A Biography of Power

Research and excavations at the Iron Age *oppidum* of Bagendon, Gloucestershire (1979-2017)

Tom Moore

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With contributions by

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Cover: Reconstruction drawing of Bagendon as it might have looked c. AD40-50, looking westwards from the Churn valley (by Mark Gridley, © Tom Moore).

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Part I

Background

Chapter 1

Introduction: research at Bagendon

Tom Moore

'secluded in its Gloucestershire countryside but with wide and significant horizons'
(Mortimer Wheeler, in Clifford 1961: v)

Introduction

The roles of *oppida*, the major earthwork complexes that emerged in Britain towards the end of the Iron Age, have figured prominently in accounts of the dramatic societal changes occurring during, and immediately prior to, the Roman conquest (e.g. Cunliffe 1988; Creighton 2006; Hill 2007). As part of a Europe-wide phenomenon (Collis 1984; Fichtl 2005), *oppida* (sing: *oppidum*) have been crucial in debates over the nature of Rome's influence on Iron Age societies. Discussions have focused on the extent to which they represented the emergence of indigenous urbanisation and increasing state-level social complexity. Within those debates, the earthwork complexes, often referred to as 'territorial *oppida*', (Figure 1.1; Cunliffe 1976; Haselgrove 2000) have proven enigmatic, sitting uncomfortably within continental narratives (e.g. Fichtl 2005), their roles remaining unclear and disputed (Haselgrove 2000).

Discussion concerning these complexes has tended to focus on a small group of sites that includes St Albans (*Verlamion*),[1] Colchester (*Camulodunum*) and Silchester (*Calleva Atrebatum*), which have witnessed significant archaeological investigation and are prominent in historical narratives of early Roman Britain. In the 1950s, Elsie Clifford's (1961) excavations at Bagendon in Gloucestershire transformed awareness of such complexes, allowing her to propose that the dyke system and occupation at Bagendon represented a 'Belgic' *oppidum*, comparable in scale and significance to those already identified farther east. Clifford argued that she had identified the (previously unknown) location of the pre-Roman *civitas* capital *Corinion*[2] of the *Dobunni* (or *Bodunni*),[3] who, from Ptolemy's *Geography*, were understood to have been the pre-Roman people of the region (Camden 1610).

Despite the importance of Clifford's discoveries, and campaigns of further fieldwork in the 1980s (Trow 1982a, 1988; Trow *et al.* 2009), Bagendon has remained relatively peripheral to narratives of the Late Iron Age (e.g. Creighton 2006). This is perhaps because it lacks the draw of rich burials, such as those associated with *Camulodunum* and *Verlamion,* and has seen limited investigation. It also stems, perhaps, from the residual impact of core-periphery models, which envisaged western Britain as marginal to the emergence of kingship and state-development in south-eastern England (e.g. Haselgrove 1987). More recently, publication of the reassessment of another seemingly 'peripheral' complex at Stanwick, North Yorkshire (Haselgrove 2016), has demonstrated the meaningful social and political roles such complexes played in Britain, comparable to *oppida* elsewhere in Europe. Meanwhile, reassessment of better studied complexes, such as Silchester (Creighton and Fry 2016; Fulford *et al.* 2018), is demonstrating how much remains to be gleaned on their organisation and chronological developments.

The publication of recent assessments of Stanwick and Silchester make it a pertinent time to resituate what is, perhaps, the least well known of the *oppida* complexes: Bagendon. This volume represents a reassessment of the Bagendon complex as a whole, exploring its place in the larger context of the Late Iron Age. It brings together a range of evidence, including the results of older investigations, some of which were never published, alongside a suite of new excavations and surveys conducted over the last ten years. These are placed within the context of other archaeological investigations that have taken place in the Bagendon complex, conducted via developer-funded archaeology. The complex at Bagendon is then contextualised within an assessment of Iron Age and early Roman settlement change in the region, before examining how this complex might contribute to wider debates on *oppida* and the nature of Late Iron Age society. In doing so, this study hopes to follow Clifford in resituating Bagendon as an important contributor to understanding transformations within Later Iron Age Britain. Through various analyses,

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1 The name *Verlamion* is used to refer to pre-Roman *Verulamium*, located close to modern-day St Albans (see Thompson 2005); *Camulodunum* and *Calleva* are used throughout to refer to the Iron Age complexes at Colchester and Silchester, respectively.

2 Ptolemy gives the Greek name; *Korínion* the Latinised name was *Corinium* (for a discussion on sources of the name, see Chapter 24).

3 Evidence for the name *Dobunni* and its implications is discussed in Chapter 24.

Figure 1.1. Distribution of 'territorial *oppida*' (after Cunliffe 2005) and other Late Iron Age complexes in Britain.

including isotopic and Bayesian studies, as well as more traditional discussions of material culture, this volume demonstrates that Mortimer Wheeler's description of Bagendon (above), as intimately connected to the rest of southern Britain, continues to be apposite in emphasising not only its role in the Late Iron Age, but also that of the settlements that preceded it.

Bagendon and its landscape

The Bagendon complex (centred on NGR SP012066) is situated on Bagendon brook, a small tributary of the River Churn, which joins the River Thames just to the south of Cirencester (Figure 1.2 and 1.3). Located in the Gloucestershire Cotswolds, Bagendon sits on the interface between the Cotswold Hills, which surround it, and the uppermost reaches of the Thames Valley a few kilometres to the south. The areas to the north and south of the valley are as high as 180 m OD, compared to just 127 m OD at the lowest points of the valley. Parts of the Bagendon valley were likely to have been sporadically wet in the past, with periods of considerable flooding around the parish church recorded several times in the 19th and early 20th centuries. Such flooding is also claimed to have happened far earlier (Rees 1930, 1932: 54) and as recently as 2000, although the well-drained limestone geology means that the valley was probably never permanently waterlogged.

Figure 1.2. Location map of Bagendon (drawn by Tudor Skinner).

The topography around the village represents a microcosm of wider landscape contrasts: between the Cotswold dip-slope, characterised by its dry oolitic-limestone plateau, and the well-watered gravel terraces and clay and alluvial soils of the upper Thames Valley. The Cotswolds are periodically intersected by a number of relatively steep-sided valleys, such as that of the Churn (close to Bagendon), created by tributaries that flow southwards to the Thames. Such positioning seems likely to have been highly significant in its role throughout the Iron Age, and is explored in more detail in later chapters. The Roman town of *Corinium Dobunnorum* was located on the site of modern-day Cirencester, *c.* 5 km to the south of Bagendon, at the junction of major Roman roads: the Fosse Way (between Exeter and Leicester), Akeman Street (from St Albans to Cirencester) and Ermin Street (from Silchester to Caerwent).

The main archaeological features that attracted attention to the site, and remain upstanding, are its earthworks, the major components of which (Cutham dyke 'a' and Perrott's Brook dyke 'f') define an area around the main valley (Figure 1.4, 1.5 and 1.6). These are not, however, especially impressive and this combined with their seemingly incoherent nature

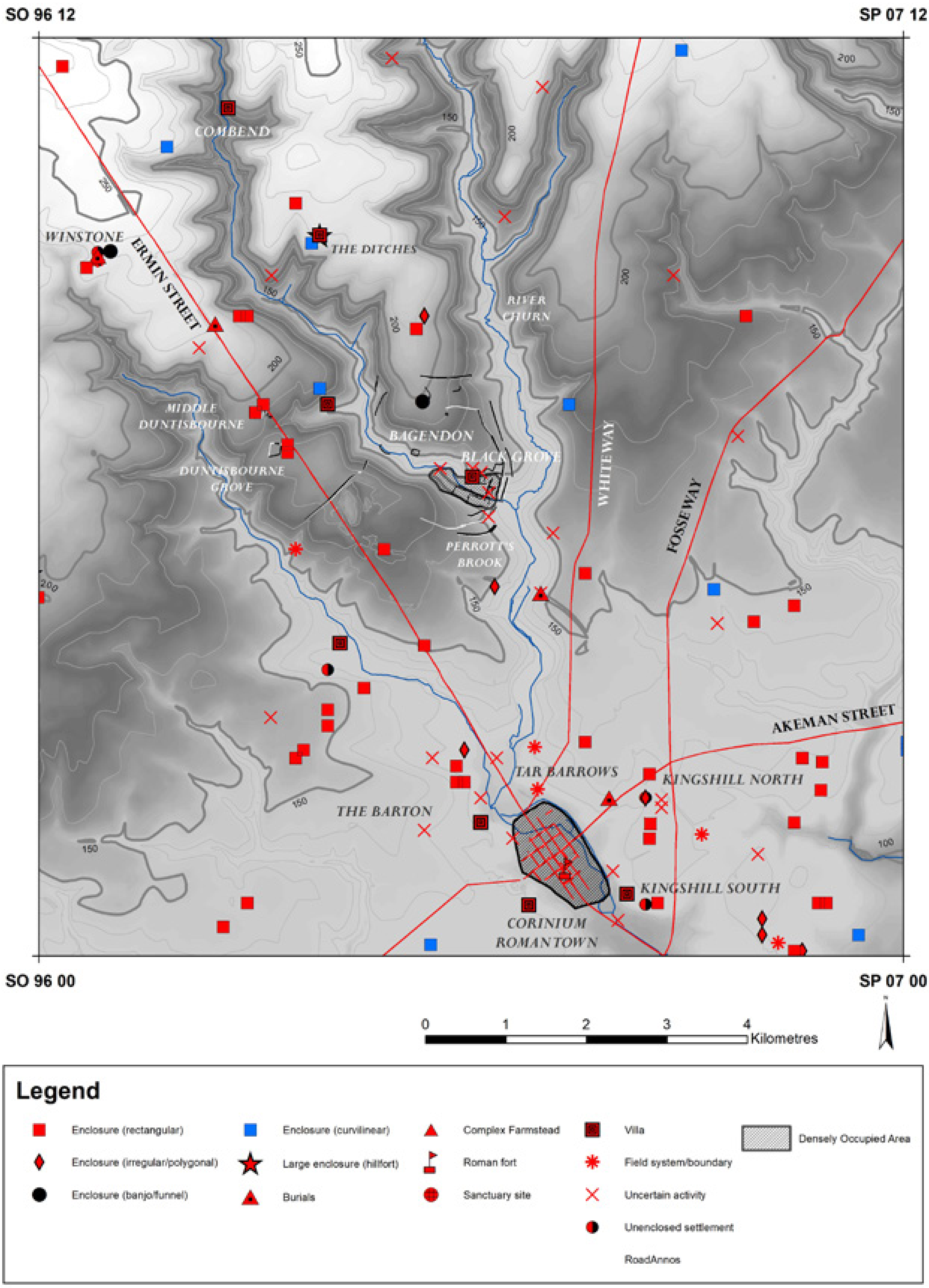

Figure 1.3. Location map of Bagendon in relation to *Corinium* and other Iron Age and Roman archaeological sites (drawn by Tudor Skinner).

Figure 1.4. Photograph of Cutham dyke (photo: Tom Moore).

means that, as with numerous *oppida* (cf. Daval 2009), many local people are not aware of their significance, and they hardly feature in concepts of local identity (Moore and Tully 2018). There is no signposting or information about the area as an ancient monument, and only the earthworks of Cutham dyke 'a' and Perrot's Brook dyke 'f' are provided with any special monument designation (SAM 1003436).

The earthworks encompass, at their core, the present-day village of Bagendon. The name of the village (also referred to as 'Bagginton' or 'Badgington' until the late 19th century: Wilson 1870) derives from early Medieval description as 'the valley of Baecga's folk' (Smith 1964: 56). The Cutham and Perrott's Brook earthworks at Bagendon define the south-eastern end of the parish, which also incorporates the small hamlet of Perrott's Brook. This hamlet was previously called Berrard's Bridge (VCH 1981) or Bearidge Bridge (Atkyns 1712: 248). Confusion abounds as to the origin of the name,

Figure 1.5. Aerial photograph of Bagendon looking Northwest along the valley, taken in 1973. Cutham dyke is marked by the line of trees alongside the road running up hill to the right; Perrott's Brook dyke is marked by the line of trees running alongside the road to the left. (NMR 484/05 © Crown Copyright Historic England Archive)

which possibly stems from Barrow's bridge or perhaps Beranbyrig (Atkyns 1712). An early form of the name also appears to be Beoresford bridge (Fosbrooke 1807: 502). Either way, confusingly, it appears that it has never been the name for the brook that runs through the valley, which continues to be referred to as the Bagendon brook.[4] The current village is split between two occupation areas, one around the Medieval church, itself thought to date from at least the 12th century AD with possible Saxon elements, and Bagendon Manor, which in its current form dates from the early 18th century. This area incorporates a range of post-Medieval buildings, including an overshot water mill. To the west of the main village (south-west of Bagendon House, which in its current form dates to 1846), there is a cluster of houses, some of which are post-Medieval in date (Verey 1970). It seems probable, and is inferred from some of the geophysics surveys (Chapter 2), that the Medieval village was once contiguous between these two areas. Today, the village of Bagendon nestles in a rural valley, although the constant hum of the A417/A419 trunk road from Swindon to Gloucester emphasises its proximity to important transport networks.

History of research

Unlike many other putative *oppida*, Bagendon has seen relatively little exploration (Figure 1.6), and was only identified as of potential significance for understanding Late Iron Age society relatively late in comparison to complexes like those around St Albans and Colchester. This is largely because the Roman town of *Corinium* lies some distance away and thus an association between the 'polis of the *Dobunni*', identified by Ptolemy in his *Geography*, and the earthworks at Bagendon was not made until Clifford's investigations.

The earliest accounts

Research on the complex, prior to Clifford's investigations, was limited. Despite visiting Cirencester, and writing a poem about the Thames and Churn, William Camden (1610) does not mention the earthworks at Bagendon. He does, however, seem to be the first written source to suggest that Cirencester was Ptolemy's *Korínion* (Latinised as *Corinium*) and the capital of the *Dobunni* people (Camden 1610). He

A. Cutham Enclosure (2014)
B. Scrubditch Enclosure (2012-13)
C. Black Grove (2015)
D. Dyke 'e' (2017)
E. Area A (1979-81)
F. Area B (1980)
G. Clifford Site A (1954-56)
H. Clifford Site B (1954-56)
I. Clifford Site C (1954-56)
J. Perrott's brook dyke, WAT (1983)
K. Manor cottage, Foundations Archaeology (2005)
L. Old School, Foundations Archaeology (2010)
M. Malt House, Foundations Archaeology (2017)
N. Middle Duntisbourne, OAU (1999)
P. Duntisbourne Grove, OAU (1999)
Q. Dartley Bottom, OAU (1999)
R. Cutham House, GCCAS (2005)

Figure 1.6. Map of Bagendon area showing earthworks and location of significant archaeological investigations.

[4] E. Carrus-Wilson, of Trinity Farm, Bagendon, made this point as early as 1955 in a letter to the *Wiltshire and Gloucestershire Standard* newspaper (5 November 1955).

Figure 1.7. Extract of the 1792 'inclosure' map of Bagendon. The map clearly depicts dykes 'd', 'e' and 'f', as well as a feature, possibly a dyke or hollow-way, between dyke 'e' and 'f' (from Gloucestershire Archives: D475/box 94725 Bagendon 1792, reproduced with permission)

suggested that the Roman town of *Corinium*, which he recognised as situated at modern Cirencester, might have had earlier, pre-Roman antecedents. The idea that Cirencester also represented the location of the pre-Roman capital of the *Dobunni* persisted (Atykns 1712); indeed, this idea remained well into the early 20th century (e.g. Baddeley 1922), and was only undermined by Clifford's (1961: 1) arguments.

The first accounts of the earthworks at Bagendon date from the 18th century. Atkyns (1712: 248), in his discussion of the parish, refers to a 'Roman camp' to the west of the Churn and describes some 'barrows', which might be the earthworks. Samuel Rudder (1779: 258) provides a fuller description, mentioning 'two considerable entrenchments fronting each other, one of which extends for about a quarter of a mile towards Barrows-bridge [at what is now the hamlet of Perrott's Brook] with the rampire [rampart] and graff [ditch] entire in some parts'. Intriguingly, he documents that nearby are 'two or three large barrows' (Rudder 1779: 258) from which spearheads and other 'warlike weapons' were retrieved. The reference to barrows by Atykns and Rudder, as well as the place name etymology above, is intriguing as no evidence of any such barrows remains in the immediate area today, raising the possibility that such features were located somewhere in the Perrott's Brook area in the more recent past and have subsequently been destroyed. Given the presence of funerary monuments close to other dyke complexes, for example at Camulodunum (Crummy *et al.* 2007), such a possibility cannot be dismissed entirely. It is possible, however, that Rudder misinterpreted elements of the earthworks around Bagendon, which he might have considered to be 'barrows'. Rudder suggested that the evidence of weaponry and the name of Barrow-bridge might relate the earthworks to a battle that took place close to Cirencester in AD 628, and which is referred to in the Anglo-Saxon chronicles (Giles 1914).

Other antiquarians offer little more information. Rudge (1803) appears merely to summarise Rudder's comments. Despite Samuel Lysons's considerable antiquarian work in the area (he recognised Roman villas at Combend—see Chapter 5—and at his native Rodmarton), there is no mention of the complex in his volumes on antiquities in Gloucestershire (Lysons 1803). His nephew did refer to a Roman roadside settlement at Bagendon (Lysons 1860: 42), but it is not clear to what he is referring and, given that he suggests it is located on Ermin Street, it may be Stancombe or another set of Roman remains. It is clear, however, that the local people were well aware of the ancient nature of the earthworks around them. The dykes at Perrott's Brook and Cutham are referred to on a number of occasions in the enclosure award from 1790, with an intriguing reference to an 'ancient gate' on the boundary with North Cerney at Scrubditch.[5] At least three dykes are also depicted on the associated map from 1792 (see Figure 1.7).

G.F. Playne (1876) was made aware of the Bagendon earthworks through identification by the local rector, the aptly named Reverend Dyke. Of the earthworks, Playne (1876: 212) writes 'they are found to cross the marshy ground near the stream', suggesting that the earthworks, at this time, were cutting across the meadows at Perrott's Brook, although the dykes are no longer extant in this area.[6] The outer earthworks, opposite Cutham dyke, were certainly more visible according to his description. It seems that he assumed there were additional earthworks to the west, although he does not describe them. His interpretation of the earthworks, like Rudder's, was as defensive with a temporary need for defences as part of a military engagement. Playne also noted the presence of what he interpreted as an additional set of earthworks on the opposing side of the Churn, 'directly facing the Bagendon lines', which he suggested were 'constructed by opposing forces' (1876: 212; cf. Witts 1882: 3). There is no trace of these opposing earthworks today, although it is possible he was referring to a slight lynchet that runs along the opposite side of the Churn, demarcating the slope from the valley. Other features on the higher ground of the eastern side of the Churn Valley appear to be natural and there are no obviously ploughed out features recognisable on aerial photographs, so his suggestion is probably erroneous.

It seems likely that John Wilson's (1870: 93) brief description of two earthworks at Bagendon (probably Cutham and Perrott's Brook dyke) is derived largely from John Rudder's earlier account. Wilson suggests, however, that the earthworks were related to an earlier battle between Saxons and Britons in AD 577 (the Battle of Deorham (Dyrham), described in the Anglo-Saxon chronicles) when, it is claimed, Cirencester was captured by the Saxons (Giles 1914); although why Wilson identifies Bagendon as the site of the battle is unclear. By the late 19th century the current extent of the earthworks was recognised by surveyors, with the 1884 OS map of Bagendon indicating most of the major earthworks later surveyed by the Royal Commission on Historic Monuments England in the 1970s (RCHME 1976) (see below). The former recorded the Scrubditch earthwork as representing a 'camp', with the rest as 'entrenchments'.

Connections between the monuments at Bagendon, the Late Iron Age *Dobunni* and the Roman conquest were slow to emerge. It was G.B. Witts (1897), then president of the Bristol and Gloucestershire Archaeological Society, who first suggested that the 'extensive earthworks' at Bagendon were potentially related to the march of Aulus Plautius, recorded by Cassius Dio in his *Historiae Romanae* (60.20) as having accepted the surrender of the *Dobunni*:

After the flight of these kings he gained by capitulation a part of the *Bodunni*, who were ruled by a tribe of the *Catuellani*; and leaving a garrison there, he advanced farther and came to a river.

Witts (1897: 342) suggested that the route of Plautius' march, whom he assumed was marching to the Severn, 'may explain the extensive line of earthworks at Bagendon which extended nearly 2 miles', seemingly implying that these were thrown up by the *Bodunni*, as he describes them (following Dio above), in their resistance to the Roman incursion. While Witts echoed Camden's earlier assertion that the local 'tribe' were the *Bodunni* (*Dobunni*), his description does not suggest that this location was a precursor to, or the original, *Corinion* identified by Ptolemy as the polis or capital.[7] Witts's narrative, of Plautius marching into Gloucestershire and the establishment of a fort at Bagendon, has since been questioned (Hawkes 1961: 58–61), but explaining the region's earthworks in relation to the process of Roman conquest remained popular well into the 20th century (e.g. O'Neil and O'Neil 1952).[8]

Providing wonderful sketches of some of the earthworks (Figure 1.8) and recognising that the Scrubditch earthworks were probably somehow related to those at Cutham, E. Burrow's (1924: 38) description also regards them as some form of 'tribal boundary'. He too recognised the earthworks on the eastern side of the Churn, seemingly drawing on Rudder's earlier account, and argued that they were evidence of an attacking force's opposing earthworks (Burrow 1924: 38). The fullest account of the remains at Bagendon prior to Clifford's work was provided by George Rees (1932: 23–26), rector of the parish, in his rather eclectic history of Bagendon. He noted the discovery of human remains, seemingly

[5] From 'Copy of: Bagendon: award of arbitrators on the division of the commonable and intermixed land, made on the 17th April 1790' (Gloucestershire Archives Document D475).

[6] Also suggested by Witts (1882: 3), although his account appears largely to paraphrase Playne (1876).

[7] It is widely believed that the name *Bodunni* found in Cassius Dio was a scribal error in the Medieval manuscript of the name *Dobunni,* found in Ptolemy (Rivet and Smith 1979: 339). This remained contentious however, with some continuing to argue the *Bodunni* were a separate people (Hawkes 1961: 58).

[8] Earlier, Lysons (1860: 7) appears to have believed that after Claudius' landing he had 'followed the Thames to its source, near Cirencester, made his way over the Cotswold hills towards the Vale of Gloucester, to which his general Plautius had already penetrated'.

Figure 1.8. E. Burrow's 1924 drawing of Cutham dyke 'a', looking south, towards Perrott's brook dyke (from Burrow 1924)

inhumations, 'on the inner slope of the rampart' at Cutham dyke 'a' (see Figure 24.8; Chapter 15), which appears to have been located close to Clifford's later excavation area. He also describes a stone platform, similar to that later excavated from the gravel pit explored by Clifford (1961). In addition, he mentions the discovery, in 1861, of cremation urns found in the grounds of the rectory (Rees 1932: 28). Rees's description of these suggests that they might be of Iron Age or early Roman date. He also alludes to 'Roman finds' from the churchyard, claiming that the unusual siting of the church in a flood zone was due to the presence of an earlier, pre-Saxon, place of worship (Rees 1932: 54). Echoing Witts's (1897) account in placing the Iron Age earthworks in relation to the Roman conquest, Rees argues that they were thrown up by the *Dobunni* in opposition to Plautius' advance. There are indications that he also recognised other remains, but their location and form are confusing. He describes an 'old camp' at Black Grove, presumably the field of the same name designated on the 1832 field map, although it seems that he refers to an area to the south-west. Rees suggests that it is a substantial 'triple walled fort', but no such remains are visible in that area. It is most probable that he is referring to various lynchets along the southern side of the valley (see Chapter 2), which are probably Medieval in date and do not form an enclosure. He also recognised the earthwork at Oysterwell (dyke 'g'), later recorded by the Royal Commission survey (see below; RHCME 1976).

Elsie Clifford: Bagendon, 'the Colchester of the West'

The first real archaeological investigation at Bagendon was undertaken by Elsie Clifford. Clifford described herself as an amateur archaeologist (Wheeler, in Clifford 1961: v), but was, in fact, one of the region's most accomplished (Reece 1984: 20), having trained at Cambridge and held eminent roles in the Prehistoric Society and the Society of Antiquaries of London. She, along with Helen O'Neill, was one of the foremost archaeologists in Gloucestershire during the early 20th century (Reece 1984). Prior to her investigations at Bagendon, Clifford had already undertaken excavations of Iron Age sites around Gloucester (Clifford 1930, 1934; Atkin 1992: 13) and more notably at Minchinhampton and Rodborough, the latter in association with Gerald Dunning, who later went on to excavate at Salmonsbury with Helen O'Neil (Dunning 1976). At Minchinhampton she identified what she interpreted (correctly as it turns out, see Chapter 23) as an important Late Iron Age settlement (Clifford 1937; O'Neil and O'Neil 1952).

Clifford undertook excavations at the eastern end of the Bagendon valley because of her recognition of 'Belgic' pottery revealed through the digging of a small gravel quarry close to Perrott's Brook (also noted by Rees 1932), which she visited in the 1930s (Clifford 1961: 2). She subsequently opened an area immediately adjacent to the quarry (her sites B and C; Figure 1.6), as well as excavating a section across the most prominent of the earthworks, Cutham Dyke (her site A) (Figure 1.6). Her

Figure 1.9. Photograph of Elsie Clifford's excavations by Capt. H. S. Gracie (looking north-east) (from Corinium Museum archives, reproduced with permission)

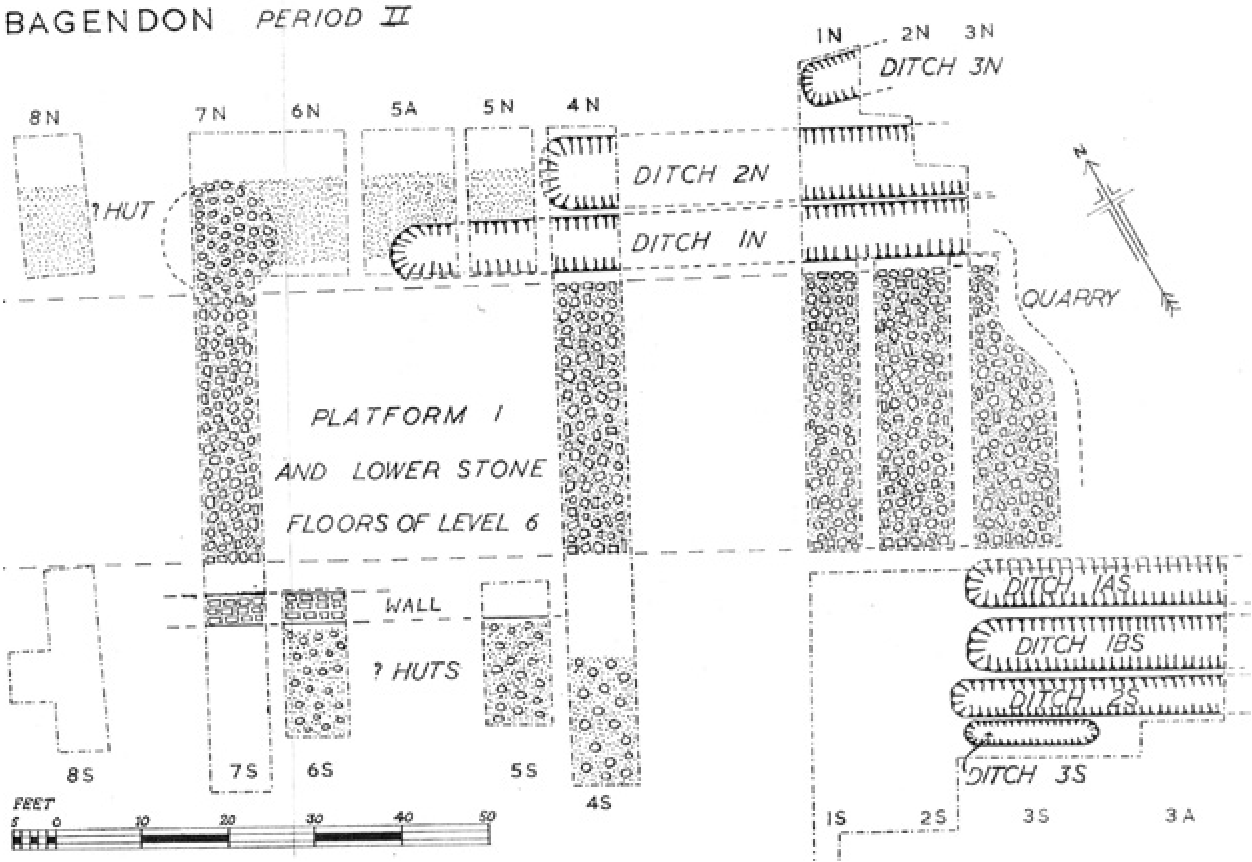

Figure 1.10. Plan of Clifford's excavations at Site B from her report (from Clifford 1961: fig. 8).

excavation technique appears to have acknowledged some of the limitations of following a strict, Wheeler-style, box excavation technique as she often extended the excavation areas to form larger, more open expanses (Figure 1.9 and 1.10; Richard Reece pers. comm.).

Despite her excellent excavations, the publication of the results appears to have caused some problems (Reece 1984: 24). Molly Cotton and Clare Fell significantly reassessed the stratigraphy before publication, which led to a major renumbering of finds and contexts. This seems to have happened subsequent to the marking of ceramics, which has since created some confusion and inconsistences.[9] Even with the apparent problems, the significance of the project's findings were widely recognised at the time (Brailsford 1962; Rivet 1962), with

9 Although the archive contains correspondence tables from 1977, provided by Clare Fell, it remains difficult to equate finds with contexts.

Figure 1.11. Elsie Clifford with Mortimer Wheeler and Capt. H Gracie at Bagendon in 1955.

numerous high-profile visitors to the site, including Wheeler, Dorothy De Navarro and V.G. Childe (Figure 1.11; Reece 1984: 23, 1999). The final publication of the excavation, and the placing of the results in a wider context, was also undertaken by an eminent team of Iron Age specialists of the day, including Cotton, C.F. Hawkes, Derek Allen and M.R. Hull, and contained a foreword by Wheeler.

Clifford (1961: 2) linked the Bagendon complex to Ptolemy's *Corinion* with compelling logic; excavations in the 1950s suggested to her that Roman *Corinium*, and occupation at Cirencester, dated no earlier than the late 1st century AD. Based on contemporaneous understanding of the Late Iron Age–Roman transition, it was assumed that there must have been a central capital for the local 'tribe' in the vicinity. Minchinhampton Common, which Clifford had submitted to small-scale excavation in the 1930s (Clifford 1937), seemed too distant: the only possible contender was Bagendon. The integrated discussion that the Bagendon volume represented was subsequently well received and made a significant impact, adding a new '*oppidum*' to the small group recognised in south-east England at the time (Brailsford 1962; Frere 1962; Rivet 1962) and to which another 'peripheral' example at Stanwick, North Yorkshire (Wheeler 1954), had only recently been added. Wheeler's description of Bagendon, in his foreword to Clifford's 1961 volume, as the potential 'Colchester of the West' (cited at the start of this chapter), captures the importance that its identification was deemed to have.

