that the emmer/spelt grain may be residual, like the sherd of Iron Age pottery. Hulled grains, particularly spelt, are common in prehistoric contexts and in the Roman period, with free-threshing wheat becoming the common wheat grain in the post-Roman era (Greig 1991).

Sample (2) also produced a small number of shells of blind or agate snail and a single shell of glass snail *Aegopinella sp*. This is a common and catholic species found under ground litter in a wide variety of sheltered places (Kerney 1999, 142).

It may be significant that both ditches are aligned perpendicular to Holly Street, and parallel to Castle Street. This suggests that they represent the remains of minor land divisions, which were in use during the post-medieval period (and possibly the medieval period or even earlier). The small quantities of artefactual or ecofactual material within them suggest that they were located some distance from any contemporary settlement.

Two relatively small pits L5, similar in size, shape and sterile fill, were located close to ditch G2 and are likely to have been associated with it. Again, the absence of any domestic refuse in the pits reinforces the conclusion that the whole of this area, including the site of the former castle, lay at a considerable distance from any settlement.

DISCUSSION

PHASE 1: ROBERT DE WAUDARI'S CASTLE

Despite extensive disturbance from the piled foundations of the former Luton News printworks,

almost 50m of the bailey ditch of Robert de Waudari's castle survived at the western end of the Bellway Homes' development area. Where best preserved, it was 4.5m wide and 2.3m deep. Its curvature suggests that it represents the south-eastern corner of the bailey. No internal features associated with the use or occupation of the castle, nor any traces of an internal or external palisade were identified.

The sequence of layered chalk and silt within the ditch suggests that it became infilled in at least three distinct episodes. This appears to have been largely as a result of erosional processes but, perhaps, partly as a result of deliberate human action. No datable artefacts, which might have allowed some of these layers to be related to the 1154 demolition of the castle, were recovered. Similarly, extensive sampling only produced a relatively small quantity of fragmentary charcoal. This almost complete absence of evidence for human occupation is surprising and may suggest that this part of the bailey ditch lay at some distance from the main focus of habitation within the castle.

The ditch was never re-cut but did survive as a distinct depression in the landscape until well into the post-medieval period. Still at least 0.4m deep, it was finally levelled before the construction of various buildings and walls in the 19th and early 20th centuries.

The recent archaeological investigations have significantly improved our understanding of this part of de Waudari's castle. Limited observations, in far from ideal conditions, were made on the same site in 1963 during construction of the printworks. As a result, it was postulated that the north-eastern corner of the bailey ditch had been identified (Dony and Dyer 1975, 40). However, no evidence for this right-angled corner was found during the recent work. It is, however, now clear that the south-eastern corner of the bailey ditch lay within the development area, rather than beneath Kelvin Close, as previously surmised. More significantly, the curved alignment of the ditch suggests that the bailey encompassed a far greater area than the previously estimated 3,360sqm (see below).

The recent work has also helped to elucidate the results of the 2002 archaeological investigations within the former Luton Bus Depot on the opposite side of Castle Street (Coles 2005). As Figure 2 demonstrates the *c*. 6m length of ditch identified on that site lines up perfectly with the ditch identified within the Bellway Homes' development. It was slightly better preserved (6.1m wide and 2.9m deep) but is undoubtedly the same feature.

The two pieces of work also produced some contrasting results. In 2002 a shallow re-cut was identified. Its function was uncertain but it was not considered to be associated with the use of the castle as a military stronghold (Coles 2005, 207). This feature was not recorded within the Bellway Homes' development, although it may have been destroyed by the greater degree of truncation. A small assemblage of finds (12th–13th century pottery, part of a cow mandible, and a fragment of probable horse shoe) was also recovered in 2002, although again sampling produced only a very small amount of charcoal. This minor difference may reflect the fact that this part of the ditch was closer to the motte (with, it is assumed, its associated fortified dwelling) and was, therefore, more likely to have been used for the casual disposal of domestic refuse. An alternative explanation for the paucity of finds from the ditch as a whole is that the castle was not permanently occupied, a hypothesis that could only be tested through further archaeological investigation.

The most significant result of the recent archaeological investigations is that (when combined with the 2002 work) the precise location of almost 80m of the castle ditch has been established. Given the curvature of the ditch, it has also been possible to put forward a new suggestion for the size and shape of the castle. The projected line of the ditch shown on Figures 2, 5, 6 and 7 takes in the Holly Lodge mound, which as discussed above might be identified with the castle's motte, and allows for the fact that late 18th-century title deeds refer to the castle ditch in relation to the boundaries of a property to the north of the site of Holly Lodge.

The projected line of the ditch is highly speculative and the area defined by it does not represent an attempt to map the actual location of the castle. However, at *c*. 115m long, *c*. 90m wide and *c*. 1ha in extent, it is considered to be a reasonable approximation of the *minimum* size of the castle. It may have been considerably bigger. For example, it is possible that Chapel Street was laid out to go round the site of the castle. It is even possible, although perhaps unlikely, that the identified length of ditch actually surrounded the motte and that a far more extensive bailey awaits discovery. More precise mapping of its actual shape and extent could only be achieved through further archaeological fieldwork. The fact that the ditch

has already been identified on two sites subject to repeated redevelopment suggests that this may well be achievable, even within the context of a heavily built up urban centre like Luton.

The siting of Robert de Waudari's extra-urban castle (*c*. 200m south-west of the historic core of Luton) was without doubt purely short-term and military in nature. It occupied a significant, strategic position, straddling the London to Bedford road. From a ridge of high ground, it overlooked the medieval town, which had developed in the valley bottom around a series of crossing points over the River Lea. It was designed to overlook the landscape, with clear defensible vistas and to control the southern approaches to the town.

Although the castle was short-lived, it should not be considered a "failed" castle. Equally, it is misleading to compare the site unfavourably with that of Fulk de Breaute's castle in the centre of the medieval town (Fig. 3). Built next to the church more than half a century later in 1221, the latter appears to represent a re-fortification of a pre-existing late Saxon / Domesday manorial centre (Dr Paul Courtney pers. comm.). Unlike de Waudari's it would have been a classic, multi-functional castle: defensive residence, manorial centre and court centre. The last two, and especially the last, were perhaps the longest-lived functions, as at so many other castles. The manorial function is likely to have declined with the sub-parcelling of the manor of Luton into at least thirty sub-manors from the late 13th century onwards.

Within the context of the Anarchy, the centre of the town may not have been the best strategic location for de Waudari to site his castle. It is also possible that King Stephen did not want his mercenary to occupy the headquarters of what had traditionally been a royal manor. Whatever the reason, the castle was built beyond the limits of the medieval town and had an influence on its subsequent expansion.

Phase 2: Medieval/Early Post-medieval Quarrying

On the basis of the excavated evidence, there is no indication that the site of the castle was re-occupied in the medieval period. It lay some distance from the centre of the medieval town (Fig. 3) in what may, for centuries, have remained an essentially rural setting. A series of intercutting quarry pits were dug along the line of the castle ditch, presumably because it afforded easy access to the underlying chalk. Even when quarrying ceased, the pits were not backfilled with domestic refuse, reinforcing the conclusion that they lay some distance from a centre of habitation.

Phase 3: Late Post-medieval Expansion of Luton

The first useful, complete map of the town, the 1842 Tithe map (MAT/30/1 and 2), gives a good indication of the state of this part of Luton on the brink of its enormous expansion in the early industrial period. Holly Lodge is clearly visible in its wooded grounds, which were to remain a feature of this part of the town for the next century. The adjacent stretch of Castle Street displays an intriguing curve, which is still a feature of the road today. It is tempting to see in this the influence of its passage through the site of de Waudari's former castle.

New Town Street (later Newton Street and present-day Kelvin Close) was laid out between 1841 and 1844 for two rows of terraced houses. Speculative developments of this kind, fuelled by a fluid land market and the rapid industrialisation of the hatting trade, were characteristic of the growth of early 19th-century Luton (Bunker 1999, 12, 65). It is noteworthy that the plot of land occupied by the castle ditch on the Bellway Homes' development was not built on at this time. There are many possible reasons for this but it may be that the partially infilled castle ditch and quarry pits made it a less attractive site to prospective, speculative developers.

By 1880 the southern part of the plot was occupied by a row of houses fronting onto Castle Street (Fig. 5). The construction of these buildings may have been the occasion for partial levelling of the site, as seen in the excavated evidence on the Bellway Homes' development. However, the northern half of the plot (*i.e*. what would have been the south-eastern quadrant of the castle's bailey) remained a tree-lined piece of open ground, as did the corresponding plot of land on the opposite side of the newly established Holly Street. The latter had been built on by 1924 (Fig. 6) but as late as 1959 the site of the south-eastern corner of the bailey ditch remained undeveloped (Fig. 7). Only four years later any surviving above-ground evidence for the ditch was swept away by the construction of the Luton News printworks.

CONCLUSIONS

There are still many unanswered questions about Robert de Waudari's castle. However, since its physical remains were first recorded in 1963, archaeological fieldwork has significantly augmented our knowledge of its size, location and state of preservation. It is clear that it was positioned to provide strategic command of the southern approaches to medieval Luton; it was built for short-term, military reasons. Once the castle had served its purpose, the site slipped back into relative obscurity and, apart from an episode of small-scale chalk quarrying, was probably reincorporated into the extensive tracts of pasture to the south and west of the town. By combining the results of the investigations on the Bellway Homes' development with cartographic, documentary and photographic sources, it has been possible to demonstrate that, although short-lived (fifteen years), the castle's influence on local land boundaries and the later development of Luton lasted for over 800 years.

If Robert de Waudari's castle remains something of an enigma, the same is true of Fulke de Breaute's castle to the south of St Mary's church, where a substantial mound of earth still survived at the beginning of the 20th century (Dony and Dyer 1975, 47). No archaeological work has yet been carried out on this site. However, the Bellway Homes' development has demonstrated that both substantial features (like the bailey ditch) and smaller features (like the ditches sealed by former subsoil at the eastern end of the site) can survive within modern Luton. It is clear that archaeological investigation can help to redress the effects of what Bunker (1999, 14) has described as a historical lack of appreciation of Luton's heritage, manifested through the wholesale demolition of later buildings and the meagre extent of documentary records.

ACKNOWLEDGEMENTS

Albion Archaeology is grateful to Chris Nunn of Bellway Homes' for commissioning the project and for smoothly integrating the archaeological work into an already complex demolition and construction programme. Thanks are also extended to the Jephson Homes Housing Association who part-funded the works. Thanks are due to Norman Miller of Gaywoods Demolition for his co-operation during the site works. We would also like to acknowledge the input of Lesley-Ann Mather, Bedfordshire County Council's County Archaeological Officer, who monitored the archaeological works on behalf of Ismail Mohammed of Luton Borough Council.

James Dyer provided valuable on-site advice about his earlier observations on the putative layout of the castle. Dr Paul Courtney provided helpful insights into the history of Luton's castles.

The investigation was supervised by Wesley Keir with excavation and recording by Adam Lee, Adrian Woolmer, Alison Bell, Anthony Clifton-Jones, Zoe Clarke and Dan Hounsell. The artefacts were processed and identified by Jackie Wells. Processing of the ecofact samples was undertaken by Anthony Clifton-Jones. James Pixley managed production of the assessment and Updated Project Design and Wesley Keir completed the structural analysis. Alison Bell and Joanne Archer carried out documentary research in the Bedfordshire and Luton Archives and Records Service and the Historic Environment Record.

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Document Reference Number	Title
A174–220	Bundle labelled by Mr Austin "Deeds relating to the Chemist's Shop, No.20, Market Hill and to the site of Holly Lodge in Castle Street, Luton" 1596–1855
X214/4	Tithe map, 1842
X1/37/1	Luton, Straw Bonnet emporium, surveyor R. Todd, Luton, *c*. 1862. Ordnance Survey 1st Edition 1880 Ordnance Survey 3rd Edition 1924
G3582T	Luton News aerial photograph, Castle Street, 1959

APPENDIX 1: CHARRED PLANT REMAINS

John Giorgi, Museum of London Specialist Services

Nine environmental bulk soil samples (ranging in volume from 10 to 20 litres) were collected for the recovery of biological remains including charred plant material and molluscs. Seven of the samples were collected from the western part of the development area: three from the castle ditch, three from putative postholes (later recognised as solution holes) and one from a quarry pit. The other two samples were from a ditch in the eastern part of the development area. The samples were processed by flotation in a peroxide solution onto a flotation mesh of 0.3mm with the residues wet-sieved to 1mm. The dried residues were sorted for artefacts. Further details may be found in the assessment report (Albion Archaeology 2005b).

Only three of the samples (2), (3) and (4) produced identifiable charred plant remains other than charcoal. The results are shown in Table 1. Most of these grains were poorly preserved and therefore could not be identified to species level.

Samples (2) and (3) were from the same undated ditch fill and the emmer/spelt grain may be residual from the prehistoric period, possibly the Iron Age (which was represented in the sample by a sherd of Iron Age pottery). Free-threshing wheat, on the other hand, is the common wheat grain for the post-Roman period. The other cereals represented in this sample were possible barley and oat, the latter generally considered a weed until the post-Roman period. The possible oat grain in the quarry pit (sample (4)), however, is more likely to be from a cultivated cereal. Hazelnuts (represented by a single charred fragment), a potential food resource, are found on sites of all periods.

It is difficult to comment on the importance of the food remains in the ditch fill given that there is a possibility that some of the material may be residual; all these cereals may have been used for human consumption while both barley and oats could have also been used for animal fodder. The remains probably represent background debris blowing around the site, although they have no direct relevance to the features from which they were recovered.

There was very little charcoal in any of the samples, which again probably represents material blowing around the site. Most of the charcoal is smaller than 4mm except for several fragments between 4mm and 6mm from sample (4) from one of the of the post-medieval quarry pits (G18.01, Fig. 10, Section 8 and Fig. 12) and sample (1) from the castle ditch (G1.03).

APPENDIX 2: MOLLUSCAN REMAINS

Alan Pipe, Museum of London Specialist Services

Nine environmental bulk soil samples (ranging in volume from 10 to 20 litres) were collected for the recovery of biological remains including molluscs. Seven of the samples were collected from Area 3, from three castle ditch fills, three possible postholes (later recognised as solution holes) and a post-medieval quarry pit deposit. The other two samples were from a ditch fill in Area 1. The samples were processed by flotation in a peroxide solution onto a flotation mesh of 0.3mm with the residues wet-sieved to 1mm. The dried residues were sorted for artefacts.

	Phase	4	4	2
	Landscape	L4	L4	L2
	Group	G2.01	G2.01	G18.01
	Feature	ditch fill	ditch fill	pit fill
	Sample	2	3	4
	vol soil (l)	20	10	20
	vol flot (ml)	8	3	2
LATIN NAME	ENGLISH NAME			
Triticum dicoccum/spelta	emmer/spelt wheat grain		1	
T. cf. *aestivum* type	?free-threshing wheat grain	1		
Triticum sp.	wheat grain	1		
cf.*Triticum* sp.	?wheat grain		1	
cf. *Hordeum* sp.	?barley grain		1	
cf. *Avena* sp.	?oat grain			1
Avena sp.	oat awn fragment		1	
Cerealia indet.	indet. cereal grain fragments	2	1	2
Corylus avellana L.	hazel nut shell fragment	1		
Gramineae indet.	grass seed (large)			1
indeterminate	wood charcoal	++	+++	+

Table 1: Charred plant remains

	Period	Medieval	Medieval	Post-medieval	
	Phase	1	2	4	
	Landscape	L1	L2	L4	
	Feature	Ditch Fill	Pit Fill	Ditch Fill	Solution Hole
	Sample	1	4	2	8
TAXON	COMMON NAME				
Cecilioides Acicula	Blind (Or Agate) Snail	1	1	5	1
Aegopinella Sp.	Glass Snail	Nil	Nil	1 (Sub-Adult)	Nil
Total		1	1	6	1

Table 2: The Mollusc shells

Only four of the samples (1), (2) (4) and (8) produced identifiable mollusc shell fragments. The results are shown in Table 2. Most of the fragments displayed moderate or good preservation, and could be identified to *genus* or species level. The molluscan assemblage was extremely limited, with samples (3), (5), (6), (7) and (9) producing no mollusc shell at all. Ditch fills (1), (4) and (8) produced individual examples of the blind (or agate) snail *Cecilioides acicula*, with a maximum of five shells from sample (2). This sample also produced a single sub-adult shell of glass snail *Aegopinella sp.,* the only recovery of this *genus* from any sample group. Recovery of these widespread and often very abundant snail *taxa* does not allow interpretation of local habitat.

Archaeological investigations at Stanbridge Manor, Stanbridge, Bedfordshire

Joe Abrams

with contributions by
Stephen Coleman, Sheila-Hamilton Dyer, Alistair Hill,
Mark Maltby, Anna Slowikowski, Alan Vince

and illustrations by Cecily Marshall

SUMMARY

An excavation by Albion Archaeology at Stanbridge Lower School in 2006 revealed the remains of several early medieval enclosures. They lie in land which belonged to Stanbridge Manor, and form part of a network of rectangular enclosures identified by aerial photography in the mid-20th century, prior to the levelling of many earthworks in the area. Ceramic evidence indicates the enclosures were in use between the mid-11th and the 13th/14th centuries. This date range tallies with that already documented for the manor, which was created in the early 12th century and survived throughout the medieval period. Small assemblages of charred plant remains and animal bone provide further limited insight into the economic basis of the manor.

INTRODUCTION

In 2006, Albion Archaeology investigated the proposed construction site of a single storey extension to Stanbridge Lower School (Fig. 1). Bedfordshire County Council's Archaeological Officer had requested a programme of investigation prior to construction work at the site, which lies within land formerly associated with Stanbridge Manor (Fig. 2, HER 10959), and the identification of archaeological remains during trial trenching led to a small excavation.

The site lies within the northern half of Stanbridge parish, which is dominated by a ridge of chalk that rises to *c*. 130m OD. Several springs issue from this ridge, at the southern foot of which lies the village. One such spring (HER 10898) lies *c*. 200m north-west of the investigation area, which was centred at SP 9674 2432 on the northern side of Tilsworth Road, at a height of 109m OD. To the south of the village, the land continues to drop into a slight valley formed by a tributary stream of the River Ouzel (Fig. 1). The underlying geology comprises calcareous gleyed soils overlying deposits of Lower Chalk.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Most of the find-spots and sites of archaeological interest within the village of Stanbridge and its environs date to the medieval and post-medieval periods. Earlier evidence includes a number of find-spots of Roman pottery: at Stanbridge Hill, 1km north-west of the village, a spread of Roman pottery, tile and oyster shell (HER 1434) suggests occupation during this period. A number of other find-spots of Roman pottery have been recorded on the plateau of higher ground to the north of the village, while Roman Watling Street lies 2km to the east.

Stanbridge is not mentioned in Domesday Book because it was recorded under the royal manor of Leighton, along with Eggington, Billington, and Heath and Reach. However, prior to 1118, Henry I used a substantial portion of land around Stanbridge to create a separate manor for his wife, Queen Matilda (Coleman 1982, 50). This manor appears to have remained under royal control until the late 12th century. When it passed from John de Gatesden to the Chamberlain family in 1291, it was described as '*a messuage with garden,*

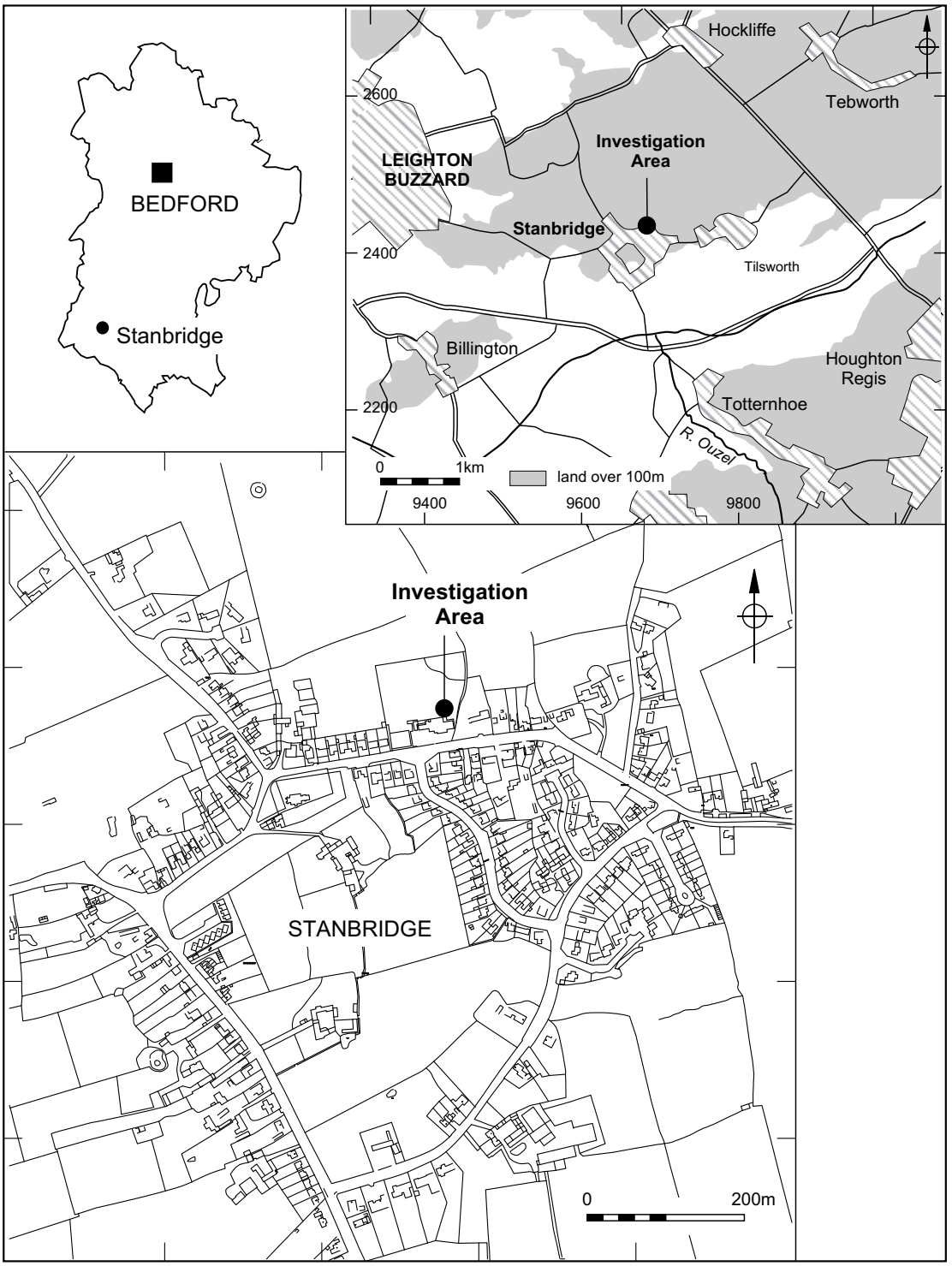


Figure 1: Site location and local topography

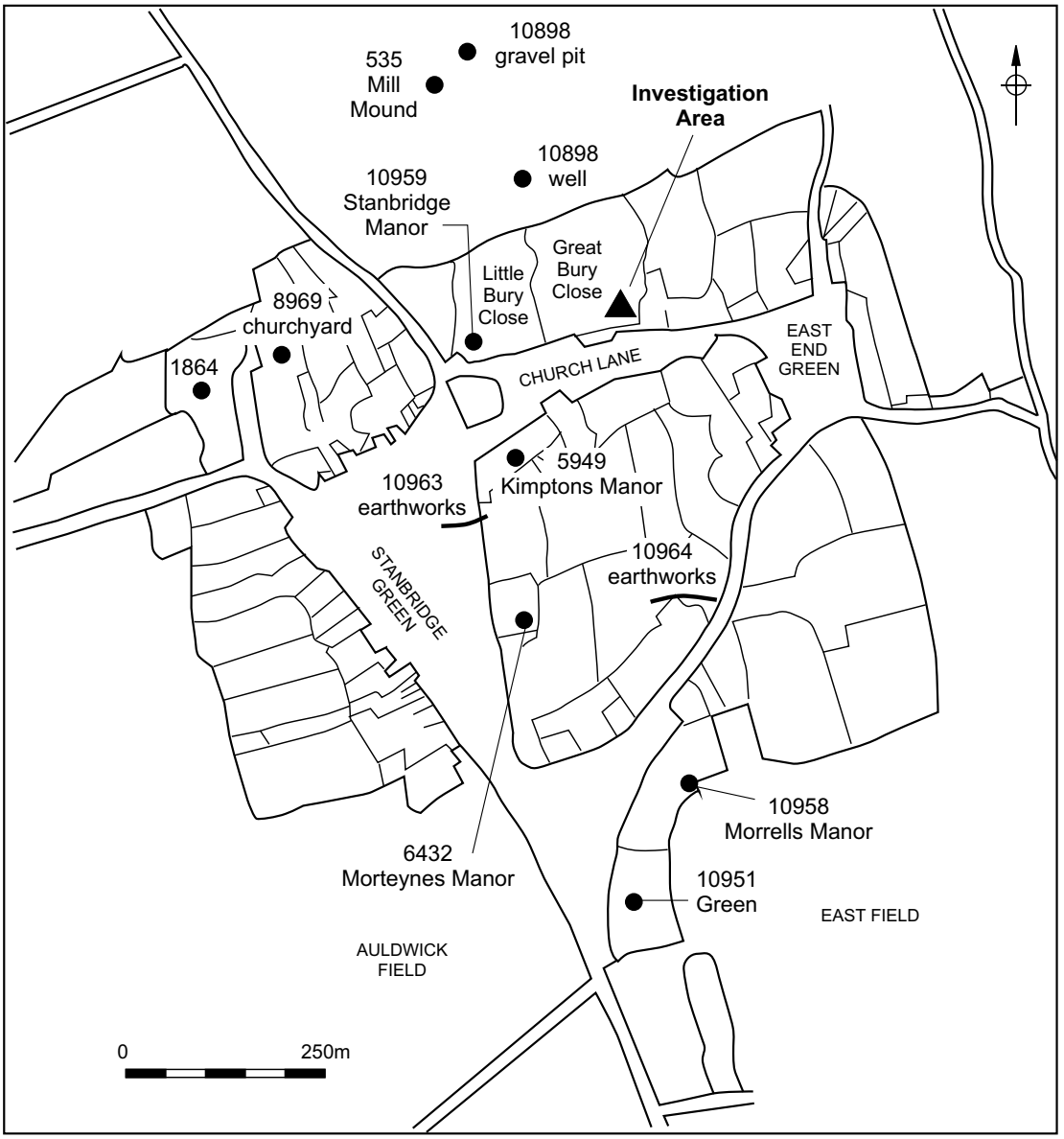


Figure 2: Selected components of medieval Stanbridge (after Coleman 1982)

herbage, fishpond and dovecot, 170a. arable, 8a. meadow, pasture, 118s. 1½d rents of free tenants, 1lb. pepper, 1lb cumin, pleas etc., and two parts of a windmill, held of the King in chief by serjeanty, rendering 60s. yearly at the King's exchequer; and there are due 4li yearly to the prior of Neuham for the King's alms and 7s. to Richard Grusset' (Calendar of Inquisitions Post Mortem III, 12; quoted in Coleman 1982, 50).