Sadly, not long before Clifford's death in 1976, according to correspondence with Corinium Museum from Glyn Daniel (the executor of her estate), she burnt much of her records and paperwork, including, it seems, the Bagendon archive. This means that none of the original drawings and no paper records or diaries survive. Alongside the later renumbering of contexts and stratigraphy for publication, this makes it very hard to reconstruct her excavation, beyond what is published in the 1961 volume. For this reason, it was determined for this project that reassessing the entirety of Clifford's assemblage was both too costly and likely to provide no more than a general overview of the date range of her assemblage. For the samian ware this had been undertaken by Dannell (1977), who did not refer to stratigraphic contexts, but was concerned only with the date of the assemblage overall. Some aspects of this have been reassessed (Chapter 6), where relevant, but the problems in stratigraphy and archiving make any specific judgements on Clifford's original finds problematic.

Reassessment: 1970s–1980s

Clifford's excavations had (literally) put Bagendon on the map of Late Iron Age Britain (OS Map of Southern Britain 1962); it was later incorporated into Barry Cunliffe's (1976) model of *oppida* typology and chronology. Situating Clifford's excavations in context, the Royal Commission also undertook a detailed survey of the complex in the early 1970s, identifying additional, potentially related dykes, as part of their assessment of Iron Age and Roman monuments in the region (Figure 1.12; RCHME 1976). Questions concerning the complex, in particular its chronology, remained, however.

A re-evaluation of the chronology of Bagendon by Vivian Swan, as part of a reassessment of the dating of Oare (Savernake) ceramics (Swan 1975), raised considerable doubts about whether the site began as early as Clifford had claimed. Swan argued, on the basis of the ceramics, that the whole site dated to after the Roman conquest (see Chapter 4). An additional reassessment of the samian from Bagendon (Dannell 1977) also suggested a slightly later date for the start of the complex, although he still argued it began before the Roman conquest. Others, meanwhile, sought to reassess the detailed pseudo-historical narrative developed by Hawkes (1961) in his chapter in Clifford's volume (Rivet 1962; Wacher 1974: 292–293).

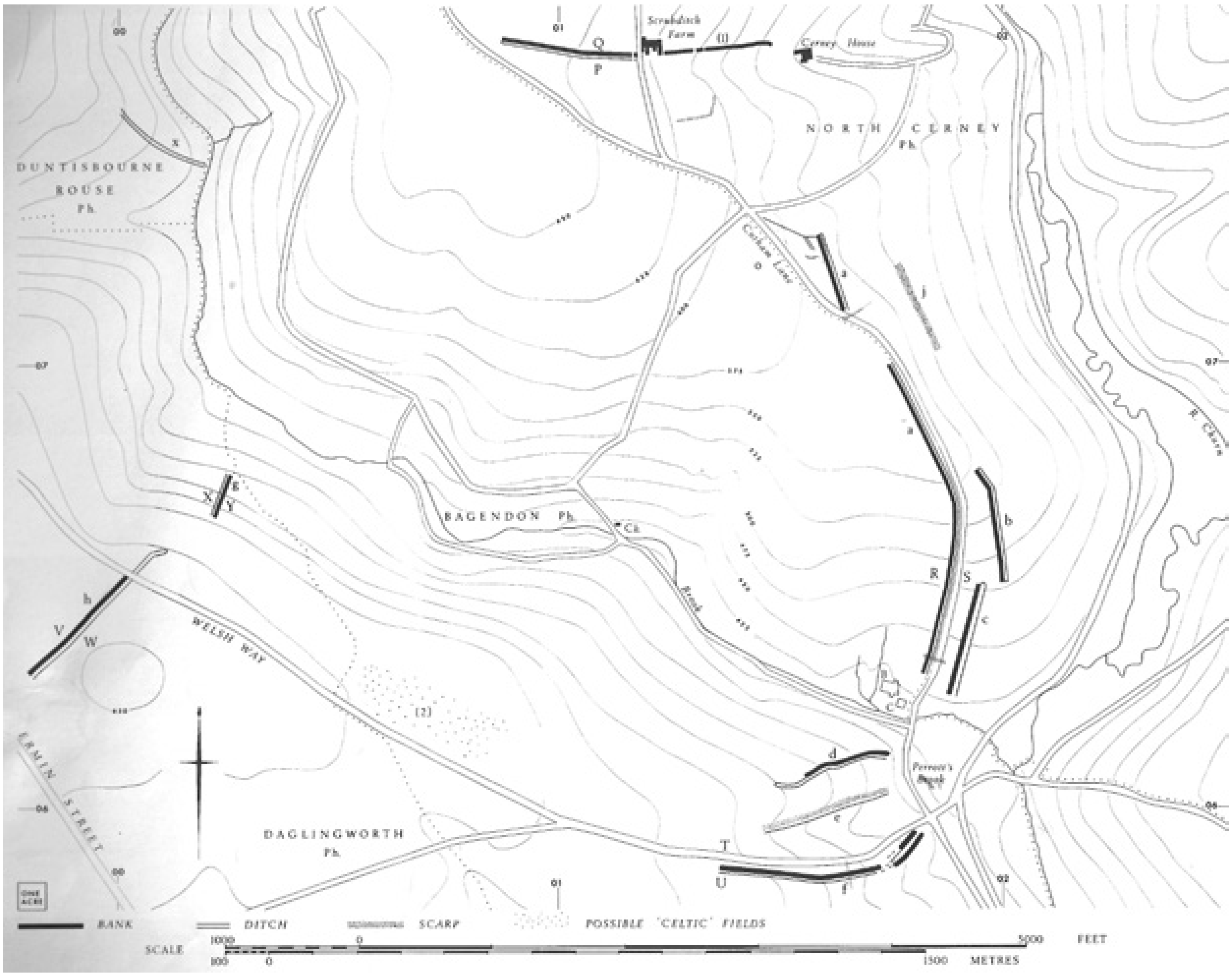

Figure 1.12. Survey of Bagendon earthworks undertaken by the Royal Commission (RCHME 1976; © Crown Copyright, Historic England and Ordnance Survey).

In an attempt to resolve some of these issues, particularly the chronology of occupation, Richard Reece, then lecturer at the Institute of Archaeology, UCL, undertook excavations between 1979 and 1981. The aim of these was primarily to re-evaluate the stratigraphy and chronology of the area examined by Clifford (Trow 1982a: 26; Reece 1984: 24). This re-evaluation was conducted with a small team of local volunteers and undergraduate students, which included Stephen Trow (Figure 1.13). The results of these excavations were never published, but a short interim report outlined their significance (Trow 1982a). Analysis of these excavations thus forms a core part of Chapter 4 of this volume.

Following the interesting results from Bagendon, Trow, now a postgraduate (assisted by Simon James), commenced his own project, beginning by examining the surrounding area. Particular focus was placed on assessing the significance of the apparent hillfort at 'The Ditches', situated relatively close to Bagendon *c.* 2 km to the north-west (Figure 1.3 and 1.14; RCHME 1976: 85). Subsequent fieldwalking and trenches across the ramparts of The Ditches revealed first-century AD material that indicated it was contemporaneous with occupation in the Bagendon valley. Aerial photography at the time also suggested the presence of a Roman villa within the enclosure (Trow *et al.* 2009: 4). Trow's excavations at The Ditches, between 1982 and 1985, revealed a detailed sequence of occupation, extending from the Late Iron Age through the construction of, and what remains, one of the earliest Roman villas outside of south-east England (Trow 1988a; Trow *et al.* 2009). The initial work on the earthworks at The Ditches was published rapidly (Trow 1988a), but that on the interior and the villa emerged only later after a project of post-excavation led by James and assisted by the current author (Trow *et al.* 2009). Additional fieldwalking, along with aerial photographs from the time (Figure 1.14), also identified Neolithic remains in the area, including a causewayed enclosure to the north-east of Woodmancote (Trow 1985).

Figure 1.13. Planning the excavation of Area B in 1980 (Photo: Stephen Trow).

Developer-led archaeology: the 1990s

The advent of new planning guidance in 1990 (PPG16) led to a substantial expansion in the archaeology of the region, with a vast number of new Iron Age and Roman sites being identified and excavated (Moore 2006; Darvill 2010: 23). Initially, Bagendon's rural location meant that it did not see any meaningful re-evaluation; it was not, for example, re-examined as part of the archaeological assessment of Cirencester in the 1990s (Darvill and Gerrard 1994). Over time, however, investigations undertaken in advance of infrastructure began to provide critical insights into the wider Bagendon complex. Most notable was the dualling and realignment of the A417/A419, to the south-west of Bagendon, which was aligned along the course of the Ermin Street Roman road (Mudd *et al.* 1999). This led to the investigation of enclosures and other features around Dartley Farm, at Duntisbourne Grove and Middle Duntisbourne (Mudd *et al.* 1999: 77–98), as well as an noteworthy section through the Roman road itself at Dartley Bottom, which revealed earlier ground surfaces (Mudd *et al.* 1999: 263) (Figure 1.6).

In addition to the nearby road scheme, watching briefs (by several consultant archaeological firms) have been undertaken throughout the area as part of small-scale developments (Figure 1.6). A number of these have produced relevant archaeological material and are discussed in more detail in Chapter 4. Most notable amongst them, in producing dating evidence relevant to the Late Iron Age/Roman period, are investigations by Foundations Archaeology at Bagendon Manor Cottage (Mayer 2005), Bagendon Old School (Hood 2010) and the Malt House, Perrott's Brook (Hood 2017). Several other investigations have been recorded further to those identified in Figure 1.6, for example immediately to the south of Scrubditch, which have produced no archaeological remains. Many of these have been very small-scale watching briefs and therefore only those that have produced relevant archaeological information are identified in this volume. Various finds have also been produced through metal-detecting (see Haselgrove, Chapter 10), and it seems probable that others have been retrieved without record. An array of developer-led excavations have also taken place in the region, especially in the upper Thames Valley, which also allow for activity at Bagendon and The Ditches to be placed in a wider settlement and landscape context (see Chapter 23).

The recording and accessibility of investigation records for the work undertaken in the Bagendon area since 1990 contrasts the lack of information on the impact of development that took place in previous decades. Around Bagendon, the construction of a number of gas pipelines cut across the occupation area. Archaeological investigation was only undertaken, by the Western Archaeology Trust (WAT) (Courtney and Hall 1984), where this construction intersected with Perrott's Brook dyke (Figure 1.6). It seems that a form of watching brief was undertaken in some areas, however, with stray finds of *Terra Sigillata* (Willis, Chapter 6) and Gallo-Belgic ware in the Bagendon archive that are identified as having been discovered in 1983. This material also includes a single brooch noted by Don Mackreth (see Adams, Chapter 7). These finds do not derive from the recorded excavations undertaken by WAT, which recorded no finds except some flints (Courtney and Hall 1984). It seems most probable that they were discovered when the pipeline (visible on the geophysics—see Chapter 2) cut along the south side of the present-day road into the valley, which we now know from the geophysics (see Chapters 2 and 4) was densely occupied in the Late Iron Age/early Roman period. Whether features were encountered elsewhere, for example with the additional pipeline to the north, from Bagendon village to North Cerney, remains unknown, but from the geophysics, it appears probable that these pipelines did disturb archaeological contexts.

Figure 1.14. Aerial photograph, looking south, showing The Ditches Iron Age enclosure in the distance and the Neolithic causewayed enclosure at Aycote, Rendcomb in the foreground (NMR 2144/1252, © Crown Copyright, Historic England Archive).

The development and aims of this project

The combined previous research at Bagendon, particularly the excavations between 1979 and 1981, although relatively small in scale compared to many other complexes, nevertheless permitted clarification of its chronology, relating it to the more recent assessments of the occupation at The Ditches. The work undertaken nearby at Duntisbourne further illustrated the dispersed nature of Late Iron Age occupation and raised key questions about how these elements were inter-related. When the opportunity arose to publish results from the 1979–1981 excavations it was clear that publishing them alone, especially given the vagaries that time had left on the archive of material, was likely to mean that they could provide only a limited contribution to understanding the place of the Bagendon complex in the study of Late Iron Age *oppida*.

Notable transformations have also taken place since the 1980s in considerations of the nature of British '*oppida*', suggesting that they may have been more dispersed, polyfocal complexes, rather than proto-urban centres (e.g. Haselgrove 2000; Hill 2007; Moore 2012, 2017a, 2017b). The confusing nature of their earthworks has also led some to see them not as designed to define settlements, but to connect separate areas of activity. Recent discussions have also emphasised the complex issues regarding where and why *oppida* emerged, with some suggestions that this was in empty or marginal parts of the landscape (Haselgrove 1995; Moore 2006: 149, 2007a; Hill 2007; Sharples 2010). Increasingly, the role of these complexes as major economic hubs for production and exchange has also been challenged, emphasising instead their roles as elite centres and places for demonstrating kingship (Fitzpatrick 2001; Creighton 2006; Hill 2007). A re-examination of the

Bagendon complex therefore had the potential to address questions on the origins, roles and development of so-called '*oppida*' more generally, on a site that had previously been peripheral to such debates. In order to situate the evidence from Bagendon in a broader debate on the Late Iron Age, the research undertaken as part of this project focused on the following questions:

- Did Bagendon emerge in what had been an 'empty' area in preceding centuries?
- Did the landscape in which the complex emerged have some form of pre-existing cultural or social significance, or was this a marginal agricultural landscape?
- What was within the dyke system at Bagendon? Was much of the interior devoid of occupation or were there areas of dense occupation? What other roles might the large interior area have had?
- How did the arrangement of earthworks function? Did they define a settlement area or have alternative roles? How did that arrangement relate to occupation at The Ditches and Duntisbourne?
- What role did the complex at Bagendon perform? Was it, for example, a 'central place', a centre for trade or a residence for emergent kings?
- Can Bagendon be defined alongside other 'territorial *oppida*' or does it compare more readily with different forms of settlements?
- What happened to Bagendon after the creation of the Roman town at *Corinium*? Was it simply abandoned or did it develop new, but perhaps related, roles in the Roman province?

All of these questions could just as easily be asked of most so-called *oppida* in Britain, allowing Bagendon to be contextualised alongside other centres. Assessment of the material from Bagendon and its wider landscape was fundamental in addressing these project aims. Fundamental to this was determining whether it could be defined as a 'territorial *oppidum*' or if, as has become increasingly apparent (Corney 1989; Moore 2012), it might be better compared to a range of other Late Iron Age complexes not normally defined as *oppida*. Contextualising the occupation area in the valley within a much broader geographic and chronological scope was thus essential in gaining a better understanding of what the Bagendon complex was and of its place in the Late Iron Age of the region.

Some aspects of the Bagendon landscape make it particularly useful for addressing the research questions above. Unlike *Calleva*, *Verlamion* and *Camulodunum*, the creation of the Roman town at Cirencester, rather than at Bagendon, means there is little Roman (or later) urban archaeology that is likely to have destroyed Iron Age activity or obscured its layout. Apart from the village at its core, and a handful of houses built in recent decades, Bagendon's landscape remains largely open, allowing extensive remote-sensing surveys to be conducted (Figure 1.15; see Chapter 2).

Through his fieldwalking and excavations, Trow was one of the first to recognise that Late Iron Age Bagendon was not just focused around the Bagendon valley. In particular, he realised that The Ditches enclosure was intimately related to Bagendon (Trow 1982a: 29). Despite Trow's more expansive perspective, the limited survey techniques available at the time meant that a more complete picture of the complex was impossible, with aerial photographs not always especially effective at revealing archaeological features in this landscape. A brief assessment of the complex as part of a broader overview of the Iron Age in the region (Moore 2006: 148) did, however, identify some features, including a possible banjo enclosure, within the Bagendon area that were worth investigating. The application of high-resolution geophysical survey to the greater Bagendon area, combined with lidar data from the Environment Agency, enabled the context of the areas previously

Figure 1.15. View of Bagendon valley looking east towards the area of the 1950s and 1979-81 excavations. Area B, 1980, was located to the left of the water trough (Photo: Tom Moore).

excavated to be understood and the nature of activity across the rest of the complex to be examined.

These surveys identified various new elements of the complex that were targeted for excavation.[10] Focus was placed on areas which could address some of the core questions outlined above that concerned not just Bagendon but also *oppida* more generally. Excavations at the newly identified banjo-like enclosures at Cutham and Scrubditch were undertaken over three seasons (2012–2014), and the stone buildings at Black Grove were briefly examined in 2015. A small excavation of dyke 'e' in 2017 (Figure 1.6) attempted to understand the nature of the earthworks better, and the wider landscape was assessed through an augering survey (see Chapter 19) and limited test-pitting, also in 2017.[11]

A biographical approach

As the project developed, and as the complex nature of Late Iron Age centres became more fully appreciated (Haselgrove 2000; Moore 2012, 2017a, 2017b), the incoherent earthworks and the dispersed nature of Late Iron Age occupation at Bagendon meant that conceptualising it as a 'site' was highly problematic. For this reason, it was more useful to approach Bagendon as a wider landscape, of which the topography and archaeology were integral and integrated. This approach recognised that 'landscapes' should not be conceived of as the backdrops against which 'sites' exist or things took place, but taskscapes of which human interaction (and the archaeology it has created) are integral parts (Ingold 1993). This perspective also sought to draw on the significance of such landscapes as perceptual and as ways of embedding concepts of memory and identity (Stewart and Strathern 2003). Reflecting on these perspectives, detaching one element of Bagendon's landscape (its role in the Late Iron Age) might divorce it from the longer-term relationships it had with preceding and succeeding communities and generations. Taking its inspiration from Ingold's (2000: 189) suggestion that the 'landscape tells, or rather is, a story', this study of Bagendon thus aims to examine the complex through its biography, one in which earlier activities, uses, perceptions and features of the landscape will have influenced and been incorporated by subsequent generations (cf. Kolen and Renes 2015). It is hoped that this approach allows its role within a short period in the 1st century AD to be examined as part of the longer shaping, reshaping and renegotiation of the wider Bagendon landscape, in which human monuments and environmental contexts were indivisible, and one that continues to this day. Although this volume focuses on a relatively narrow window of that landscape biography (the Iron Age and Roman periods), it is hoped that considering it in these terms allows for a deeper appreciation of the *longue durée* of landscape transformations.

As research progressed, a strong theme emerged from the biography of the 1st millennia BC and AD, one that hinted at how this area was modelled and reformed to enact and display forms of power. Indeed, the changing nature and expressions of power throughout these periods (cf. Thurston 2010) are vividly illustrated in the physical manifestation of the landscape and monuments of the Bagendon area, hence the title of this volume: 'a biography of power'. Of course, this does not mean that other biographies do not, and did not, exist in this landscape, or that other stories could not be told, but it emphasises the fundamental importance that forms of power have in shaping and informing landscape. This biography seeks to create a narrative inspired by the concept of thick description (Geertz 1973), not just examining the findings of fieldwork but also presenting a narrative of society and landscape. Undoubtedly, such a narrative must deal with the fragmentary and imperfect nature of the archaeological record. Yet as Hawkes (1961) understood in his contextual account in Clifford's volume, only through such narratives can we truly grasp the impact of creating and recreating the spaces in which communities and individuals lived and embodied their worlds.

In light of the conceptual value of landscape biographies, this project also explored how this could be used to examine contemporary perceptions of the wider cultural landscape of the area (cf. Kolen and Renes 2015), and be translated into new presentations of these landscapes and integrated into management practices in the present. This was undertaken as part of a larger European project (REFIT: Resituating Europe's first towns: a case study in enhancing knowledge transfer and developing sustainable management of cultural landscapes) on cultural landscape management via the Joint Programme Initiative on Cultural Heritage of the European Council, conducted with colleagues Vincent Guichard (Bibracte EPPC, France), Jesus Álvarez-Sanchís and Gonzalo Zapatero (Uni. Complutense Madrid, Spain). The methodologies and results of this project are discussed elsewhere (Moore and Tully 2018; Tully and Allen 2018; Tully *et al.* 2019; Moore and Tully forthcoming Moore *et al.* in press www.refitproject.com). These studies remind us that the narratives outlined in this volume for the Iron Age and Roman periods are part of a longer story of the intimate and integrated relationships between people

[10] Each 'site' has been given a particular name (Figure 1.6). To avoid confusion, the trenches for the 2012–2017 excavations have been given sequential trench numbers (TR1–11 and site prefix code of BAG/year; contexts numbers relate to each trench, e.g. 1001 = Trench 1; 4012 = Trench 4 and so on), irrespective of their location within the complex in order to ensure that material is clearly located and to emphasise the approach towards Bagendon as that of a single coherent landscape rather than discrete entities.

[11] The main site archives and finds have been deposited with the Corinium Museum.

and landscapes in which past, present and future are intertwined. The contemporary stewards of that landscape, many of whom have been essential enablers of this research, are as much a part of that biography as the coins, pottery and earthworks described here. The ways in which their perspectives are part of the 'dwelling' in that landscape (see Ingold 1993: 152, 2000) are explored and reflected on in the publications and outputs of the REFIT project (e.g. Moore and Tully forthcoming).

Structure of this volume

Part II of this volume begins with an assessment of the wider landscape using geophysical survey (Chapter 2). This assessment underpins much of what follows and emphasises the volume's 'landscape' approach to the complex; it then examines various elements of the landscape, broadly in chronological order, commencing with the occupation of Bagendon prior to the Late Iron Age and focusing on the excavations at Scrubditch and Cutham (Chapter 3). Chapter 4 then considers Late Iron Age and early Roman Bagendon, primarily through the results of the 1979–1981 excavations as well as more recent small-scale investigations and assessment of the Bagendon ramparts. A discussion of how Bagendon's landscape was transformed in the Roman period is then presented, focusing on the excavations of the Roman villa at Black Grove (Chapter 5).

The excavation evidence is followed in Part III with a discussion of the material evidence from these investigations, and others, which enables the narrative of Bagendon to be constructed (Chapters 6–14). Part IV focuses on the environmental evidence (Chapters 15–19), including isotope analyses of human and faunal remains. Part V uses GIS to examine movement though the landscape, reports on additional geophysics surveys, and brings these together through an assessment of the nature of landscape change in the region (Chapters 20–23).

Finally, Part VI draws all of the above together in Chapter 24 to examine how the different phases of Bagendon may be understood, and places them in the larger context of how we define Late Iron Age complexes and their social roles. To conclude, Chapter 25 outlines the main contributions of this study to Iron Age research, and considers the questions that future research at Bagendon, and similar complexes, could address.

Presentation of excavation results

Each 'site' within the complex has been given a particular name (Figure 1.6). To avoid confusion, the trenches for the 2012–2017 excavations have been given sequential trench numbers (TR1–11). These include Scrubditch enclosure (Trenches 1 and 2), Cutham enclosure (Trenches 3 and 4), Black Grove Roman building (Trenches 5 and 6), Dyke 'e' (Trench 7), test pits in Bagendon valley (Trench 8 to 11). Contexts numbers relate to each trench, e.g. (1001) = Trench 1; (4012) = Trench 4 and so on, irrespective of their location within the complex in order to ensure that material is clearly located and to emphasise the approach towards Bagendon as a coherent landscape, rather than discrete entities. Within the main text and specialist reports, contexts are presented for the 2012-2017 excavations with the following brackets: (1000), for positive layers or 'fills', and [3003] for 'cuts' or negative features. Because the 1979-1981 material did not provide unique context numbers these have now been prefixed with the year of excavation, e.g. (80-40). No negative (i.e. cut numbers were used in the 1979-1981 excavations). The main site archives and finds have been deposited with the Corinium Museum, Cirencester. The excavation areas from 1979–1981 are identified as Area A and Area B, as done at the time, distinguishable from Clifford's excavation areas: site A, site B and site C.

Part II

Examining the Bagendon complex

Chapter 2

Assessing the wider Bagendon complex: remote sensing surveys 2008-2016

Tom Moore

Introduction

Placing the small-scale investigations of the 1950s and 1980s within the context of the Bagendon complex as a whole was a key aim of renewed investigation. Geophysical survey of a large area seemed the best way to provide a greater appreciation of the nature of the Late Iron Age complex. As the dyke systems never seem to have formed a coherent enclosure, defining the extents of the Bagendon complex is problematic. Earthworks and settlements at The Ditches and Duntisbourne, and even parts of the Cirencester area, may be integral elements and should not be seen as entirely separate from occupation in the Bagendon valley (see Chapter 24).

For this reason, a multi-scalar approach was taken with survey focused on the area within the earthworks but with peripheral surveys also undertaken close to the Duntisbourne settlement to assess the wider Bagendon Environs, and links to other Late Iron Age sites at Hailey Wood (Chapter 21), Stratton Meadows (Chapter 22) and Somerford Keynes; the implications of these sites are discussed in more detail in Chapter 23. For the purposes of this chapter, 'the Bagendon complex' refers to the area within the earthworks. The geophysical survey, discussed below, provided the foci for excavation revealing important new perspectives on the nature of both the oppidum and the landscape before and after its occupation.

Methodology

Geophysical survey was undertaken of all suitable areas within the Bagendon complex (within the constraints of physical access and landowner permissions) covering an area of approximately 172 ha in total (Table 2.1; Figure 2.1a). Lidar survey data was obtained from the Environment Agency (at 1m resolution) along with recent comprehensively mapped aerial photographic data from Historic England's National Mapping Programme (NMP). The cartography underpinning the maps in this chapter is derived from OS Landline data, these are Crown Copyright (C) 2008, Ordnance Survey/ EDINA. These have been combined to produce an overall assessment of the landscape of the Bagendon area. Each field has a unique identifier code (Figure 2.1b).

The geology of the Bagendon area is predominantly oolitic limestone, which is usually responsive to magnetometry (see English Heritage 2008). For efficacy and speed, fluxgate gradiometers were the most appropriate survey instruments. It is apparent from the 1950s and 1980s excavations that there has been some colluviation in the Bagendon valley (Clifford 1961: 21), possibly as much as 0.3-0.5 m in some areas. This can make archaeological features difficult to detect with geophysical survey. Plough damage was also a significant factor for much of the survey area; it is particularly evident in fields to the west and east of Cutham Lane dyke. These fields appear to have been arable for most of recent past (and are recorded as such on an 1832 landuse map). Plough scaring, almost certainly of modern origin, is a feature of many of the survey areas and has been confirmed by excavation of the enclosures at Scrubditch and Cutham (Chapter 3, fields D3 and B5) where all features had been truncated by ploughing. The majority of the fields in Bagendon valley have been ploughed periodically in the past; this is indicated by the presence of upstanding ridge and furrow, for example in fields C4 and C5. The relatively good preservation of the ridge and furrow in the valley suggests this area has not been deep-ploughed in recent decades, however, with current landuse largely reflecting that of the early 19th century. It has been claimed (Clifford 1961: 21), that the valley floor has never been ploughed, but this seems somewhat unlikely (see Chapter 4).

Geophysical surveys were undertaken with either a Geoscan FM256 or Bartington Grad-601 dual array, between 2008 and 2016 (Table 2.1).[1] All surveys were undertaken as part of student training. Survey grids were set out using a DGPS with survey areas laid-out on OS map-based data in GIS. Readings were taken at intervals of 0.25 m with traverses of 0.5m, apart from certain fields where samples were at 0.125 m. Despite the time-consuming nature of this survey method, this high-resolution methodology follows best practice for characterising archaeological remains (Creighton and Fry 2016; English Heritage 2008: 8; Jordan 2009: 85) and ensures the best chance of detecting small archaeological anomalies, such as might be expected

[1] The original geophysics datasets will be deposited with the ADS.

Figure 2.1a. Map of overall area covered by geophysics surveys

Figure 2.1b. Map of overall area of geophysics surveys with field number identifiers.

Table 2.1. List of fields surveyed indicating area surveyed and methods used.

Field name	Year of survey	Hectares surveyed	Machine used	Traverse/ sample interval (m.)
A2	2008	6.7	FM256	0.5/0.25
A3	2008	2.47	FM256	0.5/0.25
A4	2010	2.39	Bart 601-2	0.5/0.25
A5	2010	1.74	Bart 601-2	0.5/0.25
A6	2010	0.58	FM256	0.5/0.25
A7	2010	1.66	FM256	0.5/0.25
B1	2012	5.4	Bart 601-2	0.5/0.25
B10	2015	0.38	Bart 601-2	0.5/0.25
B2	2008	3.73	FM256	0.5/0.25
B3	2009	9.02	Bart 601-2	0.5/0.25
B4	2009	8.53	FM256	0.5/0.25
B5	2008	3.75	FM256	0.5/0.25
B6	2012	6.75	Bart 601-2	0.5/0.25
B7	2008	1.51	FM256	0.5/0.25
B8a-d	2015/2016	0.8	Bart 601-2	0.5/0.25
B8e	2016	3.24	Bart 601-3	0.5/0.25
B9	2012	1.71	Bart 601-2	0.5/0.25
C1a-e	2013/2015	3.9	Bart 601-2	0.5/0.125
C2	2013	3.15	Bart 601-2	0.5/0.125
C3	2013	3.14	Bart 601-2	0.5/0.125
C4	2009	4.65	FM256	0.5/0.25
C5	2009	4.11	FM256	0.5/0.25
C6	2013	1.01	Bart 601-2	0.5/0.25
C7a/b	2013	6.7	Bart 601-2	0.5/0.25
C8a	2013	0.65	Bart 601-2	0.5/0.25
C8b	2013	1.42	Bart 601-2	0.5/0.25
C9/10	2012	1.2	FM256	0.5/0.25
D2	2012	3.12	Bart 601-2	0.5/0.25
D3	2008	4.07	FM256	0.5/0.25
D4a/b	2012/2015	6.43	Bart 601-2	0.5/0.25
D5	2015	4.16	Bart 601-2	0.5/0.25
D6	2015	3.84	Bart 601-2	0.5/0.25
DAR	2015	1.62	Bart 601-2	0.5/0.125
E10	2015	4.51	Bart 601-2	0.5/0.25
E11	2015	8.51	Bart 601-2	0.5/0.25
E12	2015	1.9	Bart 601-2	0.5/0.25
E13	2016	1.21	Bart 601-2	0.5/0.25
E14	2015	1.29	Bart 601-2	0.5/0.25
E1a/b/c	2013/2015	1.12	Bart 601-2	0.5/0.125
E2	2013	1.65	Bart 601-2	0.5/0.25
E3	2016	2.98	Bart 601-2	0.5/0.25
E4	2010/2016	4.61	Bart 601-2	0.5/0.25
E5	2015	5.49	Bart 601-2	0.5/0.25
E6	2013	3.2	Bart 601-2	0.5/0.25
E7	2015	4.93	Bart 601-2	0.5/0.25
E8	2015	5.44	Bart 601-2	0.5/0.25
E9	2015	4.45	Bart 601-2	0.5/0.25
F1	2015	0.09	Bart 601-2	0.5/0.125
F2	2015	1.78	Bart 601-2	0.5/0.125
F3	2015	0.91	Bart 601-2	0.5/0.125
F4	2015	4.08	Bart 601-2	0.5/0.25

on prehistoric sites. Standard processing of the geophysical data has been undertaken using Geoplot 3.1 software, following standard guidelines (Geoscan 2006). This has been restricted to minor processing procedures, including:

Clip, clipping to specified maximum or minimum values to eliminate large noise spikes; this also makes statistical calculations more realistic

zero mean traverse, sets the background mean of each traverse within a grid to zero; this removes striping effects in the traverse direction and grid edge discontinuities

destagger, corrects for displacement of geomagnetic anomalies caused by alternate zig-zag traverses

interpolate, increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m (or 0.125m) x 0.25m intervals

All surveys were exported into a GIS as ±3nT, ±5nT and ±7nT and then interpreted from these. The accompany sheets display all fields at ±5nT which was found to be most appropriate for distinguishing potential archaeological features. The subjective nature of geophysical interpretative plots is well known (Creighton and Fry 2016: 43-45) and rather than simply identify negative, positive and dipolar anomalies, the interpretative plots include an element of archaeological subjectivity and thus features have been identified as follows (colours indicated on Figures 2.3-2.22):

Positive magnetic anomalies, corresponding to areas of high magnetic susceptibility (+7nT). These are likely to be soil-filled features which are archaeological (ditches, pits etc.) [BLACK]

Positive magnetic anomalies, corresponding to areas of generally weaker magnetic susceptibility (+3nT). These may be archaeological or geological (quarries, ditches, pits, geological fissures; tree-throws). [GREY]

Negative magnetic anomalies, corresponding to areas of low magnetic susceptibility. These are likely to be archaeological (walls etc). [BEIGE]

Dipoles, representing highly-magnetic disturbance. Likely to be caused by modern ferrous material (pipelines; metal in topsoil; fence-lines) [RED]

Positive magnetic anomalies which are likely to be ridge and furrow. These have been distinguished so as not to confuse with other archaeological features [DARK GREY]

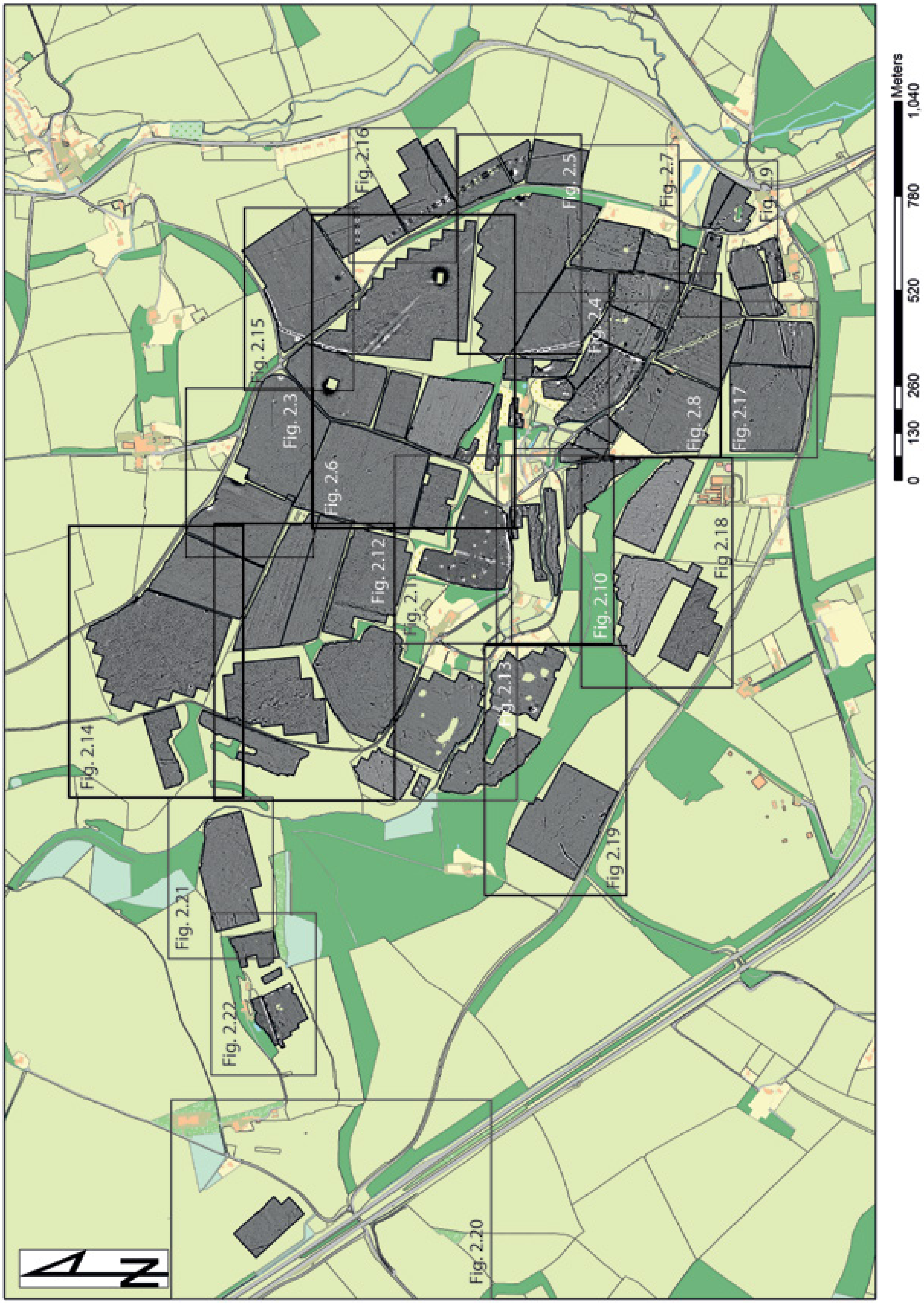

Figure 2.2. Map of overall survey area indicating location of more detailed plots of survey data.

Ploughing pattern. Many fields have seen significant plough-damage. This can cause both negative and positive magnetic anomalies. The former, for example, occur near field edges where lines of stones have accumulated. [BLUE DASH LINES][2]

To aid identification, archaeological (including possible) features have been given a unique four figure code (commencing with F1000-2000) irrespective of their location in the survey area. Similar systems have been used for survey undertaken as part of the environs (Dartley Farm: 3000; Stancombe: 4000) The main dykes are identified by their original Royal Commission labels (RCHME 1976: 7). Magnetic interference caused by modern features (most commonly pipelines beneath the surface, the presence of pylons and metal or electric fences) is depicted on the accompanying maps but not described in detail.

For ease of discussion, the surveys have been divided in to smaller areas and discussed separately. These include: (1) areas of the 'interior' of the earthworks to the south of Scrubditch dyke; (2) the 'interior' of the complex to the west of Cutham dyke; (3) the area within the Bagendon valley; (4) the area within the valley to the west of Bagendon village; (5) the area within the dyke system to the west of Bagendon village; (6) the ramparts and areas outside the earthworks; (7) areas to the south of the complex and the south-western earthworks; (8) the area to the south-west of Bagendon around Dartley Farm and Stancombe. These distinctions are not necessarily meaningful in interpreting the relationship between features, however. A broader discussion at the end brings together the implications of the different surveys.

South of Scrubditch dyke

One of the key issues with territorial oppida complexes, which Bagendon may be, is determining the extent to which the major dyke systems defined and encompassed significant areas of occupation or activity. Surveys to the south of Scrubditch dyke and west of Cutham dyke thus allowed for the presence, or indeed absence, of activity to be examined in these areas.

To the south of Scrubditch dyke (Figure 2.3) the possibility of archaeological remains in field D3 was recognised from a slight curve on a single aerial photograph taken in 1969 (NMR SP0007/2/350), although the significance of this does not appear to have been recognised by the RCHME survey (1976).[3]

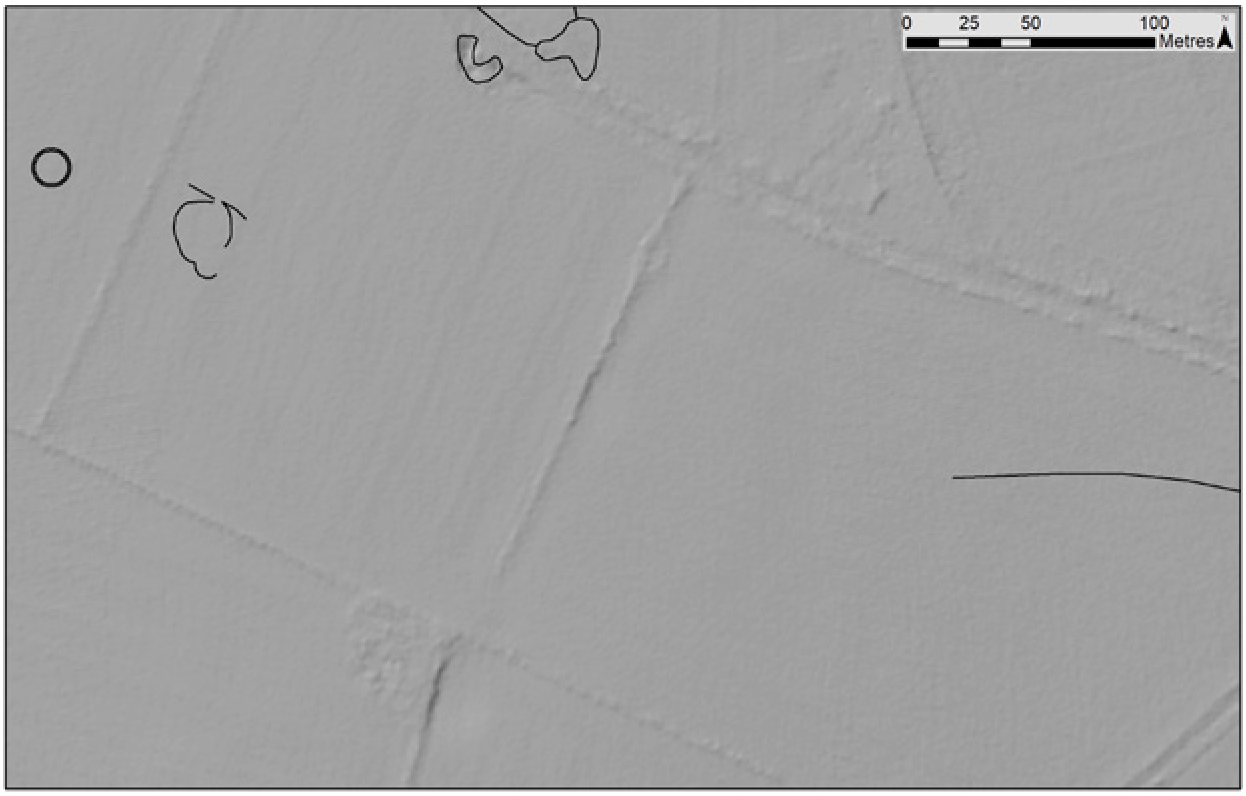

Figure 2.3a. Survey area 'a' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

[2] In addition, upstanding earthworks and cropmarks, as mapped by the RCHME 1976, are indicated on Figures 2.3- 2.22, as: rampart bank (beige); rampart ditch (white).

[3] It is also worth noting that the geophysics results helped inform the NMP plotting, which took place after the survey was provided to the NMP.

Figure 2.3b. Survey area 'a' – geophysics results

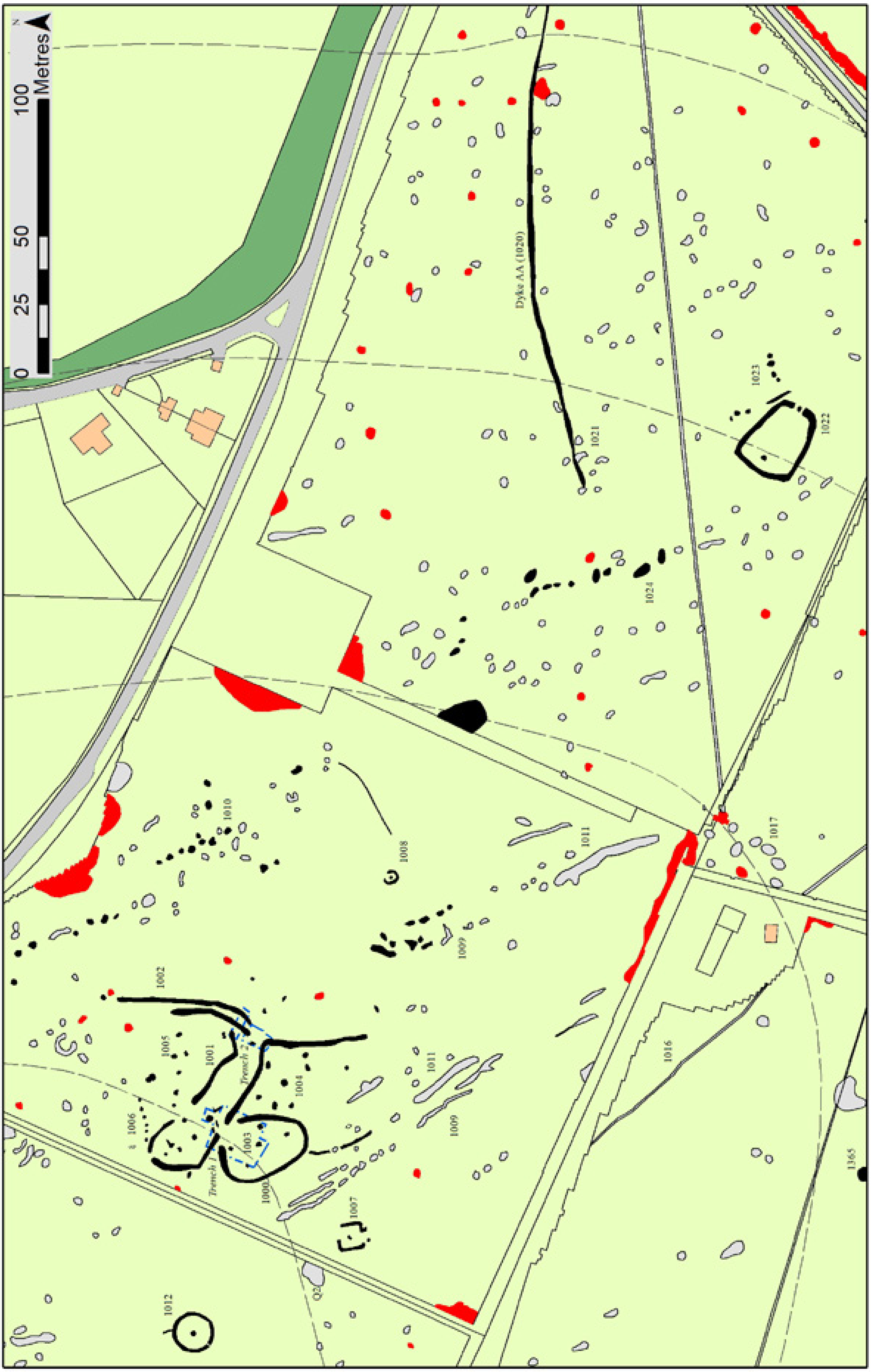

Figure 2.3c. Survey area 'a' – interpretative plot of results

Geophysical survey revealed much greater detail, identifying a complex enclosure (subsequently referred to as 'Scrubditch enclosure'). This included a penannular ditched enclosure (F1000), approximately 30 m in diameter, associated with a secondary elongated 'sausage' shaped enclosure (F1001). These appear to form two interlinked enclosures. At the south-eastern end three linear ditched features splay away from the entrance forming apparent antenna ditches funnelling in to the enclosure (F1002). Combined these features form an enclosure best paralleled with the group known as 'banjo' enclosures found elsewhere on the Oxfordshire and Gloucestershire Cotswolds although this example has distinct morphological differences and no clear parallels can yet be identified (see Chapter 3; Moore 2006).

Within the enclosure a range of small circular anomalies can be identified (F1003), probably representing pits and postholes, indicative of occupation evidence. Further potential examples of pits and postholes can be recognised outside the enclosure to the south and north. Those to the south (F1004) seem similar to those within the enclosure and may be comparable to those excavated in 2012-13. Further anomalies to the north (F1005) are somewhat smaller and do not form a coherent pattern. A linear arrangement of similar anomalies appears to form a row of postholes or pits, possibly representing some form of fence line (F1006). In order to determine the date and function of this enclosure, this feature was partly excavated in 2012-13. Detailed discussion of this enclosure and its features, parallels and role is more fully addressed in Chapter 3.

To the south of the main enclosure a possible rectangular ditched structure, approximately 10x10 m can also be identified (F1007). It is hard to interpret the role of this feature, although it is of similar form and size to Late Iron Age mortuary or ritual enclosures elsewhere (e.g. Crummy *et al.* 2007). There is little evidence, however, for similar structures in the region and, as a relatively weak anomaly interpretation, it must remain open to question. Its location, *c.* 50 m to the south east of a possible roundbarrow in field D2 (see below) could suggest it is an additional barrow, which has suffered more severe plough damage. Beyond the main enclosure a number of other anomalies have been identified, some of which can tentatively be interpreted as archaeological features. Another possible circular structure can be discerned (F1008), which may also be a building although its small size (*c.* 6 m in diameter) may preclude this.

There are a number of linear anomalies orientated roughly northwest-southeast (F1009), some of which continue in to field D2, B1 and B6 on the same alignment. These correspond in some areas with shallow depressions visible on the lidar. The nature of these features is hard to define, but their irregular, segmented nature suggest they are most likely of geological origin, perhaps fractures in the limestone. Segmented ditches and pit alignments of Iron Age date, and of somewhat similar form, are known from the region however (Moore 2006: 132). Such features have been excavated near Preston, Gloucestershire (Mudd *et al.* 1999) and at Winchcombe (Hart *et al.* 2016a). The latter were dated to the Middle Iron Age and appear to be part of particular stock management processes. Some of these linear features are represented by arrangements of more circular anomalies (F1010). Again, these appear similar in form to pit alignments, comparable examples dating to the Early or Middle Iron Age are known from elsewhere in the Cotswolds and nearby Thames Valley (Moore 2006: 126, 135). These too may have a geological origin, however, possibly limestone solution hollows. A more ephemeral, amorphous linear feature (F1011) may be associated with these segmented alignments boundaries but is also typical of the amorphous hollows formed by regular movement of animals. Its association with the current entrance to field D3 may imply a more modern cause for this anomaly.

Survey in field D2, to the west of D3, revealed a circular feature (F1012), approximately 20 m in diameter. Situated central to this feature is a small pit-like anomaly. On the basis of size and the presence of the central feature, F1012 seems most likely to be a roundbarrow, probably of Bronze Age date. The putative barrow is located on the summit of the ridge, slightly higher than the enclosure in the adjacent field. Its location close to the rear of the Scrubditch enclosure in field D3 is of interest as it seems likely the barrow (if Bronze Age) would have been an upstanding earthwork in the Iron Age.

Survey in field B1, to the east of Scrubditch enclosure, sought to clarify the presence of linear AA which can be seen on a number of aerial photographs (RCHME 1976: 6) projecting from the end of Cutham Dyke (dyke 'a') in field A2. Evidence that it continued in to field B1 is only recognisable, however, on a single, indistinct photograph and was not noted by the Royal commission. Survey in this field confirms that the ditch (F1020) continues west-north-west, kinking slightly more to the west after *c.* 200m, and then abruptly terminating after *c.* 400m. There is no clear evidence as to why the ditch terminates here, although the feature becomes somewhat less prominent on the survey data as it progresses westward. Whether this is a result of plough damage (suggesting it may have originally continued further west) or is an original element of its design is unclear; the latter seems most likely. On comparison with ditch-like features excavated in field D3, it seems likely this feature was only ever a few meters wide, far less substantial than the ditches of the main dykes to the east. Close to the terminus of the ditch an irregular feature (F1021), possibly a ditch or small quarry, may be related, although its function is unclear.

Approximately 40 m to the south of this ditch, a small sub-rectangular enclosure is visible (F1022) possibly corresponding with the termination of ditch (F1020). The enclosure is relatively small, approximately 30 m by 20 m, with a clear entrance orientated southeast. There is evidence of a large posthole or pit in the entranceway, possibly representing part of an entrance construction. There are no clear structures within the enclosure although some of the anomalies may represent postholes. A short linear feature and cluster of circular anomalies to the northeast (F1023) also appear related. The form and size of the enclosure are quite unusual, but an Iron Age date seems likely. To the west of the enclosure, segmented linear features (F1024) similar to those in field D3 continue along the same axis.

West of Cutham Dyke (dyke 'a')

Aerial photographs taken in 1975 (NMR SP0106/37/266) suggested the presence of potentially prehistoric archaeological features in field B5 (Figure 2.4), situated on the plateau immediately above the Bagendon valley. I have suggested previously that these anomalies may represent a banjo enclosure (Moore 2006: 148), although the aerial photographs are relatively indistinct. The geophysics survey confirms the presence of archaeological features and allows us to better characterise the nature and possible date of these features. The most notable feature (F1025) consists of a curving ditch representing an almost bag-shaped enclosure (hereafter 'Cutham enclosure'), with two ditches (F1026 and F1027) projecting to form a short avenue. This was excavated (see Chapter 3). In similar fashion to Scrubditch enclosure, neither ditch connects with the outer antenna ditches (F1028). These have a gap forming an entrance to enclosure (F1025), although it is noticeable that the gap is much smaller than that formed by ditches F1026 and F1027, suggesting perhaps that these ditches are of a different phase to F1028. This is supported by evidence that an additional ditch feature (F1029) which joins the antenna ditch, appears to be intersected by enclosure ditch (F1027), supporting the indication that these features were modified at some point.

Associated with the main enclosure are a number of features which can best be interpreted as possible pits and postholes (F1030). These suggest occupation activity, although no clear structure can be identified. A small cluster of circular anomalies to the north appears to be a group of pits (F1031). A much larger feature (F1032) can be seen outside the entrance to the enclosure. This is harder to interpret. At approximately 6 m in diameter it seems too large to be a pit, although some Iron Age storage pits up to 3-4 m in diameter are known in the region. Elsewhere, waterholes have been uncovered immediately adjacent to enclosures of

Figure 2.4a. Survey area 'i' - evidence from lidar and data © Environment Agency and © Historic England).

Figure 2.4b. Survey area 'i' – geophysics results

Figure 2.4c. Survey area 'i' – interpretative plot of results

similar form, for example at Spratsgate Lane (Vallender 2007). Alternatively, it may be an unrelated small quarry although for what purpose is unclear. A more ephemeral feature (F1033), seems likely to be a shallow depression caused by repeated movement of people or animals accessing the enclosure; a similar feature is recognisable on the geophysical survey of The Ditches at the entrance to the enclosure (cf. Moore 2009a).

Stretching east from the enclosure are two additional linear features. F1034 appears to correspond with the northern end of ditch F1028 although, like other features, does not intersect with it. Meanwhile the southern part of ditch F1028, splays around to the west seemingly respecting a second, much larger linear feature (F1035). Combined, these linears form a trackway or 'avenue' aligned on the main enclosure's entrance. Linear F1035 is more amorphous than F1034 suggesting it may represent a number of ditch-like features which were subsequently dug along the same alignment. This irregular form might also have been caused by quarrying (for example at F1036 and F1037) into the sides of the ditch. Similar features were noted by geophysical survey and excavation at The Ditches (Trow *et al.* 2009: 9). Because neither ditch intersects with the Cutham enclosure, it is difficult to establish how they are related, although their arrangement suggests they were at least partly contemporaneous. Whether the gap between ditches F1028 and F1035 formed a small entrance in to an area to the rear of Cutham enclosure is unclear, but the lack of a gap in ditch F1034 along the rest of its length means this would have acted as a barrier between the area to the north (in field B4) and the area to the south.

Ditch F1035, meanwhile, defines an area of activity to the southeast. A circular feature (F1038) might be a quarry or large pit and may be associated with a similar feature to the south (F1039). Other features are hard to interpret but appear to represent large pits (F1040). To the south of these, linear ditches or gullies (F1041) do not form coherent enclosures but may be fence lines. Similar linears are located to the west of the main enclosure (F1042). The larger linear (F1043) continues into field C2 and appears to define the plateau area on which the Cutham enclosure is located. There is no reason why these should not be of Iron Age date and these features appear to represent continuity of the occupation areas identified to the south and east in field C2 and C3 (see below). It is notable that, by contrast, there is little in the way of apparent archaeological features to the north of ditch F1034 and Cutham enclosure, suggesting these demarcate the edge of activity.

The two prominent linear features recognised in field B5 (F1034 and F0135) continue into field B4 (Figure 2.5). Aerial photographs from 1975 also indicate possible archaeological features in this area, although these are very indistinct (e.g. NMR 824/263 SP0106/36). Linear F1034 has two changes of direction along its length

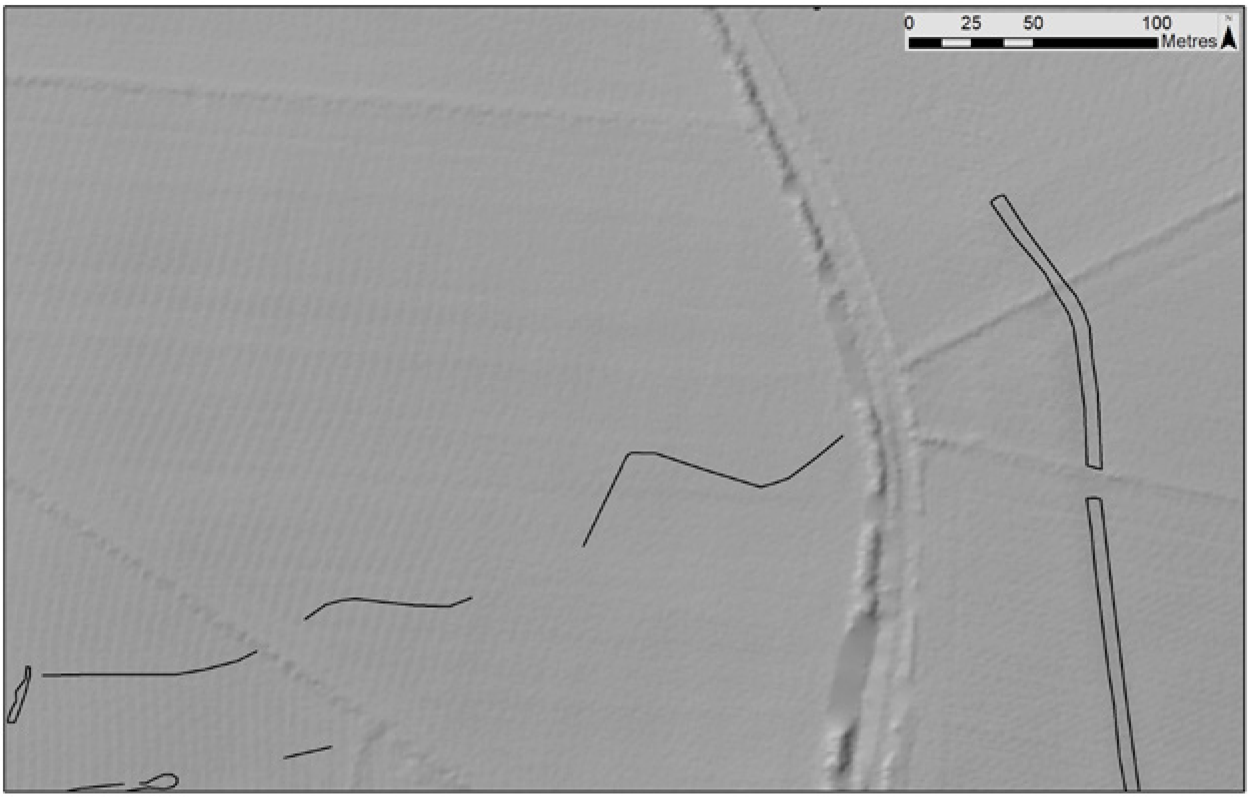

Figure 2.5a. Survey area 'd' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.5b. Survey area 'd' – geophysics results

Figure 2.5c. Survey area 'd' – interpretative plot of results

then seemingly continues beyond the survey area beneath the magnetic disturbance caused by a pylon. The second, larger linear (F1035) continues to the east, seemingly terminating with an associated large round anomaly, possibly a pit (F1044), although there are hints the ditch might resume to the east (F1045). It is unclear if this gap is an original entrance or the result of truncation through differential plough damage, although considering the size of ditch this seems unlikely. Associated with these linears are a number of other possible archaeological features, possibly quarry pits, at (F1046) and (F1047) and what may be pits (F1048). A group of faint anomalies can also be noted at (F1049), although these seem more likely to be natural features, but include a probable additional small quarry.

Further north of Cutham enclosure, to the west of dyke 'a', a number of possible archaeological features have previously been postulated (Figure 2.6), including a possible ring-ditch previously identified on aerial photographs (RCHME 1976: 8). None of these features could be verified by geophysical survey. The circular anomaly, located in the northern most part of B3, is not visible on the geophysics and it may have been a modern feature, although the possibility that is has subsequently been destroyed cannot be ruled out.

Other features include a large, relatively amorphous linear (F1050). This has been recognised on aerial photographs and suggested as a possible continuation of dyke 'a' from field A2 (Russell Priest pers comm) and it does appear to align with dyke 'a'. If it is a continuation of this dyke it would represent evidence that there may have been an alternative alignment of this earthwork. The anomaly is relatively indistinct, however, and is notably far weaker than the dykes in field A2 and A3. Its amorphous form might also suggest that it represents a slump in the natural geology; certainly the limestone does appear to break slope in this area. A section of dyke 'a' excavated at Cutham Hill house revealed that the ditch had been heavily truncated and was only 30cm deep in this area (Wright 2005a). It is possible, therefore, that any continuation in to field B3 had suffered similar severe truncation. Alternatively, this feature may represent the remains of an additional dyke, which remained unfinished, perhaps part of the enlargement of the dyke system contemporary with the construction of Cutham dyke.

Other linear features (F1051 and F1052) appear to be fractures in the limestone, similar to those recognised further north (see above). The regular arrangement of a number of linear positive features orientated east-west suggests they represent remnants of older field boundaries. Some other features may be archaeological, such as linears F1058 and F1059, but neither can be clearly identified as such.