This passage of text links in with several extant earthworks and sites of archaeological interest around the investigation area (Fig. 2). The putative site of Stanbridge Manor is located *c.* 120m to the west, in a plot of land referred to in post-medieval documents as Little Bury Close (Schneider 1989, 3). The name 'Bury' was often applied to manorial sites in the Middle Ages. This plot is presently occupied by a farmhouse (HER 10959), which is

thought to sit on the site of the medieval manor house (Coleman 1982, 51). The investigation area itself is located in the south-east corner of a plot of land called Great Bury Close. Earthworks visible on a 1946 aerial photograph show square and rectangular plots of land within the immediate vicinity of the investigation area, although none survived at the time of fieldwork. Analysis of the photograph has indicated that the enclosures formed part of a series of closes which were attached to the manor house.

A mill mound (HER 535), known as Windmill Hill, is located *c.* 300m north-west of the investigation area, and a possible fishpond or natural spring lies close by (Fig. 3). The aerial photograph shown in Figure 3 shows that these features lay amongst, rather than beneath or over, the still extant ridge and furrow field systems, suggesting that the mill and possible pond were in use at the same time as the fields were under cultivation. The photograph also offers relative dating evidence for the possible quarry pit HER 10898: it was clearly overlain by ridge and furrow, and must therefore have been backfilled prior to the creation of the field.

The investigation area lies within the historic core of Stanbridge, albeit on its northern edge. The bulk of the medieval settlement 'would seem to have been confined to an irregular row of buildings along the northern side of the original green' (Coleman 1982, 98). The survival of extensive medieval earthworks to the north of Tilsworth Road until the latter half of the 20th century confirms that this area survived as largely open land, outside the settlement core, until the present day. However, earthworks within the curtilage of Stanbridge Lower School, constructed in 1968, were levelled to create a playing field, and it is the sub-surface remains of some of these earthworks which were revealed by the construction of the school extension.

RESULTS OF THE INVESTIGATIONS

Colluvium

A colluvial deposit G1 of mid-orange-grey silty clay overlay the undisturbed geological deposits across the whole of the excavated area. It contained a small amount of heavily abraded late Iron Age/early Roman and early medieval pottery. The site's location — downslope of a natural spring — would have made it susceptible to colluviation.

Enclosures 1 and 2

A T-shaped arrangement of boundary ditches was revealed within the excavated area, with two episodes of ditch-cutting apparent (Fig. 4). Little evidence remained of the earlier ditch G2 after it had been re-cut by G3 (Fig. 4, Sections 1 and 2); the surviving portion was up to 0.9m wide and 0.6m deep. The more substantial re-cut G3 was *c.* 2m wide and 0.57–0.9m deep. Both ditches were generally U-shaped in profile, with minor variations — probably the result of the collapse of the sides during use. The primary deposits in both ditches were similar in character, deriving from erosion of the colluvium and underlying clay through which they were cut.

Overlying the primary fill of ditch G2 was a thicker deposit (G2.1) of brown-grey clay, which contained a slightly larger proportion of topsoil. The uppermost fill G2.2 comprised orange-grey clay.

A similar sequence of fills was present in ditch G3. Deposit G3.1 comprised a grey-brown silty clay and produced the bulk of the artefacts and the animal bone, which probably represent dumped domestic refuse. A significant variation was noted on the north side of the east–west arm of the ditch, where a slumped, mixed deposit of orange-grey sandy clays and blue-grey clays is suggestive of material derived from a bank along the north side of the ditch. The uppermost fills G3.2 were grey to dark grey-brown silty clay. These, as with all the deposits in both ditches, contained a significant proportion of colluvial clay.

Pit G4 was the only other feature identified (Fig. 4). It was 2.9m long, 0.75m wide and 0.9m deep, with a lower fill G4.1 of mid-blue-grey sandy clay. The upper fill was a grey-brown silty clay G4.2. The function of this pit is uncertain, although artefactual material recovered from it confirms it was broadly contemporary with the enclosure ditches.

Pottery

The investigations produced an assemblage of 260 sherds (2,002g) of pottery, representing a maximum of 215 vessels (0.99 estimated vessel equivalents (EVEs)). Diagnostic vessels total twenty, represented by thirty-eight sherds, 14.61% of the total sherd count. The assemblage dates from the mid-11th to the 13/14th centuries, with



Figure 3: Earthworks in and around Stanbridge in the mid-20th century (shown on Aerial Photograph RAF1946 3265_3)

the bulk of it probably dating to the mid to late 12th century. Little is known about the acquisition and use of pottery in the early medieval period on rural sites in this part of Bedfordshire. Therefore, this is an important assemblage, despite its small size and fragmentary nature. It is described below using fabric codes from the Bedfordshire Ceramic Type Series (see Appendix).

Fabrics

The assemblage can be divided broadly into two periods (Table 1). The earlier — *c*. mid-11th to mid-12th centuries — is defined by the presence of handmade fabric types B13, C59A and C59B (66.27%:1,312g) as well as wheel-thrown fabric types B01A and B07 (51%:138g). The later — mid-13th to 14th centuries — is defined by the presence of wheel-thrown fabric types C60, C09 and C11

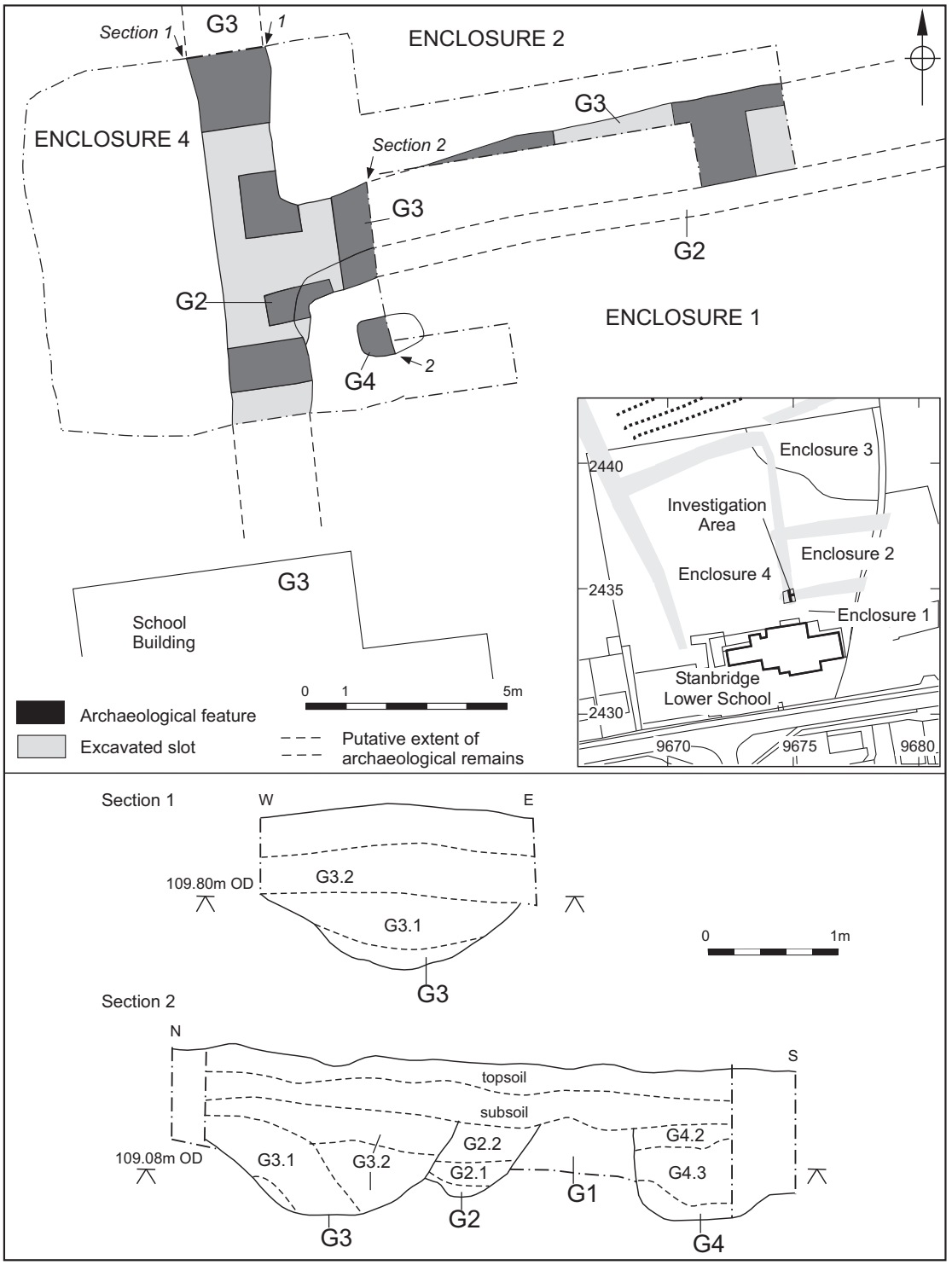


Figure 4: All-features plan and selected sections

Fabric	Description	Quantity	% of total	Weight (g)	% of total
B01A	St Neots type	4	1.61	51	2.63
B07	Medieval Shelly	11	4.42	87	4.48
B13	Early Medieval Chalky	42	16.87	388	19.98
C02	Red Quartz tempered	13	5.22	80	4.12
C09	Brill/Boarstall type	2	0.80	7	0.36
C11	Brill/Boarstall type	1	0.40	16	0.82
C10	Potterspury type	1	0.40	2	0.10
C59A	Coarse Sandy type	43	17.27	306	15.76
C59B	Fine Sandy type	80	32.13	618	31.82
C60	Hertfordshire Reduced ware	39	15.66	303	15.60
63	Flint-tempered ware	13	5.22	84	4.33
Total		**249**	**100**	**1,942**	**100**

Table 1: Quantity and weight of pottery by fabric type

Group	Romano-British (residual)	Mid-11th to mid-12th centuries							12th to 14th centuries	Mid-13th to 15th centuries	
		B01A	**B13**	**B07**	**C02**	**C59A**	**C59B**	**C63**	**C60**	**C09**	**C11**
1	2:6		1:8				1:142		1:1		
2						1:30	2:4				
2.1						1:12					
3	1:2		6:71	1:7		6:26	4:9	6:21	4:27		
3.1	6:51	3:49	32:301	9:78	10:75	24:170	53:351	6:56	24:203	2:7	
3.2			1:4			2:13	5:42		1:7		1:16
4						6:40	3:30		4:29		
4.1		1:2	1:1	1:2	3:5	2:14	10:26	1:7	4:27		

Table 2: Pottery quantified by sherds:weight (g). Pottery from topsoil omitted

(16.86%:326g). Hertfordshire Reduced ware type C60 and the Brill/Boarstall types C09 and C11 overlap in date, with C60 beginning in the 12th century and going out of use in the 14th century, while types C09 and C11 begin later, in the mid-13th century, and continue into the 15th century.

The two early medieval sandy fabrics, Coarse Sandy type C59A and Fine Sandy type C59B, both also occur at Grove Priory (Baker in prep.) and are likely to be the dominant local type. The Early Medieval Chalky ware B13 is a new addition to the Bedfordshire Ceramic Type Series (CTS). Significantly, it does not occur at Grove Priory, although it has been found on other sites in the area which are of comparable date and status (Moore *et al*. 2007).

Forms

The assemblage is dominated by domestic vessels — primarily jars, with a smaller number of bowls and hardly any jugs. These vessels are plain and utilitarian with sparse and simple decoration, including combing (Fig. 6.4), comb-impressions (Fig. 6.7) and applied thumbed strips (Figs 6.6 and 6.7). There are only two instances of glaze and even these are on later jugs in Brill/Boarstall types C09 and C11 (Fig. 6.12). This is a ceramic profile typical of a low-status, medieval, rural assemblage.

Provenance

Pottery of all dates was recovered in greatest quantities from ditch G3 (Table 2). Ditch G2, little of which survived re-cutting, produced only mid-11th to mid-12th-century material, whereas its re-cut G3 was the only feature to contain sherds from the mid-13th to 15th centuries.

Petrological analysis

Six samples were selected for analysis (Table 3): five sherds of sand-tempered, handmade wares

Sample	Thin Section Fabric (TSF)	Feature	Context	Pottery Fabric
1	1	4	316	MEDLOC
2	1	3.1	312	MEDLOC
3	1	3.1	332	MEDLOC
4	1	4	316	MEDLOC
5	2	3.1	106	MEDLOC
6	3	3.1	106	EMCH

Table 3: Thin-section analysis samples

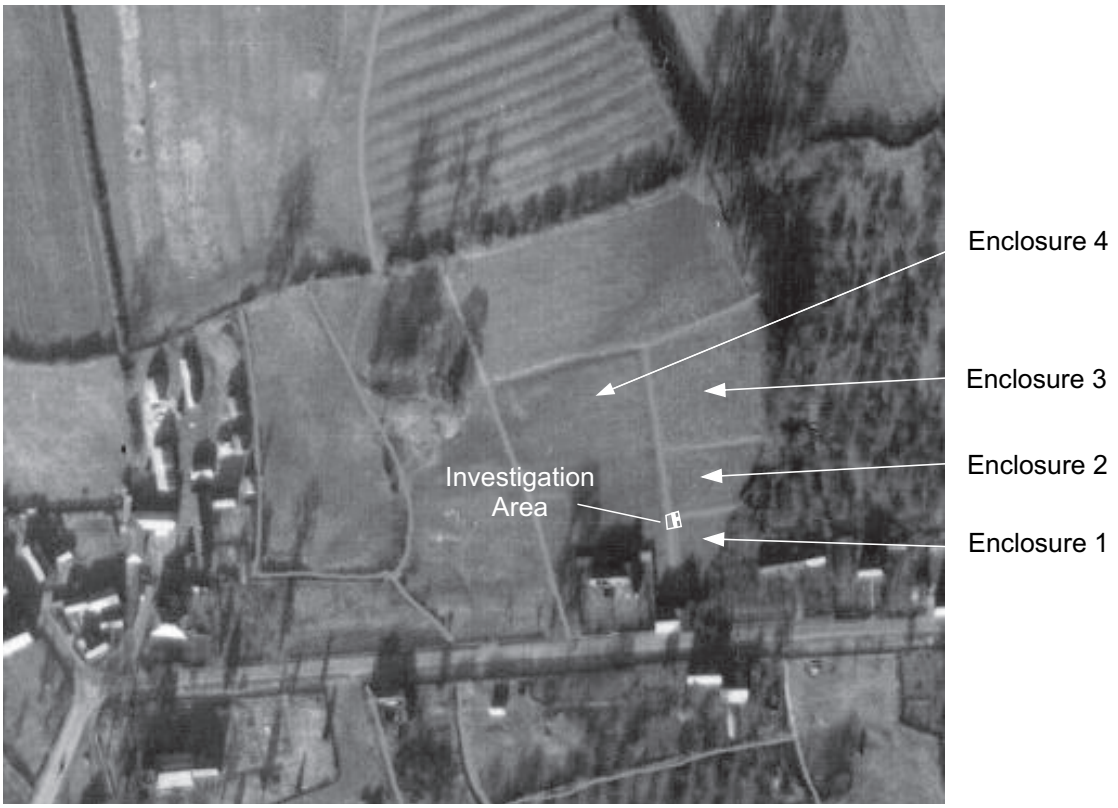


Figure 5: Enclosures 1–4 overlain on Aerial Photograph RAF1946 3265_3

(MEDLOC) for comparison with pottery from Chelmscote, c. 8km west-north-west of Stanbridge (Moore et al. 2007, 51–4); and one sherd as a possible example of Early Medieval Chalky ware (Vince and Jenner 1991, EMCH). Each was thin-sectioned and a chemical composition analysis obtained, using Inductively-Coupled Plasma Spectroscopy.

The six samples probably come from several sources and have three distinct fabric groups recognised in thin section. The four samples of TSF 1 match those from Chelmscote in chemical

No.	Fabric type	Description	Group
1	B13 Early Medieval Chalky ware	Jar rim and body, sooted exterior (3 sherds, 33g)	3
2	B13 Early Medieval Chalky ware	Jar rim (2 sherds, 30g)	3
3	B13 Early Medieval Chalky ware	Jar rim, particularly thin, sooted exterior (1 sherd, 10g)	3.1
4	B13 Early Medieval Chalky ware	Body sherd and part of base angle with combed diagonal lattice decoration (3 sherds, 31g)	3.1
5	C02 Red Quartz-tempered ware	Bowl with hammerhead rim (8 sherds, 67g)	3.1
6	C59A Coarse Sandy type	Jar neck with horizontal applied thumbed strip (1 sherd, 30g)	2
7	C59B Fine Sandy type	Bowl with hammer-head rim, vertical applied thumbed strips on body, comb stabbing on top of rim, reduced fabric (1 sherd, 142g)	1
8	C59B Fine Sandy type	Jug rim (1 sherd, 14g)	3.1
9	C63 Flint-tempered ware	Jar rim (2 sherds, 14g)	3.1
10	C60 Hertfordshire Reduced ware	Jar rim (2 sherds, 16g)	3.1
11	C60 Hertfordshire Reduced ware	Jar rim (1 sherd, 13g)	3.1
12	C11 Coarse Brill/Boarstall type.	Jug handle decorated with thumbed edges and deep vertical grooves down length (1 sherd, 16g)	3.2

Pottery illustration catalogue

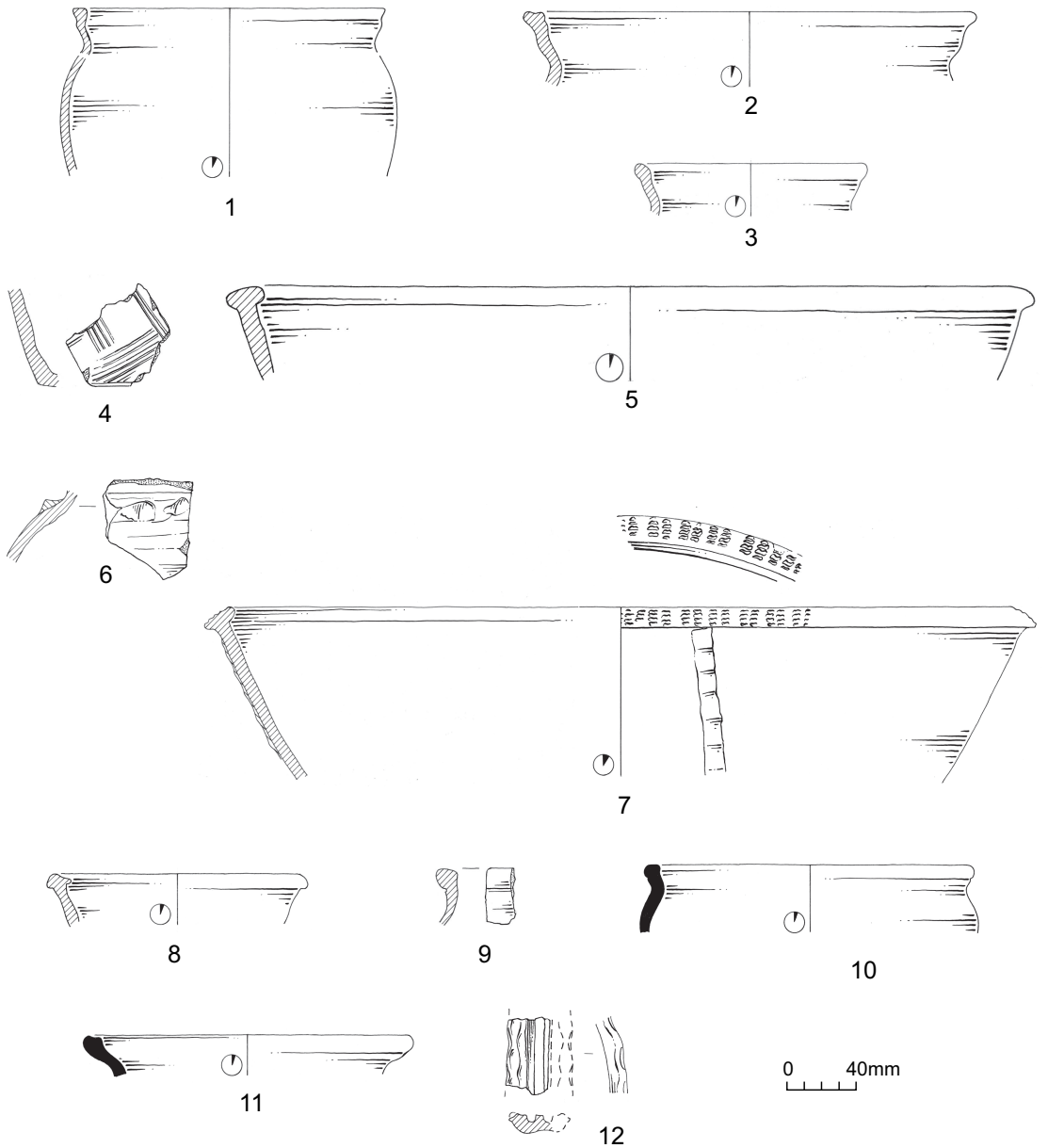


Figure 6: Selected pottery

composition and could come from the same source. The single samples of TSF 2 and 3 are less similar to the Chelmscote samples and may come from a separate source. However, a similar source area may be shared by all the samples (this would cover much of southern Bedfordshire and neighbouring counties).

The putative EMCH sample compares well in thin section and chemical composition with samples from Chelmscote and the City of London. The range of inclusions in thin section suggests that the source is in an area of Lower Cretaceous rocks. This ware could also, therefore, have been produced in south Bedfordshire or neighbouring counties.

Discussion

The lower fills of enclosure ditch G2 produced the earliest, albeit small, assemblage, comprising only

local, handmade sandy wares, C59A and C59B. These could be as early as mid-11th-century in date, although they are just as likely to be mid/late-12th-century. The primary deposit within the re-cut G3 produced pottery of the same date, along with sherds of Hertfordshire Reduced ware C60, which dates to the 12th–14th centuries. Pit G4 produced a similar assemblage and is likely to have gone out of use at broadly the same time. The latest pottery comes from the secondary and uppermost fills (G3.1 and G3.2) of ditch G3, suggesting it was still in use until at least the mid-13th century. No late medieval pottery was recovered, suggesting a cessation of activity on the site before the end of the medieval period.

Grove Priory (Baker in prep.), located only *c*. 5km to the west-south-west, was contemporary in date; certain similarities in the types of pottery appearing at both sites would therefore be expected. This is borne out by the presence of handmade sandy types, which appear to have been the local wares supplying both sites. However, the absence of Early Medieval Chalky ware (B13) at Grove Priory (despite extensive excavation of the site) and its presence at both Stanbridge and Chelmscote suggest different marketing patterns and acquisition strategies on these sites.

Despite its royal origins, Stanbridge was never more than an average south Bedfordshire manor. Small, lower-status rural settlements, like Stanbridge and Chelmscote (Moore *et al*. 2007, 53–4) would have got their pottery either from the local potter or from the local market, probably in relatively small quantities. Grove, on the other hand, was a relatively high-status site, catering for occasional but large numbers of visiting dignitaries and officials, including royalty. Large quantities of pottery would have been acquired as and when needed, probably directly from the potter. The potter supplying Grove, however, need not have been the local person, but possibly one with tenurial or other connections which were of more importance than distance. It appears that the handmade sandy types were the immediate local wares supplying both high and low-status sites, but the source for the chalky ware may have lain beyond the tenurial boundaries and obligations of Grove Priory, supplying only the lower-status sites, including both Stanbridge and Chelmscote.

Ceramic building material

Nearly all of the 369g of ceramic building material that were recovered came from the lower fills of ditch G3, in particular from the secondary fill G3.1 (266g) The bulk of it comprised pieces of clay roof tiles, which only became common in the 13th century. A post-13th century date for the infilling of this ditch is consistent with that suggested by the pottery.