Figure 2.6a. Survey area 'm' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.6b. Survey area 'm' – geophysics results

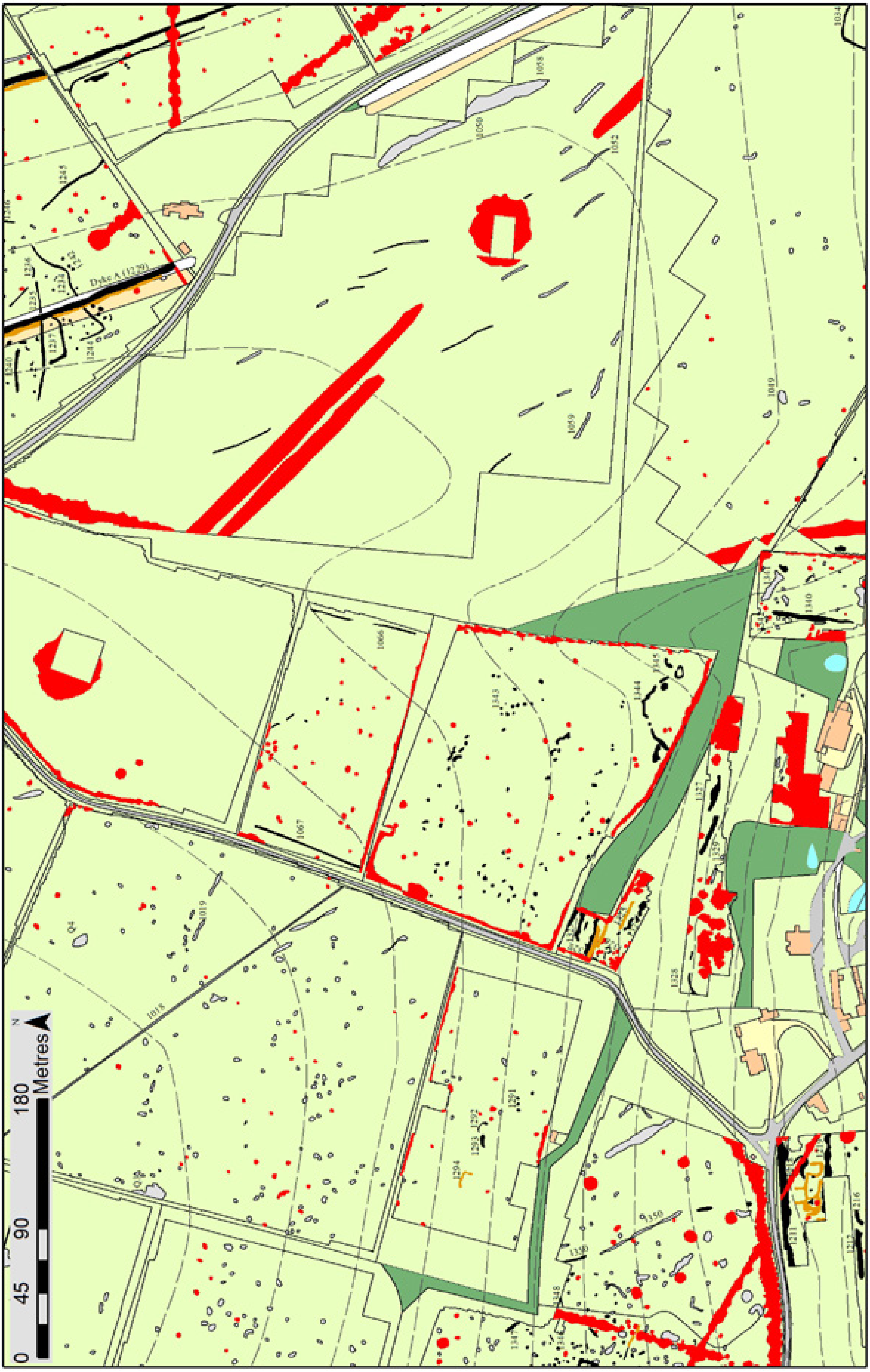

Figure 2.6c. Survey area 'm' – interpretative plot of results

To the west, survey in fields B2 and B7 revealed little evidence for identifiable archaeological features. In field B2, Medieval or Post-Medieval period ridge-and-furrow was identified, oriented roughly south - north (F1060). Positive features among these are likely to be old field boundaries (F1061-F1063). Anomaly F1065 is uncertain (see Figure 2.15c), it could be a ring ditch, but is rather indistinct. The absence of archaeological remains in this area is notable considering the presence of apparent settlement evidence to the north (see below). Field B7 is also devoid of clear archaeological features; the linears (F1066 and F1067) are likely to represent ploughing patterns.

Bagendon Valley (East)

The focus of activity within the complex has usually been identified as situated in the Bagendon valley where the 1950s and 1980s excavations took place. The prevalence of pasture means little was known of the context of these investigations and the extent or nature of activity within this area however, despite some surface survey in the 1980s. Field C3a (Figure 2.7) includes part of the area excavated by Clifford (1961) in the 1950s and area A, excavated in 1979 and 1981 (Chapter 4). Area B, the focus of the 1980 excavations, is now located partly in field C3a and C2, the field boundary having moved since the 1980s. Aerial photographs show that parts of field C3 have been ploughed in the past.

Some of the pits excavated in Area A can be identified on the survey as features (F1068) although some of the remains excavated in the 1950s are no longer clearly identifiable. The surveys reveal that the features excavated in the 1950s and 1980s are part of a dense area of archaeological remains denoting occupation areas. Dense areas of circular anomalies can be identified to the northeast (F1069). It seems likely these are pits of similar scale to those examined in the excavations of Area A. These are divided from further clusters of pits to the northwest (F1071) by a linear running northeast-southwest (F1070). This latter feature appears to be a substantial ditch. These pits are further defined by two ditches (F1072 and F1073) which demarcate a trackway running uphill. Some of the gaps in this feature may be the result of truncation from past ploughing, although others appear to represent original entrances in to the enclosures which the ditches define. Combined, these appear to form enclosed areas with clusters of pits located in the corners of these areas, echoing those revealed in Area A. Excavation in Area A also indicates that gullies divided areas of the occupation. It is notable that such features identified by excavation are not visible on the survey (even at high-resolution), cautioning that smaller linear features (which may have been integral to the organisation and division of the activity areas) are unlikely to be detected by the geophysical survey.

At its southern end, trackway F1073/F1072 forms a junction with another linear F1074 which, along with

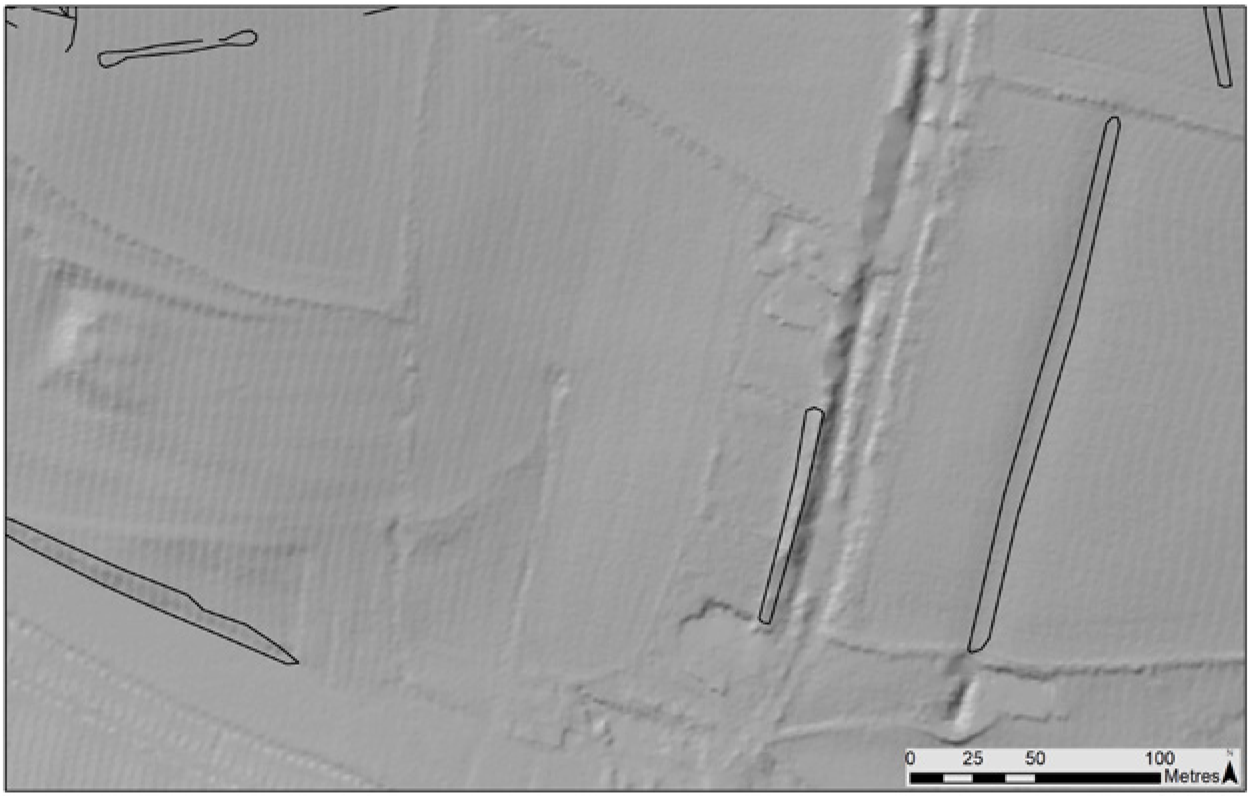

Figure 2.7a. Survey area 'e' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.7b. Survey area 'e' – geophysics results

Figure 2.7c. Survey area ‘e’ – interpretative plot of results

F1075, represents probable ditches associated with a trackway or road that runs along the Bagendon valley. In the 1950s Clifford uncovered stone surfaces which she described as platforms (see Figure 1.10; Chapter 4). It is now clear that this was in fact the surface of a road which ran northwest-southeast along the valley. The ditches on either side of the 'platforms' in her excavation seem likely to represent roadside ditches, whilst the continuity of this stone surface further west, partially uncovered in Area B in 1980, which is concomitant with a terrace clearly visible in the field, all point to this being a road. The geophysics now confirms these ditches as defining a trackway which runs in to field C2 and C1. These ditches are of significant size; F1075, for example, is likely to be *c.* 3 m wide, similar in size to the ditch sectioned in 1954 (Figure 1.10; Clifford 1961). There are hints on the survey that ditch F1074 may continue across the gap where the trackway is located, implying that the arrangement of ditches had multiple phases.

Trackway F1073/1072 and F1074/1075 form a cross-roads, with other ditches (F1076/F0177) representing another trackway heading southwest. This trackway and the main track ditches form additional enclosures defined by further ditches (F1078 and F1079) aligned perpendicular to ditch F1075. These enclose groups of pits (F1080, F1081, F1082 and F1083) as well as less clear portions of possible ditches (F1086) and pits (F1087). Associated with these ditches are larger anomalies which may have been quarry pits (F1084), one appears similar to that seen in field B5, where the side of an earlier ditch has been quarried into (F1085).

In addition, a number of low-magnetically-susceptible, probable stone features, can be identified. F1088 corresponds with a depression running downhill from the spring in field C3b and seems likely to represent the canalisation of the stream. Such canalised features were identified in the 1950s and 1980s excavations (see Chapter 4) and may well be of Late Iron Age date. It is notable, however, that the feature appears to cut through linear F1070 suggesting perhaps it is of a later phase.[4] Additional examples are located at F1089 and F1090, the latter possibly a continuation of F1088. There are hints that similar features run parallel to ditch F1075, but this is less clear.

To the north of field C3a, in field C3b the trackway continues, although ditch F1072 appears to have a significant gap before it resumes south of the spring. The trackway then continues further north with linear ditches (F1093; F1094). The trackway, with intermittent gaps, apparently terminates with two large circular anomalies (F1091; F1092), probably large pits. Ditch F1106 may represent its continuation although there is no evidence of it in field B4. Close to the location of an existing spring, trackway (F1072/ F1073) is met by a second trackway, oriented east. The ditches associated with this trackway (F1095 and F1096) are better preserved on the eastern side of the field and less so closer to the spring, possibly as a result of truncation from more recent ploughing. It is not clear to what extent the gap in the ditch between F1073 and F1093 is an original feature meaning this junction was in fact a cross roads, similar to that to the south, with the amorphous pit-like like features (F1110) in fact marking the presence of a linear running on the same alignment as F1095. It is even possible that the ditch located in field B5 (F1043) marks part of such an arrangement, defining another enclosed area to its south in field C2.

Another linear ditch feature (F1097) continues into the field to the west defining an area of very large, probable pits (F1098). Once again, some of the circular features, presumably pits, are located along one edge of the enclosed area (F1099) possibly respecting another linear ditch or gully feature (F1100) that appears to correspond with the canalisation of the stream in this area. Whether this represents an earlier stream course of natural origin, a ditch defining the enclosure or indeed a ditch-like earlier canalisation is not possible to determine. Another, less clear linear feature (F1101) may also define an enclosed area.

To the north of the trackway F1095/F1096, a scatter of circular anomalies seem likely to be pits, some of significant size (F1102). These features do not appear to be situated in well-defined enclosures although these may have been formed by relatively ephemeral fences and gullies, ploughed out or undetectable by the survey. Traces of such linears may be identified at F1103, F1104 and F1105. Additional large circular anomalies (F1107, F1108 and F1109), perhaps larger pits but more isolated from other features, also seem to be archaeological in nature—possibly extremely large storage pits similar to that excavated at Scrubditch enclosure. A further cluster of anomalies, forming no clear pattern, is located to the south of these pits (F1111). It is impossible to determine the extent of archaeological activity around the spring itself which is now fenced off from the field. The extent and intensity of archaeological remains appears to decline further north.

Within the valley, the main trackway continues in to field C2a/b (Figure 2.8) although the trackways is clearer (and thus perhaps better preserved) in certain areas. A note of caution needs to be sounded, however. It can now be confirmed that the large ditch encountered in Area B in 1980 is most likely trackway ditch F1113 (the continuation of ditch F1074) (see Chapter 4). On the geophysics results from this area the feature is relatively indistinct, despite excavation revealing it to

[4] Although attempting to phase features from geophysics results is highly problematic.

be a ditch approximately 3 m wide and 1.5 m deep. The presence of significant amounts of limestone paving over this feature (seen in Area B, see Chapter 4), may explain the relatively weak signal and cautions that later phases of activity may make earlier features less apparent.

Elsewhere there is clearer evidence of the trackway ditches. A wide linear anomaly F1114 represents the southern trackway ditch and has been truncated by a more recent water trough cut into the terrace edge. The terrace for the road is increasingly pronounced in this area and it seems that ditch F1114 and its corresponding linears (F1115 and F1116) represent ditches located at the base of the raised roadway. The ditch on the northern side of the trackway becomes more discernible further west (F1117, F1118, F1119), continuing into field C2b (F1156 and F1159) although it is unclear whether gaps represent original features, evidence of truncation or a lack of visibility due to the issues described above.

Running parallel to the trackway ditches is a positive feature (F1120), presumably stone-built. This feature's association with the trackway may indicate it represents some form of stone revetment to the terrace on which the roadway was situated. Alternatively, it may represent a stone culvert similar to that uncovered in Area B in 1980. The example excavated in Area B was situated to the north of linear F1113, oriented roughly northwest-southeast, and it is possible a similar feature was located running parallel to the trackway on its southern side, perhaps in order to drain water away from the roadway.

To the south of the trackway, a series of linear features defines a set of relatively small enclosures. Linear F1121, for example, defines an enclosure of approximately 5 x 1 5m and linear F1122 encloses approximately 20 x 15 m. The latter contains a large roughly rectangular feature within it (F1123), perhaps a large pit. In addition, there is evidence of other small linears in this enclosure and that are defined by F1121. Further west, linear ditch feature F1155 appears to define another enclosure (*c.* 15 m x 10 m) with associated central sub-rectangular pit feature. Less clearly discernible as enclosures, linears F1116, F1124 and F1125 encompass other irregular, probably pit-like features. F1126 marks a somewhat longer linear feature aligned perpendicular to the main trackway ditch F1114. It also potentially defines another small enclosure with pit-like feature, delimited on its southern side by linear F1127. An additional linear feature (F1128) which runs parallel to the existing line of the Bagendon brook, and the trackway ditches, may mark the southern extent of these enclosures. In a number of locations, for example between the enclosures defined by ditches F1122 and F1121, as well as between F1121 and F1124, the apparent absence of the trackway ditch, F1116 and F1115, may imply these were original trackways or entrances towards the

Figure 2.8a. Survey area 'h' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.8b. Survey area 'h' – geophysics results

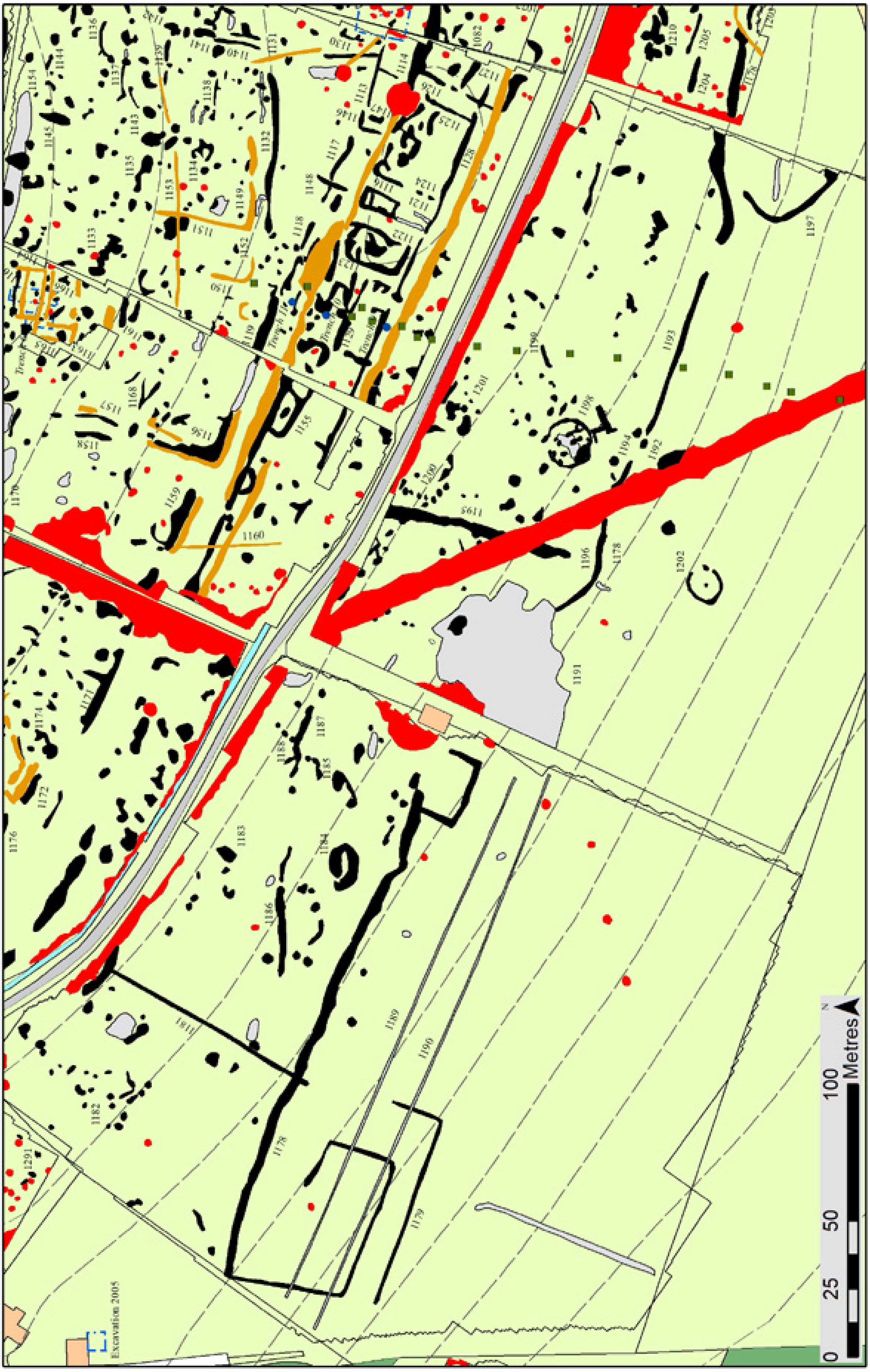

Figure 2.8c. Survey area 'h' – interpretative plot of results

southern side of the area, similar to that seen in field C3a. In field C2b, more definitive evidence of an original entrance from the main trackway in to the area to the north is visible where ditch F1156 (continuation of F1119) turns 90 degrees north with evidence of two, less pronounced linear features (F1157 and F1158) showing the continuation of trackway to the north.

Other, less discreet, features (F1129) are visible further west in field C2a, on the southern side of the track representing ditches defining small enclosures and large pits or quarry ditches. The presence of at least one linear (F1146), possibly a second (F1148), and apparently associated pit-like feature (F1147), situated perpendicular to the alignment of the trackway, and thus presumably not contemporary with it, suggests evidence of multiphase activity in the area.

On the northern side of the trackway, evidence of occupation continues up the slope of the valley side. The location of Area B excavated in 1980 is identifiable on the geophysical survey as a rectangular area of magnetic disturbance. Surprisingly, unlike Area A, few of the features identified in the excavation are visible on the survey. The positive linear F1130 may represent the late-phase stone culvert identified in the excavations (although its association with a modern drain is suspicious and this may be a more recent feature). The larger stone culvert, which ran approximately north-south, is not identifiable, although another positive feature F1131 is located further north.

Between these features and linear F1132 is an area of relatively few features, reflecting the steep slope in this area. The linear feature, presumably ditch F1132, marks a visible break-of-slope which appears to have carried a trackway along the face of the valley at this point, and is clearly visible on the LIDAR. LIDAR shows that this artificial terrace culminates at the spring in field C3b, although it is less clear on the ground at its eastern end. To what extent this is an ancient feature or more recent (post-medieval?) arrangement for wheeled carts to access the spring is impossible to determine. Convincing evidence that this arrangement was contemporary with the Iron Age/Roman activity in this area is the way in which this feature delimits an area of intense activity to the north.

Activity in the northern half of the field includes a range of clusters of probable intercutting pits (e.g. F1133, F1134 and F1135), similar to those encountered in Area A in 1980. Many of the circular anomalies in this area are relatively scattered but appear to be associated with short sections of linear features which may be gullies or fence lines, defining small enclosures; for example, F1136, F1137, F1138 and F1139. Some of these linear and more amorphous features appear to combine to form larger enclosed areas, for example between F1139, F1140 and F1141/F1142. The linear arrangement of the pit groups at F1135 and F1143, and to the south F1134, also appears to define activity areas. These cannot be defined with any certainty but, as seems to be the case to the east, enclosed areas perhaps marked by relatively ephemeral gullies or fence lines (undetected by the geophysics) may have existed with pits on their peripheries, explaining their linear arrangement.

Such clear structuring is not evident everywhere, with scatters of pits and quarry-like features in the highest part of the field (F1144 and F1145) not clearly related to any enclosures. Positive features (F1149; F1150), presumably stone structures such as walls, define areas on the slope. Further pits in this area (F1151; F1152) are redolent of occupation activity. An additional, smaller linear (F1153) is orientated across the slope. It seems likely to be an additional drain or culvert, with another in field C2b (F1160).

In the northern part of this field, ditch F1043 continues from field B5 defining the plateau and situated just above a lynchet which remains as an earthwork (F1154). This bounds a level area to the north in field C2b, which is delimited by a further lynchet to the south by possible ditch (F1161) at the base of further terrace or lynchet. On the western side, the steepness of the slope meant survey was impossible. This steep slope was probably not an original feature of the platform but the result of more recent quarrying, as appears to have taken place to the north (F1162).

Situated on this level platform are a number of positive features, representing stone buildings of rectangular form (F1163 and F1164). These linear features correspond with slight earthworks visible on the LIDAR survey of the area (Figure 2.8). Ground truthing through the excavations at Black Grove (Chapter 5) has demonstrated that these features are walls, representing a main range (F1164) and structure aligned acutely, represented by F1163 and adjacent wall adjoining the former (F1165). That this latter wall appears to be truncated by the steep slope on the western side of this area supports the suggestion this represents later quarrying.

Associated with the buildings are a number of high-magnetic responses (F1166), one of these was examined in excavations of Black Grove (see Chapter 5) and represented burnt areas of a previous structure. Some of the adjacent linear features (F1167) may also relate to gullies associated with these or additional, related structures. Further areas of pits and possible occupation evidence are located to the south of the platform (F1168). The presence of Late Iron Age ceramics and two Iron Age (Dobunnic) coins from the excavations in this area in 2015 suggest that some of these features, such as the pit-like anomalies to the north of F1167, are likely to be of Iron Age date, contemporary with features uncovered in the valley in the 1950s and 1980s (see Chapter 4). Further apparent quarrying can be seen on the ground and is reflected by the varied survey responses at F1169 and F1170. These appear to be relatively late in date and are marked on the 1832 map, although they are not explicitly identified as quarries and remain undated.

Further west, in field C1, linear (F1171) appears to be the northern ditch of the trackway continuing in this area and, although intermittent, probably continues further to the north-west, represented by F1172. Another (F1173) probably represents part of the trackway ditch on the south side. Beyond 1172, the trackway seems to disappear. The more ephemeral magnetic responses to the north-west are most likely associated with the modern field boundary. Whether this indicates the trackway originally terminated here is unclear. It seems likely that it continued and is perhaps underneath the modern road, certainly it does not re-emerge in field E1 (see Figure 2.4). An area of low-magnetic susceptibility response between these features may represent the road surface. Along most of the trackway, road surface, similar to that encountered by Clifford (1961) and Trow (see Chapter 4), was difficult to identify. The difficulties for fluxgate gradiometery in detecting Roman road surfaces have been recognised elsewhere (Creighton and Fry 2016: 40) and although areas of low-magnetic susceptibility, such as in field C1 may indicate road surface, it appears elsewhere that the actual location of the later stone road (which clearly overlies the ditched trackway in places: see Chapter 4) has not been identified. Instead, various earlier features may be visible in places (such as field C2) between the trackway ditches.

Where the ground begins to rise from the floodplain, an area of occupation activity can be recognised, perhaps related to the Roman villa at Black Grove, represented by various circular anomalies and sub-rectangular linear arrangements. These are likely to represent pits, postholes (F1174, F1175) and short gullies, as well as some low-magnetic susceptible responses possibly representing stone structures. Some of these appear to form small rectangular structures (F1176, F1177). It is difficult to identify coherent structures from these features however.

Higher up the slope, on a slight terrace, in field C1 (Figure 2.4), other probable stone structures can be identified, most notably F1314. Further high-magnetic responses accompanied by low-magnetic responses (F1315), although hard to discern as clear structures, are likely to represent more buildings and activity. A linear feature (F1316) appears to be unrelated to the main structure F1314, and thus of a different date. It is recognisable as a slight earthwork on the ground. Its purpose is unclear, though its sinuous nature suggests a role as some form of drain or gulley. The area of intense occupation does not appear to continue further north. To the north-west, in field C1d, a number of anomalies may be archaeological F1317. A linear wall-like feature (F1318), probably represents an old field boundary. In field C1e, linear ditch-like feature F1319 is accompanied by a probable wall-like feature (F1320). Both are likely to be relatively recent.

Despite the comparative density of possible archaeological features in fields E2 and C4, fields E1a, b and c (Figure 2.4), produced little in the way of probable archaeological features apart from a few scatters of roughly circular anomalies at the eastern end of this area (F1291, F1292, F1293) and a handful of isolated examples (F1294) which could potentially be pits. Although, a watching brief (Sue Bathurst pers comm.) produced no archaeological remains, the scattered nature of possible archaeological features in this area means they may well have been missed.

Throughout fields C3, C2a, C2b and C1, features to the south of the terrace on which the trackway/road is situated are much less clear. It seems likely that this is a result of their location within the floodplain of the valley which is more pronounced due to the terrace. As indicated in the 1950s excavations and recent augering and test pitting (Chapter 4), there is significant colluvium and/or alluvium over archaeological features in this area (up to 0.5m in the areas examined), which explains why they are less distinct than those on the adjacent slopes.

On the opposite side of the valley, in fields C4, C5 and C6 (Figure 2.8 and Figure 2.9), there is also significant evidence for relatively dense occupation. On the southern side of the valley, ridge and furrow is visible on the ground and on the LIDAR survey, running approximately northeast-southwest. In the southern part of field C4 ridge and furrow also runs along the crest of the slope in a northwest-southeast direction. This can be seen as slight, broad anomalies on the geophysics. It appears that the northern flatter part of field C4 was ploughed in the 1950s, although considering the preservation of ridge and furrow compared to most fields in the area, this field does not appear to have been consistently used for arable in recent times.

The most significant feature in field C4 and C5 is a linear (ditch) running approximately northwest – south east (F1178), turning slightly to the west at its western end. The linear is situated roughly where the field rises steeply to the south (although it does cut across the slope towards its western end. After a gap close to F1180, and apparent truncation by more recent quarrying, this ditch continues in to field C5 to the east and in to field E6 to the west disappearing under an area of woodland.

This linear defines an area of features to the north, whilst to the south the area is generally devoid of archaeological anomalies. The exception is an enclosure (F1179), possibly attached to linear F1178. The function of this is unclear although it appears to form an L-shaped avenue, perhaps for corralling animals. An additional, rectangular enclosure can be seen at F1180 with a possible corresponding gap in linear F1178. Another linear (F1181) divides the area to the north of linear F1178. Linear F1181 appears to respect the main ditch F1178 (despite continuing for only a very short distance after intersecting), potentially suggesting the two were contemporary.

Within the area to the north of linear F1178, there are a number of clusters of sub-circular anomalies (F1182, F1183), likely to be pits and postholes similar to those revealed in field C3a. Some appear to be clustered within discrete groups, although they reveal no coherent pattern. Other anomalies such as those at F1184 and F1185 are harder to define although they seem likely to be pits and other scoops. Two linear anomalies (F1186 and F1187) may represent part of the same ditch feature, probably truncated in the middle by later ploughing. This feature further divides the eastern part of the field; associated features include an alignment of larger postholes or pits (F1188). The straight, faint anomalies running northwest-southeast across the field (F1189 and F1190), may be evidence of more recent field boundaries, which can be noted on some aerial photographs.

Further to the east in field C5, significant ridge and furrow, running northeast-southwest, is visible. Ditch F1178, which divides the valley, continues after being truncated by an area of (probably Post-Medieval) quarrying (F1191). Two gaps in the feature (F1192) and (F1193) may well be original. The association of the former with large pits or large postholes (F1194) suggests it is some form of entrance way.

As in field C4, linear F1178 defines a northern area containing evidence for occupation, and an emptier southern zone. It also appears to form part of a larger enclosure, with a second side formed by a linear running north-south (F1195). The two linears form an entrance at F1196. The second linear appears segmented, although the faint anomaly associated with it may suggest that the darker areas are in fact deeper, less truncated areas of the ditch as seen in other surveys of the area (above). Considering the linear detected in field C4 and C3 it seems better to envisage F1195 as representing just one of a larger group of sub-divisions of the valley floor, rather than a discrete enclosure. An additional curvilinear feature (F1197), which cuts across the slop at its eastern end, may be related to F1178 although it is somewhat ephemeral in places.

Figure 2.9a. Survey area ‘f’ - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.9b. Survey area 'f' – geophysics results

Figure 2.9c. Survey area 'f' – interpretative plot of results

East of linear F1195 is a range of archaeological anomalies. Most notable, is a large, roughly circular anomaly (F1198) consisting of irregular anomalies and possible traces of a faint, positive outline; this may represent a roundhouse, with associated scoops, pits and postholes. Although the anomaly is not clearly defined it does appear to form a roughly circular association of features, with an approximate diameter of around 15m. To the north of F1198 are possible pits and postholes and short stretches of linear gullies or ditches (F1199). None of these form a coherent pattern but do appear to represent general activity, perhaps similar to that seen elsewhere in the valley. A set of pit-like anomalies (F1200) appears to form an alignment to the east of ditch F1195, reflecting those in field C3; together with the larger pits at F1201 these appear to form an enclosure of *c.* 35 m across.

As in field C4, it appears that F1178 divided occupation activity within the valley from a relatively empty area, perhaps reserved for livestock, to the south. This is somewhat unsurprising considering the steep slope of fields C4 and C5 located south of this linear. Situated on a relatively flat platform in the break of slope to the south of ditch F1178 is a second curvilinear anomaly F1202. The size (*c.* 10 m) and form of this anomaly may indicate a roundhouse; although its apparent isolation from other archaeological features, save from a possible pit to the northeast, is surprising.