Animal Bone

A total of 125 animal bone fragments were recovered, 101 of which were from ditch G3. Of these, only fifty-two were identified to species (Table 4). The sample is too small to derive more than basic information about the species present. However, bone-surface preservation is generally good, with only one sheep/goat bone being recorded as eroded. Fish bones also survived. Five sheep/goat and five cattle bones have gnawing damage, indicating they were accessible to dogs prior to deposition. Only one unidentified fragment is burnt.

Forty-four mammal bones were identified (Table 4), of which twenty-nine (66%) are sheep/goat. Two of these definitely belonged to sheep, whereas no elements of goat were positively identified. The high percentage of sheep/goat may imply that sheep were the most common suppliers of meat, although the sample is very restricted in size. As usual, denser elements such as loose teeth and shafts of tibiae and metapodials survived in larger numbers than more fragile elements; a minimum of four sheep/goat tibiae are represented. A fragment of sheep/goat skull was the only mammal bone identified from the sieved assemblage. The discrepancies in element counts are likely to have been caused by differential destruction by taphonomic factors, and gnawing in particular. A sheep/goat astragalus bears incisions on the anterior aspect near the distal end made during initial skinning and dismemberment of the carcass.

Two sheep/goat mandibles have tooth-ageing evidence. One has all three molars in wear and belonged to an adult. The second has only the first two molars fully erupted and still possesses deciduous premolars in an advanced state of wear. This belonged to a sheep aged about 18–24 months old, a common age for culling for meat. Epiphyseal fusion data are minimal. There is no evidence for

Element	Cow	S/G	Pig	Equid	Dog	Goose	Eel	Her	Cyp	Stb	**Total**
Maxilla	1										**1**
Skull frag		1									**1**
Mandible	2	4	1								**7**
Loose Teeth		6	1								**7**
Furcula						1					**1**
Humerus	2										**2**
Radius		2									**2**
Pelvis	1	1									**2**
Femur		2			1						**3**
Tibia		6									**6**
Fibula					1						**1**
Astragalus	1	1									**2**
Metacarpal		3				1					**4**
Metatarsal	1	2		1							**4**
Phalanx 1		1									**1**
Phalanx 2	1										**1**
Wing phalanx						1					**1**
Thoracic V	1										**1**
Precaudal V							2	1	1		**4**
Basipterygium										1	**1**
Total	**10**	**29**	**2**	**1**	**2**	**3**	**2**	**1**	**1**	**1**	**52**

Counts are of number of individual specimens (NISP)
S/G: sheep/goat; Eel: common eel (*Anguilla anguilla*); Her: herring (*Clupea harengus*); Cyp: Cyprinid; Stb: 3-spined stickleback (*Gasterosteus aculeatus*)

Table 4: Identified animal bone element counts: Mammal bones

the presence of young lambs, whereas sub-adult or fully adult animals are represented by two fused distal tibiae and a fused distal femur. The only measurable bone is the astragalus, which has a lateral length of 27.8mm, a medial length of 26.4mm and a distal breadth of 17.8mm. This specimen belonged to a relatively small animal.

The ten cattle elements include a thoracic vertebra of an adult animal. None of the elements are porous, indicating that no bones of calves are present. No tooth-ageing or butchery evidence was obtained. A metatarsal has a proximal breadth of 44.3mm, and an astragalus has a lateral length of 57.8mm and a medial length of 52.7mm. Both belonged to quite small cattle, typical of the size of stock from this period.

Pig is represented by two elements only. These include a mandible, which possesses a third molar in an early stage of wear. This belonged to a sub-adult, animal probably culled around two years of age. The breadth of the anterior cusp of the tooth measures 14.0mm. Its small size suggests that it was from a domestic animal. Equids are represented by a single third metatarsal, probably from a horse rather than a mule. It has a distal breadth of 47.5mm. The two dog bones consist of fragments of a femur and fibula found in the same context and conceivably from the same animal.

Bird and fish bones

Three bones, all from ditch G3, were identified as goose. Their size indicates that they probably belonged to domesticated birds. Their presence on medieval sites is not unusual. More surprising is the absence of domestic fowl bones, which are usually the most abundant avian species represented on sites of this period. However, this could be simply a quirk of the small sample recovered.

Sieving produced the only evidence for the presence of fish, mostly in the form of small precaudal vertebrae. Four species were identified, three from pit G4 and the fourth (herring) from ditch G3. Two vertebrae belonged to eel (*Anguilla anguilla*), from fish about 30cm in length. These could have been caught locally in traps. Such fishing techniques may also account for the presence of a bone from a 3-spined stickleback (*Gasterosteus aculeatus*). It is unlikely that this small species was a resource that was sought after, and it could have been caught by default in the same traps as the eels. Alternatively, it could have been removed along with other gut contents from a larger freshwater species such as a pike. The cyprinid vertebra could not be further identified, but represents another freshwater species that could have been captured in a local river. The herring is the only marine fish

represented and indicates the exploitation of preserved fish brought to the settlement.

Charred plant remains

Six archaeobotanical samples were taken from discrete datable contexts identified as having the potential for the preservation of plant remains (Table 5). No sample produced more than fifty charred items, however, and the results may not be representative. Thus, only very limited interpretation of the material is possible.

Results

In general, the charred/carbonized remains are in a poor state of preservation, being relatively intensely burnt and distorted. A total of 128 charred items were identified, as well as three uncharred elder (Sambucus nigra) seeds from samples 1 and 10. The wheat grain present in the assemblages was identified as being a free-threshing variety, although due to the poor quality of preservation and the lack of cereal rachis, identification could not be made to species level. Bread wheat (*Triticum aestivum*) was common in the medieval period, but rivet wheat (*T. turgidum*), a productive and tall growing wheat which is also useful for thatching, is known from an increasing number of sites in the Midlands (Monckton 2006). It has been suggested that from the early medieval period onwards, rivet wheat was mainly used to make biscuits or pottage, whereas bread wheat was favoured for milling to use as flour for bread (Grieg 1991). However, in the absence of chaff, the presence of rivet wheat could not be confirmed. Two grains of six-row hulled barley (*Hordeum vulgare*) were identified in sample 10, while barley was also tentatively identified in samples 1, 11 and 13.

Weeds and wild plants

All six samples contained seeds from weeds and/or wild plants (Table 5). The New Flora of the British Isles (Stace 1997) and the tables of weed occurrence (van der Veen 1992) were used as reference guides. A total of forty charred/carbonized weed seeds were found, including goosefoot

	Sample No	1	10	11	12	13	14	**Total**
	Group	4.1	4.1	3	2	3.1	3	
	Feature type	Pit	Pit	Ditch	Ditch	Ditch	Ditch	
	Sample vol. (l)	10	10	20	20	30	20	
	Flot vol. (ml)	<10	<10	<10	<10	<10	<10	
	Items/litre	3.5	2	1.7	0.35	1.1	0.1	
	Weed/grain ratio	0.4	1.7	0.1	2.5	0.4	0.0	
Grains								
Triticum free-threshing	Free-threshing wheat			2	1	16		**19**
Triticum cf. free-threshing	?Free-threshing wheat	2		7				**9**
Triticum sp(p)	Wheat			7	1			**8**
cf. *Triticum*	?Wheat	10						**10**
Hordeum vulgare	Barley		2					**2**
cf. *Hordeum*	?Barley	1		1		4		**6**
Cerealia indet.	Cereal	12	5	13		3		**33**
Chaff								
Culm node	Cereal stem		1					**1**
Wild Plants								
Chenopodium sp.	Goosefoots	1				1		**2**
Rumex sp.	Docks	2		1				**3**
Rumex acetosella L	Sheep's Sorrel					1		**1**
Hypericum sp.	St John's-worts	1	1	1	1	2	1	**7**
Vicia sp(p).	Vetches	1	5	1		4		**11**
small legumes	Small legumes	5			2	1		**8**
Lamiaceae sp.	Dead-nettle family		1					**1**
**Sambucus nigra* L.	Elder	1*	2*					**3***
Asteraceae sp.	Daisy family					1	1	**2**
Anthemis cotula L.	Stinking Chamomile		4	1				**5**
cf. *Avena* L.	Oat (wild)				2			**2**
small grass	Grasses		1					**1**
Total	**Items**	**35**	**20**	**34**	**7**	**33**	**2**	

* uncharred

Table 5: Plant remains

(*Chenopodium* sp.), docks (*Rumex* sp.), sheep's sorrel (*Rumex acetosella*), vetches (*Vicia* sp.) and stinking chamomile (*Anthemis cotula*), a weed common to ploughed clay soil. All of these species are typical plants of disturbed ground and are common arable weeds that could have grown locally. It was concluded that the uncharred elder seeds (Sambucus nigra) found in samples 1 and 10 were modern contaminants.

Summary and conclusions

The majority of the samples (1, 10, 11 and 13) are proportionately rich in cereal grain (low weed to grain ratio). Due to the limited numbers of grain and weed seeds present, it can only be surmised that their deposition was associated with domestic waste — most likely stemming from the preparation and consumption of cereals as opposed to cereal-processing residue. Such low density scatters are usually associated with the slow accumulation of material over time. The low ratio of weeds to cereal grain also suggests that cereals had been subjected to a degree of crop-cleaning or hand-sorting to remove extraneous material prior to food preparation. The cereals present in the samples — free-threshing wheat and barley — are characteristic of medieval assemblages.

DISCUSSION

Land boundaries defined by ditches can be very long-lived; some modern boundaries have been traced back, using archaeological investigation and cartographic analysis, to the Iron Age and Roman periods (Abrams and Ingham 2008, 116–7). However, the ceramic assemblage recovered from the boundaries investigated at Stanbridge suggests that they were only in use between the mid-11th century and the 13th/14th centuries, falling into disuse before the end of the medieval period. This date range fits well with that documented for Stanbridge Manor, which was created in the 12th century and survived throughout the medieval period. The boundaries were certainly not recorded on 19th-century maps of the area, even though the earthworks would have been visible at this time (Figure 5 clearly shows earthworks in existence in the mid-20th century). Therefore, despite being partially extant, they were no longer considered relevant as markers in the landscape. Instead, one large plot, Great Bury Close, encompassed all the earlier, smaller plots during the 19th century (Fig. 2).

Given the essentially agricultural function of this land during the medieval period, no evidence for settlement contraction has been recorded as a result of this investigation. Indeed, the case for continuity of use has been strengthened. Farmhouse HER 10959 (Fig. 2) sits on the putative site of Stanbridge Manor, and this land remained an open field until the latter part of the 20th century.

The purpose of these medieval boundaries was to enclose land into plots, and separate those plots from others in the vicinity. Several enclosures are visible both within, and in the vicinity of, the investigation area (Fig. 4). Enclosure 4 (*c*. 5,000 m^2 in size) occupied the western part of the investigation area, while the eastern part was split between Enclosures 1 and 2 (*c*. 250m^2 and *c*. 500m^2 respectively. Enclosure 3 (*c*. 1,400m^2) is visible as a crop-mark (Fig. 5) to the north. The period of use of these enclosures and, by association, several others visible adjacent to them has been confirmed by the small-scale investigation of ditches G2 and G3, which correspond exactly with those shown in Figure 5. This provides an excellent example of how a small excavation area can be used to augment our knowledge of a much larger landscape, when aerial photographs, maps, and local knowledge are utilised alongside contextual, ecofactual and artefactual data.

Exact functions for these plots of land to the east of the manor house are unknown, although it is likely that they served as agricultural plots for livestock and/or cultivated crops, and that they provided food for consumption within the manor. The animal bone and plant assemblages are typical of settlement sites of the period. Neither dataset suggests a particularly high status; the remains are typical of those commonly found on rural farmsteads and small settlements of the period. The faunal remains suggest the predominance of sheep/goats, while the archaeobotanical assemblage is characteristic of the arable cultivation of clay soils.

The presence of a bone from a marine fish (herring) in a securely dated deposit within ditch G2, dating to the 11th to 12th centuries (Tables 2 and 4), offers a glimpse into the diet being enjoyed at a relatively early date for this county, and country. It also sheds light on the trading connections of the manor. Barrett (2004, 21) describes a medieval fishing revolution 'in the 11th and 12th centuries… that seems to be the big one. If there was a moment in time when herring and cod consumption, and therefore sea fishing, took off, it was in the 11th century, not later'. Barrett's study covers 127

English archaeological sites with assemblages dating from AD 600 to 1600. Interestingly, from the perspective of Stanbridge, these tend to be from towns and/or coastal sites. The Manor at Stanbridge was located in rural Bedfordshire, a long way from the coast. It was, however, close to the regionally important town of Leighton Buzzard and to the relatively well-connected Grove Priory; it also lay just south of the Thede Way, a long distance route running into East Anglia. Clearly, Stanbridge Manor had connections which stretched beyond local food markets. Further investigation of the site could potentially yield a rich assemblage of ecofactual and artefactual remains, augmenting our knowledge of the medieval period in this part of rural Bedfordshire.

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The Albion management team comprised Joe Abrams (Project Manager) and Mark Phillips (Project Officer); all Albion projects are under the overall management of Drew Shotliff (Operations Manager). Fieldwork was supervised by Alison Bell, with excavation carried out by Gareth Shane. Processing and preliminary recording of the finds were undertaken by Jackie Wells, while soil samples were processed by Sharon Gerber-Parfitt. Analysis was undertaken by the following specialists: pottery — Anna Slowikowski (Artefacts Manager); ceramic building material — Jackie Wells; charred plant remains — Alistair Hill (University of Leicester Archaeological Services); animal bone — Mark Maltby (Bournemouth University); and fish bones — Shelia Hamilton-Dyer. The illustrations were produced by Cecily Marshall. Special mention is made of Alan Vince (Alan Vince Archaeology Consultancy), who undertook the thin-section analysis; his death in February 2009 has deprived archaeological science of one of its leading practitioners.

Ideas regarding the putative location of Stanbridge Manor were derived through discussion with Stephen Coleman (Bedfordshire's Historic Environment Record Officer) and through studying his unpublished research (Coleman 1982), along with utilising the resources of the HER and the Bedfordshire and Luton Archives and Records Service. This article was edited for publication by Drew Shotliff. The project archive can be found at Luton Museum under accession number 2007/92.

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APPENDIX: POTTERY TYPE SERIES

The pottery was divided into fabric types using the common names and codes in the Bedfordshire Ceramic Type Series (CTS), which is currently maintained by Albion Archaeology. Only fabric types new to the CTS have been fully described below.

B01A St Neots type (4 sherds: 51g)
Usually a shade of orange, with an occasional dark grey core, the surfaces may be characteristically 'chocolate brown' in colour, as they are here. The only diagnostic form on the site is a wide, shallow bowl.

Comparable to Denham's category T1(2) at Northampton, this type is dated to the 11th–12th centuries, towards the end of the St Neots date range (Denham *et al*. 1985, 54). It can sometimes be difficult to distinguish between this and the medieval shelly ware B07 into which it almost imperceptibly merges.

B07 Medieval shelly (11 sherds: 87g)
This is a development of the earlier St Neots ware. Only small, undiagnostic body sherds were found.

Known kilns producing this type have been excavated at Olney Hyde, Buckinghamshire (Mynard 1984) and Harrold, north Bedfordshire (Hall and Hutchings 1972). Both have been dated to the 12th–13th centuries. Based on the proximity to Stanbridge of these production sites, Olney Hyde is the most likely source for the sherds found here. It was also thought to be the source for the shelly pottery at Chelmscote, Bucks. (Moore *et al*. 2007, 49).

B13 Early Medieval Chalky (42 sherds: 388g)
Fairly smooth, buff-orange to grey-brown, often in patches. The chalky inclusions are clearly visible on the surfaces as white sub-rounded speckles, although they are occasionally dark grey in colour, especially in the break, varying in size from 0.2 to 1.5mm. Moderate amounts of rounded quartz, approx. 0.5mm and occasional black elongated voids where organic matter has incompletely fired out.

All recognisable vessels are jars with similar, slightly flaring rims (Fig. 6, 1–4). This similarity of form suggests the same production site, if not the same potter. Decoration is sparse but occurs on a single example, in the form of lattice combing on a body sherd close to the base angle (Fig. 6, 4).

In London, Early Medieval Chalky ware is well dated to the mid-11th to mid-12th century, after which date it ceased to be used (Vince and Jenner 1991, 70–2). The type B13 pottery from Stanbridge could be of a similar date, although at Chelmscote a mid-12th-century date was suggested (Moore *et al*. 2007, 49).

This type has been frequently picked up in molehills in the Leighton Buzzard area and also in Buckinghamshire (A. Vince pers. comm.)

C02 Red Quartz tempered (13 sherds: 80g)
Characterised by abundant, well-sorted, sub-rounded red quartz. The only recognisable form is a plain bowl with a hammer-head rim (Fig. 6, 5).

At Bedford, this fabric type was dated to the 11th–13th centuries and was presumed to be a type local to the town (Baker and Hassall 1979, 171). This cannot be confirmed, although few examples have been found elsewhere. The sherds from Stanbridge do not help resolve this as only a single bowl and five undiagnostic sherds were found.

C09 Brill/Boarstall type (2 sherds: 7g)
This fabric type equates to Ivens's Fabric 2 (1982, 144). Two small sherds were recovered, from an olive green glazed jug. This type originates in the two potting villages of Brill and Boarstall, Bucks., as does type C11. The earliest documentary evidence for the potting industry at Brill is 1254–5 (Ivens 1982, 151). The sherds from Stanbridge, therefore, date to the mid-13th century at the earliest, with the medieval industry continuing into the 15th century.

C11 Brill/Boarstall type (1 sherd: 16g)
Coarser than C09, this fabric equates to Ivens's Fabric 3 (1982, 145). A single handle sherd was recovered, probably from a jug (Fig. 6, 12). It has deep grooves running down its length and thumbed edges, an unusual style of decoration for this pottery type. Dating is as for type C09 above.

C10 Potterspury type (1 sherd: 2g)
The type has been fully described by Mynard (1970, 49–55). One unglazed sherd was found in topsoil. Originating in Northamptonshire, the date range for this pottery is from the late 13th–15th centuries.

C59A Coarse Sandy type (43 sherds: 306g)
This type was first recognised at Chalgrave, 6km from Stanbridge, and is described by Brine (1988, 43). A date of late 11th–12th centuries was suggested for the pottery at Chalgrave, as well as that from nearby Grove Priory (Baker in prep.). The assemblage from Stanbridge is made up largely of plain, undiagnostic body sherds, but a single jar was found with a thumbed strip applied to the neck (Fig 6, 6).

There is a particularly coarse version of this fabric found at Stanbridge, with abundant rounded quartz, 0.5–2.5mm, in a background of finer sub-angular quartz. Black streaks and patches indicate where organic matter has not completely fired out.

C59B Fine Sandy type (80 sherds: 618g)
This type is described by Brine (1988, 43), who suggests that, at Chalgrave, both C59A and C59B are part of the same industry. Identifiable forms from Stanbridge are two jugs (Fig. 6, 8) and a bowl with hammerhead comb-impressed rim and vertical thumbed strips applied to the body (Fig. 6, 7). Date as C59A above.

C60 Hertfordshire Reduced ware (39 sherds: 303g)
Although a wide variety of forms were produced in a number of production centres in Hertfordshire (Havercroft, Turner-Rugg and Rugg 1987), the only recognisable forms at Stanbridge are jars (Fig. 6, 10 and 11). There is a single body sherd with an applied thumbed strip, but otherwise the vessels are plain.

There is a suggestion that, at Chelmscote, jugs in this fabric type, with handles springing directly from the rim, may date to the mid-12th century, but in London and St Albans, this type is generally dated from the late 12th to early 13th century,

continuing well into the 14th century (Moore *et al*. 2007, 51; Hurst 1961; Havercroft, Turner-Rugg and Rugg 1987, 31). At Stanbridge, there is no evidence of handles springing directly from the rim, so the later date is most likely.

C63 Flint-tempered ware (13 sherds: 84g)
This coarse flint- and quartz-tempered fabric occurs in small quantities. It has been found at Chalgrave and Grove Priory, but appears to be absent from Chelmscote. Two jars (Fig. 6, 9) and a single possible bowl were recognised.

Brine (1988, 43) suggests that this fabric type is part of the Hertfordshire Reduced ware industry. A flint-tempered fabric type was found in the Chapter House at St Albans Abbey, in levels predating Hertfordshire Reduced ware (Alison Turner-Rugg pers. comm.).

Medieval settlement remains in Westoning, Bedfordshire

Wesley Keir

With contributions by
Jackie Wells

Illustrations by David Ingham

SUMMARY

Investigations by Albion Archaeology in 2008 at Westoning Lower School revealed numerous postholes, gullies and ditches, representing the remains of two phases of medieval activity. The earliest phase comprised the partial footprints of three probable buildings dated by pottery to the 12th–13th centuries. Their location suggests that a road on the line of the present-day High Street was already in existence by this time. This road is possibly one of three focal points from which the village of Westoning developed. By the beginning of the 14th century, the buildings appear to have been abandoned and were replaced by ditches demarcating a NE–SW boundary. These had become completely infilled by the end of the 15th century, from which time the site appears to have been used as farmland until the construction of the school in the early 20th century.

INTRODUCTION

Planning permission was granted by Bedfordshire County Council for the construction of an extension to the existing school buildings at Westoning Lower School. Because the school lies within the historic core of Westoning, a condition was attached to the permission requiring the implementation of a programme of archaeological investigation. Albion Archaeology was commissioned by Mouchel to undertake the work. The first stage comprised trial trenching (Albion Archaeology 2008), which identified significant evidence for medieval occupation. As a consequence, archaeological excavation of the footprint of the proposed extension was undertaken in July 2008, in accordance with a brief issued by the County Archaeological Officer (BCC 2008).

Site location and description

Westoning Lower School lies in the north-east corner of the village of Westoning, which is located approximately 20km south of Bedford (Fig. 1). The area of the extension measured *c*. 220m^2 and was located on the west side of the school, centred on grid reference TL 0345 3260.

The topography of the area comprises a shallow valley through which the River Flit flows northwards, passing to the west of the village. The site itself lies on relatively flat ground at *c*. 75m OD on a band of Gault Clay. The clay appears to lie on the east side of the village; to the west the geology predominantly comprises Lower Greensand.

Archaeological and historical background

The site lies on the east edge of the historic core of Westoning. To the west of the village stands Westoning Manor house, which at Domesday was held by King William as part of his manor of Hitchin in Hertfordshire (Page 1912). It is not mentioned in the Bedfordshire survey, although it was assessed as belonging to the Bedfordshire hundred of Manshead. The manor remained as royal demesne until the late 12th century, after which it passed through the hands of various families.

Close to the manor are a medieval moat and fishponds and the 12th-century church of St Mary Magdelene. The construction of the moat has been attributed to William Inge, who acquired the manor of Westoning in 1297 and who also rebuilt the church in the early 14th century. This area, centred around the church and manor house, is perhaps the most likely location for the earliest settlement focus in Westoning. However, very

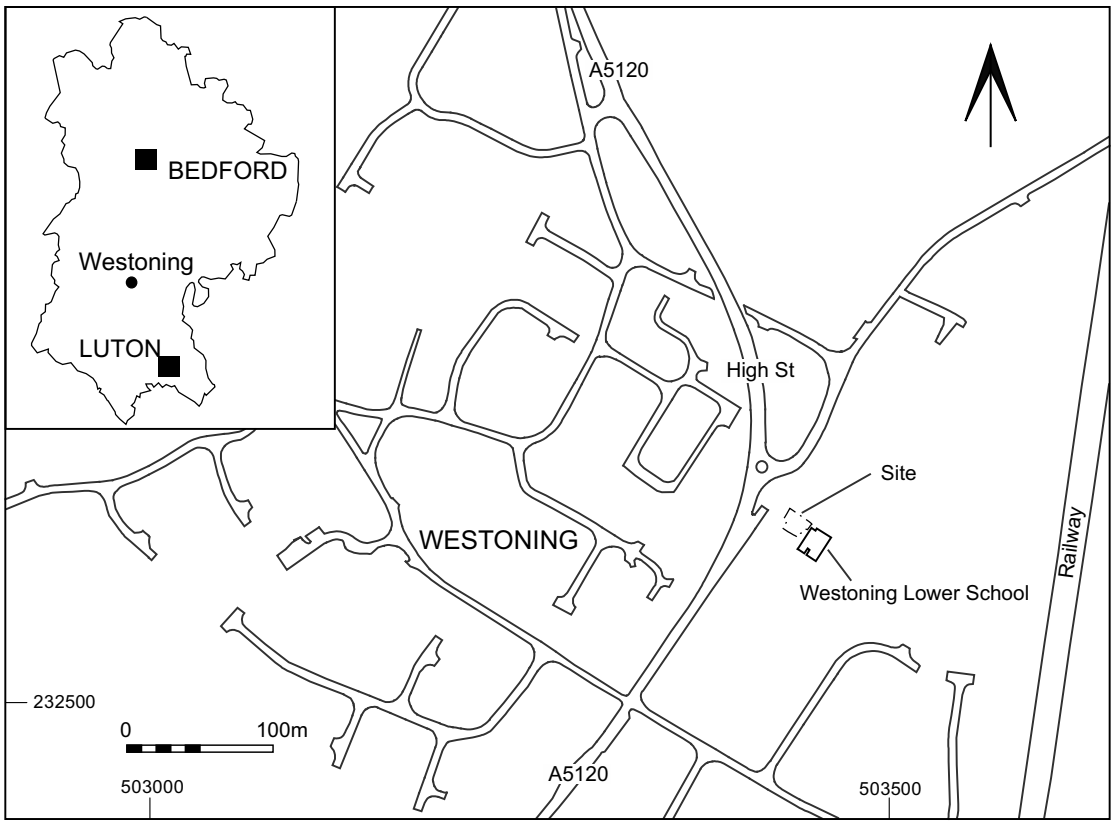


Figure 1: Site location

little archaeological work has been carried out in the village; evidence for its origins is scarce, and pre-medieval remains are limited to scattered prehistoric flint artefacts and some Roman pottery.