Further east, in field C6 (see Figure 2.9), ditch F1178 appears to continue, possibly terminating in this area or perhaps continuing as F1203 and turning abruptly south. A parallel set of linear features (F1204; F1205; F1206) may form ditches marking part of trackway corresponding with F1178, or elements of enclosures related to the perpendicular linears seen in field C3a. Linear F1206 may continue as feature F1208 and related pits or postholes (F1209) An additional, faint linear anomaly is also aligned parallel to F1206. Encompassed by the linear features is a group of amorphous anomalies (F1210), possibly intercutting pits similar to those in excavated in field C3a. A low-magnetic linear feature (F1321) may be remnants of an old field boundary.

Bagendon Valley (West)

There are hints from the survey along the valley to the east of Bagendon Manor that occupation recognised to the east dwindles close to the existing village. Watching briefs at Manor Cottage, however (SP0119306386; Mayer 2005) (Figure 2.8), and near the Old School House (SP0111506594: Hood 2011; Figure 2.10) have identified potential evidence of Late Iron Age and Roman occupation in the area. Alongside cremation urns recorded from the rectory area in the 19th century (Rees 1932) this suggests that activity, contemporary with that identified in the 1980s and 1950s, and possibly associated with Black Grove Roman villa, took place in this area.

Surveys to the south and west of the village, in field E2 (Figure 2.10), revealed further possible evidence of such Iron Age activity, although of far lower density than to the east. The ditch-like feature recognised in field C4 and C5, continues to the southern corner of the field (F1178) disappearing under woodland. If this is indeed the continuation of this feature it supports the indication that these ditches defined a significant part of the valley. Scatters of circular anomalies in this area (F1225) seem likely to represent pits, reflecting similar forms of occupation seen to the east. A number of short linear features (F1226) and L-shaped arrangement (F1227) appear to represent ditches but form no clear enclosures. A faint semi-circular feature (F1228) could represent a roundhouse. The density of features markedly reduces towards the west, suggesting occupation did not continue at the same intensity. Further irregular features found in the western part of the field probably represent small areas of quarrying.

In the area of the Bagendon valley situated between the two halves of the current village. The presence of post-medieval buildings on both sides of the village strongly suggests that this area may have been occupied in earlier periods and may represent a partially deserted medieval village. There is evidence of platforms or terracing on the slopes of the valley at this point, most notably on the northern side of the valley. These have the appearance of Medieval building platforms.

Survey on the northside of the valley (field E6b) revealed strong linear anomalies (F1211; F1213) associated with lynchets, although other wide linear features in this area (such as F1212), maybe the remnants of ridge and furrow. Several probable structures are visible on the northern side of the brook. One, a roughly rectangular, probably walled structure (F1214), is associated with a number of ferrous magnetic anomalies and a larger irregular pit-like feature in the centre (F1215). This feature is evident on LIDAR alongside a number of other apparent structures to the north. Its size suggests it may be a small field or garden enclosure rather than the walls of a building, although these may be evident just to the north. Its form and proximity to a probable trackway (F1216) immediately to the east (also visible on LIDAR) imply it is probably the remnants of Medieval or post-Medieval buildings. A field boundary that no longer exists is located approximately in this area on the 1832 map, although no trackway is depicted. At least one of the linears in the valley appears not to respect this trackway (F1217), suggesting the two are not contemporaneous. Evidence of a second possible structure may survive on the platform above (F1218), with hints of positive, wall-like, anomalies, although it is difficult to resolve this as a structure. A rather unclear circular anomaly (F1219) is potentially archaeological but is heavily disturbed by a modern pipeline. Magnetic disturbance from a modern pipeline and telegraph pole also help to obscure archaeological remains.

To the south of the brook, in field E6a, positive linear F1220 may be related to an old field boundary identifiable in this area on the 1832 map. Linear features may be remnants of ridge and furrow (F1221), although some (F1222) could be building platforms. Other features to the west (F1223) may be archaeological but are hard to define. In the eastern corner of the field, positive linear structures (F1224) seem likely to be walls possibly associated with a field boundary identifiable on the 1832 map, although the complexity of these features is suggestive of structures, perhaps of Medieval or post-Medieval date. The presence of redeposited Late Iron Age and early Roman pottery in the area adjacent to the Old School (Hood 2011) does, however, caution against assuming all these features are of recent date.

There is little from this area which is clearly suggestive of later Prehistoric activity; despite the evidence from the Old School (Hood 2011), most activity identified seems likely to be of Medieval or later date. The presence of such activity may mean that Iron Age occupation in this area has been destroyed, or at least obscured, although it seems likely that if the area witnessed the same intensity of activity seen in the fields to the east, this would still be detectable by magnetometry. It is probable that if the main trackway, which runs along the valley floor to the east, continued it would do so in this area. There is no clear sign of it, although the linear platforms that terrace the valley here, and linears noted in field E6b, could represent its disturbed remains. Alternatively, the trackway could have taken higher ground, following the routes of the modern road towards the enclosure in field D6.

To the north of Bagendon rectory (Figure 2.6), possible Iron Age or Roman cremation burials were uncovered in the 19th century (see Chapter 1). Terracing along the south facing slopes behind Bagendon Manor and the rectory, visible on the LIDAR survey, have also been suggested as possible building platforms (Stephen Trow pers. comm.) raising the possibility that Late Iron Age occupation extended into this area. Although largely covered by trees, some open areas on the slope behind Bagendon Manor were surveyed. Much of this area has been subject to significant modern disturbance ensuring that large tracts of the survey area were obscured by highly-magnetic interference meaning few clear archaeological features could be identified. Despite these problems, a number of possible archaeological features are visible in this area.

A small area to the north of Bagendon rectory (field B8b) includes a number of ditch-like features (F1323, F1322) running parallel to a terrace. At least one of these (F1322) was accompanied by parallel low-magnetic susceptible features, likely to be stone revetting of a terrace in this area. Other features include possible pits

Figure 2.10a. Survey area 'k' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.10b. Survey area 'k' – geophysics results

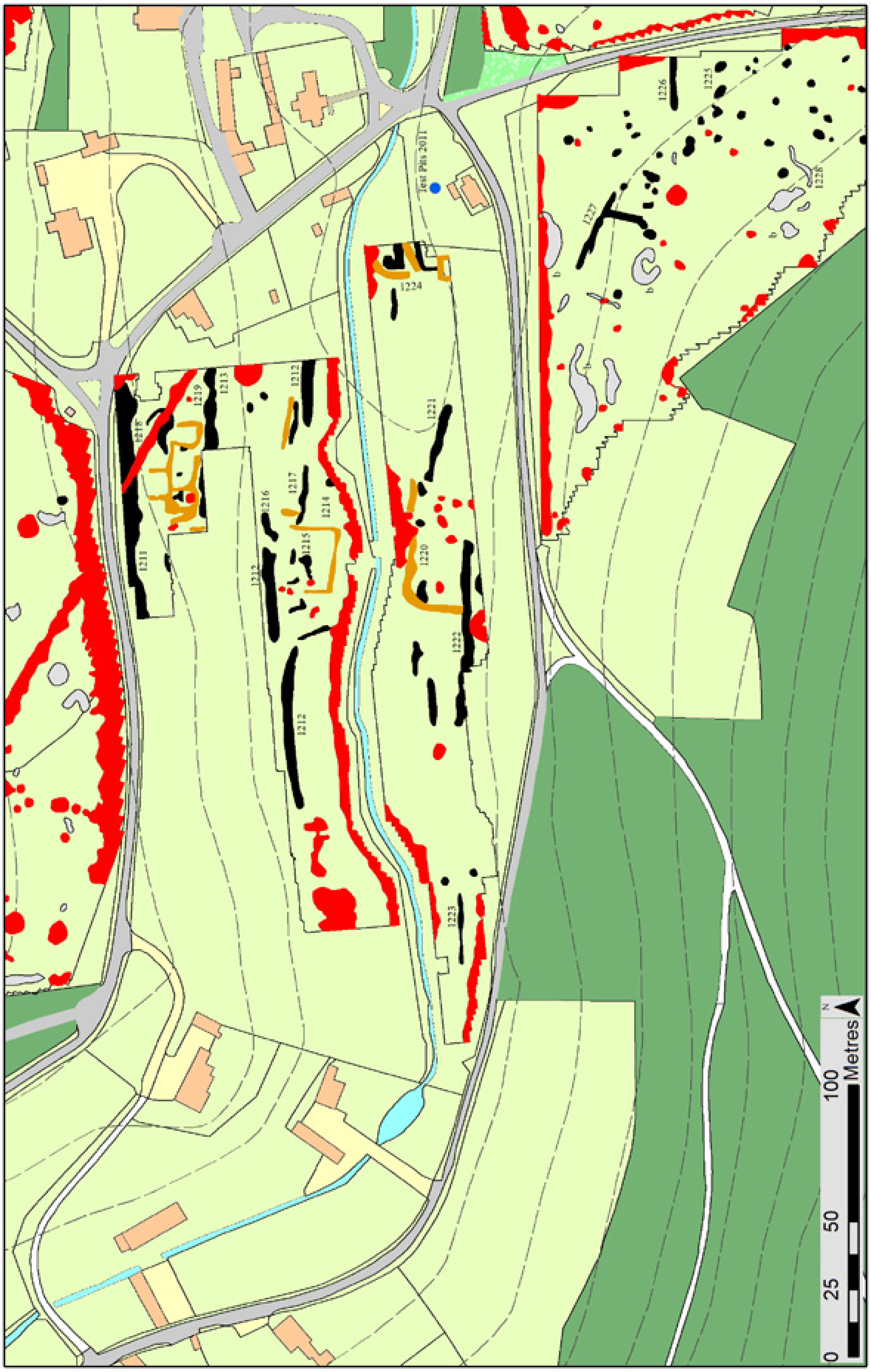

Figure 2.10c. Survey area 'k' – interpretative plot of results

or quarrying (F1324) and less-clear anomalies (F1326). A possible wall-like structure (F1325) runs parallel to the terracing and may be an old field boundary.

To the south (field 8bc), other ditch-like features (F1327) also run parallel to the terracing and may relate to ditch definitions of these platforms. A linear ditch or gully feature (F1338), possibly continuing to the east (F1339) may be Prehistoric, although this area has been obscured by significant magnetic disturbance. Further east (field B8a), on the west facing slope a further terrace with accompanying ditch-like feature at its base can be recognised (F1340). Little in the way of occupation evidence can be identified east of this feature, although much of the area has been quarried (F1341). A scatter of postholes or pit-like features can be identified in the north-western corner of the field (F1342).

Despite the likelihood of occupation in this area, it is difficult to determine the date of the terracing. Unlike the results of surveys further east, in fields C1 and C2, there is little evidence of stone buildings that would suggest Roman occupation. It is possible that some of this terracing is Iron Age in date, although it could be Medieval or Post Medieval.

On the plateau above (field B8e), survey revealed a number of possible archaeological features. A cluster of high-magnetically susceptible features (F1343) appear pit like, although they are not related to any other structures. This raises the possibility of unenclosed Iron Age occupation within the largely open and unoccupied area to the north of the valley, although there are few other candidates for possible occupation in this area. To the south, an irregular ditch-like feature (F1344) appears to have a funnel shaped entrance (F1345). The placement of this, at the lower point of the field, appears to relate to a natural dip forming a connection between the Bagendon valley and the plateau. This would be a natural way of moving livestock between these two areas. The date of such a feature is impossible to determine, although it does have the hallmarks of Later Prehistory. A range of other high-magnetically susceptible features in the rest of this area are most likely to be natural fissures in the limestone or tree-throws, although the possibility of some of them being pits or postholes cannot be ruled out.

To the west of Bagendon old rectory (Figure 2.11), survey produced a significant new discovery. A trapezoidal enclosure (F1381) was identified, situated on a slight terrace, approximately half-way up the gentle, south-facing slope. There appears to be an entrance on its shorter, eastern-side (F1382) with the return, southern ditch, seemingly destroyed or obscured by a large ferrous pipe. The western end of this enclosure is masked by a small area of woodland.

Within the enclosure are positive features representing stone walls (F1383). These appear to form three rooms.

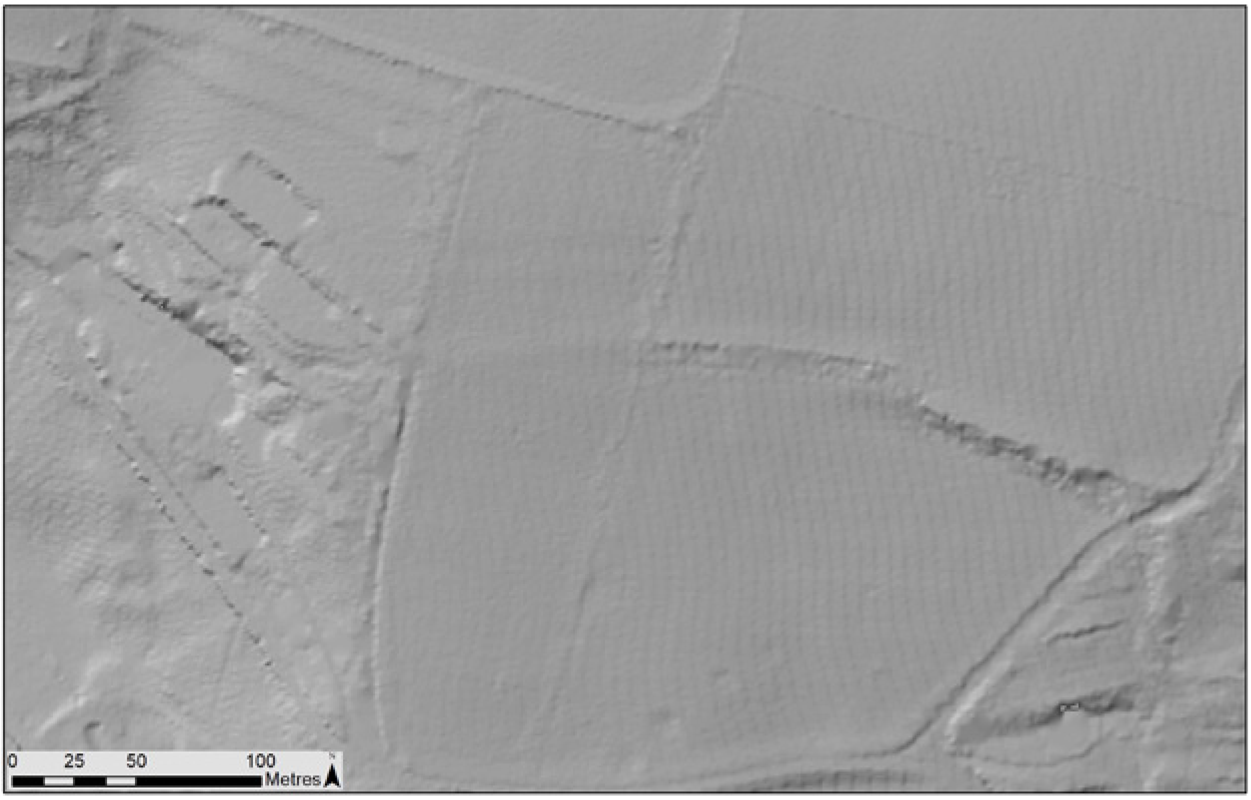

Figure 2.11a. Survey area 'l' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.11b. Survey area 'l' – geophysics results

Figure 2.11c. Survey area 'I' – interpretative plot of results

Immediately to the south are what may be two small wing structures with perhaps a corridor adjoining them. This seems to represent a small villa structure, similar to that discovered at Ditches (Woodmancote) and more recently part-excavated at Black Grove (see Chapter 5). It seems likely that the enclosure predates the villa building, reflecting the sequence of occupation at Ditches (see Trow *et al.* 2009).

Outside the enclosure, to the north-east, a cluster of pit features (F1346) represent occupation possibly related to an earlier phase of use. Short segments of ditch features (F1347, F1348), most of which disappear into a wooded area to the north, appear to be related, suggesting an area of relatively intense occupation. East of the entrance to the enclosure, short segments of gully or ditch, accompanied by a linear low-magnetically susceptible feature (F1349) may represent some form of trackway or entrance arrangement. Although extremely ephemeral, there are hints of other features along this alignment suggesting the possibility of an ill-defined track to the enclosure in this area. The possibility that this relates to the trackway encountered in the valley should be borne in mind. A set of linears running diagonally (F1350), approximately north-south, are probably an old field boundary but could be earlier in date and noticeably appear to define an area of more intense anomalies close to the main enclosure.

In field B9, a scatter of pit-like features (F1377) and a possible arcing linear, perhaps a gully (F1378), and associated oblong feature (F1379) may be of archaeological origin and could be related to the area of likely Iron Age occupation to the south in field D6. A positive linear feature (F1380) is probably of more recent origin but it is hard to identify what form of structure this might represent.

West of Bagendon Village

Survey around Bagendon village suggested that Iron Age and Roman activity certainly appears to have extended at least as far the area occupied by the modern village. Survey was extended west to determine the extent to which there was evidence for Iron Age or other activity in the area situated within the landscape defined by Bagendon dykes ‘h’ and ‘g’, to the south, and Scrubditch Dyke to the north?

To the south and west of the Scrubditch enclosure in field D2 (see above), few other potentially archaeological features were recorded (see Figure 2.12). A linear on the northern side of the field (F1013) may be a ditch, but does not appear to correspond with a similar linear in field D3. Two, probably post-medieval, small quarries can be seen (Q) and features like those recognised in field D3 continue in this area (F1014) and in field D4. To the south, survey in field D4 revealed few obviously

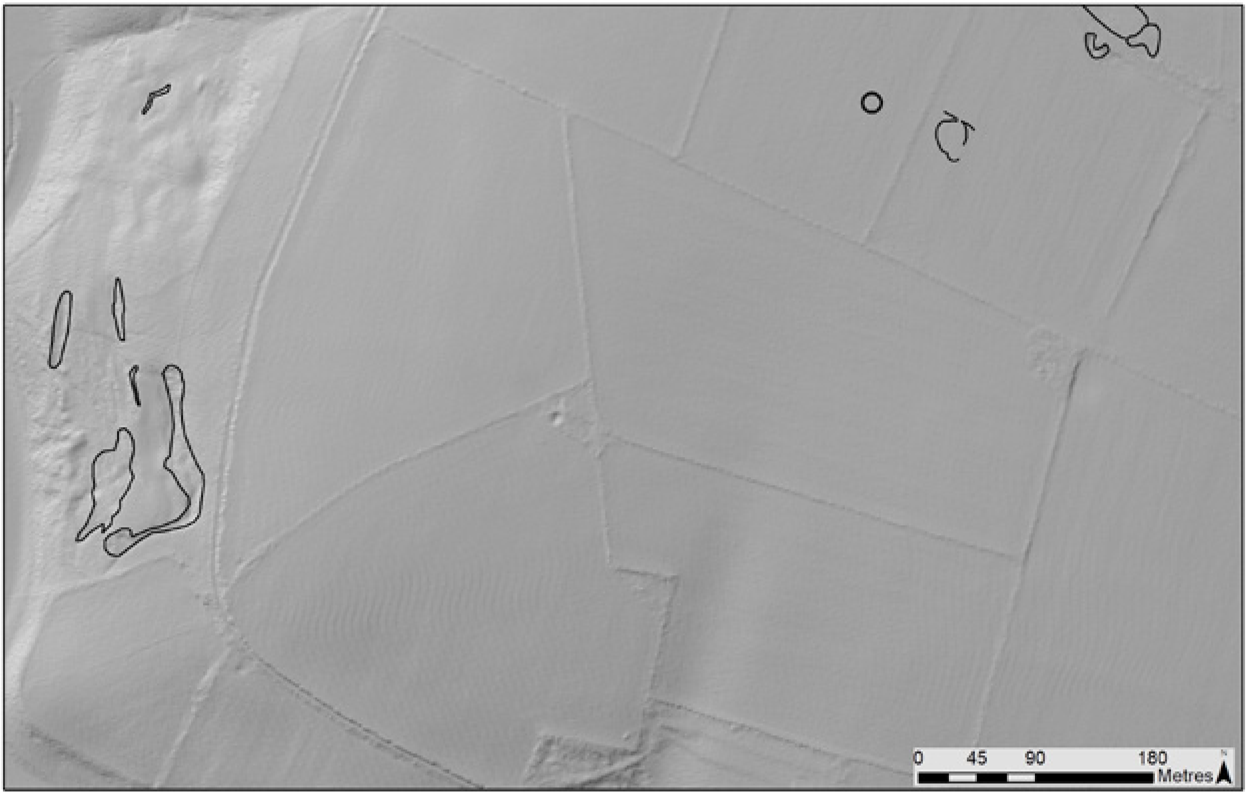

Figure 2.12a. Survey area ‘o’ - evidence from lidar and NMP (data © Environment Agency and © Historic England).

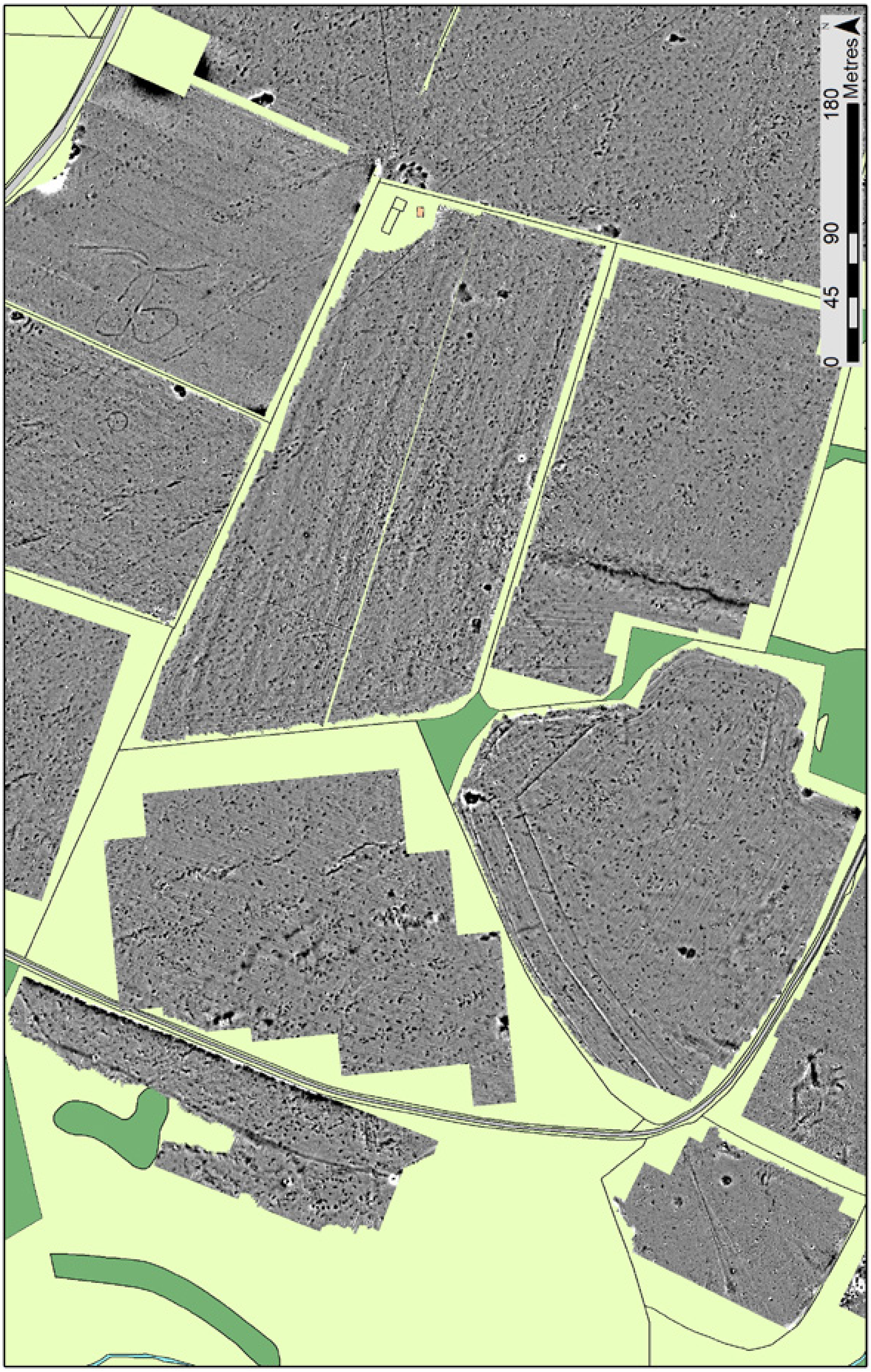

Figure 2.12b. Survey area 'o' – geophysics results

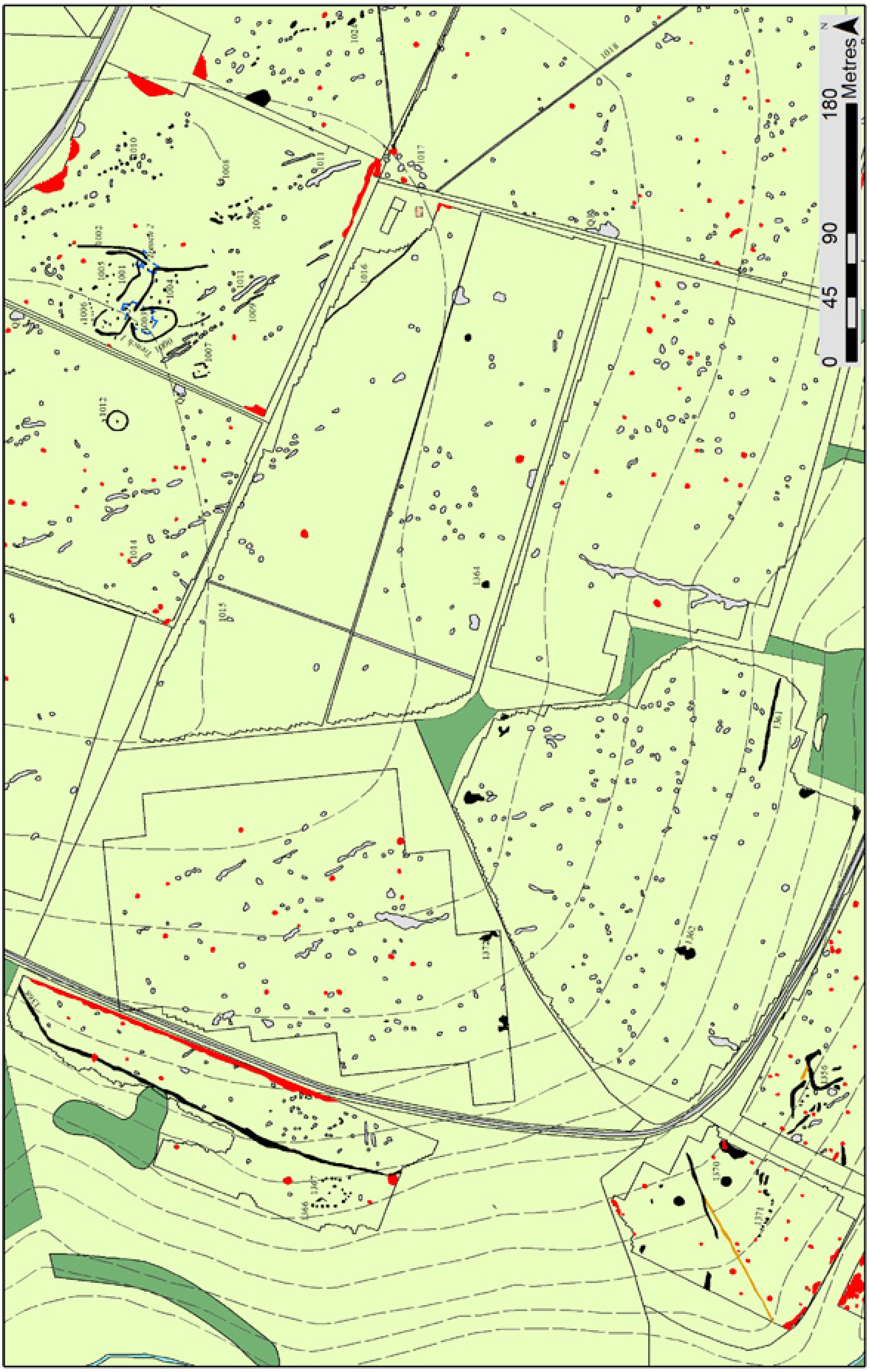

Figure 2.12c. Survey area 'o' – interpretative plot of results

archaeological features. Linears F1015 and F1016 are likely to be old field boundaries, or in the latter case associated with the modern building in the corner of this field. Anomalies to the south (F1364, F1365) are notably circular and could perhaps be large pits of archaeological nature. To the west, field E12 revealed a number of possible archaeological features. Most enigmatic is an arrangement of pit-like features in two opposing arcs (F1366; F1367) with anomalies between them. The role and date of this structure is hard to determine, the strength and shape of the anomalies suggests an archaeological origin. Its morphology may indicate an early Prehistoric date (see discussions below). Field E10 has little evidence for archaeological features. Two large amorphous features (F1372) are likely to be relatively recent quarries. A density of irregular features is likely to represent tree-throws and linear geological features.

In field B6 to the south-east, no clearly archaeological features were recorded. The nature of a series of pit-like features arranged in a semi-circle in the northern corner of the field (F1017) is uncertain. They correspond with a marked depression which seems most likely to be a post-medieval quarry or dew-pond. A linear feature (F1018) running SE-NW appears to be associated with the modern building (probably representing modern services) and corresponds with a similar feature in field B1. A number of amorphous linears (F1019) are probably geological features, as seen in field D3. Several probable quarries are also visible (Q), although the rather precise circular shape of some is intriguing (F1363).

Above the valley to the west, in fields E8, E10, D5 and D4 (Figure 2.12), scant evidence of Iron Age occupation is visible. In field E8 there is little indication of archaeology, save for a possible ditch (F1361) which is unrelated to anything else. Other features (F1362) seem likely to be quarries of relatively recent date. Reflecting much of the plateau area around Bagendon, magnetically-susceptible irregular features are most likely to be tree-throws. A similar density of such anomalies can be seen in field D5, either side of an irregular feature, almost certainly a palaeochannel. In E13, a line of anomalies (F1371) could be a pit alignment whilst a large anomaly (F1370) is likely to be a quarry pit.