By the time of Enclosure in 1842, over half the parish had been enclosed, including the site itself which fell within a narrow strip of land called Fisher's Close, belonging to Samuel Mead. The previous year's Tithe map shows this area as being part of a larger piece of land owned by the same person. On early Ordnance Survey maps, it is depicted as open arable or grazing land until the construction of the school in 1913.

RESULTS OF THE ARCHAEOLOGICAL INVESTIGATIONS

The excavations revealed numerous postholes together with some associated gullies and three NE–SW aligned ditches (Fig. 2). Artefactual and stratigraphic evidence enabled the identification of two phases of medieval activity. The only hint of earlier activity in the vicinity was provided by two abraded late Iron Age pottery sherds recovered from medieval features.

The following narrative is presented in chronological order by Phase, and integrates the results of both the trial trench evaluation and excavation with specialist finds reports. Elements within each Phase are referred to by a Group (G) number, which represents an agglomeration of 'contexts' that are closely related both stratigraphically and interpretatively. Some of the Groups have been amalgamated to form Buildings I–III. Detailed information on the pottery analysis is included in an appendix, which contains information on the Bedfordshire Ceramic Type Series.

PHASE 1: EARLY MEDIEVAL (*C*. 12th–13th century)

Evidence for the earliest phase of activity comprised numerous postholes and three gullies, representing the partial remains of three probable NE–SW aligned buildings (Fig. 2). The pottery

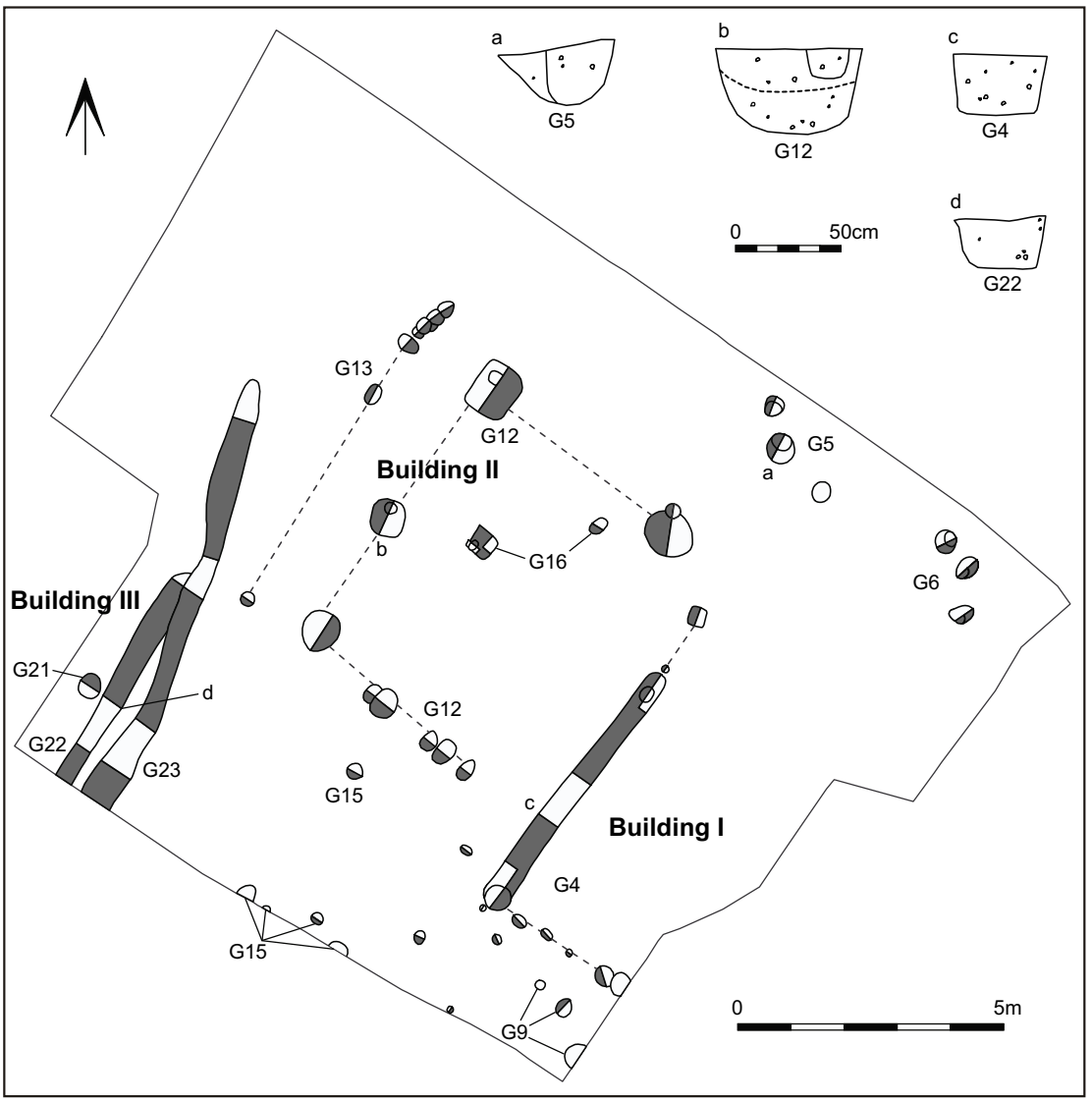


Figure 2: Plan of early medieval remains (Phase 1), with selected sections

from these features is almost exclusively early medieval in date, while other finds are restricted to a few fragments of indeterminate animal bone, and a negligible quantity of fuel ash.

Building I

The partial footprint of Building I measured at least 7m x 3m — two of its sides were visible within the excavation area, defined by a steep-sided gully and several postholes G4 (Fig. 2). The gully defining the north-west wall of the building contained a posthole at both ends. It may have formed a wall constructed of vertical posts with an infill of planks or wattle, or a horizontal sill with mortised uprights, staves or wattle. The presence of the postholes at either end of the gully and a lack of evidence for any intervening posts perhaps suggest the latter is the more likely.

Smaller postholes were located just beyond the ends of the gully, possibly to accommodate minor supporting posts. A square posthole located beyond the gully probably represents the north corner of the building. By contrast, the south-west side of the building was only defined by postholes

of varying dimensions. Two were intercutting, suggesting replacement of the earlier post. No structural evidence for the north-east side of the building could be discerned, although this may have been due to the presence of modern service trenches.

Building II

Immediately to the north-west of Building I, four post-pits and five postholes (G12) defined the 6m x 4.5m outline of Building II. Three of the post-pits supported the corners of the building, whilst the fourth was located centrally within its north-west side. The three post-pits on the north-west side were all similar in size and form, 0.7–1m in diameter and *c*. 0.4m deep, with steep sides and relatively flat bases (Fig. 2, b). At 0.14m deep, the post-pit in the north-east corner was considerably shallower. Evidence of former posts *c*. 0.2m in diameter was visible in three of the post-pits. They all appeared to have been removed once the building had fallen into disuse.

The south-west side of the building was defined by five postholes. Two were intercutting, suggesting that the earlier post had had to be either replaced or supported by another. No structural evidence for a south-east wall was visible, although given its proximity, it is possible that Building II was an extension of Building I.

Post-pit and posthole G16 are the only evidence for possible internal features. The post-pit was square in form, 0.5m across and 0.34m deep (Fig. 3, a). Clearly visible within the fill of the pit was a darker fill representing a removed or decayed post, *c*. 0.2m in diameter. The frequent medium to large stones in the fill of the pit represent displaced packing from around the post.

A row of small postholes G13 represents the line of a probable fence or a possible extension to the west of the building. Beyond the postholes lay gully G23, which was probably a drainage channel. The deviation in its alignment suggests it respected the line of postholes.

Building III

Part of a structural gully G22 (Fig. 2, d), similar to that of Building I, and a posthole G21 were revealed in the south-west corner of the site, indicating the presence of a further building. In contrast to Building I, no postholes were revealed within the gully. Its relative shallowness suggests it is more likely to have contained a sill to hold the wall structure rather than vertical posts.

Structural gully G22 was partially truncated by gully G23, which appears to have been contemporary with the line of postholes G13 associated with Building II. This suggests that Building III was earlier than Building II, or at least that it went out of use before G13 was added to Building II.

Other Postholes

Various other postholes with no obvious patterning were located in the general vicinity of the buildings. Although there is no apparent spatial relationship, artefactual evidence recovered from their fills suggests they were broadly contemporary with the buildings. Two similarly arranged groups of three postholes (G5 and G6) located near the north-east corner of the site were particularly distinctive. They were 0.3–0.55m in diameter and up to 0.4m deep (Fig. 2, a). An area of dark grey-brown silty clay within their fills indicated where the 0.20–0.38m diameter posts had once existed.

Finds Assemblage

Pottery

Phase 1 features yielded ninety-seven sherds (861g), representing eighty-two vessels and constituting 52% (by weight) of the total ceramic assemblage. Although surviving in fair condition, the highly fragmented nature of the pottery is attested by a low vessel to sherd ratio and an average sherd weight of only 9g (Table 1).

The majority of the assemblage comprises both wheel-thrown and handmade body sherds in a range of fine to coarse, sand-tempered fabrics (types C03, C04, C53, C59A/B, C60, C63, C71) characteristic of the early medieval period. Two contemporary shell-tempered sherds (type B07) also occur. All are well attested types, and are likely to be of local manufacture. The homogeneous nature of the assemblage is of interest, particularly the predominance of fabric types C59A

Group	Description	Vess: Sherd No.	Wt (g)
4	Building I	26:34	469
5	Postholes	12:12	37
6	Postholes	3:3	10
9	Boundary ditch	1:2	5
12	Building II	27:32	273
13	Postholes (Building II)	2:3	6
16	Postholes (Building II)	1:1	2
15	Postholes	5:5	26
23	Drainage gully	5:5	33
		82:97	861

Table 1: Phase 1 pottery quantification

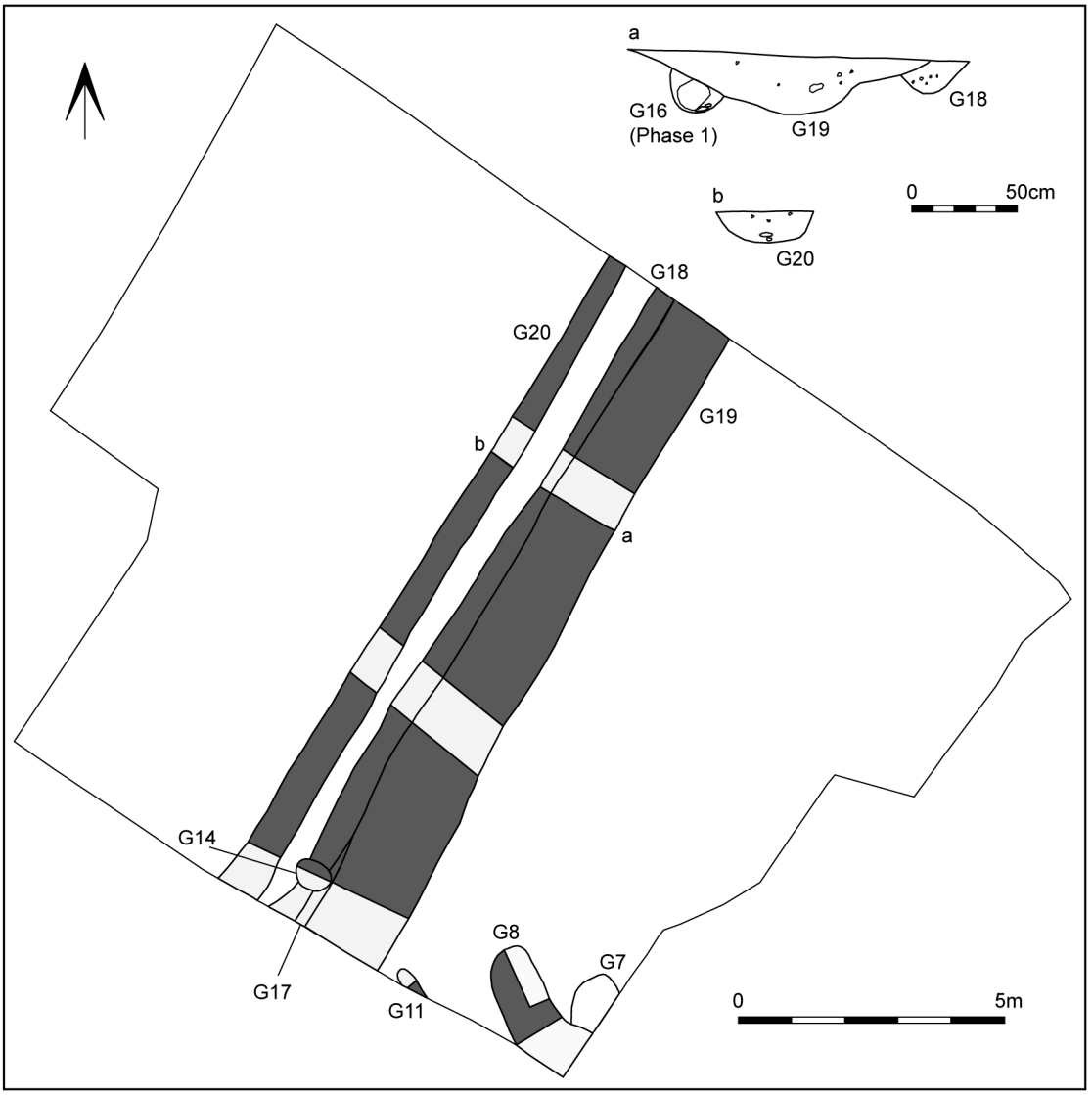


Figure 3: Plan of late medieval remains (Phase 2), with selected sections

and C59B, which together constitute over 97% of the pottery. These types are well attested from sites in the south of the county, for example Chalgrave (Brine 1988) and Grove Priory (Baker in prep.), and their prevalence probably reflects the influence of local geology on pottery manufacture. Diagnostic forms are everted, square and flat-rim jars (one with a combed rim top), and bowls. One body sherd has combed decoration, and the exterior surfaces of a number of vessels are sooted, indicating their use as cooking pots. The majority of the assemblage derived from deposits associated with Buildings I and II, which respectively produced 469g and 281g of pottery (Table 1). Two abraded grog-tempered, late Iron Age sherds (16g) were residual finds.

PHASE 2: LATER MEDIEVAL (*C.* 13th–15th century)

The function of the site changed in the late medieval period, with the buildings from Phase 1 being replaced by a ditched boundary. The finds assemblage from the features in Phase 2 is

dominated by early medieval material, with only a few items from the late medieval period, suggesting that this phase of activity ceased by the end of the 15th century.

NE–SW boundary

This phase of activity was characterised by four parallel ditches G17–20, which defined a NE–SW boundary running across the site (Fig. 3). The largest of the ditches truncated two of the smaller ones, with very little of G17 surviving.

Although the boundary was on the same alignment as the Phase 1 buildings, it truncated several postholes, including some associated with Building II. This, together with the range of pottery recovered, suggests that the buildings had been abandoned by the time the boundary was created.

A pit or possible posthole G14 was dug into boundary ditch G18. It contained no finds, but its fill was similar to that of the nearby medieval features, suggesting it was of a similar date.

Other features

Pit G7 and NNW–SSE ditch G8 were partially revealed in the south corner of the site. Although both contained early medieval pottery, they were stratigraphically later than the adjacent early medieval building G4. The ditch also contained a piece of wattle-impressed daub, hinting at the type of construction that may have been used in the earlier buildings. Near to the ditch, a similarly aligned gully terminus G11 was partially revealed.

Finds Assemblage

Pottery

Phase 2 features yielded 102 sherds (744g), representing eighty-nine vessels and constituting 45% (by weight) of the total ceramic assemblage.Sherds are highly fragmented and survive in a similar condition to those of the preceding phase. Fabrics are almost entirely sand-tempered (types C03, C04, C53, C59A/B, C60, C71), and datable to the 12th–13th centuries. The assemblage also includes five sherds (69g) in the late medieval reduced-ware tradition (type E01). Diagnostic forms are everted, square and flat-rim jars; bowls; and a thumbed pipkin(?) handle. Two body sherds have combed decoration and one has a plain applied strip. Sooted exterior surfaces attest to the vessels' usage. The greatest pottery concentration derived from the fills of boundary ditch G19 (335g), with the remaining features each yielding negligible quantities (Table 2).

Group	Description	Vess:Sherd No.	Wt (g)
7	Pit	1:1	2
8	Ditch	9:13	112
18	Boundary ditch	19:21	114
19	Boundary ditch	41:46	335
20	Boundary ditch	19:21	181
		89:102	**744**

Table 2: Phase 2 pottery quantification

Other finds

Boundary ditch G18 yielded the fragmentary remains of two flat-headed iron nails with short rectangular shanks. One may be a shoeing nail, although its poor condition precludes positive identification. A sand-tempered flat roof tile fragment of late medieval/early post-medieval date (32g) derived from ditch G19, and a piece of sand-tempered daub (128g) with an 18mm diameter wattle impression was recovered from ditch G8.

Faunal remains comprise nine abraded fragments (29g) recovered from the upper fills of ditches G8, G18 and G20. Diagnostic elements are long-bone fragments from a large mammal of indeterminate species, two incomplete sheep/goat teeth, a number of amphibian bones and a mouse tooth, the latter deriving from the sieved residues of soil samples.

DISCUSSION

Although recorded at Domesday, there is scant archaeological evidence for Westoning's early origins. The remains revealed within the grounds of Westoning Lower School are, therefore, significant, as they confirm the presence in the early medieval period of settlement to the east of the present village centre, apparently respecting the alignment of what is now the High Street.

Artefactual evidence indicates that the probable early medieval buildings were houses, or outbuildings associated with houses, constructed of earth-fast posts and walling of either timber or wattle. Their proximity to and alignment on the present-day High Street suggest that they, or adjoining properties, may have fronted this road as it existed in the 12th–13th centuries. It is this road that is likely to have provided a focus for settlement in this part of the village.

Early maps of the village indicate that Westoning may have developed from more than one focal point (Fig. 4). The locations of these *foci* are likely to have been:

1) in the vicinity of the parish church and manor house on the west edge of the village; 2) along Church Road and around its junction with Tyburn Lane, where the layout also suggests the presence of a green or market place; and 3) along the Toddington to Flitton road, on which the school site is located.

It is possible that the granting of a weekly market and annual fair in 1303 (Page 1912) influenced the development of the village. If the market was held in the vicinity of Church Road and Tyburn Lane, which is the most centrally placed of the three *foci* and has evidence for a market place, it might have drawn settlement towards that area, possibly to the detriment of the other two *foci*. The period around the granting of the market and fair at the beginning of the 14th century certainly seems to have been a time of decline and abandonment for the settlement at the school site. However, this apparent decline also corresponds with a period in medieval history when there was widespread economic decline and agricultural recession that contributed to the shrinking and desertion of many villages. The region of Bedfordshire located on Gault Clay, within which Westoning partly lies, is an area where the densest distribution of shrunken sites occurs in the county (Lewis *et al*. 1997, 149).

The later medieval boundary ditch that superseded the buildings continued to respect the alignment of the nearby road but did not tie in with any of the later boundaries shown on historical maps. These ditches appear to have become completely infilled by the end of the medieval period, with the land in the vicinity of the site remaining as open fields until the construction of the school in the early 20th century.



Figure 4: Possible medieval development foci of Westoning

ACKNOWLEDGEMENTS

The project was commissioned by Peter Tanswell of Mouchel and monitored on behalf of the Local Planning Authority by Lesley-Ann Mather and Martin Oake of the former Bedfordshire County Council Heritage and Environment Service. Albion Archaeology would also like to thank the head teacher Mrs Jean Peacock, staff and governors of Westoning Lower School for their interest and assistance during the project.

The project was managed by Wesley Keir, under the overall direction of Robert Wardill. The trial trench evaluation was supervised by Lennard Anderson, with excavation carried out by Slawomir Utrata. The open area excavation was supervised by Ian Beswick, with excavation and recording carried out by Marcin Koziminski, Adam Williams and Kerry Ashworth. Finds analysis was undertaken by Jackie Wells, and soil samples were processed by Sharon Gerber-Parfitt.

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APPENDIX: POTTERY ANALYSIS

Methodology

The investigations yielded 206 sherds, representing 177 vessels, weighing 1.7kg. The pottery was examined by context, and fabric types and form codes identified in accordance with the Bedfordshire Ceramic Type Series (see below). Quantification was by minimum vessel and sherd count, and weight. The condition of the pottery from each context was noted, and attributes such as decoration, manufacture, levels of abrasion and evidence of function (residues, sooting and wear marks *etc*.) were recorded.

Ceramic Type Series

Pottery fabrics, based on surface appearance and major inclusion types, are summarised below by chronological period (Table 3), using type codes and common names in accordance with the Bedfordshire Ceramic Type Series, currently maintained by Albion Archaeology. Detailed fabric descriptions are available from Albion Archaeology; published references are noted below. Full fabric descriptions are only provided where examples have not been previously published. Bracketed numbers after each fabric code denote sherd numbers. No new fabric types were identified.

Fabric code*	Common name	Reference
Late Iron Age		
F06B (1)	Medium grog	Parminter and Slowikowski (2004, 443)
F09 (1)	Sand and grog	Parminter and Slowikowski (2004, 444)
Early medieval		
B07 (2)	Shell	Baker and Hassall (1979, 167)
C03 (7)	Fine sand	Baker and Hassall (1979, 171)
C04 (15)	Coarse sand	Baker and Hassall (1979, 172)
C53 (12)	Sand (pasty)	Baker and Hassall (1979, 177)
C59A (53)	Coarse sand	Brine (1988, 43)
C59B (88)	Harsh sand	Brine (1988, 43)
C60 (5)	Hertfordshire-type grey ware	Brine (1988, 43)
C63 (2)	Flint	Brine (1988, 43)
C71 (13)	Sand (buff-grey cored)	Wells (1996, 113)
C75 (1)	Micaceous**	See below
Later medieval		
E01 (2)	Late medieval reduced	Wells (1996, 113)

* excludes unidentified pottery

****C75 Micaceous:** hard fired, wheel-made fabric with grey-brown to light grey surfaces, and a light grey core. Moderately fine and smooth to the touch. Contains abundant white mica throughout the fabric, but particularly obvious on surfaces where smoothing has brought the smaller particles to the surface. Also moderate amounts of poorly sorted, subrounded to rounded quartz, both clear and pink in colour, 0.1–0.8mm, and sparse, small black patches, approx.0.5mm, where organic matter has been burnt out.

Table 3: Ceramic Type Series

John Bailey (1936–2008): timber-framed buildings expert

Alan Crawley

When John Bailey died on January 10th 2008, Bedfordshire lost the foremost authority on its medieval timber-framed buildings and I lost a very good friend. It was in the latter part of the 1970s that I first met John at a meeting of the Bedfordshire Archaeological Council. He had been a member for several years and was the assistant secretary when I first attended. We had nearly met a few years earlier, when we were both involved in the Bedford Archaeological Society's excavation at Clapham Manor House. I found out later that he was there on Sundays while I was there on Saturdays.

The course on timber-framed buildings that he ran at Elstow Craft Centre was where I really got to know him. If I remember correctly, the course went on for three years with just about the same people attending each year. It was an interesting selection of people, about half of whom lived in timber-framed houses and wanted to know more about them. This meant that we had easy access to study these buildings, and it also resulted in some extremely enjoyable and hospitable visits. John taught us all about Wealdens, Crucks, Dragon beams, Scarf joints, Wind braces and Clasp purlins with the use of slides and a good deal of humour. Everyone learnt a lot and had an enjoyable time doing it.

He had recently written and published *Timber-framed Buildings: A Study of medieval timber buildings in Bedfordshire and adjoining counties* (1979). I assisted him with distribution by selling them to shops.

John was a member of the Manshead Archaeological Society and participated in a number of their digs. When he became interested in researching timber-framed buildings he set up his own group. This was first called 'Dunstable Historic Buildings Research Group' (*c*. 1977) and by this time Maxine Miller was assisting him with the surveys. It later changed to become 'Bedfordshire, Buckinghamshire and Cambridgeshire Historic Buildings Research Group' (*c*. 1980). It was around this time that I also started assisting in the surveys. I am not sure if the earlier group had more than two members, but by the time I came along and became a member there were just three of us. I was never aware of any meetings, other than on site, or of any subscriptions.

His first survey to appear in the *Bedfordshire Archaeological Journal* (*BAJ*) was of Calcutt Farm, a moated farmstead at Houghton Regis, in Volume 10, 1975. His superb drawings in this survey set a very high standard that he maintained in all his subsequent work. *BAJ* Volume 12, 1977 featured two of his surveys: Rowe's Cottage, a Wealden House at Little Barford; and Lower Roxhill Farm, Marston Moretaine.

John came to fame for his surveys of the timber-framed buildings of Elstow in the late 1970s when they were being restored by Chrystal & West, for Bedford Borough Council. This work was the main reason he became one of six finalists in the second BBC2 *Chronicle* Award, for which he received a finalist's prize of £500. It also led to his work at Elstow's being featuring in *Current Archaeology* in December 1978.

He contributed three articles in *BAJ* Volume 14, 1980: the first, a brief description of Ivy Farm, Stanbridge and Studham Hall Farm, Studham; secondly, a survey of two hall and cross-wing buildings, Sun House, Potton and Clawdershill Farm, Shillington; lastly, two buildings in Dunstable, numbers 7 and 9 West Street.

As soon as John entered a timber-framed building, any confusion or uncertainty was left far behind. It was quite incredible how quickly he orientated himself with his surroundings, while I was left far behind. He would walk about the building mentioning features, more or less talking to himself. When upstairs, he would be talking about the continuation of timbers from downstairs whilst I was not even sure which room was beneath which. It could be quite embarrassing because he would often be armed with a screwdriver, and would say 'I wonder if there are any shutter groves hiding there?', then start levering plaster away. I would hastily try to restrain him and put the fallen plaster in my pocket, hoping the gouges would go unnoticed.

Often, when we were invited to see a house, the owner would give us a tour of inspection, telling us all about the building, how it was all made from ship's timbers, *etc*. You can well imagine that it was very rare that owners knew much about their

building, although they thought they did. John, not being the most tactful person, would be quite direct in correcting their errors, which on one or two occasions led to some heated debates. I used to do my best to calm things down, but as the conversation continued John would do better than me. This was because the owner would soon recognise that John knew what he was talking about and that he (the owner) was starting to learn new things about his house.

Some buildings stand out in my memory a lot more than others, Fenlake Barns being the most memorable. We went there in the early 1980s before it was a hotel, when it was owned by Mr Smith, the boatman. The building had been used by him for many years to store boats and various tackle and was generally understood to be a 15th/16th-century tithe barn. It was an extremely cold winter's day on which we first viewed the interior, but we soon forgot that, at least for a time, because John quickly realised that the building was far older when he noticed the parallel rafter roof. It was also quite obvious that it was once aisled but the aisles had been removed, and the decoration on the aisle posts, among other things, indicated that it was originally an aisled hall, not a barn. The use of crucks to form bays at either end was also an interesting and unusual feature. Thus, from being considered as a run-of-the-mill late-medieval tithe barn, Fenlake Barns turned out to have been originally a rare early 13th-century aisled hall.

I suppose the next most exciting discovery for me was when Chris Whittaker of Bromhall Hall invited us to view his house, a fine stone building next to the River Ouse in Bromham. All we knew beforehand was Nikolaus Pevsner's very brief dismissal in his *Buildings of England* volume on *Bedfordshire, Huntingdon and Peterborough* (1968): 'BROMHAM HALL. The large 14th-century doorway is probably not *in situ*. (There is also a kingpost roof inside)'. John's survey showed that it had originally been a timber-framed aisled hall with a crown post roof, dating from the early 14th century. The large stone doorway therefore probably was *in situ* and the building did not have a kingpost roof. The visit was also interesting for the fact that the interior of the house was about to be used to shoot scenes for the 1980s BBC TV version of Dickens' *Bleak House*, though not while we were there. John also discovered that Blackburn Hall, Thurleigh and The Old House, Ickwell Green were buildings of a much earlier date than had originally been thought.

John's last contribution to *Bedfordshire Archaeology* was 'The Development of the Medieval Buildings Adjoining the Abbey at Elstow' in Volume 24, 2001. This combined the work that he had done in the 1970s with some extra buildings that he had surveyed over the succeeding years.

During the 1980s and the 1990s I assisted John with many surveys, the majority of which have not been published. When I say 'assisted', I mean 'held the end of a tape' (feet and inches, no newfangled metric for John) as a more accurate description of my contribution, although I did help with the photography as well. I obviously learnt a lot from John but there was only one occasion when I spotted a feature before him. While we were looking at the roof in St John House, the former St John's Hospital, in Bedford, I noticed from the rafters in the roof that there had originally been a smoke bay. My pointing this out to John before he had noticed it really pleased him, because he said that it proved he had taught me something over the years.

During July 2007, the whole of the ground floor of John's house in Moreton-in-Marsh flooded with several feet of water, and at the time of his death, the building had still not been made habitable. Many of his drawings are thought to have been in cupboards downstairs and were therefore ruined, but the position is still not clear as the insurance company removed the furniture into storage. John's daughter Jenny and I are doing our best to make sure as much of his work as possible is saved and can be given to the Bedfordshire and Luton Archives and Records Service to keep it safe for the future. My wish is that his many hundreds of hours of work researching and recording Bedfordshire buildings should not be forgotten. His dedication to this task has been quite extraordinary.

In 1994, the Historic Buildings section of the Essex County Council Planning Department organised a conference at Cressing Temple on 'The Regional Variations in Timber-framed Buildings in England and Wales Down to 1550'. John presented a paper entitled 'The Development of Carpentry in Bedfordshire, 1200–1550' and, together with the other papers contributed at the conference, it was published by Essex County Council (Planning) in 1998. The Bedfordshire Archaeological Council decided that, because of the importance of this paper, it would be republished in this volume of *Bedfordshire Archaeology* dedicated to John's memory.

The development of carpentry in Bedfordshire, 1200–1550

John Bailey

INTRODUCTION

Bedfordshire is a county containing a surprising diversity of timber-framed buildings, in terms of form, style and construction detail, with an amalgam of building techniques from both adjoining and more remote areas in the South-East. Its location has had the effect of making the county subject to many building traditions. For example, it is on the very eastern boundary of cruck distribution (Bailey 1979, 16–19), and the Wealden house is well represented in varied forms (Bailey 1977, 85–88).

Drawing mainly on my survey evidence, this paper sets out to give an overview of the development of carpentry in Bedfordshire's timber-framed buildings between 1200 and 1550. It will illustrate how in the 13th and early 14th centuries Bedfordshire carpentry was part of the evolving pattern in the South-East of the country, of which London was the focal point. It will then show that Bedfordshire continued, in the late 14th, 15th and 16th centuries, to belong to the South-Eastern pattern of carpentry, but at the same time began to develop its own particular county characteristics while retaining a surprising number of East Anglian carpentry techniques and building forms.

The evolution of framing, roof type, bracing and the main construction techniques will be discussed in some detail for a wide range of building types. This will show how adjacent counties, such as Buckinghamshire, have, like Bedfordshire, evolved away from the fairly common South-East form of the 13th and 14th centuries to their own almost individual county styles which differ from each other to varied extents.

Particular characteristics of Bedfordshire building construction will be discussed such as the early demise of the crown-post roof in favour of the clasped side purlin by the end of the early 15th century, and the early abandonment of the hipped roof. It can be seen in the case of the crown-post roof that there is almost a distinct cut-off line between Bedfordshire and Hertfordshire, to the west of which the crown-post roof fell out of use at this early date with very few exceptions.

Bedfordshire was open to external influences as a result of its position in relation to two major roads which intersect at Dunstable in the south-east of the county: the Icknield Way stretching from East Anglia down through to Wiltshire, and Watling Street linking from the West Midlands to St. Albans and London. There are also two major rivers with tributaries spreading across Bedfordshire: the Ouse running out to the Wash, and the Lea joining the Thames (Fig. 1). The geology of the county with its differences in vegetation has a strong influence on the building materials used. It varies from the chalk hills of the Chilterns in the south of the county, through clays, the Greensands and Oxford clay to the limestones in the north.

The growth of the monasteries played a very significant part in the development of early carpentry in the county, with common ideas being brought into play. Many of the oldest buildings in Bedfordshire are the surviving elements of monastic buildings and the dwellings and shops built to serve the communities that grew up around the many religious centres. There was also considerable secular building activity in the county in the 13th and 14th centuries, with manor houses being established or rebuilt, many within moated sites. Construction of timber-framed building continued across the county in the 15th and 16th century in both the towns and villages, with extensive rebuilding in the 16th century.

THE EARLY BUILDINGS

This survey begins with the evidence for 13th- and 14th-century buildings. The earliest of these would sit comfortably almost anywhere in the South-East. Hitherto, examples of aisled halls were thought to be rare in Bedfordshire. However, during an intensive investigation of the timber-framed buildings in the county, I identified a series of previously unknown early aisled and base-cruck halls which give an insight into the development of early timber-framed buildings in the region (Alcock and Barley 1981, 322).

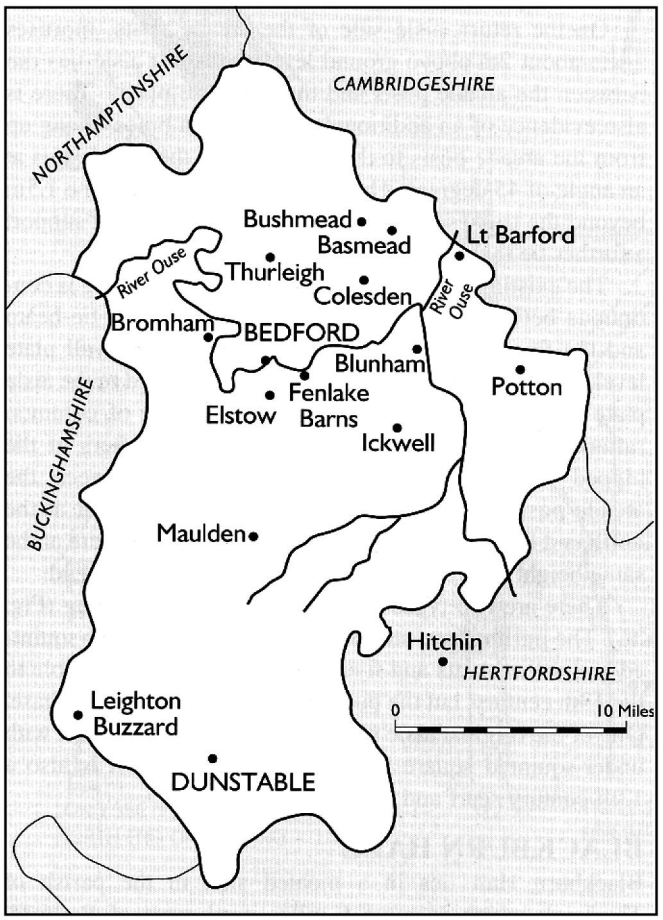


Figure 1

FENLAKE BARNS

This building was one of the range of buildings which formed the original grange of Newnham Priory. The Priory itself was to the north-west, across the River Ouse on whose southern banks Fenlake Barns sits. Between 1178 and 1181 the Augustinian Priory at Bedford moved to its new site at Newnham on the Bedford/Goldington border which recent excavations have shown to have been a major monastic establishment. Fenlake Barns belonged to the Priory until the Dissolution, when it passed to the Crown. Although called Fenlake Barns, the building was originally an early 13th-century aisled hall which unfortunately has now lost its aisles. It was first built as a two-bay hall with a room or rooms at either end within hipped aisle returns (Fig. 2).

An unusual and important feature of the original build is the very rare use of end crucks in the construction of the north and south end aisle returns. These are continuous crucks rising from floor to tie-beams which rest on cantilevered arcade plates. The cruck blade at the north end survives complete. The southern aisle return cruck blade is unfortunately missing but evidence for it remains.

The exact construction of the roof as first built is not clear, as there was a rebuild in the late 13th century when two extra trusses were added (nos. 2 and 4) with jowled posts, dividing the original two-bay hall into four bays. The rebuilt roof has side purlins laid flat and clamped between collar and rafter by a vertical strut in a similar manner to the Cressing Wheat Barn. The existing common rafters have two pairs of empty secret notched-lap joints which supported double collars. The arcade plates are original. The original build is of archaic construction, the three trusses from the first phase (nos. 1, 3 and 5) having arcade posts that taper out

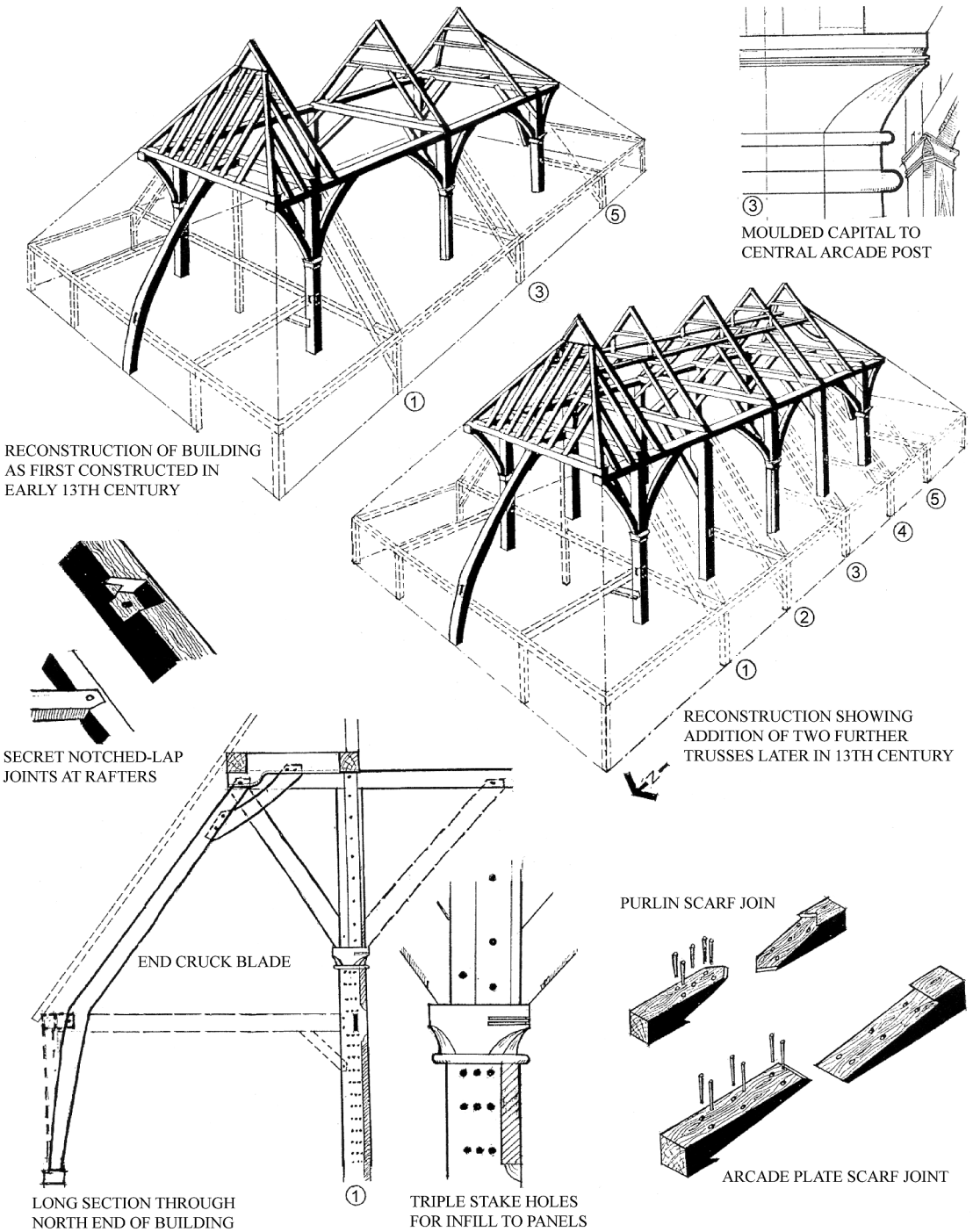

RECONSTRUCTION OF BUILDING AS FIRST CONSTRUCTED IN EARLY 13TH CENTURY
MOULDED CAPITAL TO CENTRAL ARCADE POST
RECONSTRUCTION SHOWING ADDITION OF TWO FURTHER TRUSSES LATER IN 13TH CENTURY
SECRET NOTCHED-LAP JOINTS AT RAFTERS
END CRUCK BLADE
PURLIN SCARF JOIN
ARCADE PLATE SCARF JOINT
LONG SECTION THROUGH NORTH END OF BUILDING
TRIPLE STAKE HOLES FOR INFILL TO PANELS

Figure 2

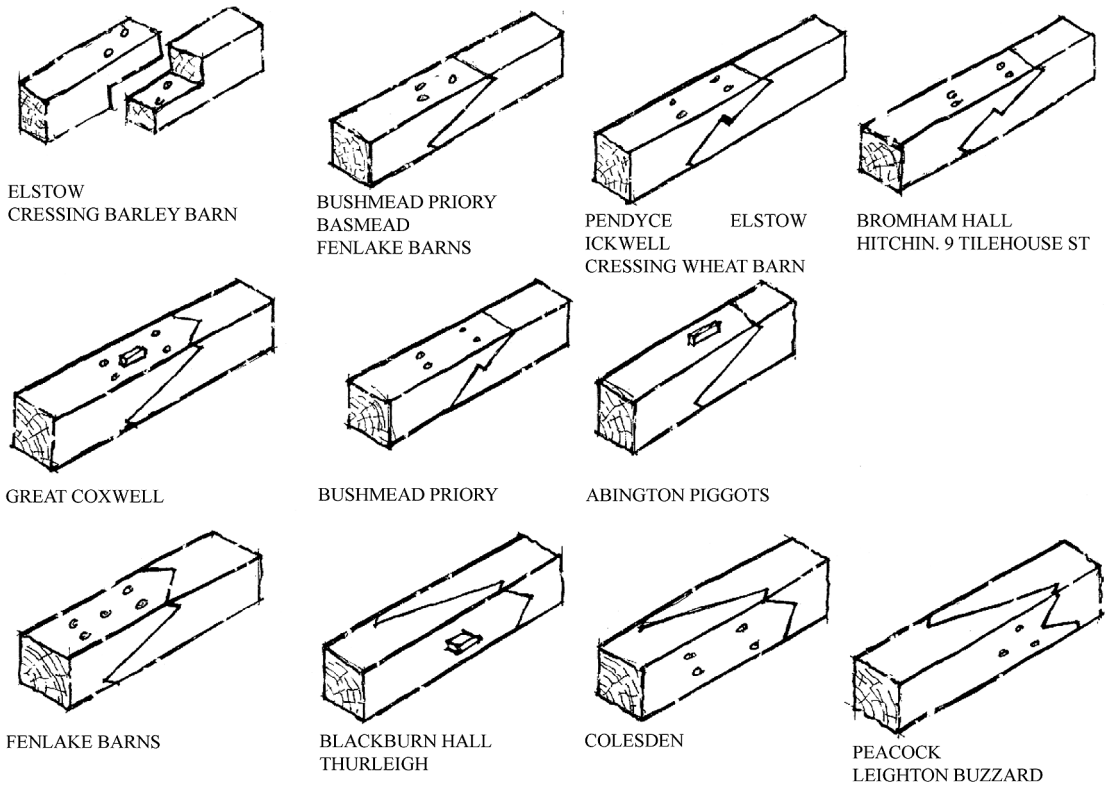


Figure 3

towards the bottom and with capitals of various but plain forms, carved out of the solid. The most elaborate capitals are on the arcade posts of the central hall truss. None of the arcade posts of this first phase are jowled, which suggests an early 13th-century date.

The central truss to the hall (no. 3) has octagonal arcade posts, the angles of which have a slightly concave chamfer. There is a mortise on the outer face of the posts for the aisle tie. The arcade posts of the hall central truss have braces which rise from the top of capitals up to the arcade plates where they are secured with central tenons; braces also secured with central tenons rise from the top of each capital to the underside of the tie-beam. These braces taper in both planes. There is a passing brace running from the collar, to which it is lap jointed, passing in a halving through the tie-beam and continuing down halving into the arcade post, whence it would have carried on down into the aisle post. There are chamfers on the braces rising up to the tie-beam and along the bottom corners of the tie itself, and on the lower corners of the passing brace between the tie and the aisle post.

The two original outer trusses (nos. I and 5) divided the two-bay hall from the rooms in the hipped aisle returns at either end. Both trusses are of similar construction. They do not have principal rafters fitted above the tie-beam. Braces tapering in both planes rise up from the capitals to tenon into the arcade plate. There were also passing braces halved into the tie-beam at the top, and passing the arcade posts down to the aisle posts.

The arcade posts on these two outer trusses bear evidence of the unusual nature of the techniques used for the infill on the truss line. At the north end (truss 1) there is a series of groups of three 25mm diameter holes, running up the inner faces of the posts, both below and above the capitals (Fig. 2). (Truss 5 is slightly different with two rows of holes). There is also a single row of vertical holes in the soffit of the tie-beam and the soffit of the braces between the capitals and the tie. This would seem to indicate that there were three rows of

horizontal wattling and one row of vertical wattling, somehow weaving together to form very large infix panels in a manner which we still have to research. Some 2m above ground floor level, there is evidence in both the inner and outer sides of the arcade posts for horizontal timbers in the order of 340mm high. At the centre of the tie-beam, on its underside, there is another mortise to take a vertical timber, coming down presumably to meet the horizontal timbers. It would appear, therefore, that there were quite substantial panels infilled with this wattle and daub filling.

On the return aisle side of the arcade posts, mortises again about 2m above ground level show that aisle ties ran between the arcade posts and the end aisle plates. There is also evidence of an additional mortise for a brace, rising up from the arcade posts to the underside of these aisle ties at an angle of 45 degrees. The arcade plates extend some 1.5m beyond the trusses at either end of the building and support a further tie that secures the top of the cruck blades.

The existing cruck at the north end of the building is continuous between the underside of this additional tie-beam and the floor level. At the rear of the cruck, at wall plate level, there is a mortise from which a tie spanned to the aisle plate at the north end of the building. A pair of common rafters have an additional collar to take the rafters of the hipped end. The horizontal beam running between the arcade posts at the south end is set lower than that at the north end from the mortise evidence. The aisle ties are at the same height, however, at the north end as the south end.

There are two types of scarf joints in this building (Fig. 3). The purlins have stop-splayed scarfs with under-squinted and sallied butts and five face pegs. These are datable to the 13th century, but the purlins may belong to a later phase. One of the original aisle plates has a stop-splayed scarf with under-squinted square butts and face pegs. This is also a 13th-century scarf and is some 1m long.

BLACKBURN HALL

Blackburn Hall lies in a moated site, in the parish of Thurleigh which is some six miles north-west of Bedford. Blackburn Hall itself marks the site of the ancient manor and lies a mile west of the church. The two-bay hall of the early 13th-century building survives at roof and first floor level (Fig. 4). The aisles have been removed. The overall hall length is approximately 10m and the upper bay, in which the smoke louvre is located, is approximately 0.5m longer than the other. This upper bay abuts a 16th-century cross-wing which was added at the north end of the hall replacing the original bay in this position. The hall was floored in the late 16th century.

The hall roof is of very early passing-brace construction. There are no purlins, and the common rafters have a single collar, with the exception of those on either side of the central truss, which have an additional collar slightly higher. In all three surviving trusses, the passing braces join the principal rafters with lap joints, and the collars are centrally tenoned as are the collars in the common rafters. All of the collars have the mortise-and-tenon joints pegged in both planes (Fig. 4). There are straight braces between arcade posts and ties in both end trusses to the hall. These are jointed to the tie with notched-lap joints with refined entry. These are also pegged in both planes.

Pegs driven down at an angle into the collar of the end hall truss (no. 1) which abuts the later wing are evidence that there was originally a hipped end, presumably supported on cantilevered arcade plates. The private rooms at the high end would have been contained within the return aisle.

The truss at the low end of the hall (no. 3) has evidence for several studs above and below the tie-beam. The high-end truss (no. 1) has a series of 25mm auger holes on the soffit of the tie-beam, with evidence for only a single central stud above and below the tie. The central hall truss (no. 2) has evidence on the soffit of the tie for arch braces in the form of a central mortise 1.7m long indicating that they were curving. The passing braces of the central truss are stiffened above the tie-beam by notched-lapped saltire braces. There are mortises under the arcade plates on their centre line for the arch braces rising from the arcade posts.

In the arcade plate, there is a scarf joint which is stop-splayed with under-squinted and sallied butts and an edge key (Fig. 3). This is similar to the scarf joint used in the top plates of the barn at Great Coxwell in Oxfordshire, except that the Blackburn Hall example is rotated through 90 degrees.

There are similarities between this building and the early 13th-century Barley Barn at Cressing Temple. Both have the rare feature of notched-lap joints with refined entry with pegging in both planes, as well as saltire stiffening. This combination of early features may indicate that Blackburn Hall is also of early 13th-century date.