Survey within the valley and on its southern slope (Figure 2.13) revealed a number of archaeological features, although little evidence that Iron Age occupation (of any intensity at least) continued this far west. F1351 is likely to represent a wall, probably of relatively recent date. A scatter of possible ditch-like and pit features (F1352) may be occupation evidence, although they do not form clear features. Further west, a ditch (F1353) defines what appears to be an artificially terraced platform. This may relate to an earlier field boundary although the presence of some sort of entrance feature at its northern end is unusual (F1354). A set of linear ditch features running along the

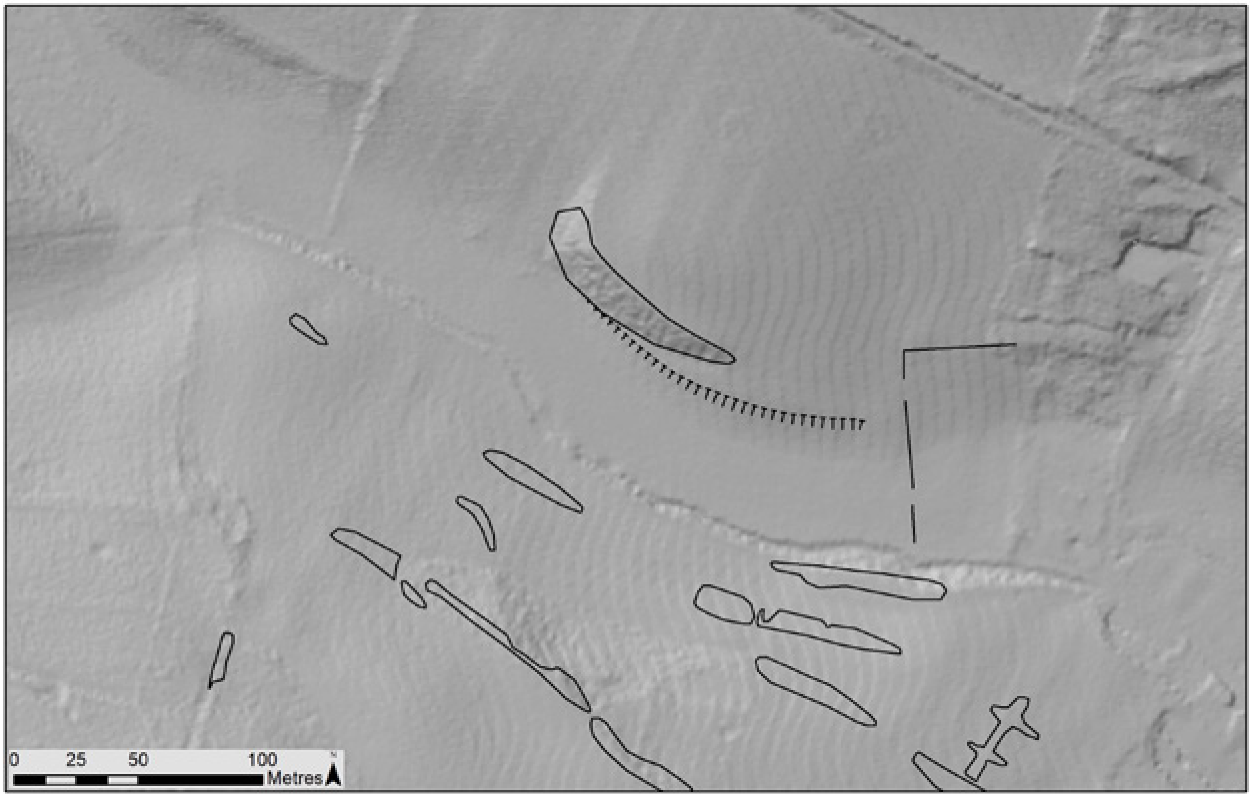

Figure 2.13a. Survey area 'q' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.13b. Survey area 'q' – geophysics results

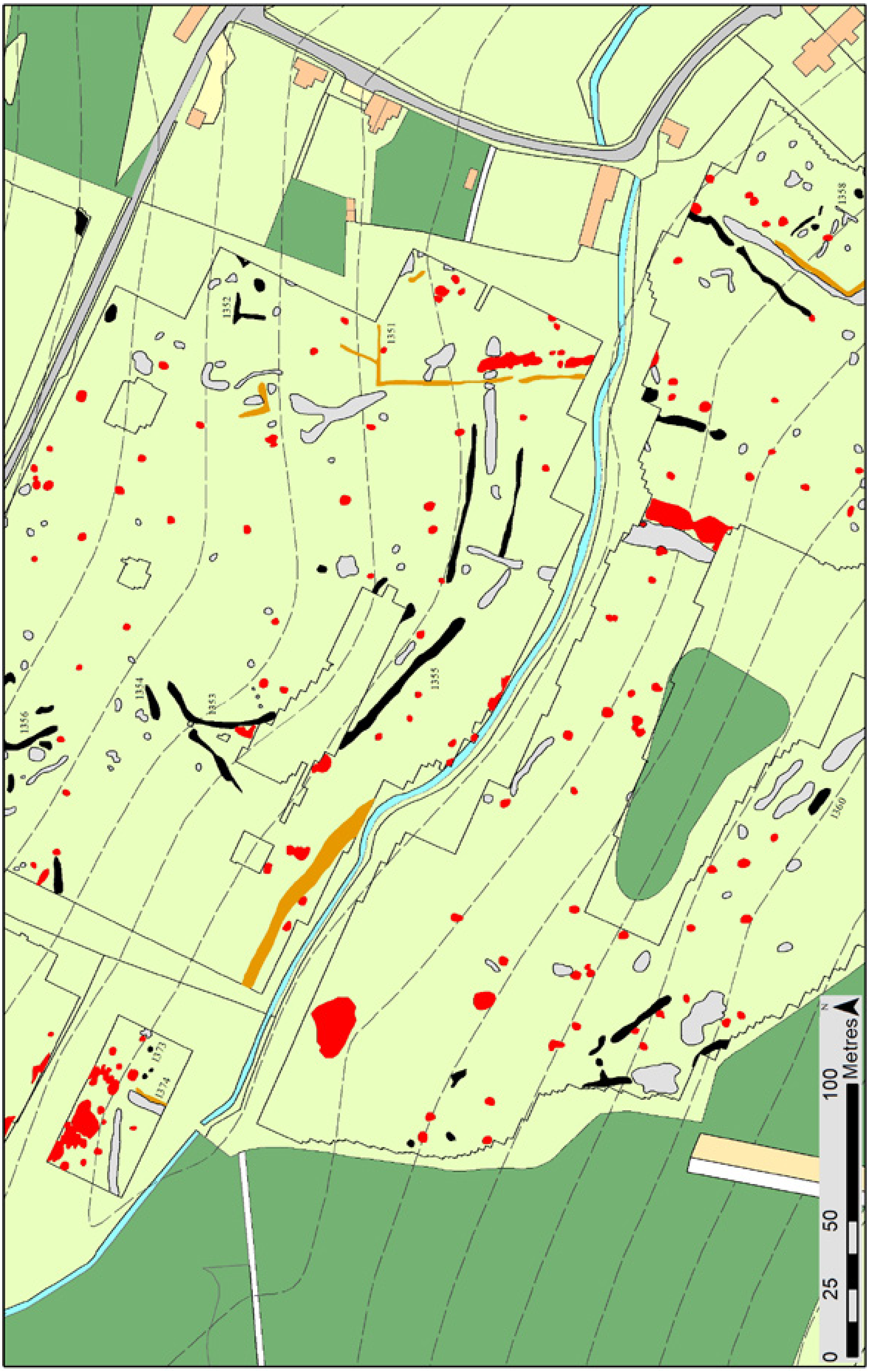

Figure 2.13c. Survey area 'q' – interpretative plot of results

slope (F1355) is likely to be related to terracing of the slope in this area, possibly of Medieval date. An array of ditch and pit like features to the west of the field (F1356) are rather incoherent and may be geological, although the possibility they represent ploughed out enclosures cannot be discarded. An area to the west in the valley also showed little that could be considered Iron Age. Some small circular features (F1373) could be pits of unknown date, whilst F1374 seems likely to be an old field boundary.

On the south side of the valley, in field E7 (Figure 2.13), there is also limited evidence for Iron Age occupation. A number of possible archaeological features can be identified, however. An enclosure defined by a wall (F1357) contains various responses indicative of occupation, possibly a structure (F1358). Its proximity to the village suggests this is likely to be a Medieval or Post-Medieval building. Linear features to the south (F1359) are probably field boundaries, possibly related and of relatively recent date. To the east a number of ditch features correlate to terracing of probable Medieval or Post-Medieval date (F1360).

Further north (Figure 2.14) relatively little evidence of occupation could be identified.

The linear feature (F1368) running approximately north-south, curving to the northeast at the northern end, and visible on some early aerial photographs (SP0007/4/272) seems likely to be an old field boundary. Further north in field E14, two parallel linear ditches (F1369) appear to represent a trackway (of unknown date). They are located close to a hollow-way between the valley and plateau which is marked as a road on the 1792 map (see Figure 1.10) but do not appear to the road depicted on the map. Further north in E11, sinuous irregular features, probably natural, continue along with a range of tree-throws. A single arrangement of these pit-like features (F1375) exists along the edge of the combe which runs down to the Bagendon valley. If Scrubditch dyke formed an arrangement using both dry valleys in this area as some form of boundary, this is where we might expect to find its western counterpart. This feature is too faint and unclear to be definitely anthropogenic, but it may represent some form of pit alignment. There is certainly no evidence of a matching dyke or the continuation of Scrubditch dyke in this area. Interestingly this corresponds with a feature marked as a footpath on the 1792 map and seemingly an earlier field-boundary in this area.

Irregular linear features (such as F1376) are found across the survey on the limestone plateau areas (in fields D3, B1 to the east and on the southern side of the valley in E4 and C4). It seems likely that these are natural fissures in the limestone, though it should be noted that the recent discovery of a linear feature to the north west of Bagendon had a similarly sinuous and irregular form. Excavation demonstrated this to be a

Figure 2.14a. Survey area 'n' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

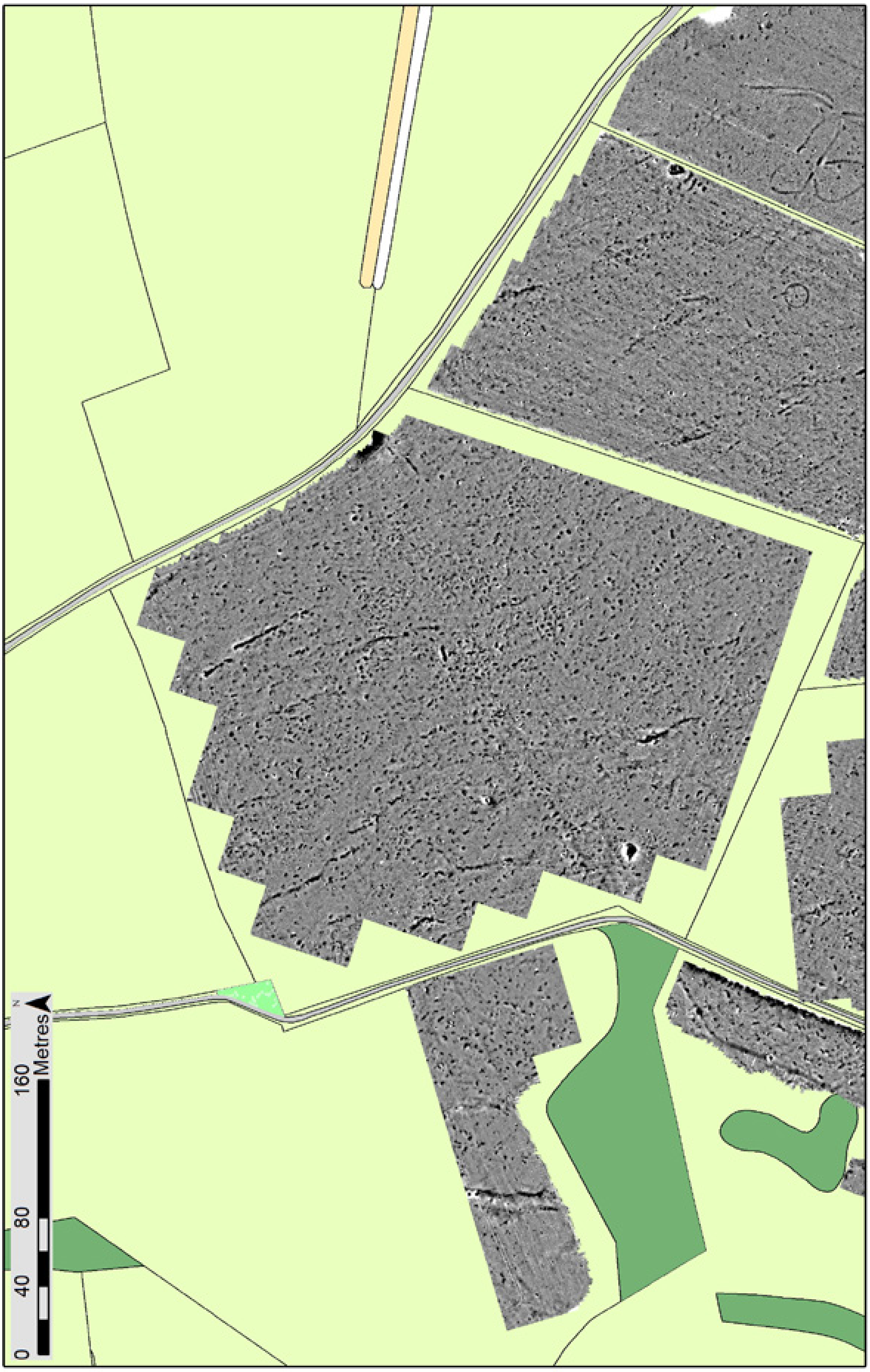

Figure 2.14b. Survey area 'n' – geophysics results

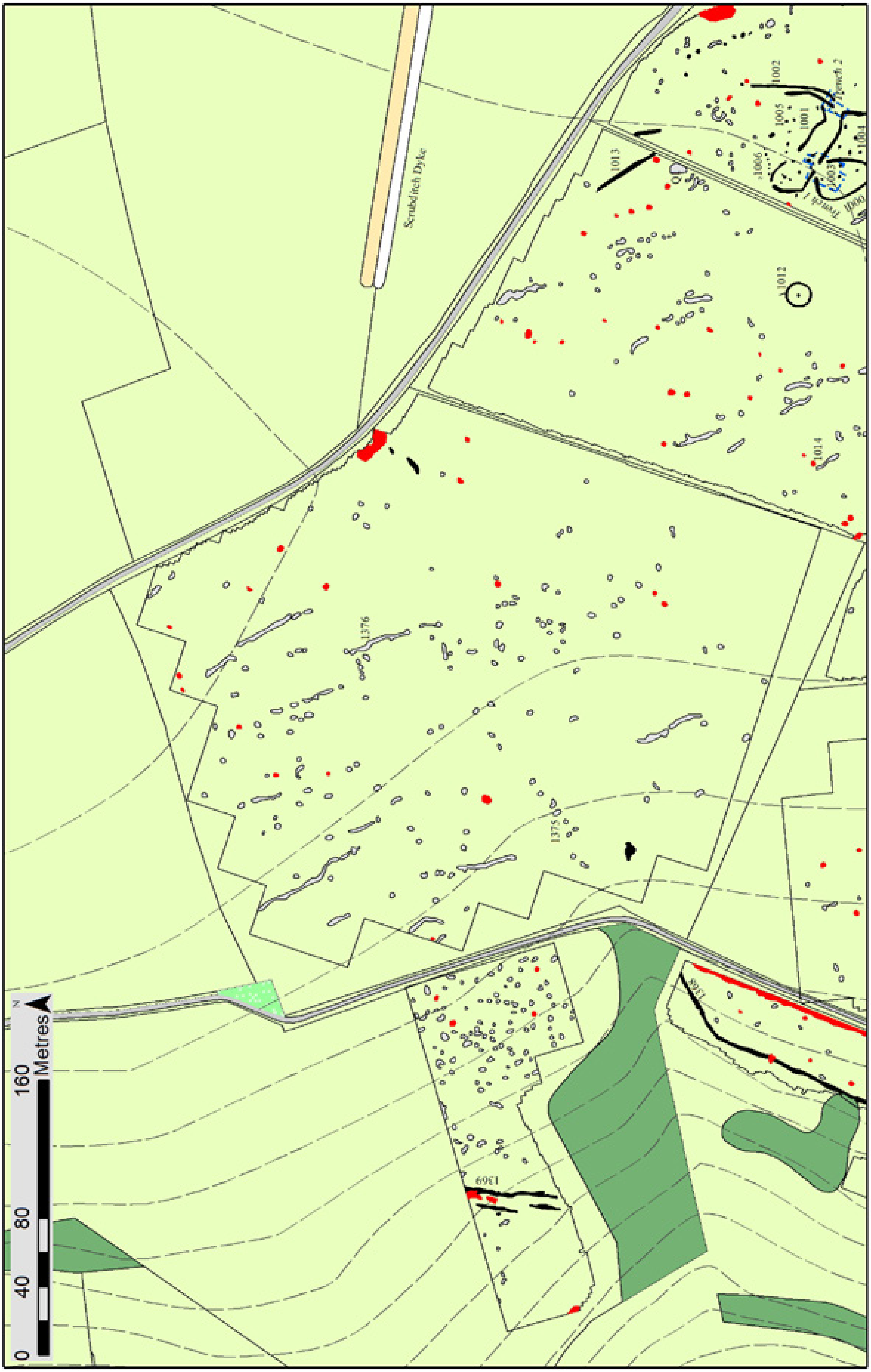

Figure 2.14c. Survey area 'n' – interpretative plot of results

segmented Late Bronze Age boundary feature, probably part of some form of field system (see discussion below). The arrangement of some of these linears in to what almost appear to be rectangular forms (for example in field E4, where it has been suggested a 'Celtic' field system existed; and in E11) also raises questions as to their origins. Alternatively, frost-cracking of the limestone bedrock has been recognised as frequently forming patterns that mimic field-systems, but are in fact natural. Either way, ground truthing some of these features would be worthwhile.

The number of small pit-like strongly magnetic features also increases on the limestone plateau area between field B3 and E11. The irregular nature of these features suggests they are unlikely to be anthropogenic and are perhaps tree-throws or some form of solution hollows. If the former, they may represent evidence for the ancient woodland that existed in this area. It should be remembered, however, that archaeological features (pits, wells, etc) of various dates may exist amongst these features, as is the case in individual fields.

The ramparts and outer areas

The northern and eastern ramparts

Survey also encompassed the dyke system from Scrubditch to Perrott's Brook. Cutham Dyke (A) is preserved as an earthwork to the west of the Bagendon-Woodmancote road, now situated in the berm between dyke 'a' and the outer dykes. Whilst dyke 'a' appears to be continuous, save for an area where it has been truncated by the more recent road; the outer dykes can be seen from aerial photographs to have various breaks, most of them likely to be original features.

In field A2 (Figure 2.15) a number of archaeological features have previously been identified from aerial photographs. These include the main inner (dyke 'a') and outer dyke (dyke 'j'), which are also visible as slight earthworks at ground level and on the LIDAR survey. A number of indeterminate cropmarks recorded by the Royal Commission (RHCME 1976: 6) also indicated the possibility of an additional, smaller ditch at the north end of the Cutham Lane (dyke 'a') earthwork. Geophysical survey refined the location and nature of these features in addition to identifying a number of other, previously unidentified, archaeological remains. The two large ditch features representing the main dykes are clearly visible: the extension of Cutham Dyke 'a' (F1229) and its parallel dyke 'j' (F1230). Ephemeral evidence for a rampart on the western side of dyke 'a' can also be noted. There is also confirmation that the outer dyke (F1230) terminates in this field, approximately 10 m from the edge of the survey area, and does not run under the adjacent road. At the northern end of dyke 'a', the proposed smaller ditch feature (F1231) can be confirmed and continues in to field B1 (F1020; See above).

Ditch F1230 reveals an interesting bifurcation (F1232) which may imply a secondary ditch running parallel to the main ditch for some of its length and intersecting it elsewhere. There is no clear indication as to whether this is later or earlier than the main ditch. The existence of similar features in field A3 and A4, however (see below), may imply these also represent part of the same feature. It is possible, but unlikely that this represents a palisade trench associated with the ditch. Alternatively, excavation of dyke 'a' at Cutham Hill house (Wright 2005) suggested the presence of a possible guide ditch and this smaller linear may represent a similar example. Other linears laid out prior to the main dyke system have been suggested at other Late Iron Age oppida, although these have subsequently been reinterpreted as representing pre-existing field boundaries later monumentalised by the dyke systems (Haselgrove *et al.* 1990: 86). The same may be true at Bagendon, with earlier boundaries later elaborated as major earthworks. An alternative suggestion is that the existence of the bank here presented a convenient location for a later field boundary (which may also be visible in some aerial photographs) and that these are the remains of a medieval or post-medieval field ditch. Further to the east, more ephemeral features (F1233), which apparently respect linear F1230, are unlikely to be contemporary and may be explained as the remnants of a more recent track in this area from a (now blocked) entrance on the north side of the field.

In addition to the main dykes, a number of archaeological features are visible on the western side of the area. These include at least two linear features which appear to run beneath, and to the west of dyke 'a'. These are associated with a number of other ditch-like features and pits. The two main linear ditches, orientated roughly east-west (F1234 and F1235), are clearly not the same phase as the main dyke and, whilst it is difficult to confirm whether they are earlier or later than the main ditch, the initial conclusion from the limited response they provide in this area is that they are earlier than dyke 'a'. These two ditches appear to form the boundaries of a funnel shaped enclosure with its entrance at F1236. Plough damage to these features has, however, made the form of this enclosure difficult to reconstruct and it would seem likely, on the basis of other features such as the presence of another ditch (linear F1237), that they represent multiple phases of activity. Related to these are a number of other linear features: F1238 appears to be the remnants of a D-shaped enclosure which has suffered significant plough damage. The plot of some of these features by the Royal commission (RCHME 1976: 6) can now be shown to be simplistic, with the geophysics here revealing a more complex arrangement. Within the enclosure can be seen a group of pits adjacent to the enclosure ditch on its northern side (F1239), a relatively typical arrangement for middle Iron Age enclosures. Two potentially circular features can be posited, one within the enclosure and a second, semi-circular structure apparently bisected by the main enclosure ditch (F1240; F1241). To the south of the putative enclosure are a number of circular features (F1242; F1243; F1244) likely to be large pits (perhaps storage pits of Iron Age type), with more examples on the northern side of the enclosure. The presence of these outside the possible enclosure is reminiscent of the arrangement seen with the Scrubditch and Cutham enclosures in fields B5 and D3. At F1248, a group of what may be pits is aligned roughly north-south, seemingly parallel to the main dyke. This could potentially represent a pit alignment, although the possibility that they are sinkholes in the limestone cannot be ruled out.

More ephemeral features identified by the survey include two linear features, which may be ditches, at F1245 and F1246. Neither of these has a clear relationship with the ditches at F1234 and F1235 and they do not form any coherent pattern although they may be related. Further down the hill, two amorphous parallel linear features running down slope are unlikely to archaeological and a more likely to fissures in the natural geology or old spring courses (F1247).

To the south in field A3 (Figure 2.16), dyke 'a' disappears beneath modern buildings; it was though recorded as a highly-truncated feature to the west of the modern house in this area in 2005 (Wright 2005). The outer dyke 'j' (F1230), continues through field A3, confirming its visibility on a number of aerial photographs. The only other archaeological feature recognised in this field is linear F1250 running parallel to F1230. This feature runs alongside F1230 for much of its length, apart from the southern half of the field where it appears to have suffered from significant plough damage, finally turning sharply to the west at its northern end. This might be a palisade associated with the rampart, but the fact that it does not run exactly parallel and turns away from dyke 'j' underneath the modern field boundary at its northern end may instead suggest it is more recent in date. Alternatively, the evidence for a range of linears revealed by geophysics and excavation in field A3, A4 and A2—apparently related to the main dyke system but on somewhat different alignments—may suggest these represent evidence for other linear boundaries, perhaps part of earlier field systems or internal divisions of the Bagendon complex.

Dyke 'j' (F1230) continues in to field A4, terminating there. This seems likely to represent a definite end to the feature with little evidence that it represents later truncation. As in field A3 there are two possible linears associated with F1230, although neither are

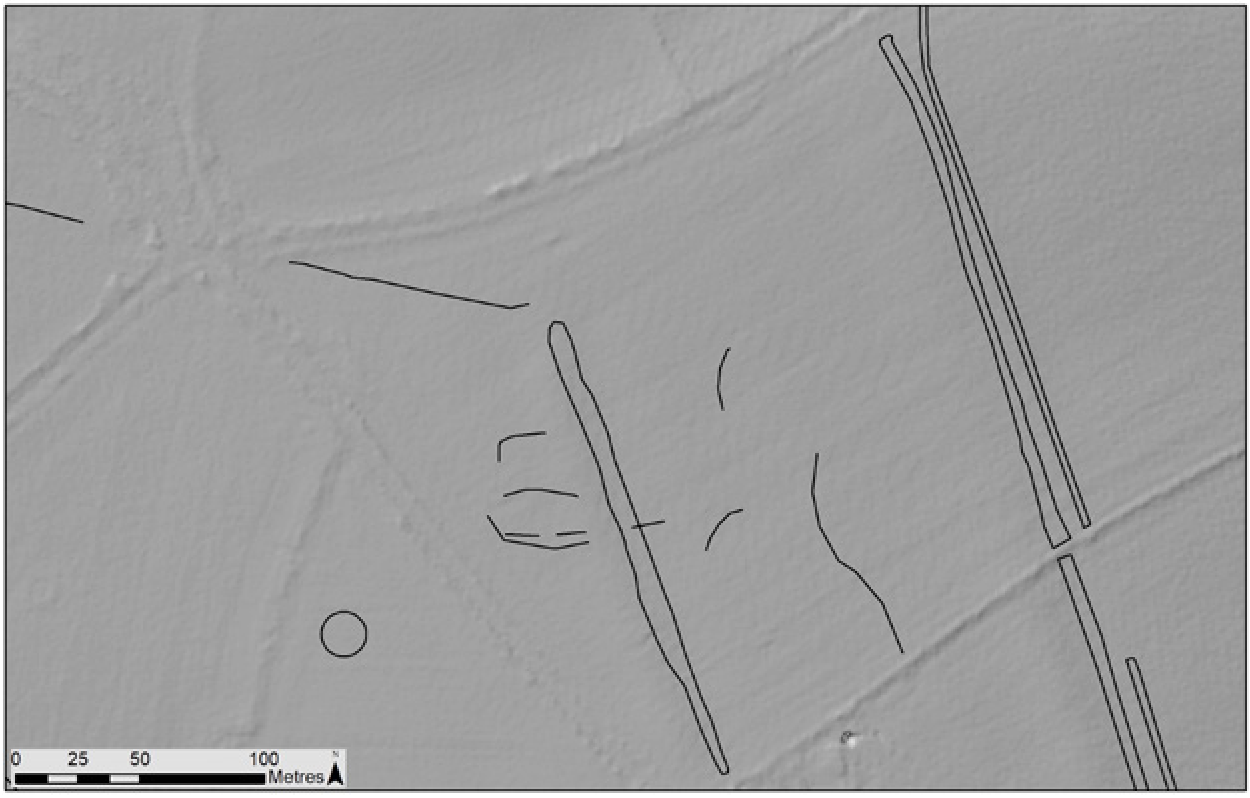

Figure 2.15a. Survey area 'b' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.15b. Survey area 'b' – geophysics results

Figure 2.15c. Survey area 'b' – interpretative plot of results

exactly parallel. The clearest (F1251) does not appear to continue from F1250 in field A3 and it is unclear if F1252 is related to F1251. A second linear running downhill (F1253) appears to end opposite the terminus of F1230, although it is hard to determine if this means they were contemporary. The rather sinuous nature of F1253 might suggest a natural origin, but its' well-defined response, similar to ditches elsewhere, seems to imply anthropogenic origin. The linear continues in to field A5, obscured at its eastern end by woodland. A number of small circular and linear anomalies (F1254) may be related archaeological features. The faint linears (F1255) are almost certainly the result of vehicles or other more recent movement, as seen in fields A2 and A3.

There is no trace of dyke 'b' (Figure 2.5) visible south of A5 in fields A6 and A7. To what extent this has been destroyed by the ferrous pipe in this area is unclear. Some evidence of the ditch can be seen on aerial photographs, but these indicate that dyke 'b' terminates in field A5 (e.g. from 1969: NMR SP0106/7/156 and from 1975: NMR SP0106/38/298). A number of archaeological features are present: F1256 a short linear feature appears to represent some form of boundary and may be related to a parallel feature F1257. F1256 continues in to field A6 forming a junction with another linear feature aligned at right angles (F1258). The latter seems likely to correspond with the linear on the other side of dyke 'a' in field B4 (F1034), although it appears that F1258 terminates before the edge of the survey area. Despite being partially obscured by a large ferrous disturbance, there is no evidence that F1258 intersected with dyke 'b' (F1259).

Other features in this area include a scatter of circular anomalies (F1260) in field A6 and those at the end of F1258, (F1261), possibly suggesting its continuity and representing truncated remnants of a longer ditch. A larger anomaly (F1262) is potentially associated, or is perhaps a small quarry. Further north, in field A5, a dense scatter of discreet and well-defined circular anomalies seems likely to be a group of pits (F1263), which appear to have been obscured by the ferrous disturbance, situated at the terminus of dyke 'b'. The lack of any other clear features associated with F1263 makes this area hard to interpret, although scatters of pits related to occupation are characteristic of the settlement elsewhere in the area (for example in field D3 and A2). Dyke 'b' continues in field A7 (Figure 2.7), terminating in this field and forming a gap approximately 50 m wide with dyke 'c'. The terminus of dyke 'c' may just be visible on the edge of field A7 as F1264. An additional linear feature (F1265) seems unrelated.

Southern Ramparts

The area south of Bagendon valley is dominated by a plateau of land which gently slopes to the east (Figure 2.9 and 2.17). This area is dominated by the presence

Figure 2.16a. Survey area 'c' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

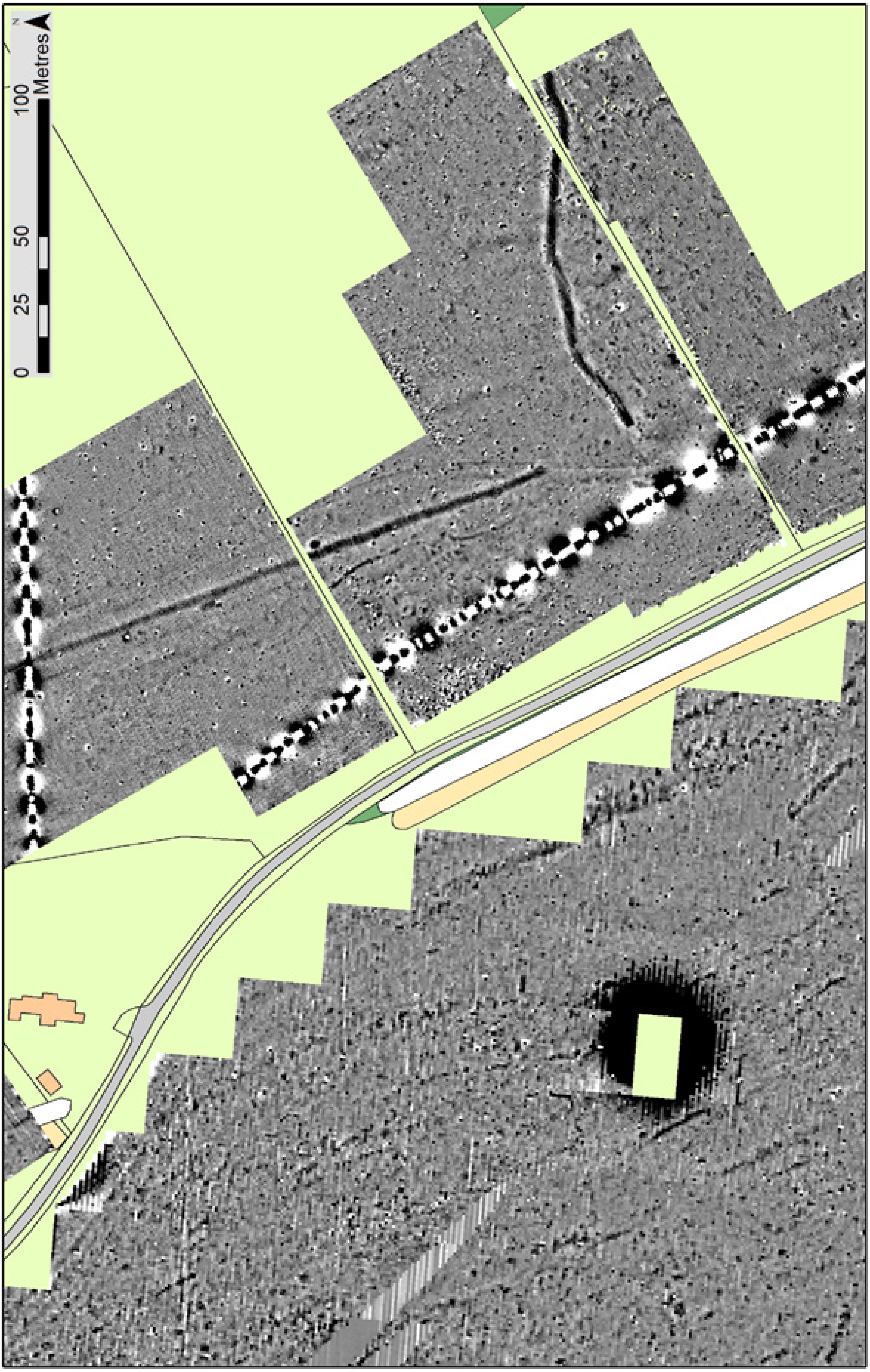

Figure 2.16b. Survey area ‘c’ – geophysics results

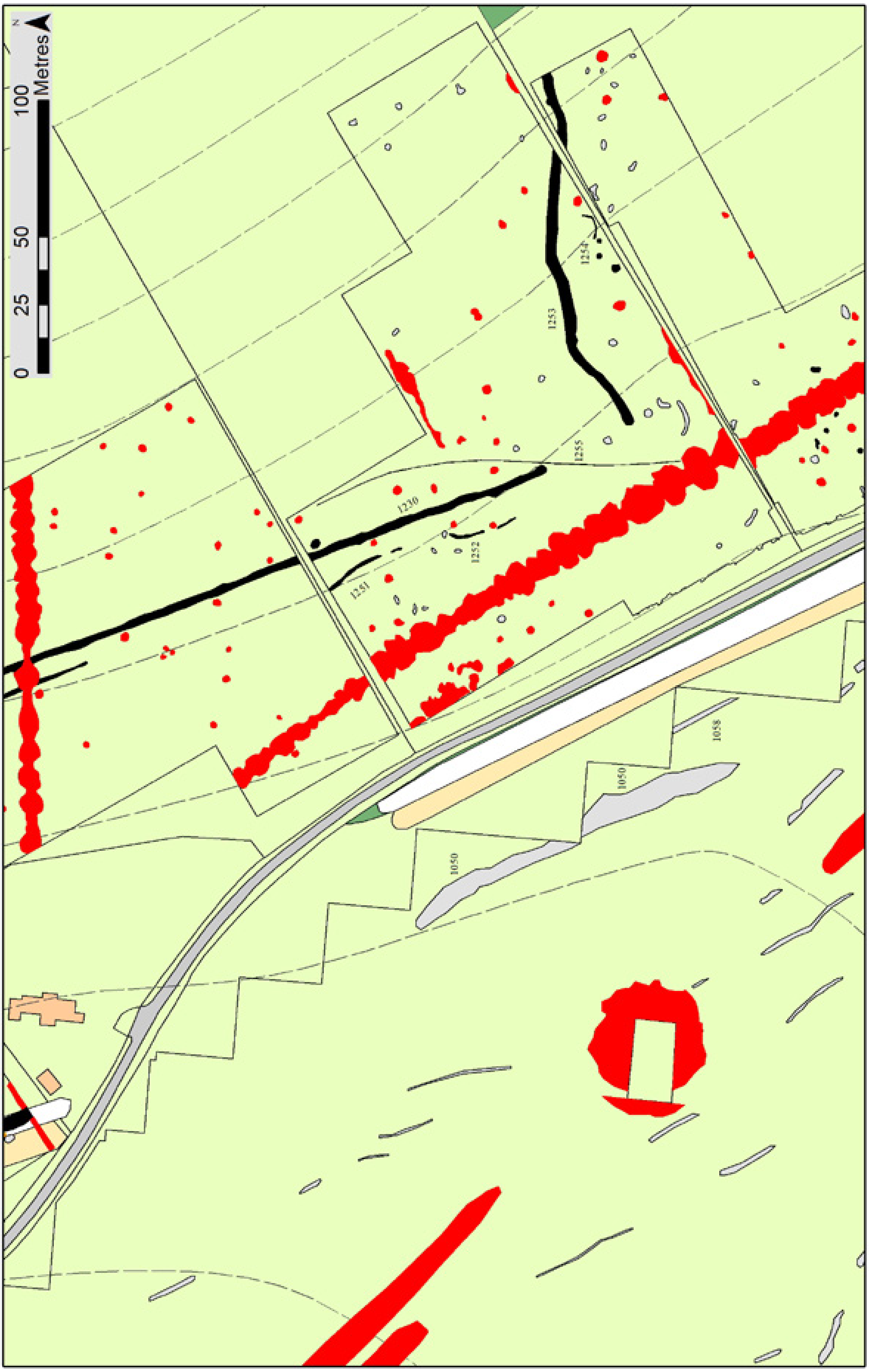

Figure 2.16c. Survey area 'c' – interpretative plot of results

of Perrott's Brook Dyke 'f', which still stands as an earthwork. What is now the road between Perrott's brook and Duntisbourne is known as the Welsh (Welch) Way. This was a medieval and post-medieval drove-way, between Wales and London, in use between the 13th and 18th century AD (see Chapter 24). Although there is no secure evidence to support this suggestion, the presence of earlier long-distance routeways across the landscape is a possibility and certainly some of the Roman roads (e.g. Akeman street, Fosse Way) may reflect, if not exactly correspond to, Iron Age route-ways. The Perrott's Brook rampart was subjected to a small excavation prior to a water pipeline being laid in 1983 (Courtney and Hall 1984), demonstrating it was 9 m wide, the bank remaining to 1 m in height, the ditch c 2.5 m deep below modern ground surface (*c*.4 m from bottom of ditch to top of extant bank) (see Chapter 4). Excavations produced no dating evidence from the section, but suggested that the earthwork was of one phase and showed no later modification (Courtney and Hall 1984: 200). A section of dyke 'e' (F1266), excavated in 2017, was similarly lacking in diagnostic material but has provided radiocarbon dating evidence (see Chapter 4).

Two additional earthworks are known to exist between Perrott's Brook dyke (dyke 'f') and the occupation area in the valley; both still exist as slight earthworks. The first (dyke 'd') runs along the crest and then down the hill overlooking the valley; the earthwork survives in places to as much as 1 m high. To the south, a second earthwork (dyke 'e') can be seen as a scarped edge in the field; there is no clear evidence of a bank but there is clear evidence in places of a ditch on the south side of the slope. There is some indication from the form of the scarp edge that, at least in field C8, it may have been modified at a later date. This earthwork and dyke 'f' flank a natural depression which runs roughly east-west; this appears to be one of the dry-valleys or combes which run off the Churn valley. There has been significant modern disturbance in the area between dyke 'f' and dyke 'e', represented by the construction of farm buildings and houses within the area of the natural depression, and it is clear that some of this area has been levelled for the construction of modern buildings. The fact that all of the area defined here as field C7 and C8 was called 'Middle Hill and Stonequarry' on the 1832 landownership map, may suggest that quarrying took place in this area prior to the construction of the present buildings.

Fields C7a and b are situated on the plateau above Bagendon valley. A strong anomaly (F1266) running ENE-WSW is clearly the ditch associated with dyke E. The ditch runs to the northeast before being obscured, then re-emerging in field C8b. The steep scarp of the bank and ditch, with the bank seemingly flattened, continues in fields C8a and C8b but could not be surveyed because of its steepness. There is some evidence of a bank represented by a positive response in field C8a (F1267). The continuation of the ditch at the base of this scarp edge is visible at its easterly end. Whether

Figure 2.17a. Survey area 'g' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.17b. Survey area 'g' – geophysics results

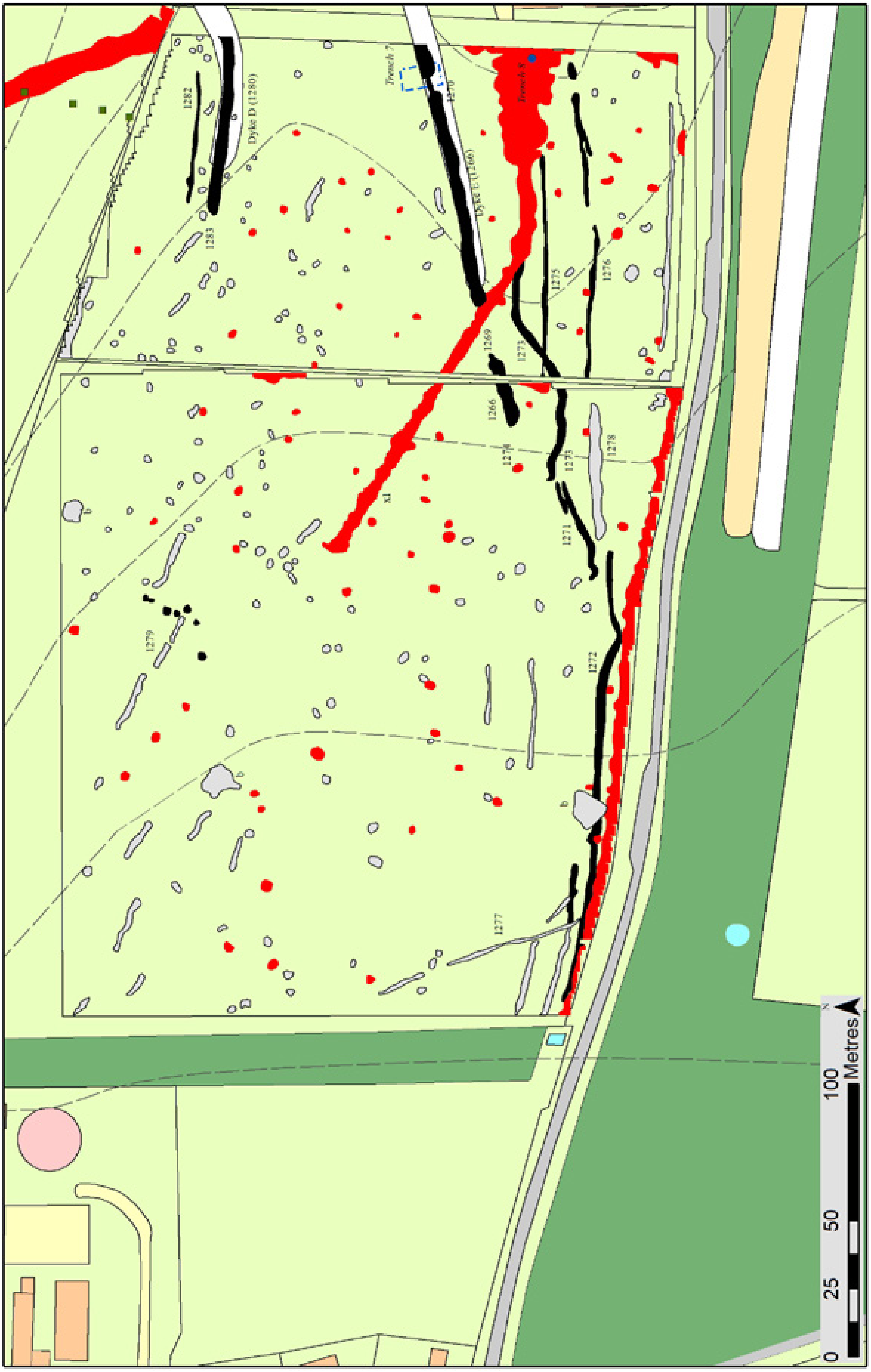

Figure 2.17c. Survey area 'g' – interpretative plot of results

linear F1268, which runs towards to the northeast, represents its continuation in field C8b is impossible to say, but the impression is that the two may be related. This would make sense as all three dykes ('d', 'e' and 'f') curve northwards to form a pincer arrangement around the valley entrance. This feature may even relate to the linear noted in field C9 (see below), although they do not appear to be on exactly the same alignment. Assessing the alignment of dyke 'e' (F1266) is complicated by the presence of significant disturbance from modern ferrous infrastructure in fields C8a and C8b.

At its western end, linear F1266 has two clear gaps: at (F1269), approximately 20 m wide, and (F1270), 8 m wide. Despite the fact the former has a modern ferrous pipe running through it (producing significant magnetic disturbance), the clear termini of the ditches implies this is an original feature. Gap F1270 has hints of a smaller linear continuing between the gaps; this might suggest the presence of an earlier linear feature or some sort of entrance structure with a walkway over a narrower ditch at an entrance, although this was not identified by excavation (see Chapter 4). The presence of this linear may support indications elsewhere within the complex (see above) that some of these large dyke features replaced earlier boundaries. There is no reason not see both these gaps as original, although considering the segmented nature of the dyke system (see above) whether they represent 'entrances' in a traditional sense is not entirely clear. It is notable that the ditches of the northern and eastern earthworks (see above) do not appear to have gaps of similar size, suggesting a somewhat different arrangement in this area.

Ditch F1266 appears to terminate in field C7a. This reflects the situation as visible on a number of aerial photographs of the area. However, another linear feature (F1271) continues on roughly the same alignment and may be associated with a less strong anomaly which carries on to the west, roughly parallel to the field boundary (F1272). At its eastern end a seemingly related feature (F1273) forms a gap (F1274), deviating to the south of ditch F1266 and gap F1269, then continuing to the east, only be obscured by a modern ferrous pipe which runs up from the nearby farm buildings. An apparent gap in F1273 seems likely to be caused its truncation by an additional linear feature aligned approximately east-west (F1275) which together with parallel linear F1276, appears to form a trackway running down the hill in this area.

None of these features are visible on the aerial photographs and they provide significant new evidence on the arrangement of the dyke system in this area. It appears that dyke 'e' continued to the west in some form (in similar fashion to Cutham Dyke on the north side of the complex) represented by linear feature F1272. The nature of features F1271 and F1273 is somewhat harder to determine. The arrangement of gaps F1274 and F1269 might indicate that the terminus of ditch F1266 (dyke 'e') in this area actually represents a complex entrance way formed by F1274 and F1269, explaining why it appears to terminate in field C7b only to continue for a short stretch in field C7a. It is notable that this arrangement is situated at the point where the dry valley flattens out in field C7a. It seems plausible to suggest this arrangement of boundary features was designed to facilitate moving livestock or people towards this entrance on to the plateau with F1273 perhaps forming some kind of funnelling arrangement. A note of caution should be sounded, however; the sinuous nature of F1273 might imply it has a natural origin, perhaps a stream bed, although there is no evidence of this on the ground. The role of the much smaller gap (F1270) in such an arrangement is less clear, but the possibility of this representing a smaller entrance, perhaps for human traffic as opposed to livestock through F1269, and hence the narrower entrance with continuous smaller ditch might explain it.

Other features in field C7a (F1277 and F1278) appear to be more recent boundary features although they may be related to the dyke system (F1272). Several large scoop-like features (q) seem likely to be small stone-quarries, whist irregular linears (F1279) similar to those on the northern side of the Bagendon area are likely to be natural fissures in the limestone.

In field C7b, dyke 'd' can be identified as linear ditch F1280 that runs along the edge of the survey area, continuing in to fields C8a and C8b. This feature appears to have witnessed (probably relatively late) opportunistic quarrying in some areas, in particular in fields C8a (e.g. F1281). The bank, visible as a slight earthwork along the boundaries of fields C8a and C8b, appears to have been destroyed at the western end of this feature; the ditch runs in to field C7b and terminates, apparently originally ending here with no trace that it continued any further (supported by evidence from a number of aerial photographs). An additional element of this feature revealed by the geophysics is the presence of a narrower parallel linear (F1282) which terminates at the same point as ditch F1280. This has some similarities to the linear features associated with dyke 'j' (see above). The features clearly seem related and, as with those discussed above, may represent a palisade or perhaps features associated with the construction of the (now destroyed) bank. Alternatively, as argued above, they may represent earlier boundaries which the more substantial earthworks replaced. At the terminus of these two linears, a number of circular anomalies could be archaeological in origin (pits for example) but cannot be distinguished from natural features and do not form a coherent pattern.

The parallel linears in field C7b noted earlier (F1275 and F1276; approximately 20 m apart), which run up the dry valley, do not appear to correspond with other larger linears in the area, but their parallel nature may imply they represent a trackway of some sort—possibly an earlier alignment of the routeway represented by the modern road. It is not inconceivable however, that this represents an earlier, Iron Age feature and it is notable that it appears to terminate as the dry-valley flattens out in field C7a. Other features in this area include a positive feature (F1284), almost certainly the remains of a relatively recent stone field boundary. A small circular anomaly in field C8b (F1285) may be of ancient origin or may be a small stone quarry.

Evidence of the outer ramparts can also be discerned in fields C9 and 10 (Figure 2.9) which lie immediately to the east of the occupation area in the valley. It seems that the trackway or road revealed by the geophysics and by Clifford's excavations continued in to the area but is now obscured by modern gardens and a pond (all created since Clifford's excavations). Dyke 'b' clearly continued into the area of this house, with Clifford (1961: 9) indicating that a spring emerged from the end of this ditch. These fields also show evidence for upstanding ridge and furrow aligned east-west which may also have impacted upon earlier archaeological remains. Much of field C10 was obscured by magnetic interference from two pipelines and the metal fences around the field margins. In addition, it was not possible to survey the northernmost part of field C9 because of dense undergrowth.

Despite these issues, a number of archaeological features are visible in this area. Most significant is a linear ditch-like anomaly (F1286) which runs from the direction of field C8b. This appears to terminate within field C10 and no corresponding feature was found in C9. This feature is visible on the LIDAR of the area as a slight earthwork. Although the LIDAR may indicate that the feature carries on into field C10, it is not respected by the ridge and furrow in this area, which appears to overly it. It seems most likely that this linear represents the remains of one of the main outer ramparts, most likely dyke 'e' (but possible dyke 'd'), which turned north-eastward towards the entrance. Comparison with the LIDAR indicates that the feature also aligns with the terminus of dyke 'b'.

Further features in this area are less easily interpreted. A number of linear features can be discerned in field C9 and C10 (F1288) with some pit-like features (F1287), but none of these is clearly prehistoric in nature and some may be later field boundaries. None seem to relate to the alignment of the ridge and furrow however, which may suggest they are relatively early in date and the possibility they are related to the rest of the complex cannot be ruled out.

The southern part of the complex

To the west of the apparent termination of dykes 'd', 'e' and 'f', areas available for geophysical survey are more restricted than on the northern side of the complex. Field E3 (Figure 2.18), directly to the west of field C4 had relatively limited evidence for archaeological remains. A number of large negative

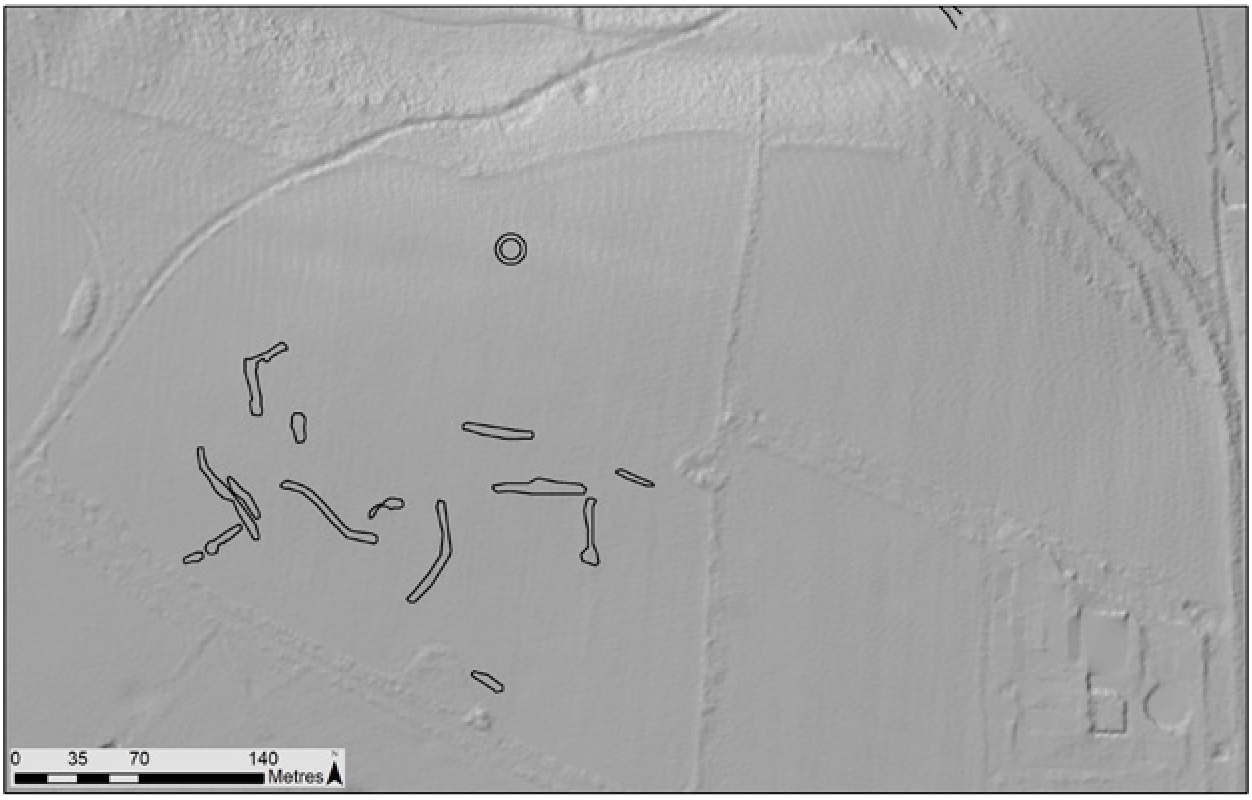

Figure 2.18a. Survey area 'j' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.18b. Survey area 'j' – geophysics results

Figure 2.18c. Survey area 'j' – interpretative plot of results

features (F1384, F1385, F1386) might be small quarries or large pits but appear unlikely to be of early date. A linear feature, F1387, could be a ditch although its sinuous nature may suggest a natural geological fissure. Another linear (F1313) is likely to be some form of ditch, although it may be relatively recent. Most prominently furrows (F1295) running north-south reveal the extent to which ploughing has occurred in this area. The most southerly area of this field was obscured by game-cover at the time of survey, restricting the area examined.

To the west, on what is known as Bagendon Downs, the RCHME (1976: 9) suggested the presence of 'Celtic' fields in field E4 on the basis of cropmarks and slight upstanding earthworks (no longer visible). The NMP also indicated the presence of irregular features although these are hard to identify as part of a regular field system. The geophysical survey revealed a number of irregular anomalies (F1289) in the southern area and similar features further north (F1296), but all seem consistent with natural features resulting from fracturing of the underlying limestone, similar to those noted elsewhere in the area (see above). The linearity and regularity of some of these features might imply they are heavily truncated ditches, but this seems unlikely. More convincing ditch-like features were identified further north (F1297) and appear to relate to the remains of a lynchet (F1298) (with F1299 another less clear example) which are also visible on LIDAR. The RCHME (1976, 9) suggested the presence of a possible roundbarrow and a potentially extremely ploughed-out circular ring (F1300) confirms aerial photographic evidence. Its location, between the linears at F1297 and the lynchets may suggest an association, and that all features relate to later Prehistoric land-management. Other small, pit-like features close to the linears (F1301) and further south (F1302) may be associated. No other trace of archaeological features is visible, feature (F1290) represents a modern footpath across the field. Overall, there is little to suggest Iron Age occupation in this area, but the possibility remains that some of these features relate to Bronze Age activity.

In field E5 (Figure 2.19), the nature of earthwork of dyke 'h', on the western periphery of the complex has been the subject of some debate. Stephen Trow (unpub.) has suggested that it may not relate to the complex of earthworks at the entrance to the valley and may be an earlier cross-ridge dyke. The northern end of this dyke is visible from aerial photographs extending in to field E5 with a notable change of direction towards the north-east and then abrupt termination. A key issue was assessing whether it relates to an additional earthwork recognised by the RCHME (dyke 'g') visible on the LIDAR. dyke 'h' was clearly identified by the geophysics (F1303) confirming that it terminates in this area. Intriguingly, an additional short linear (F1304) was identified partly filling the gap between dyke 'g' and dyke 'h'. Its well-defined nature suggest it

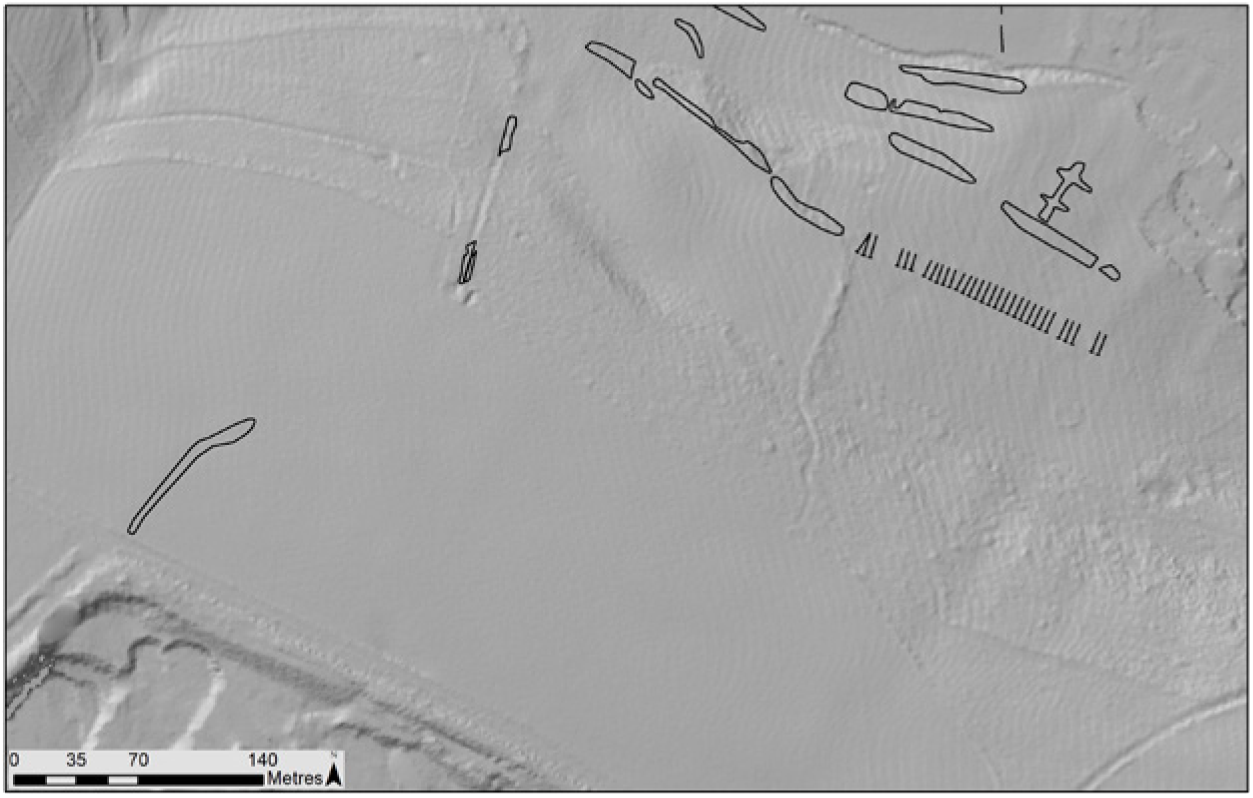

Figure 2.19a. Survey area 'p' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.19b. Survey area ‘p’ – geophysics results

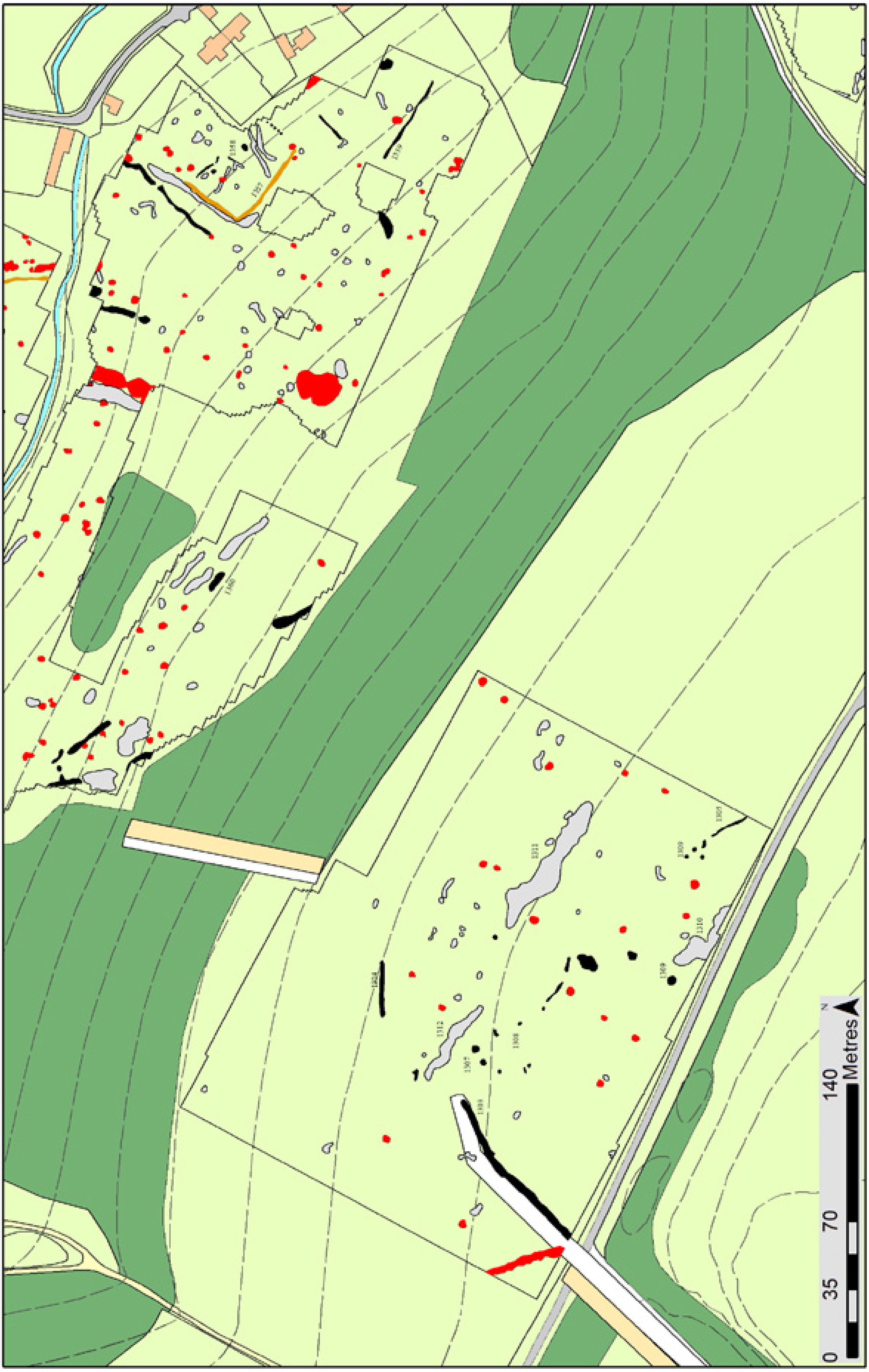

Figure 2.19c. Survey area 'p' – interpretative plot of results

is unlikely to be a natural feature suggesting perhaps a deliberately segmented dyke system in this area.