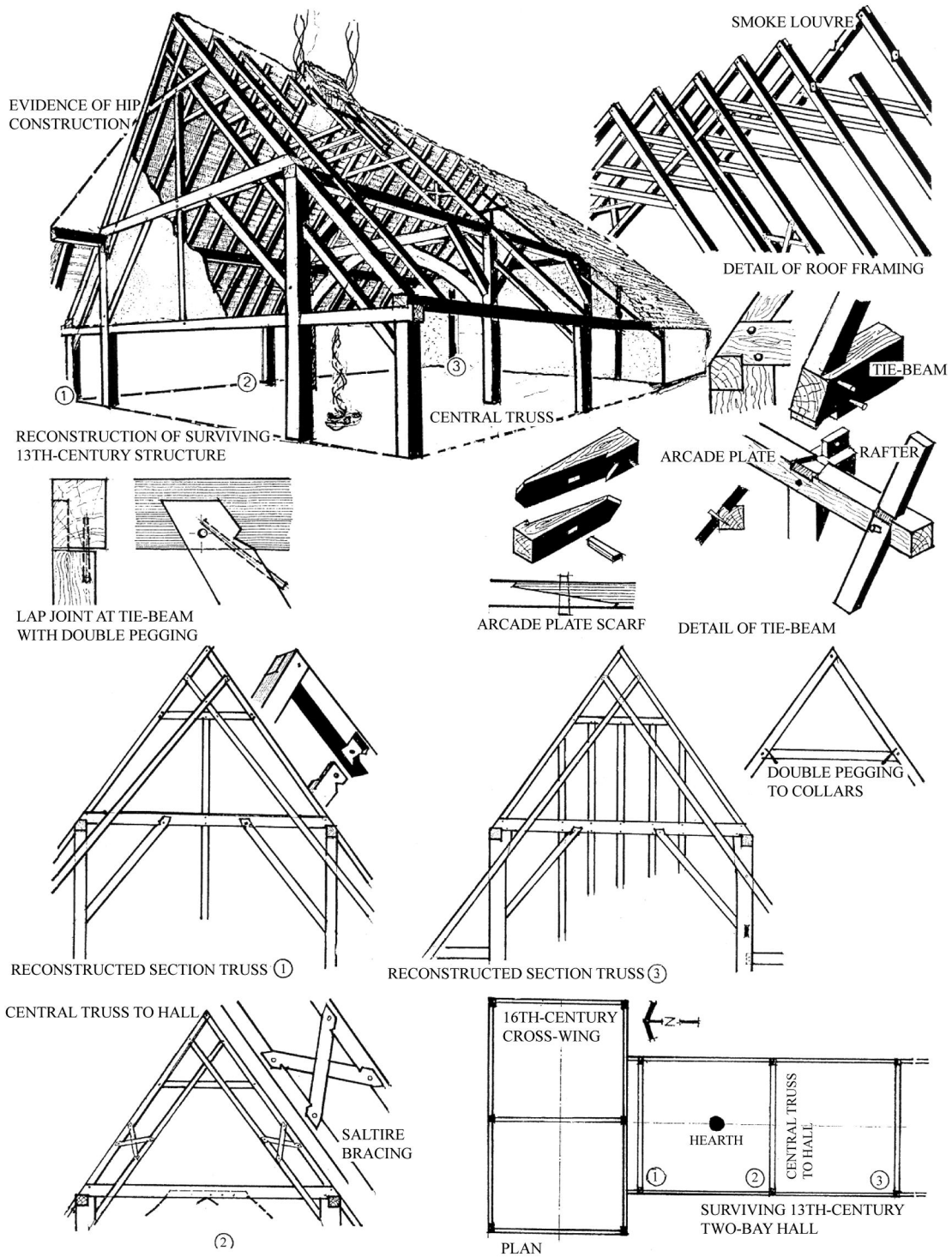

EVIDENCE OF HIP CONSTRUCTION
SMOKE LOUVRE
DETAIL OF ROOF FRAMING
TIE-BEAM
CENTRAL TRUSS
RECONSTRUCTION OF SURVIVING 13TH-CENTURY STRUCTURE
ARCADE PLATE
RAFTER
LAP JOINT AT TIE-BEAM WITH DOUBLE PEGGING
ARCADE PLATE SCARF
DETAIL OF TIE-BEAM
DOUBLE PEGGING TO COLLARS
RECONSTRUCTED SECTION TRUSS ①
RECONSTRUCTED SECTION TRUSS ③
CENTRAL TRUSS TO HALL
SALTIRE BRACING
②
16TH-CENTURY CROSS-WING
Z
HEARTH
CENTRAL TRUSS TO HALL
SURVIVING 13TH-CENTURY TWO-BAY HALL
PLAN

Figure 4

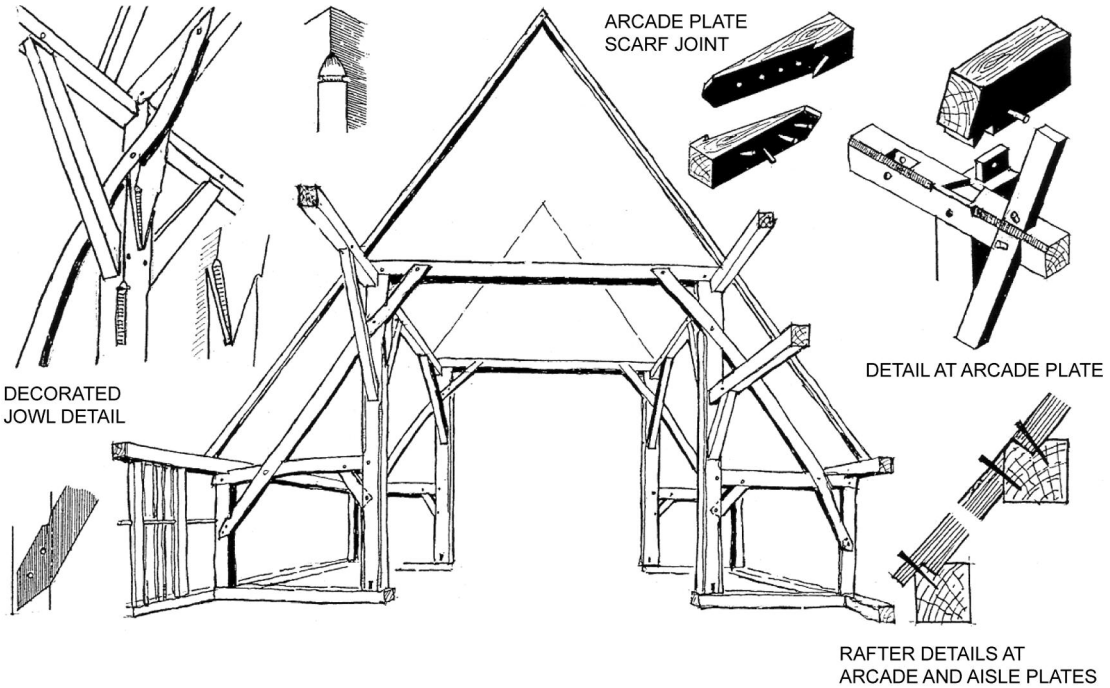


Figure 5

COLESDEN GRANGE BARN

Within this much reconstructed barn are preserved elements of the 13th-century structure. The roof has been totally replaced, but there are two original trusses which survive up to tie-beam level, one of them modified, and two reused arcade posts (Fig. 5). There are similarities to the Barley Barn at Cressing. There is no evidence of joints for principal rafters on lop of the tie-beams, and the evidence for the spacing of common rafters, seen on top of the arcade plates, shows that there was a common rafter close to either side of the tie and that the principal rafters were omitted. The passing brace rising up from the aisle post terminates in a lap joint in the side of the tie-beam. The aisles are reverse assembly and in one aisle post there is a notched-lap joint with refined entry pegged in both planes. The arcade posts have small jowls with those on the west side facing the barn entry having unusual decoration. The arcade posts also have raising holes. Both the braces between arcade post and arcade plate, and the short braces between arcade post and aisle tie, have V-shaped mortises. In the aisle plates, there are widely spaced stud mortises together with circular holes for wattle and daub. The scarf joint in the arcade plate is a stop-splayed scarf with under-squinted and sallied butts and edge pegs (Fig. 3).

The building would appear to be a little later than the Barley Barn at Crossing and Blackburn Hall. It has the same arcade scarf as Blackburn Hall, but without the key. Unlike the Barley Barn, the Colesden Barn has jowls. Blackburn Hall has two trusses with jowls and one truss without jowls. Is Blackburn Hall, with its purlinless structure, passing braces, saltire stiffening, lap joints with refined entry, and both jowled and unjowled posts, a transitional building, just later than the Barley Barn and of similar date to Colesden Grange?

BUSHMEAD PRIORY

This site is very useful for comparative analysis, as the roof of the surviving refectory building has been carbon-14 dated to 1280. The roof is of crown-post construction used in combination with passing braces. Lap joints were not used in the roof construction (Fig. 6). Two scarf joints were used. In the wall plate, there is a through-splayed and tabled scarf with two face pegs, and in the purlin, a stop-splayed scarf with squinted butts and three face pegs (Fig. 3).

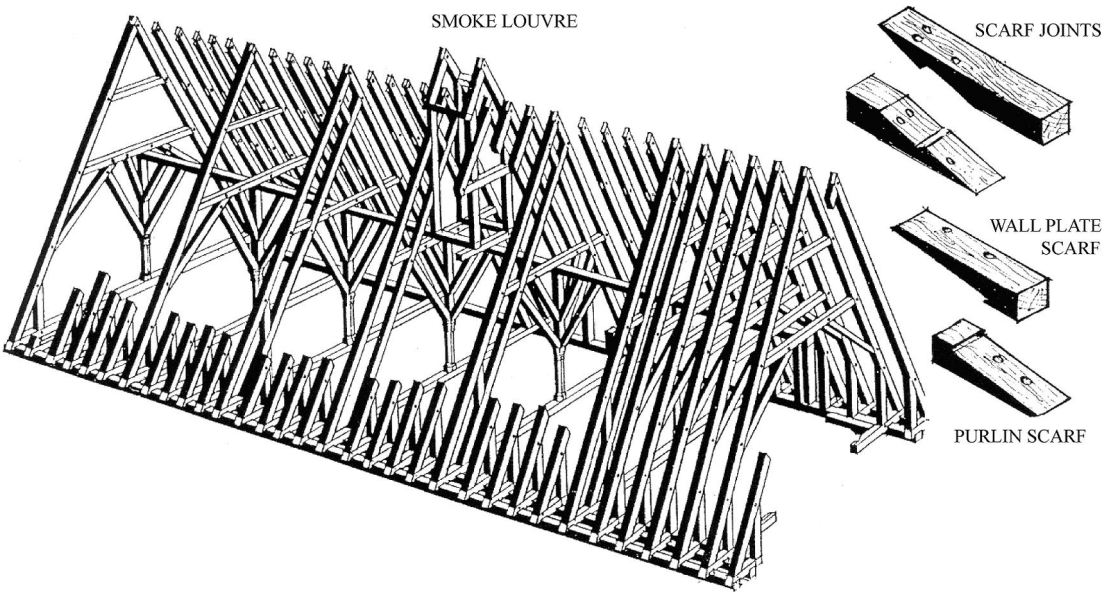


Figure 6

9 TILE HOUSE STREET. HITCHIN

This building, although just over the border in Hertfordshire, is included because of its unusual early framing. In the centre section of the building, between two later cross-wings, is the remains of a 13th-century aisled hall which has had the aisles removed. Only the roof of one half could be accessed. This is a two-bay hall with a central octagonal crown post with elaborately moulded capital and base (Fig. 7). The moulding at the capital includes a half roll with frontal fillet. The crown post height from bottom to top of capital is 600mm, and from base to purlin 1.9 metres. It should be noted that there are not any principal rafters on truss 2, the central truss. Straight square-section braces rise from either side of the capital to the underside of the purlin. The tie-beam is slightly cambered. The construction of the end trusses (nos. 1 and 3) is of great interest. They have a king post rising from the tie-beam to the apex of the roof, and the collar is halved through this post. The stiffening above the tie-beam on truss 1 comprises three straight braces on each side running parallel to the principal rafters. The upper brace on each side is tenoned into the king post, halved through both collar and tie, and tenoned into the arcade post. There is a stop-splayed scarf, with under-squinted square butts and face pegs, at the arcade plate (Fig. 3).

THORPE WATERVILLE, NORTHAMPTON

The roof of this stone building has similarities with 9 Tilehouse Street, Hitchin, and is also of 13th-century date (Fig. 8). Both have 'crown-post' roofs utilising king posts and mouldings incorporating half rolls with fillets. As at Hitchin, the purlins tenon into the king posts and the collars halve through the posts. Braces from the posts rise up and are jointed into the soulaces between principal rafters and collar. Mortice-and-tenon joints are used throughout the construction. Another example of a 'crown post' roof utilising king posts is the 13th-century cross-wing at Tiptofts, Wimbish, in Essex.

THE OLD HOUSE, ICKWELL GREEN

The core of the present house dates from either the late 13th or early 14th century. The main surviving section of the original building is of four bays and is about 50 feet (15.3m) long, each bay measuring just over 12 feet. This part of the building was originally aisled but the aisles have been removed (Fig. 9). One end of the building has a hipped roof; at the end opposite to this is a cross-wing. This is some 15 feet (4.6m) in span and is slightly lower in height than the main body of the building. The approximate height to the underside of the arcade

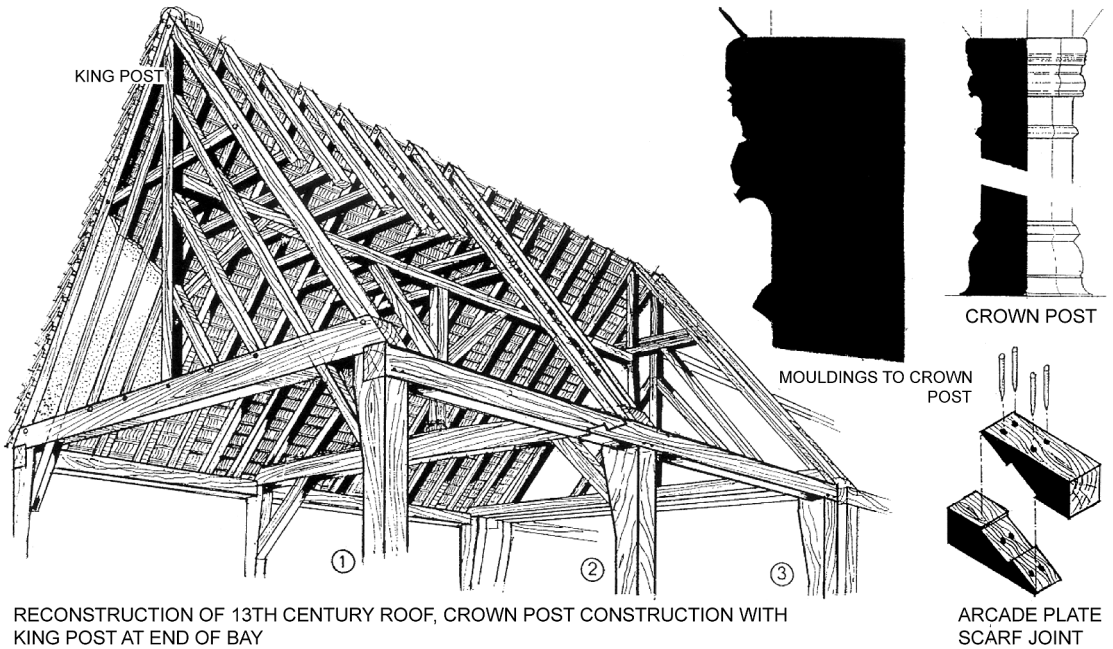


Figure 7

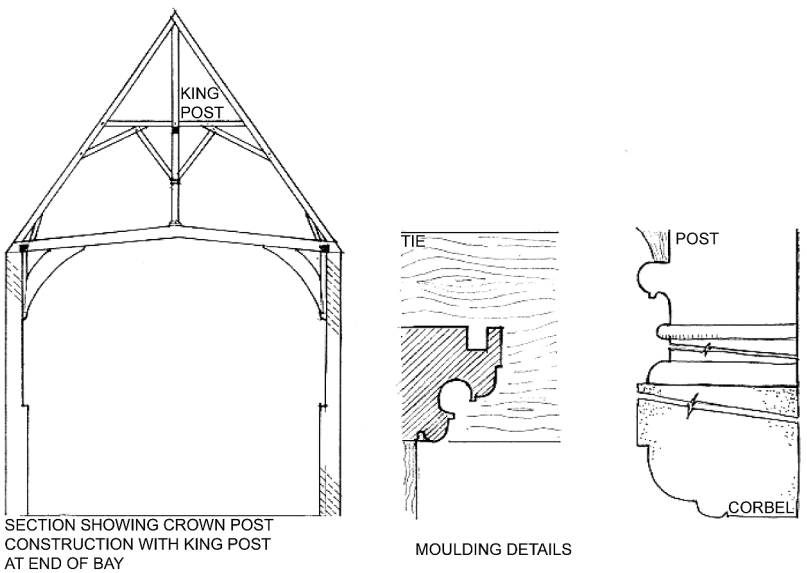


Figure 8

plates is 16 feet (4.9m). There is now little evidence of the early building below arcade or plate level, but fortunately the roof of both sections of the building survive mainly intact. The main section of the building only has been reconstructed on the drawing. The main four-bay part of the building is of crown-post roof construction. The upper sections of three trusses survive at roof level, as does the construction of the hipped end. The main truss (no. 1) at the centre of the hall has an octagonal moulded crown post with mouldings at both cap and base. The tie-beam is some 13 inches

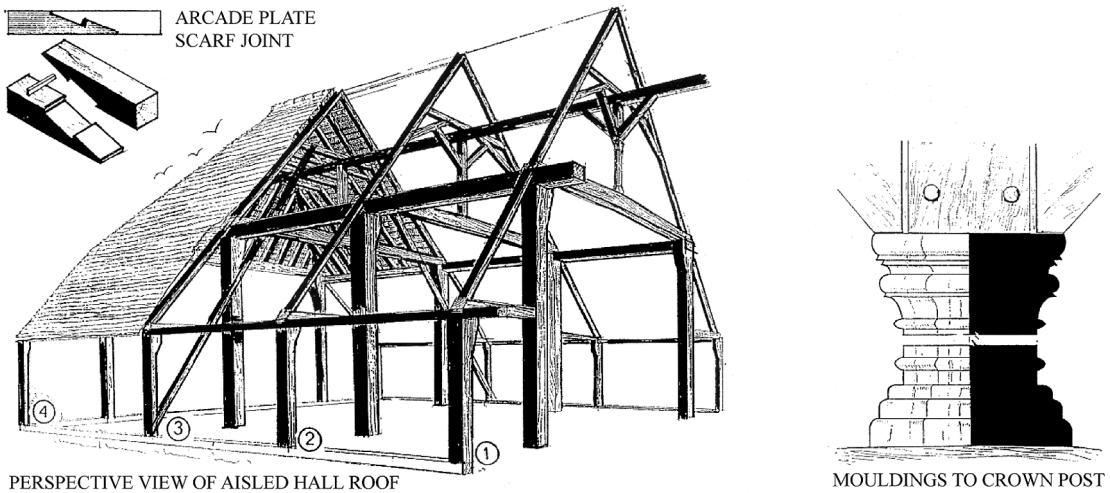


Figure 9

(330mm) wide and has a slight camber. The collar is the same width as the principal rafters. All of the joints on this truss, and throughout the building, are mortised and tenoned. (There are no lap joints in this building).

At the next truss (no. 2), the crown post itself and the braces are missing. All that survives is the collar and two braces rising up from the principal rafters to the collar. This truss has been reconstructed on the illustration from evidence for joints in the braces. The crown post is also missing from the truss nearest to the hipped end (no. 3), as is the purlin at this end of the building. The collar does, however, show evidence of passing braces. There is also evidence for only one of the passing braces striking the principal rafter near the apex, the other presumably finishing at its junction with the first passing brace.

The hipped end is virtually complete. There is evidence of a brace from the central rafter of the hip to the collar purlin. The collars are of the same width as the rafters and are joined to them with central tenons. It should be noted that there is an additional couple above the collar at the second pair of rafters along from the moulded crown post in the direction of the hipped end.

Only one arcade post survives. A single section of surviving arcade plate is accessible. It terminates at a break at a scarf joint. Only half of this scarf joint is preserved; it is stop-splayed and under-squinted, with square butts and four face pegs (Fig. 3). It most likely had a transverse key judging from the asymmetrical nature of the surviving element of the joint.

The ties to the arcade plate have lap dovetails with entrant shoulders. The earliest known date for this type of joint appears to be about 1270 at the Cressing Wheat Barn, but it does run on into the next century. The dovetail stops 75mm from the outer edge of the arcade plate and the tie-beam overhangs the arcade plate by 25mm. The common rafters have the ubiquitous 'puzzle' holes some 125mm above the arcade plate. There is evidence of the pegs on the side of the arcade plate for the aisle rafters.

BROMHAM HALL

Bromham Hall lies on the banks of the River Ouse, to the east of Bedford. The original core of the building is a medieval aisled hall with a central base cruck. Much of the early hall is hidden by 18th-century rebuilding, particularly at ground floor level. At the upper levels, there is access to investigate the original building above aisle plate level. The aisles have been removed in part in antiquity, but elements of them survive.

All that remains of the original building, which is possibly early 14th-century in date, is a two-bay hall section, a spere truss, the cross-passage, and the bay at the low end beyond the cross-passage (Fig. 10). The crown-post roof has square unchamfered posts with curved braces of thin section

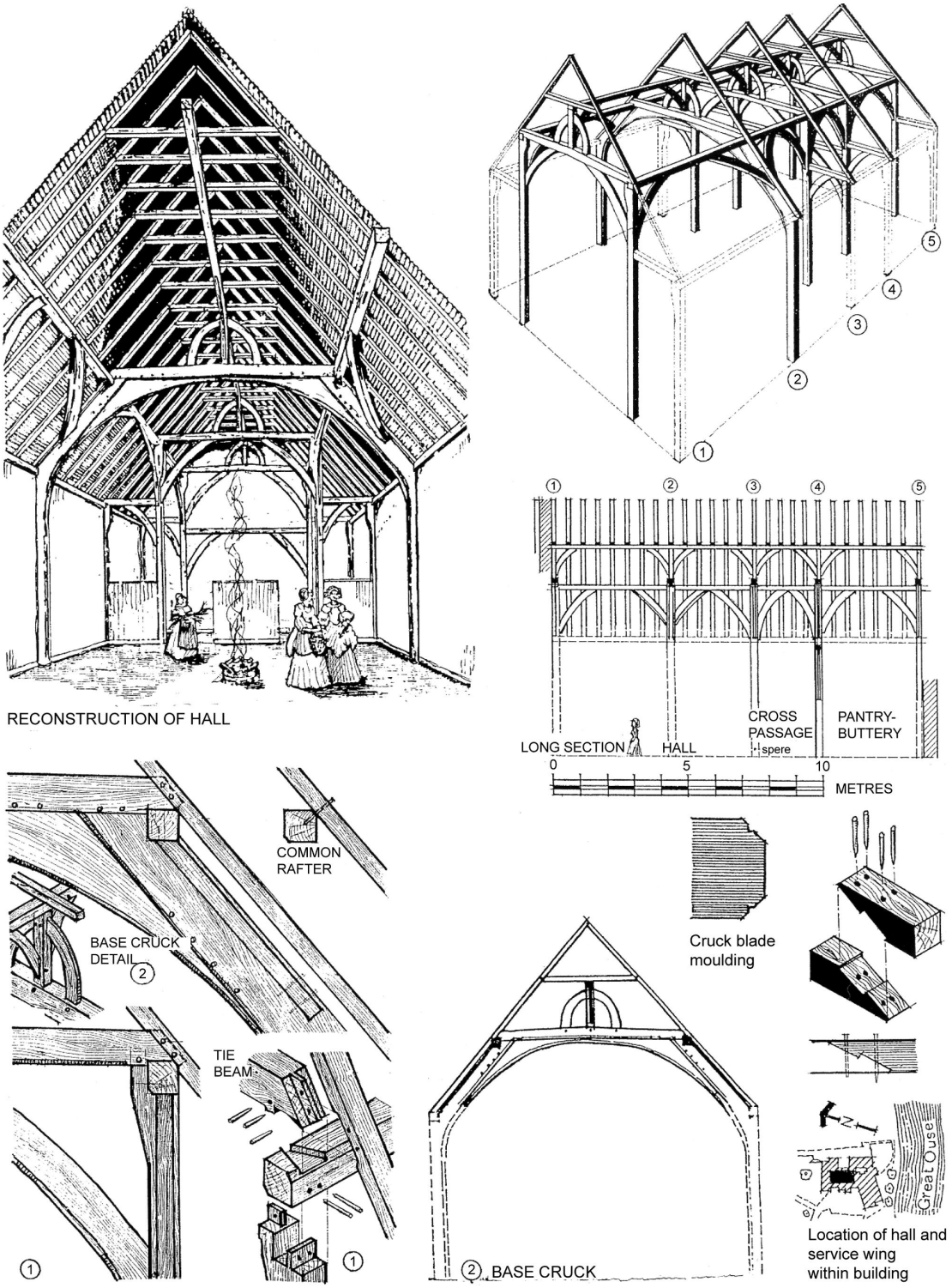

RECONSTRUCTION OF HALL
1
2
3
4
5
LONG SECTION
HALL
CROSS PASSAGE
spere
PANTRY-BUTTERY
0
5
10
METRES
COMMON RAFTER
BASE CRUCK DETAIL
2
TIE BEAM
1
1
Cruck blade moulding
2 BASE CRUCK
Great Ouse
Location of hall and service wing within building

Figure 10

rising upwards from the post to the underside of the purlin and downward from the post to the top of the tie-beam. The tie-beams have a slight camber and are chamfered. There are no lap joints, all the timbers being mortised and tenoned. There is evidence at truss 2 of the upper part of the base cruck blades and also of the spandrels. The cruck blade has a simple moulding. The principal rafter to the base cruck is continuous from the apex past the end of the tie-beam down to the aisle plate. The end of the tie-beam is tenoned into the inner face of the principal rafter (Fig. 10). The common rafters are also continuous from apex of roof to aisle plate and are pegged through into a chamfer on the top outer corner of the arcade plate. The arcade posts are jowled. There is a single scarf joint visible in the aisle plate. This is a stop-splayed and tabled scarf with under-squinted square butts and four face pegs (Fig. 3).

THE ELSTOW BUILDINGS

At Elstow there is a considerable number of interesting buildings which include the largest group of crown-post roofs in the county (Bailey 1978). Two particularly notable early buildings are discussed below. Elstow developed around the medieval Benedictine nunnery founded in 1070 by the Countess Judith, the widow of the Earl of Huntingdon and a niece of William the Conquerer. The nunnery was a focus of the village until it surrendered to the Crown in 1539.

The most remarkable surviving building of the group is no. 2, Bunyans Mead (Fig. 11). It is of early 14th-century — or perhaps late 13th-century — date and is a two-bay structure with a continuous jetty onto the main road elevation. The building is virtually complete except for damage caused by later inserted windows and certain modifications internally to the studding.

The two bays of the building are divided on the central truss by a timber-framed partition. The northern bay would appear to have been originally a shop, and the southern bay living accommodation. This is one of two buildings in Elstow identified as shops; the other at the southern end of the village is later in date (Bailey 1979). (In addition, there are six self-contained shops on the ground floor of the late 15th-century moot hall on the green).

The front elevation is embellished liberally with ogee braces, a most uncommon feature in Bedfordshire. The crown-post roof construction is archaic, using lap joints on the braces, and the collars of the common and principal rafters. The crown post is square with slightly chamfered corners below the braces. The crown-post braces are very slightly curved, and are as wide as the purlin and the collar respectively. The only scarf joint that survives is in the purlin, and this is a stop-splayed scarf with under-squinted square butts with a transverse key. Another archaic method of construction is the use of lodged floor joists. The spine beam supporting the first-floor joists is continuous from one end of the building to the other. It is supported on knees at the end walls and on either side of the central partition, and the joists simply rest on top of the spine beam. One of the surviving door openings has a pointed arch. These and other features would seem to indicate a late 13th- or early 14th-century date. Another example of a building with similar lodged floor-joist construction datable to the 13th century is Little Chesterford Manor in Essex (Hewett 1969, 37).

Abutting onto the rear face of this building is a hall, of apparently slightly later date. This hall has been badly mutilated over the intervening centuries and virtually all evidence below first-floor level has been destroyed. The hall also has a crown-post roof which is heavily soot blackened. The rear end of the hall is virtually complete above the tie-beam. There are curved downward braces between the crown post and the tie-beam, and there is joint evidence for braces below the underside of the beam and the surviving corner post. Unfortunately the west end of this hall where it adjoins no. 2 has been destroyed. On the centre truss of the hall the crown post and tie-beam remain with the curved braces intact. Below the tie-beam of the central truss, evidence of braces exist only from mortises on the underside of this beam which indicate that they curved across to meet the wall posts.

The scarf joint in the wall plate of the hall is similar in form to that in the purlin of the building above. There is also a scarf in the purlin of this building, which is of early form, being a simple edge-halved scarf with square vertical butts and two face pegs. This scarf (Fig. 3) was used for the main span top plates in the Cressing Temple Barley Barn which dates from c.1220 (Hewett 1969, 171).

At no. 8, Bunyans Mead, adjacent to the building discussed above, there are surviving elements of a base-cruck hall of probably 13th-century date,

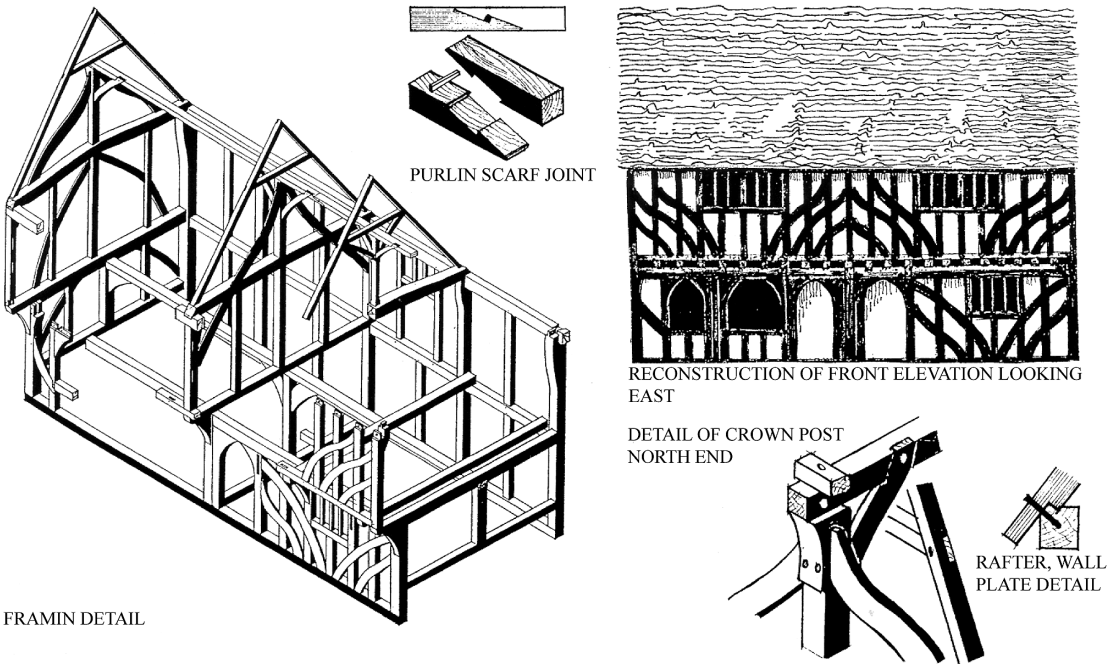


Figure 11

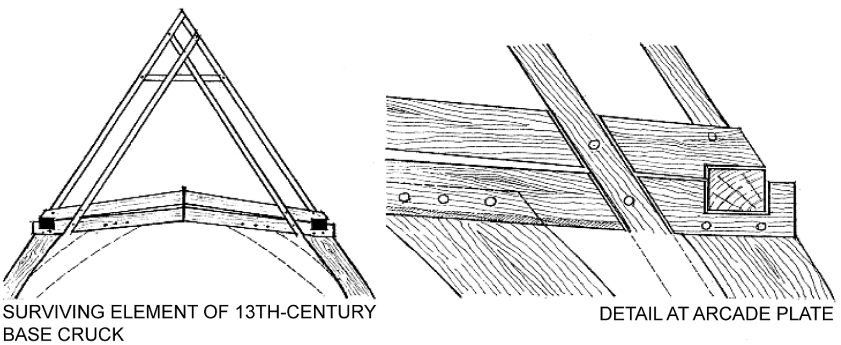


Figure 12

with a passing-brace roof (Fig. 12). Only the roof survives of the two-bay hall section as the aisles and arcade posts have been removed, and the bays at either end of the hall have been replaced by later cross-wings. The upper part of the base cruck survives together with the common rafters with their notched-lap jointed collars, all of which are heavily sooted.

The base cruck truss was of double-tie construction. The upper tie sits on top of the aisle plate in the conventional manner with the lower tie-beam in the form of a reverse assembly. The upper tie-beam measures approximately 225 x 175mm; the lower one is 270mm high. A vertical peg is driven downwards on the centre line of the upper tie-beam into the lower one. There are mortises under either end of the tie-beam for braces coming down to the cruck blades. There is also surviving at either side some 300mm or so of the top half of the cruck blades which are tenoned into the soffit of the lower tie-beam with two pegs.

The principal rafters are approximately 110mm square. They are tenoned into the top of the upper tie-beam, and are halved and pegged at the apex. The collar is lap jointed into the principal rafters. The passing braces, which measure 110 x 75mm,

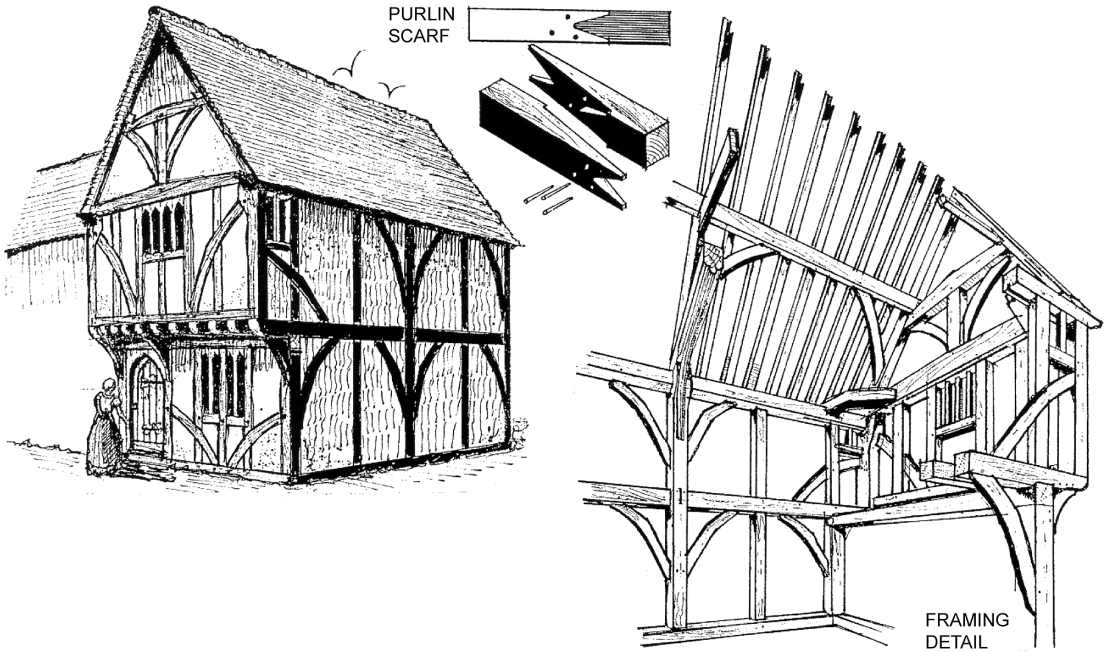


Figure 13

survive intact from the level of the bottom of the lower tie-beam. They are halved through both tie-beams and the collar, and lap jointed into the principal rafters near the apex.

BASMEAD MANOR

Of the early range, a major portion remains intact, comprising a three-bay unaisled hall and a two-bay upper end. It has a crown-post roof with tall plain square posts with slightly curved braces rising to mortise into the purlin, and braces which curve down to the tie-beams. The collars are halved onto common and principal rafters. A traceried eight-light window looks onto the hall from the parlour. There are simple stop-splayed scarf joints with under-squinted butts and face pegs in both top plates and purlin. These are of early type, but it has been suggested that the tracery indicates an early 15th-century date (Alcock 1969, 46).

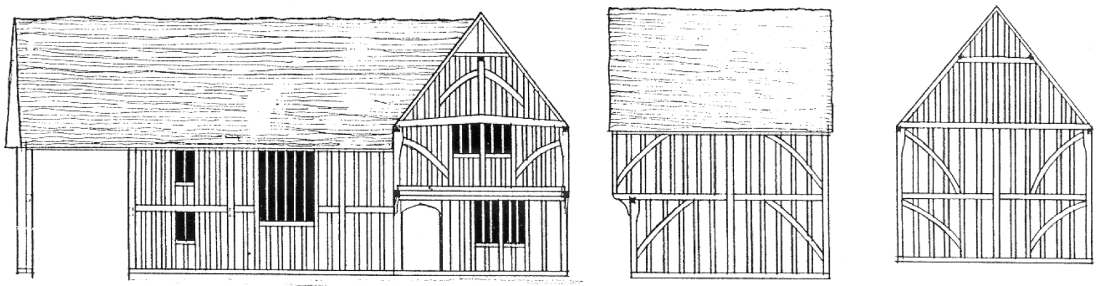
A building in Elstow opposite no. 2, Bunyans Mead, is of almost identical construction, with similar bay lengths and widths. Here survives a two-bay hall, the spere truss and the lower bay. Here too the crown posts are square and plain, with braces of similar width and thickness, arranged as those at Basmead.

THE PEACOCK, LEIGHTON BUZZARD

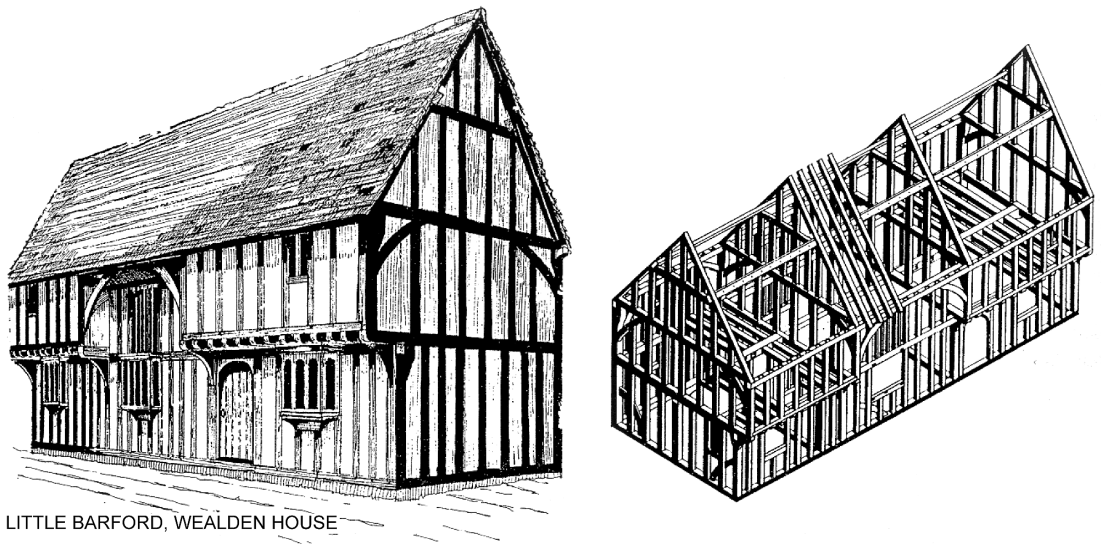
An early example of the use of clasped side purlins is to be found in the cross-wing to this hall-and-cross-wing building (Fig. 13), which has very early features such as angle ties between wall plates and tie-beams, and widely spaced studs. There is also the unusual combination of arch braces being used for the side frames, with tension braces at first-floor level at the front. The window mullions are square in section. There is also a stop-splayed scarf with edge pegs of unusual construction, almost certainly of early date, being very similar to the 13th-century ones at Fenlake Barns, Blackburn Hall, and Colesden Grange Barn (Fig. 3).

THE 15TH AND 16TH CENTURIES

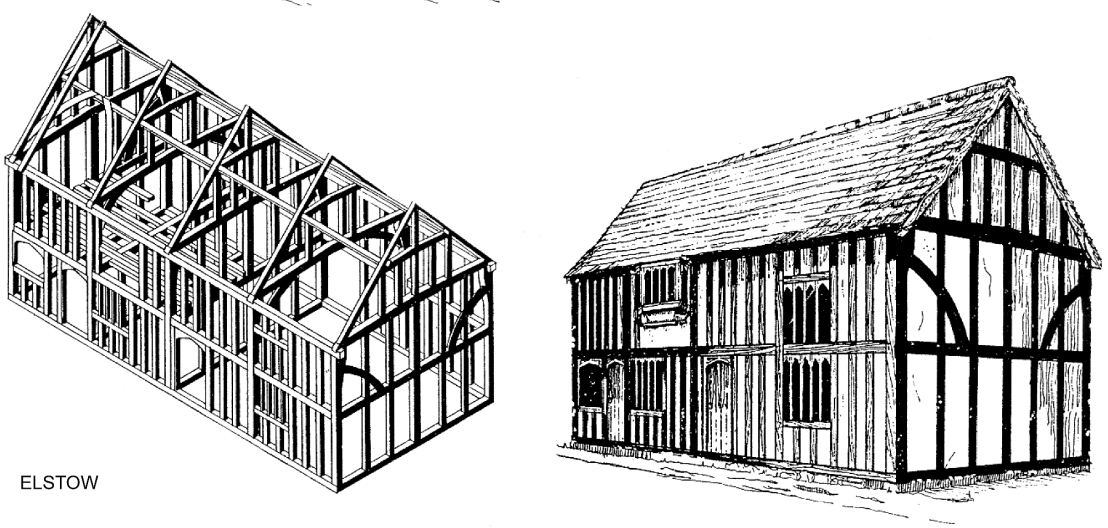
Bedfordshire timber-framing developed in the 15th and 16th centuries in a similar way to the Essex school to the east, and also had much in common with adjacent North Hertfordshire and Cambridgeshire. Characteristic of it are medium spaced studs (usually 150 x 100mm in section), a middle rail, and curved tension braces at lower and upper storey which are either exposed externally or internally. However, although confined usually to



SUN HOUSE, POTTON: EXAMPLE OF COLCHESTER BRACING; HALL AND CROSSWING



LITTLE BARFORD, WEALDEN HOUSE



ELSTOW

Figure 14

earlier and later buildings, there was the occasional use of arch braces, sometimes in association with tension braces. There are some examples of 'Colchester bracing', such as Sun House, Potton (Fig. 14; Bailey 1980b). Generally the studs are pegged into position, in contrast with adjoining Buckinghamshire where this was not always the case.

From the early 15th century onwards, crown-post roofs were rarely used, although there is a large group at Elstow, as well as isolated occurrences throughout the county. The roofs are almost all clasped side purlin, usually with the principal rafter reducing above the purlin, though in some cases the principal is the same section throughout its length and notches around the purlin. There are also cases where the rafters reduce above the collar and then widen just before the apex for the halving. Ridge pieces are not used except in crucks. In buildings of higher quality, the purlins were sometimes tenoned into the principal rafters and perhaps moulded; indeed, it is not uncommon to find buildings with both clasped and tenoned purlins. Towards the end of the 16th century, there was a trend towards tenoned purlins.

There are many roofs in quality buildings with moulded braces to collar and tie-beam. Wind braces to roofs were arched up to the late 16th century when they would most likely be straight. In this period, tension braces also fell out of use in favour of arch bracing, often with a reverse curve. Externally, even the most important vernacular buildings were devoid of decoration and moulding, except perhaps for barge boards and a moulded bressumer. The use of dragon beams is uncommon; when they do occur, they are very simply moulded. Decorative infill panels began to appear round 1600 (Bailey 1975).

Bedfordshire houses of this period are of varied plan form. Hall and cross-wing buildings are numerous, usually very plain with few mouldings or decorations. There are several examples of Wealden houses (Fig. 14), some of which have two-bay halls and are five bays in length, while at the other end of the scale, one has a hall of only some 3m in length (Bailey 1977,1980a). There are also many examples of shops arranged in different ways. A fine pre-15th-century example in Dunstable, dated by dendrochronology to 1335, is of three jettied storeys with a total of six shops at the ground floor arranged back-to-back in threes (Bailey 1980c, 98). Others have a shop to the street with a smoke bay to the rear, and there are others with shop and accommodation side by side on the street. A good example of this can be found in Elstow High Street (Fig. 14). Here alongside the shop is a two-storey bay and a hall of a single bay. Perhaps the most significant building in this category is the Moot Hall at Elstow with its six shops and upper hall.

CONCLUSION

The 13th- and 14th-century timber-framed buildings in Bedfordshire show marked similarities in style and construction to contemporary buildings in other counties in south-east England, pointing to a common root which is thought to be London. The great similarities in form and construction between some of the Bedfordshire buildings which have been discussed here, and the great barns at Cressing Temple, illustrate the large area of common influence.

In the 15th and 16th centuries, Bedfordshire buildings still follow in many ways the form and construction of those in Essex and the adjoining counties. However, there are differences in Bedfordshire, such as the discontinuation in the use of crown-post roofs which only occur rarely in this period, and the abandonment of the hipped roof.

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The excavation of a Second World War air raid shelter at New Venue, Court Drive, Dunstable

Catherine Edwards

with contributions from Mike House

SUMMARY

An archaeological investigation at the site known as New Venue, Dunstable, site code NVD 04, revealed an almost complete World War II air raid shelter.

INTRODUCTION

The site investigation at New Venue Dunstable was conducted by AOC Archaeology Group in advance of the redevelopment of the site by CDP Dunstable Limited. The investigation area is located approximately 1km to the northwest of Dunstable town centre at National Grid Reference (NGR) TL 0185 2246 (Fig. 1). The site is spread out within the grounds of Dunstable Park Recreation Centre.

An evaluation, comprising five machine excavated trenches, was carried out in November 2003. This was followed by strip and map recording which started in September 2006. A Roman cemetery and a World War II air raid shelter were uncovered during the excavation for the new children's playground.

The archaeological fieldwork was completed in December 2004. All of the work was recorded using the site code NVD 04. The archive for this deposit will be deposited and available for consultation upon request at Luton Museums Service.

GEOLOGY AND TOPOGRAPHY

The geology of the site consisted of middle chalk with localised shallow deposits of clay. At the time of the excavation the site was generally flat with a slight slope running east-west from 141.73mOD to 141.27mOD. The site on the western side of the leisure centre is known to have been landscaped during its lifetime as a park.

HISTORICAL BACKGROUND

By the 1920s the British government was already beginning its preparations for the defence of Britain and its people. The memory of the bombing raids during World War I were still very fresh in the minds of the general public and the government were only to aware of the new German air force, the Luftwaffe, which was formed by 1935. With the rise to power of Adolf Hitler in 1933 and the collapse of the Disarmament Conference in May 1934, the British Government was forced to act in order to fully prepare the country for war (Risbey 2003).

In September 1935 the then Prime Minister, Stanley Baldwin published a circular entitled 'Air Raid Precautions' which invited local authorities to make plans to protect their people in the event that Britain should go to war (Smith 2005). Some towns responded by arranging the construction of public air raid shelters, however the country in general struggled to believe that there was an urgent threat, with relatively few towns erecting shelters. In 1938 Sir John Anderson devised a plan to protect the public with some kind of shelter should Britain go to war. These included public shelters, Anderson shelters, Morrison shelters and refuge rooms, (Smith 2005)

By 1939 a civil defence system was working alongside local government, with Air Raid Wardens patrolling neighbourhoods. By 3 September 1939 Britain and France had declared war with Germany and shortly after costal and shipping towns became the first victims of the war from the air.

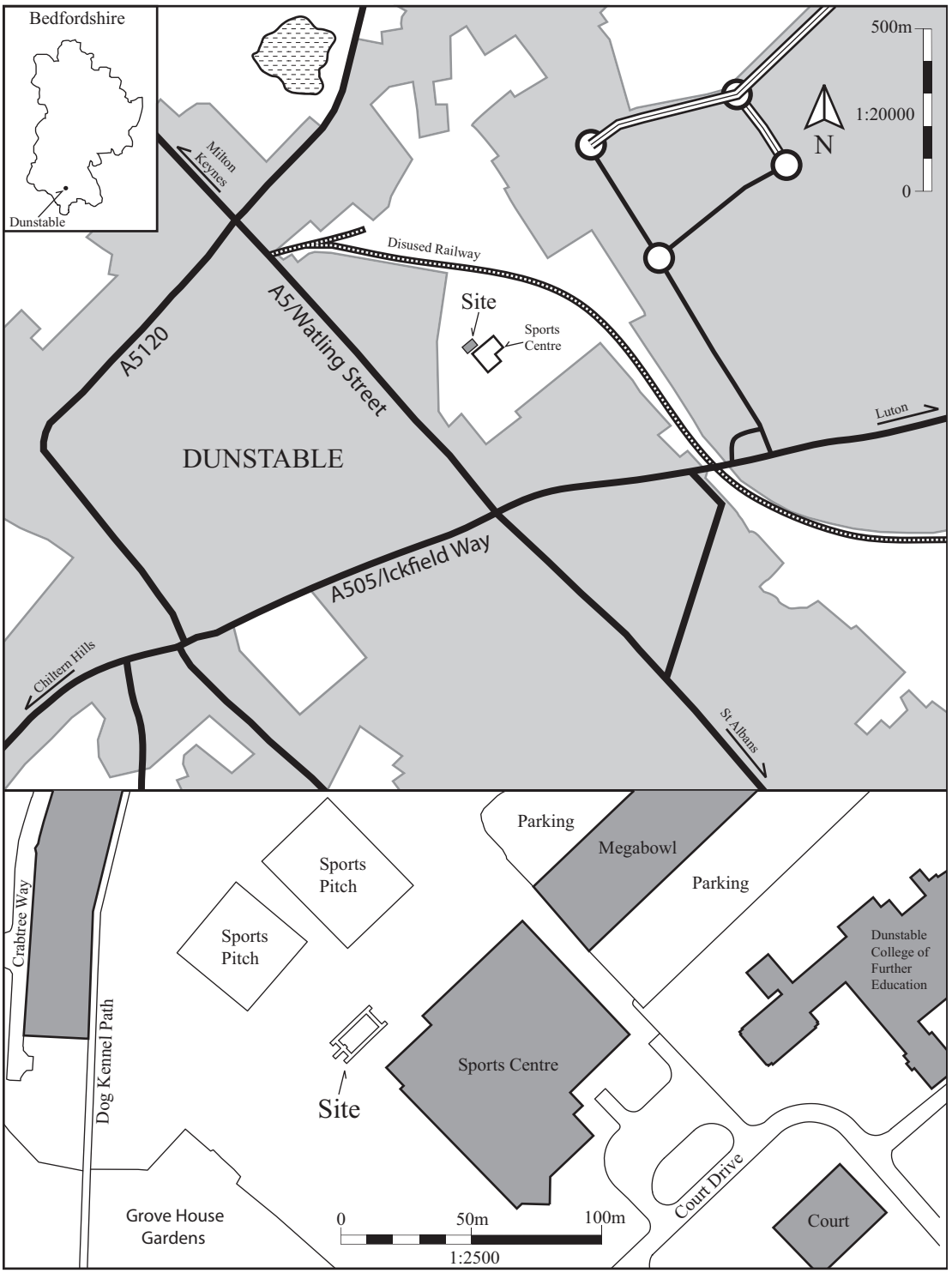


Figure 1: Site location

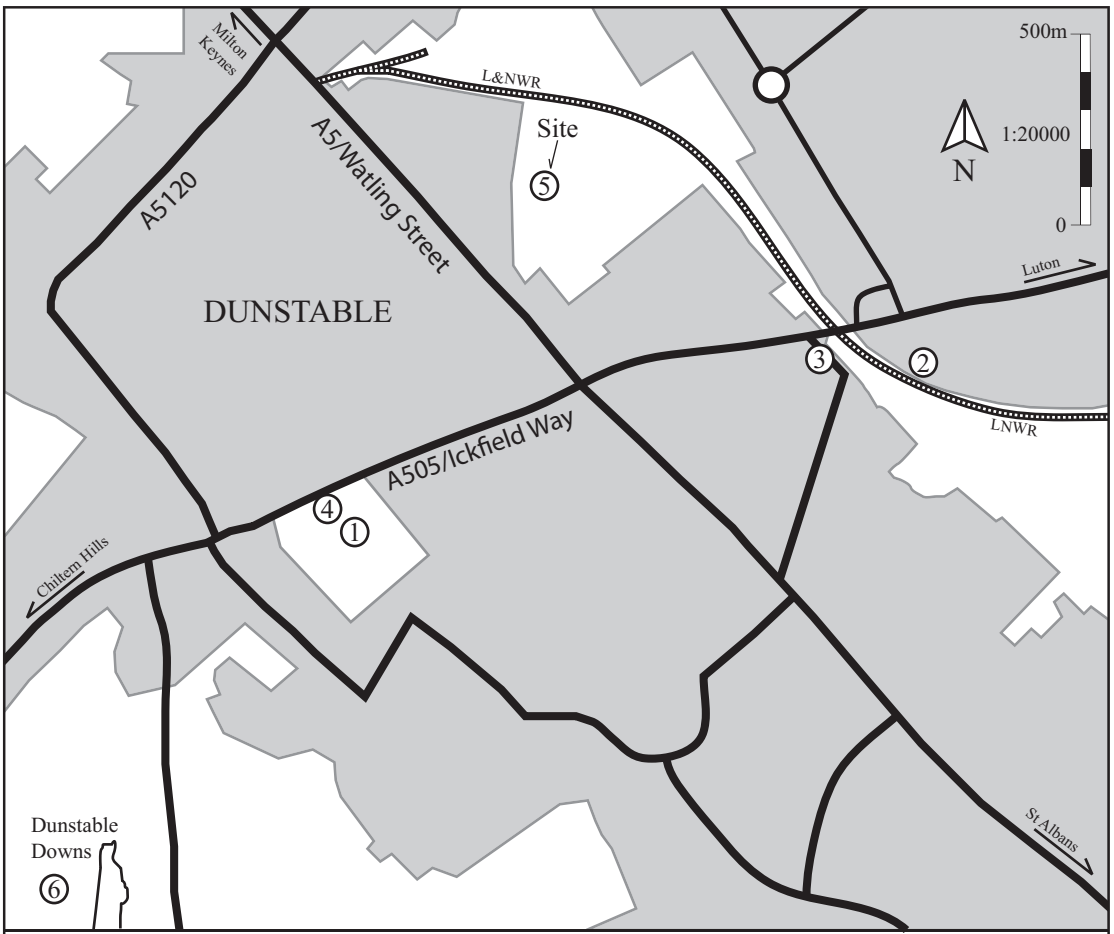


Figure 2: Location of WWII Civil Defence structures in Dunstable

DUNSTABLE AIR RAID SHELTER

AIR RAID SHELTER-EXTERNAL STRUCTURE (Plate 1)

The shelter was rectangular and measured 24m in length by 9.50m wide. It was aligned northeast-southwest and consisted of four adjoining corridors with an entrance corridor projecting from the southwest (Fig. 3). The shelter was constructed of prefabricated reinforced concrete within a construction cut, which was backfilled around the structure with chalk. The concrete was arranged in



Plate 1: Overview of air raid shelter

a simple system of adjoining bays. Each bay consisted of two rectangular solid concrete upright hoops (height 2.09m, width 1. 48m, depth 0.08m), the internal clearance height of which was 1.83m. The uprights were positioned at 0.84m intervals and between each pair of uprights; concrete panels formed the walls (three panels each) and roof (two panels). The panels measured 0.94m long (a 0.05m overlap at the end of each panel) by 0.66m wide and 0.04m deep. On the inside of each panel were three evenly-spaced concrete ribs that would have acted as spacers for the upright supports and also added strength to the structure. The roof panels were overlain by additional strips of concrete, presumably to seal the gaps between the panels.

This type of shelter is commonly known as a 'covered trench shelter'. In general, most covered trench shelters started off as open trenches, simply dug trenches revetted by timber, brick or stone. These would have developed into more stable and permanent shelters constructed from prefabricated concrete or steel frames and panels to support the trench edges and the concrete roof, (Lowry 2002).

The entrance to the structure was recorded at its western end. The opening which cut into the natural chalk was formed of a brick floor and two red brick walls, approximately 0.60m wide and 0.70m deep flanking a metal-framed opening, which may have supported a blast proof steel door. The cut was by backfilled with chalk.

Emergency exits were often included, which would have consisted of a vertical ladder leading to a ventilated manhole cover. Two such holes were recorded on site as square shaped, brick-lined openings. Two smaller holes in the roof were also recorded which were probably ventilation shafts.

The structure was overlain by a 0.50-0.65m thick layer of chalk. This deposit was probably deliberately deposited during its construction in what is known as the 'cut and cover' technique. The deposit would have formed extra overhead protection. This in turn was overlain by a 0.20m thick layer of topsoil, which sealed and camouflaged the shelter.

Internal Features (Fig. 4)

With the exception of the entrance corridor, all the corridors contained seating in the form of wooden benches that rested on wooden supports that were bolted into the concrete walls. These would have accommodated the general public when the air raid shelter was in use day and night during air raid

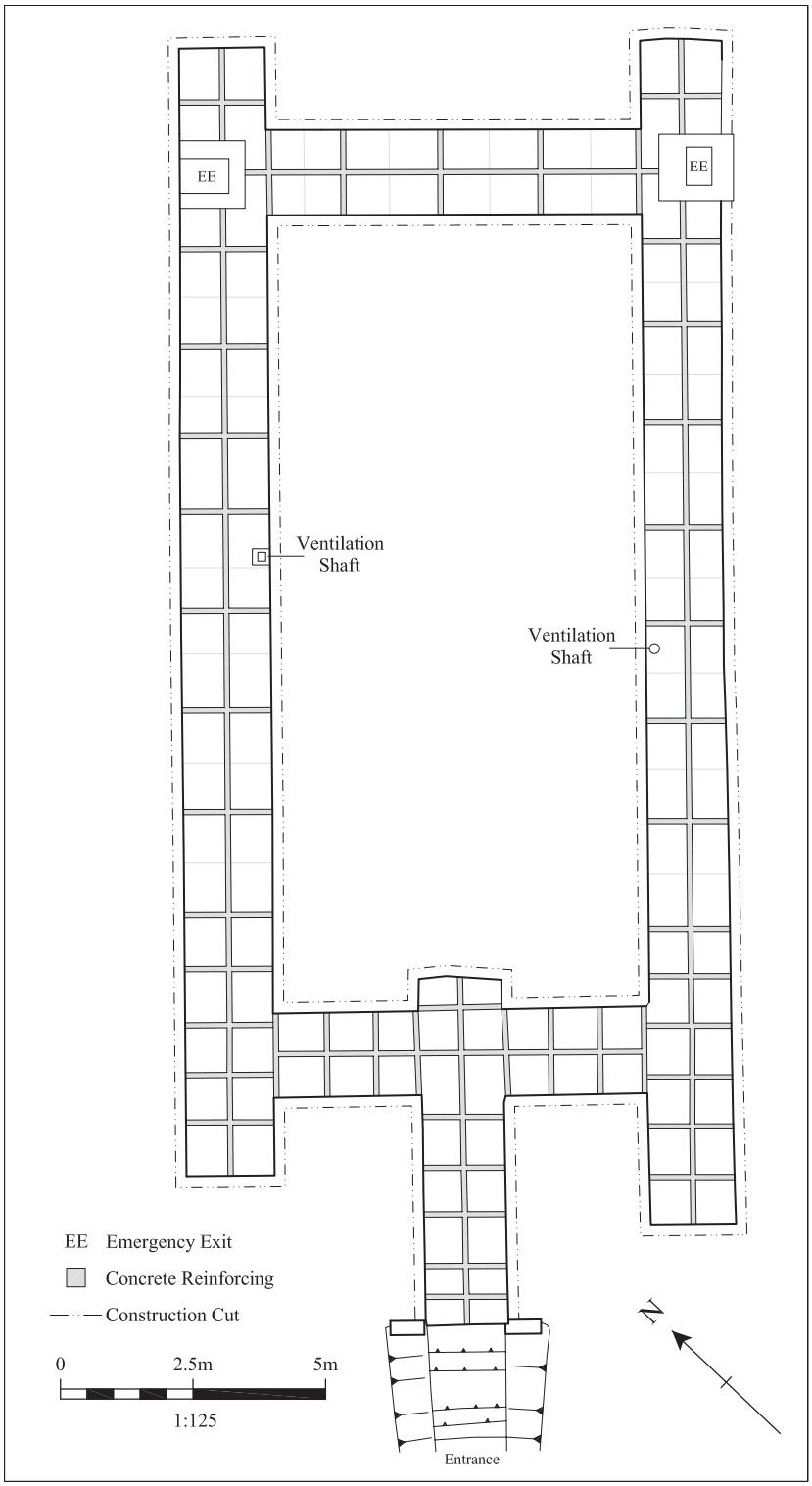


Figure 3: Exterior plan of the air raid shelter

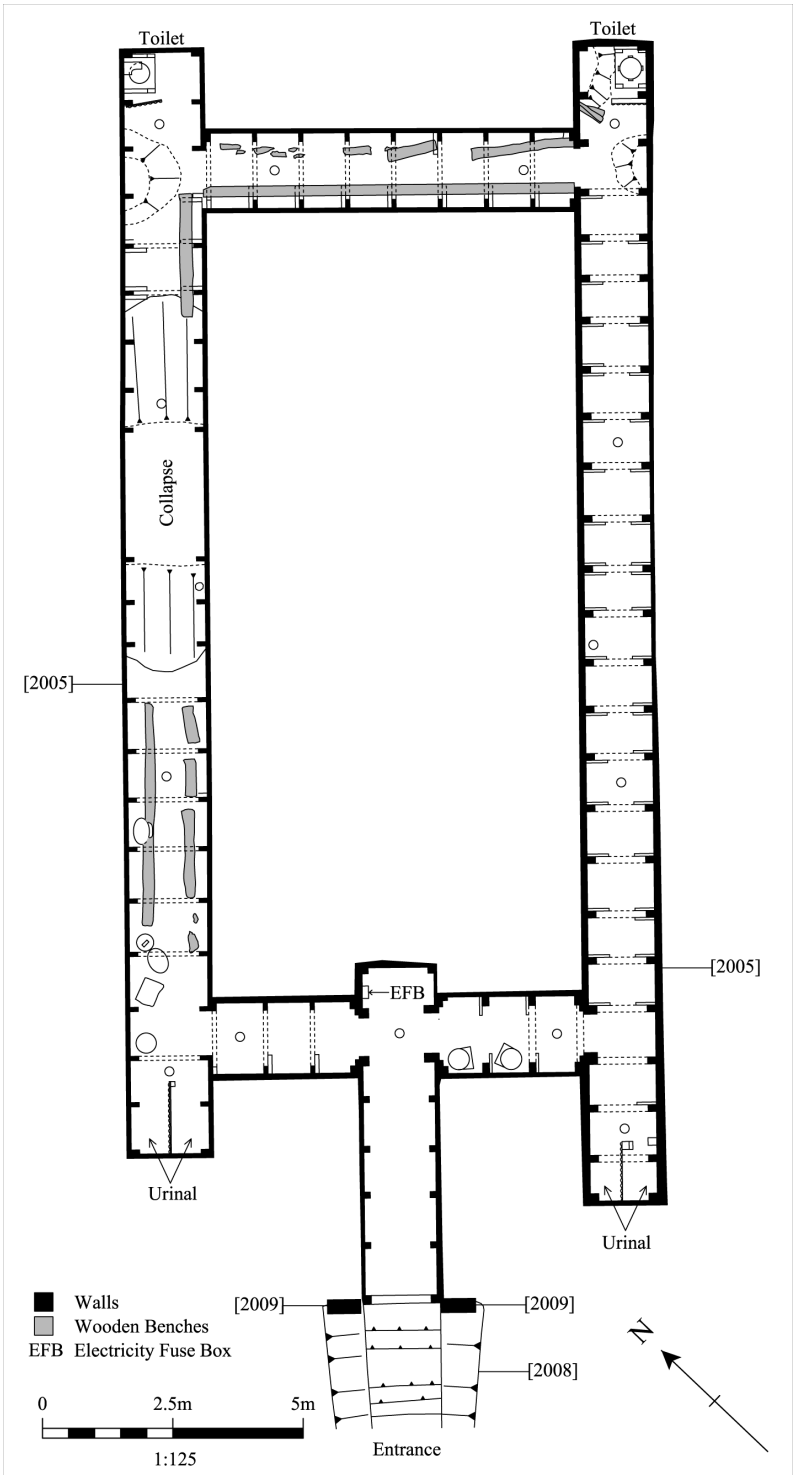


Figure 4: Interior plan of the air raid shelter (showing archaeological features below)

warnings. At the end of the entrance corridor was a small one metre square alcove which contained the remains of the bunkers electrical system. This powered 13 light fittings which were distributed evenly throughout the corridors. Not all shelters would have had electricity; many were lit by tallow candles in small wooden boxes.

At either ends of the east-west corridors were toilets. The toilet rooms in the far eastern corners of the corridors contained corrugated iron partitions with tin buckets built into a wooden bench structure on either side. The toilets in the west of the corridors only contained iron partitions and were perhaps used as urinals. In both cases the rooms would have been sealed off by a wooden door. The sanitary systems would have been very basic as sustained bombings were not anticipated (Lowry 2002).

Post World War II

It is clear that after the war, the shelter became derelict. It is unclear exactly when the shelter was abandoned and when it was concealed within the park. There is graffiti inside which dates to the 1950s and 1960s. It also appears that there was no attempt to remove all of the contents of the shelter as most of the fittings, though now rotten and broken, were still within it.

DISCUSSION

Unlike areas with a high proportion of ammunition factories, docks, railways, or large populations of people, Bedfordshire would have been a relatively low priority target for the German bombers. Bedfordshire's role during the war mainly involved the world of espionage and propaganda, with numerous sites acknowledge as playing vital roles in the secret war. However, various air fields were active during this period such as Tempsford Airfield (north Bedford) which was used to send special operations agents into France and the Royal Ordnance Factory at Elstow supplied many of the heavy bombs dropped over enemy territory during the war. . With the famous Bletchley Park nearby, many sites in Bedfordshire were used as radar stations especially the Meteorological Office in Dunstable. This camouflaged building provided data which helped crack the enigma code as well as help determine the date of the D Day landings.

Information complied in the 'Defence of Britain Project' states that Dunstable contained several defensive structures in case of invasion by German forces (Fig. 2). The positions of these structures suggest that two of the main roads into Dunstable were protected as well as the main railway line, and it is likely that the remaining north-south roads leading into Dunstable would also have been defended. In relation to these structures the air raid shelter was positioned to the north east of the town's main cross roads and adjacent to the railway line running west. The reason for its placement there remains unclear however its location within Dunstable Park might have given the structure a form of camouflage and security away from the more open town centre.

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Fifty years of the Bedfordshire Archaeological Council

A Personal View

James Dyer

It was on a warm autumn evening in September 1959 that a group of individuals with a common interest in archaeology met together at Luton Museum. The meeting had been called by the Curator, Charles E. Freeman, who was worried by the sudden surge in activity that was taking place in the county, often without adequate record.

Bedfordshire had been one of the first counties to have an Architectural and Archaeological Society, founded in 1847, which amalgamated with the Bedford Natural History Society in 1888. By 1890, when it became part of the Bedford Literary and Scientific Institute, archaeology had lost its former dominance, and the Institute no longer represented the county as a whole. By the middle of the twentieth century, the B.L.S.I, had ceased to exist and its library and possessions, which included a number of archaeological items had been dispersed, or loaned to the private Bedford Modern School's Pritchard Museum, run from 1919 by Percy Langdon and then by F. W. Kuhlicke, FSA. At the same time Bedford had a more or less dormant Archaeological Society until it was revitalised in the mid-1950s.

In the south of the county Thomas W. Bagshawe had established a museum in Dunstable in 1925 and another in a room in Luton Library in 1928. Charles Freeman was appointed assistant curator of both. The Luton collection was transferred to Wardown House in 1931, and in 1939 the Dunstable material was also transferred to Wardown, under Freeman's curatorship.

Planned excavation was almost unheard of in the county. Between 1922 and 1929 the University College and Hospital (London) Anthropological Society had dug spasmodically into the Five Knolls barrows at Dunstable under the direction of Daryll Forde, Gerald Dunning and Mortimer Wheeler. What today would be called 'rescue' excavation happened from time to time on a very limited scale in a number of towns and villages including Leighton Buzzard, Luton, Sandy and was sometimes reported in the local press.

In the 1950s there emerged a public awareness of archaeology, largely as a result of a surge of post-war books for the general reader, like Grahame Clark's *Archaeology and Society* and O. G. S. Crawford's *Man and his Past*, articles in weekly magazines such as *The Illustrated London News* and *The Listener*, and publicity given to it by the new medium of television. With only one TV channel, programmes like *Animal, Vegetable and Mineral* and *Buried Treasure* were seen by everyone and soon caught the popular imagination.

In February 1950 a group of boys at Luton Grammar School formed their own Archaeological Society under my leadership, and then spent two summer holidays on training excavations at Dorchester-on-Thames under the supervision of R. J. C. Atkinson of the Ashmolean Museum. In 1951, with the approval of Charles Freeman, and under my direction, we sectioned a linear earthwork at the foot of Galley Hill, Streatley, believed to be part of the earthwork known as Dray's Ditches. This proved to be nothing more than a medieval field boundary. With a few days to spare, and again with the Curator's approval, we went on to cut a 10 ft. square trench on the edge of a round barrow on the summit of Galley Hill. Almost immediately we uncovered the first of four human skeletons buried just below the ground surface, which attracted national publicity when a photograph appeared in the *Daily Telegraph*. As the site was a Scheduled Ancient Monument and we did not have the permission of the Ministry of Works, the work was suddenly and forcibly concluded, though not until after the appropriate plans and sections had been drawn and photographs taken! However, we were complimented by the Ministry's officers on the professionalism of our work. A week or two later, at F. W. Kuhlicke's request, we went on to section a medieval earthwork at Chalgrave.

In September 1951 the Manager of the Associated Portland Cement Manufacturers of Houghton Regis contacted Charles Freeman and reported the finding of a human skeleton and animal bones on the edge of their chalk quarry at Puddle Hill. Having no archaeologists on his staff, Freeman invited the Grammar School Society to investigate on behalf of the Museum. At the same time, the Quarry manager invited a group of Rover Scouts from Dunstable, led by Les Matthews, to dig on the site. Both groups were soon joined by a number of adults, and out of this emerged two archaeological societies. The Luton group became the South Bedfordshire Archaeological Society and the Dunstable Scouts formed (initially) the Manshead Archaeological Field Club. After twelve months we schoolboys called it a day, having exhausted a great deal of our pocket money on weekly bus fares from Luton to Dunstable. The Manshead Society were to continue digging sporadically on the site until 1966.

In the meantime a number of independent archaeologists were also working in the county. At Tempsford and Eaton Socon C. F. Tebbutt F.S.A. was investigating mesolithic and neolithic sites, and was later joined by Granville Rudd. Richard Bagshawe was tracing Roman roads in south Bedfordshire and north Hertfordshire. Tom Gardner was working at Ruxox, near Flitwick. David E. Johnston, later assisted by Les Speed of the Bedford Archaeological Society, was testing a number of sites revealed by aerial photography in Sandy and the Ouse valley east of Bedford. William H. Manning and the Luton Grammar School Society carried out rescue work at a Roman site around Runfold Avenue in Luton.

Both the South Bedfordshire Society and the Manshead Society were responsible for a number of other excavations. The former carried out excavations at Waulud's Bank, Leagrave; re-examined W. G. Smith's palaeolithic site at Caddington and investigated neolithic ring ditches at Barton Hill Farm, Streatley. The latter investigated numerous sites of many periods in and around Dunstable and Totternhoe. Each produced their own cyclostyled magazines giving accounts of their work, but it was clear that something more permanent was required. To this end Charles Freeman called his historic meeting in 1959 at which the county's amateur and independent archaeologists formed the Bedfordshire Archaeological Council (B.A.C.).

Representatives of the Bedford, Manshead and South Bedfordshire societies were invited to attend, together with C. F. Tebbutt, R. W. Bagshawe and F. W. Kuhlicke from the Bedford Modern School Museum. In all, about a dozen people sat round the curator's desk, of whom the writer is the last surviving member! Our aim was to form an organisation which would attempt to co-ordinate the work that was going on in the county and produce a permanent record in the form of a properly printed Journal. The first twenty-five years of the Council's existence has been thoroughly documented by David H. Kennet in Volume 17 (1986) of that Journal and there is no need to repeat much of it here.

Most of the inaugural meeting was taken up with discussing the need for a centralised pool of information, and it was proposed that reports of all new work should be deposited with Charles Freeman at Luton Museum, where it would be available for all to consult. The primary aim of the Council was to be the publication of a Journal which would contain excavation reports as well as articles of synthesis. It was proposed that William H. Manning, at that time a post-graduate student at the Institute of Archaeology, London, should be invited to act as editor. Charles Freeman, as the Council's first Chairman, negotiated an agreement with Harold White of the White Crescent Press in Luton to print the first three volumes at a very favourable price, and each Society was charged with the task of guaranteeing at least 25 subscribers. Les Speed of the Bedford Archaeological Society became the Council's first Secretary, and generously offered to underwrite any loss, in the event of the Journal failing to pay for itself. The first volume appeared in 1962 and was greeted with approbation by Nicholas Thomas in his review in *The Bedfordshire Magazine*. It improved and flourished during David Kennett's seventeen years as Editor. This success continued during Evelyn Baker's eight year association with the Journal, and that of her successor Stephen Coleman; although issues appeared less frequently.

Initially, meetings of the Council were held twice a year, their venues alternating between Luton and Bedford. This pattern changed as it was joined by new societies from Ampthill and North Bedfordshire, from across the county boundaries in Letchworth and Higham Ferrers, and by college and school societies.

When the Council formed in 1959 it was composed essentially of amateur groups with a wide and deep knowledge of their individual territories. Excavations had been funded from their own

pockets. The appointment of David Baker as County Archaeological Liaison Officer in 1972 was regarded by many with suspicion. Suddenly archaeology would become available 'on the rates'. Charles Freeman had died suddenly in 1965, and the data base that he and the B.A.C. had set-up at Luton Museum now became the responsibility of David Baker and his staff. Many felt uncomfortable about passing information to Bedford, believing that their individual projects might be cherry-picked by 'the professionals' for more detailed investigation. They need not have worried, money was strictly limited and David and his team soon found themselves inundated with work at numerous 'rescue' sites in the county. It was hoped that the County Unit would be able to provide the societies with professional expertise in exchange for local knowledge and labour.

More recently, Archaeological Contractors from outside Bedfordshire, bidding to dig, proved much more contentious. They often appeared overnight and unannounced, and their failure to consult the locals led to ill feeling and frequent wasted time and resources. One group exploring a line of 'pits' on an aerial photograph spent a week excavating a row of locally known bomb craters!

As time has gone by the place of the amateur in archaeology, for whom the Bedfordshire Archaeological Council was originally set up, has changed considerably. Techniques and equipment have developed beyond belief since 1959. Many amateurs are better informed than they were fifty years ago, but a lot of the enthusiasm seems to have gone. The local societies in the early 1960s were usually driven by a keen individual, like Les Matthews at Dunstable, who was the catalyst, and around whom the whole thing revolved. In the intervening years many societies have come and gone, but today the dedication of leaders like Matthews, who lived and breathed archaeology, seems to be lacking. Council meetings are ill-attended, and finding suitable volunteers with sufficient knowledge, time and willingness to fill vacant posts has become a major problem. It is too easily thought that because the local authorities employ archaeologists in Bedfordshire to undertake excavations and research, they should also be expected to produce the Journal or organise conferences. It is unfair to assume that they automatically want to take their day-job home with them! These are extra-mural duties that should be shared by suitable members of all the participating societies and the independent sector.

It seems to me that in recent years the B.A.C. has lost a lot of its initial impetus, and perhaps we should rethink its role. At a time of great financial restraints, (although the B.A.C. is not itself short of funds for publication), how can it play a more effective part in recording the archaeology of our county? With plans for the provision of thousands more houses, factories and the related infra-structure, it is inevitable that many sites are going to be destroyed. Perhaps the Council should once again become the co-ordinating body, harnessing the talent of amateurs, independents and professionals for the better good of recording our county's heritage. In addition, many proposed developments, like those for example around Luton, extend across the Bedfordshire borders. It is time that archaeologists in adjoining counties, with a common interest, are invited to become associate members of the B.A.C. again, and that we in turn reciprocate by exchanging crucial cross-boundary local knowledge.

Finally, the Council must do more to make its voice heard. Its Journal and monographs are publications of which we can be really proud. They are what we first set out to produce fifty years ago. With the current interest in archaeology stimulated by television, we need to make sure that they reach the much wider readership that they deserve. In the 1960s annual conferences, open to the general public, brought members together to present accounts of the work they had done during the previous year. Perhaps these should be revived? A real effort must also be made amongst constituent societies to see that properly written-up reports of their field-work are forwarded to the editor for permanent publication, and that their members help to swell the size of the subscribers' lists!