A further possible linear feature may be identifiable further south (F1305), associated with a cluster of possible small negative features (possibly pits or postholdes: F1306), possibly related to F1303. There are hints of this feature more clearly visible on an aerial photograph (NMR: SO9906/10/55 10 MAY 73). If connected, this could make it look somewhat similar to the polygonal enclosure at Wiggold, Ampney Crucis, *c.* 4 km away. This, and similar examples, are represented by the existence of seemingly discontinuous ditches with frequent entrance gaps and appear to be a Late Bronze Age phenomenon (Darvill 2010: 161). This raises once again the possibility that the dyke is not part of the complex, although considering its form and arrangement this appears unlikely. It is also possible that earlier linear features were incorporated in to the complex.

Further features appear archaeological. Two round features (F1307) close to the end of linear F1303 appear related and might even be construed as entrance-way postholes. There are other archaeological anomalies (F1308), and two large pit-like features (F1309) that appear too regular to be quarry pits and may be related to the linear features. There is tantalising evidence for some form of prehistoric activity in this area. By contrast, F1310 has the hallmarks of a quarry-pit or dew-pond of recent (post-medieval) origin. The more ephemeral features, F1311 and F1312, appear to be ploughed out lynchets, comparable to those encountered in field E4 and may be part of the same field system. That linear F1303 appears to terminate at the end of lynchet F1312 may not be coincidental and, along with the apparent pit like features F1307, could be related.

Area to the West, 'outside' the Bagendon dykes

Defining the limits of the Bagendon complex is highly problematic and potentially fruitless, with the elements comprising a polyfocal arrangement of activity (see Chapter 24). Certain areas beyond the immediate area covered by the dyke system were selected for survey to assess the nature of remains and address specific questions. The area around Dartley Farm, known as Stancombe, was of particular interest because of the potential evidence of a Roman Villa encountered in this area (RCHME 1976: 49); while further west an area of Iron Age occupation had been partially excavated in the 1990s at Middle Duntisbourne (Mudd *et al.* 1999).

Middle Duntisbourne (Dartley Farm)

The dualling of the A419 excavations in the 1990s led to identification of various archaeological features to west of Ermin Street. This was revealed to be an Iron Age settlement (referred to as Middle Duntisbourne SO98850725: Mudd *et al.* 1999) consisting of a probable rectilinear enclosure, probably of two phases, associated with various other linear features identified by cropmarks in the field to the north-east of the A419. The discovery of Late Iron Age ceramics and other material dating to the mid-1st century BC indicates that a second phase of occupation of the enclosure was contemporary with occupation at Bagendon itself and the Ditches enclosure nearby. The settlement also produced some evidence that it may have existed in a relatively wooded area, and had a high proportion of pig bones (Mudd *et al.* 1999: 86); both aspects reflect the evidence from the enclosure excavated at Scrubditch as part of the Bagendon project. A number of features associated with the excavated enclosure can be identified as cropmarks in the field to the north-east. More recently, ploughing in this area by the landowner has revealed a several finds, including a probable Iron Age loom-weight. In recent years, some of this area has become obscured by the plantation of trees on both the western and eastern margins of this field restricting the available survey area to a central strip in the centre of this field. Survey conducted in this area was aimed at clarifying the nature of activity here and its extent in relation to the enclosures noted by excavations; was this part of a larger complex which might relate to occupation in the Bagendon valley?

Significant numbers of archaeological features can be identified in this area (Figure 2.20), although the survey revealed that occupation diminishes towards the east of the survey area. A large linear (F3000), visible on various aerial photographs and Google Earth extends roughly north-south beyond the survey. Aerial photographs indicate this linear continues into the adjacent field and may form part of a large enclosure, although no return angle is visible in the field to the north. Several pit-like features are located on the western side of this ditch (F3001) and although other circular archaeological features can also be identified on the eastern side, the intensity of features suggests the focus of occupation was to the west, beyond the survey area. Two curvilinear features (F3003; F3004), both only partially identifiable, may tentatively be roundhouse drip-gullies.

A second 'L' shaped linear (F3005), of similar scale to F3000, is rather unusual, turning to the north at its eastern end. Although it is substantial in size (probably a few metres wide) it does not appear to have ever continued further north and is unlikely to have been fully ploughed out. One possibility is that, combined with some of the features to the south, it formed part of an elaborate entrance-way into the settlement to the west. In the crook of this linear are a number of circular features of substantial diameter (2-3m), likely perhaps to be Iron Age storage pits.

Further south, a larger amorphous disturbed area seems likely to be a quarry (F3006). That this is located where a parallel ditch to F3005 might have existed may suggest this has destroyed the feature in this area. Such a quarry could be of Iron Age, Roman or even later data, although quarrying in the side of Iron Age ditches close to the Roman road of Ermin street is commonplace. There are hints that the quarry partly obscures a linear feature (F3007), which may be related to linear ditch feature F3008. A parallel linear ditch F3009, along with F3008, create a possible trackway oriented roughly east-west. This terminates with respective large pits (F3010) creating a funnel like arrangement. Other linear ditches F3012 and F3013 also appear to run parallel possibly creating another trackway. An additional large (probably quarry) pit is located at F3011. Combined these ditches and other features are hard to reconstruct as a coherent arrangement, partly because the survey has clearly only clipped the edge of the occupation area, which stretches to the south-east and south-west, but also probably because these appear to consist of multiple phases of activity. This may also be in part be due to significant plough-damage having occurred in this area in the past; this is a feature of many of the Later Prehistoric remains identified throughout the Bagendon area. Despite the clearly archaeological nature of the features identified at Dartley Farm, and their almost certainly Later Prehistoric date, the use of this settlement remains enigmatic.

Stancombe

Additional surveys were also conducted around the Stancombe area (SO998075) (Figure 2.21 and 2.22). Evidence of a potential Roman settlement was recorded through small-scale excavations in the 1970s (RCHME 1976: 49). These uncovered the footings of a building, including a small area of tessellated floor (A) (RCHME 1976: Plate 51). Other finds of (probably Roman) ceramics were also located in this area (B, C, D). Refined dating evidence, beyond a single Late Roman coin, is lacking. The area of fields to the south of Stancombe Farm includes pronounced terracing, some likely to be building platforms and others possibly terracing for farming.

The area was of interest for the Bagendon project in determining whether evidence of Roman structures could be identified in this area and whether any details of their form and structure could be ascertained. Considering the discovery of two, previously unknown, Roman villas within the Bagendon valley (at Blackgrove and Bagendon House) the relationship of Roman activity at Stancombe becomes increasingly significant.

Further to the east, the RCHME (1976: 7) suggested that aerial photographs may indicate the presence of a dyke in this area (Figure 1.12). A linear feature does appear visible on some photographs (e.g. Figure 2.23;

Figure 2.20a. Survey area ‘t’ - evidence from lidar and NMP (data © Environment Agency and © Historic England).

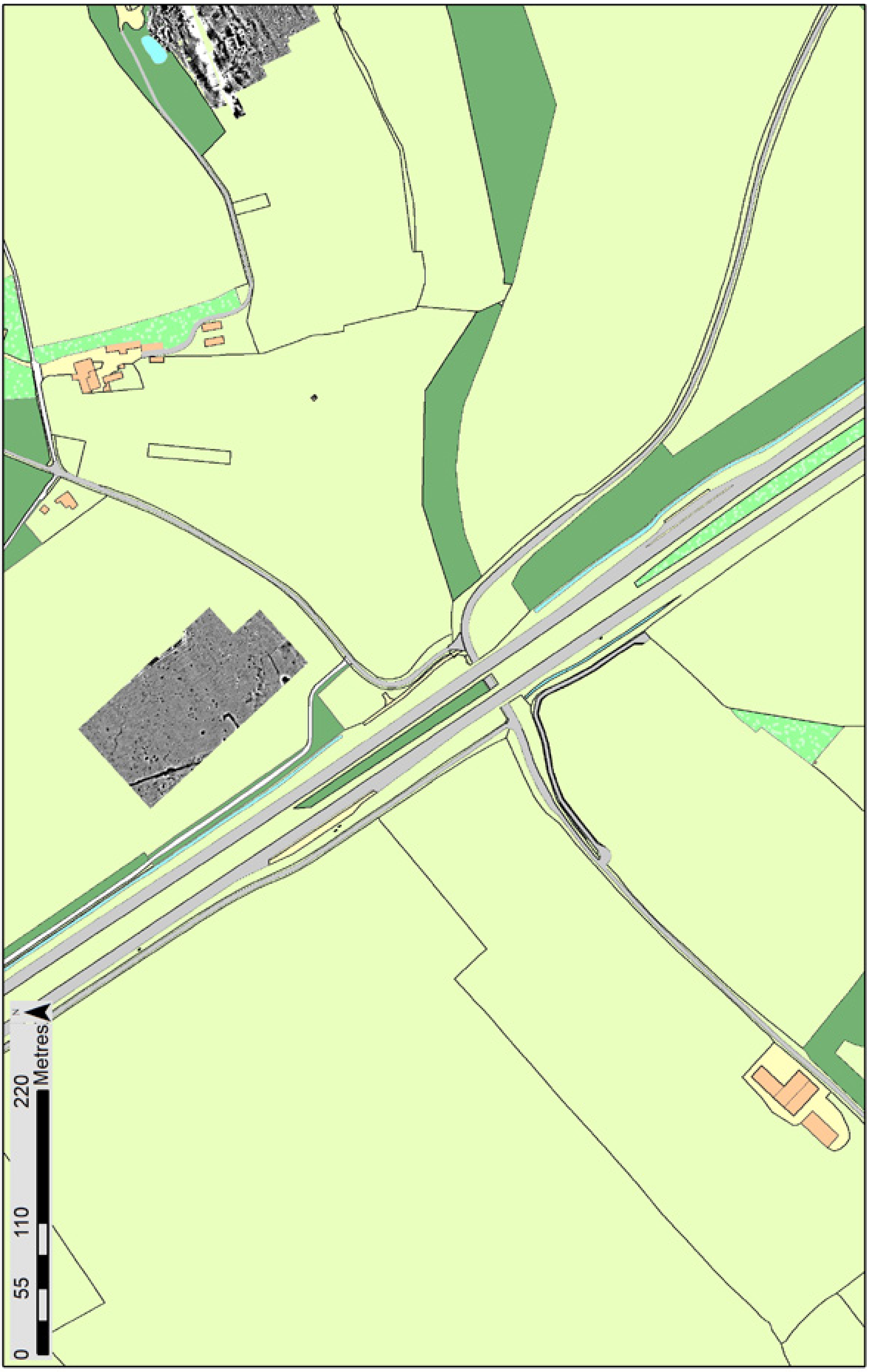

Figure 2.20b. Survey area 't' – geophysics results

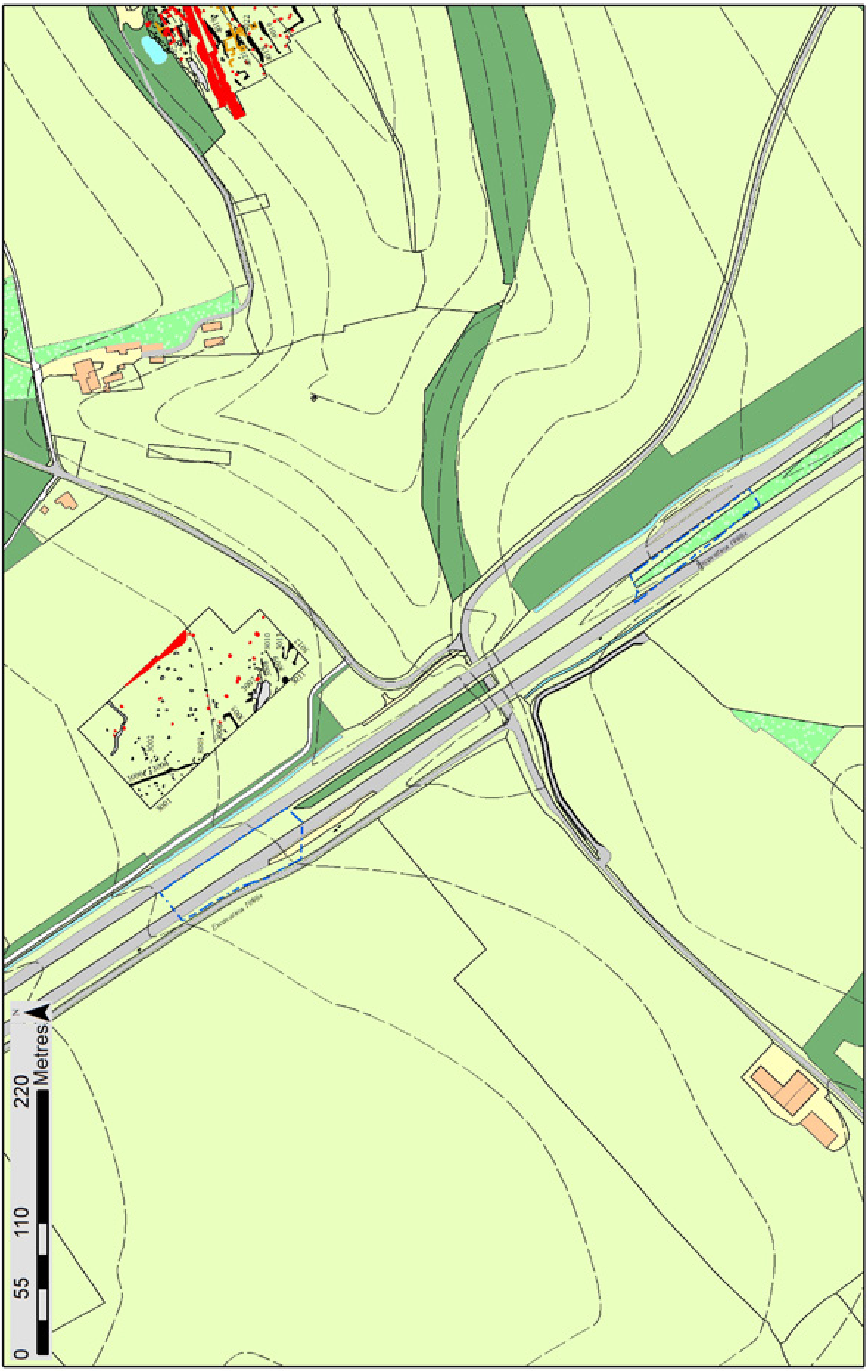

Figure 2.20c. Survey area 't' – interpretative plot of results

SP0007/1/272 12 APR 1969), although it is relatively ephemeral and not visible on more recent images. The position of this dyke is rather unusual, but would reflect those at Cutham Dyke and Perrott's Brook Dyke in running up the slope from the valley bottom. Survey was undertaken in four distinct areas aimed primarily at addressing these key issues. The supposed dyke feature is hard to discern on the geophysics of field F4. A positive feature (F4000) running approximately East-West, may be the ploughed out remains of a bank. There is no evidence of an associated ditch however, and the RCHME survey appears to suggest it runs at a more acute angle across the field. A further ephemeral linear feature (F4001) also appears unlikely to be a dyke. The presence of a dyke in this area is therefore hard to confirm. A more prominent negative linear feature (F4008) only very partly intruding into field F4 might be a more likely candidate for a dyke ditch, but its bifurcated nature suggests it is perhaps more likely associated with the field boundary. From the geophysics evidence, if dyke 'x' did exist, it would appear to have not been associated with a ditch. Considering the clear visibility of the other dykes elsewhere in the complex, even those in fields which have witnessed significant ploughing, it seems likely that the remains visible on the aerial photographs and geophysical survey are remnants of more recent field boundaries.

More certain features can be identified in the south-east corner of the field. Linear features F4003 and F4002 are likely to be the ditches. F4003 approximately follows the contour but also curves out towards the north-east at its north end, perhaps changing course because of features no longer visible. The gap between F4003 and F4002 has the appearance of an entrance way, particularly because F4002 tacks to the north-east a little at its eastern terminus. An additional linear (F4004) runs parallels to F4003 suggesting they may form part of a field system. Additional more ephemeral negative linear features (F4005; F4006; F4007), are positioned roughly perpendicular to F4003 and might be related. F4003 and F4004 seem too pronounced as features to be draining ditches and are likely to be part of a field system, possibly related to the Roman settlement at Stancombe, discussed below. F4005 may continue to the south east and does appear to correspond with the feature visible in the 1969 aerial photograph.

At the far east of the field, large negative features (F4008) may be pits of some sort, perhaps quarry pits. Further smaller negative features, F4009 and F4010, may also be archaeological. To the west, three linear features (F4011) running parallel to each other seem likely to be slightly ploughed out lynchets. A less-well preserved lynchet is also noted further south (F4013) in line with those recognised in field F2. Apparently running across the most northerly of these three linears lynchets, a positive, rectangular feature (F4012) might well be the remnants of a stone building, approximately 10x7m. A group of negative linear

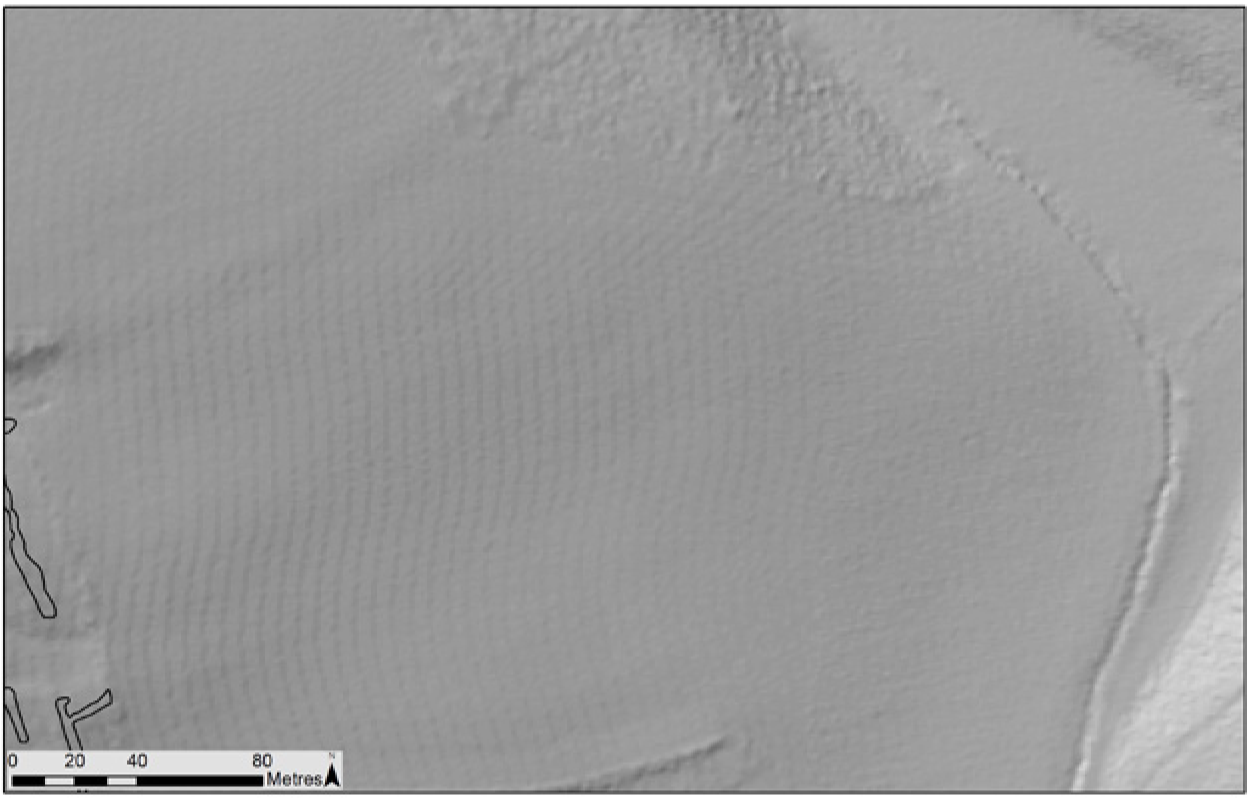

Figure 2.21a. Survey area 'r' - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.21b. Survey area 'r' – geophysics results

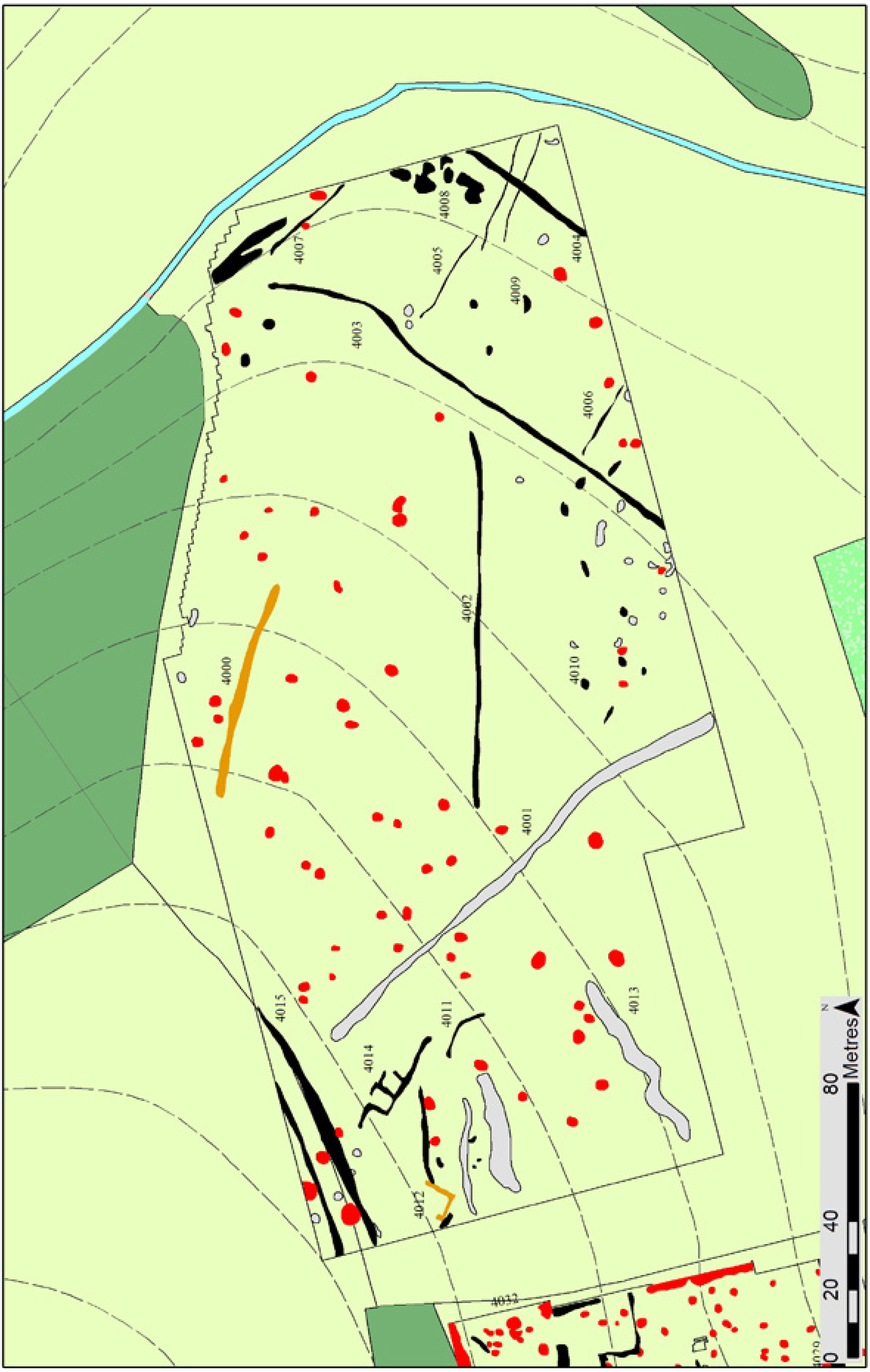

Figure 2.21c. Survey area 'r' – interpretative plot of results

features (F4014) that can be identified to the north-east, are perhaps small enclosures related to structure F4012. On the northernmost part of the survey, two linear features (F4015) (visible on some Google Earth images), are likely to be the remnants of an earlier trackway continuing from that on the western side of Stancombe Farm. Many of the features in field F4 could be of either Prehistoric or Roman origin and might benefit from further investigation to determine their date. The anomalies located around F4012 are most convincing as structures and may be an outlying group of buildings related to the Villa.

Survey of fields F2, F2b and F3 (Figure 2.22) examined the area around the suggested Roman settlement identified in the 1970s. The terracing is visible on various aerial photographs and is clearly identifiable on the survey with at least four lynchets (F4016; F4017; F4018; F4019), and with F4017 forming a rectangular terrace. An assortment of positive linear features can be identified on the upper most terrace. F4020 forms a rectangular feature, approximately 15 m x 10 m with a smaller rectangular structure to the south (F4021) around 5 m across. The disjointed walls in this area indicate other walls perhaps forming further rooms. On the basis of comparison with excavation of similar features at Blackgrove, Bagendon (see above), large negative responses associated with these walls are archaeological deposits accumulated between the walls. Further potential structures can be identified on the terrace below (F4022). More ephemeral positive linear features are visible further to the east, F4023 potentially forms a rectangular building structure as much as 20 m long, with further linear features, probably walls (F4024).

The area immediately to the north of these structures is largely obscured by the magnetic disturbance from an iron fence, with most of the area around the location of the 1970s-excavation destroyed by a pond and obscured by trees. Survey in this area did, however, locate a large rectangular positive anomaly, almost certainly a stone building (F4025) approximately 20 m in length with a possible additional adjacent set of walls to the east, making this structure possibly over 30 m long. Various anomalies suggest evidence of occupation in this area with an additional possible stone structure (F4026 and F4027).

Surveys in field F2b and field F3 were undertaken to determine if the settlement continued in these areas. Lynchets, or terracing, are visible in F3 although significant areas of modern disturbance have also been noted and were mentioned by the current landowner. Survey in F2b revealed little in the way of obviously archaeological features, certainly nothing that could be identified as likely to represent stone buildings. A few negative anomalies (F4028) might be pits but there is little evidence for coherent structures. Further east, in field F3, few clear archaeological anomalies could be identified. This field is covered in more ferrous magnetic anomalies, probably related to shooting, but even taking

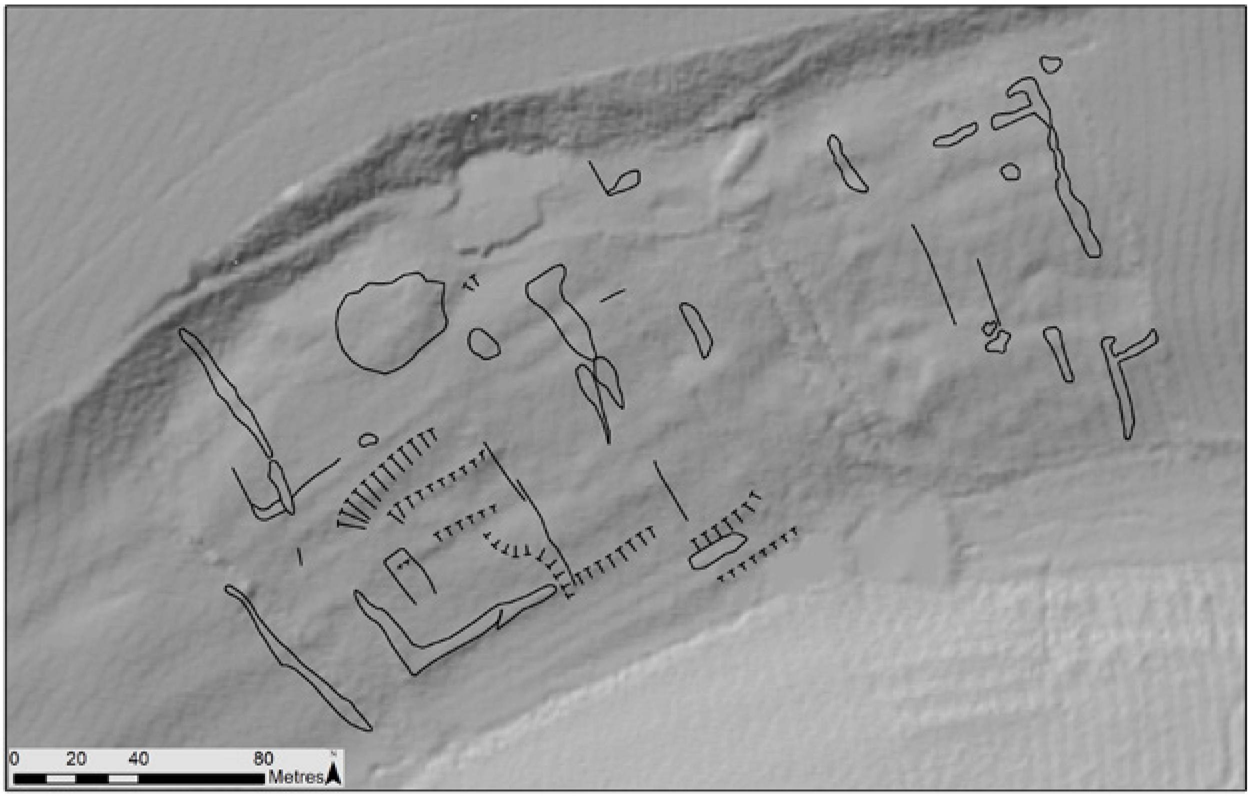

Figure 2.22a. Survey area ‘s’ - evidence from lidar and NMP (data © Environment Agency and © Historic England).

Figure 2.22b. Survey area 's' – geophysics results

Figure 2.22c. Survey area 's' – interpretative plot of results

Figure 2.23. Aerial photograph of possible dyke in field F4, taken in 1969 (NMR SP0007/1/272 12 APR 1969, © Crown Copyright, Historic England Archive)

this in to account it seems that significant features would still be visible. Remnants of the terracing are visible (F4029 & F4030). A relatively ephemeral linear feature (F4031) may be a ditch of an old field-boundary. F4032 is visible on the ground as a slight earthwork and seems likely to represent an earlier alignment of the eastern boundary of field F3; indeed the gap defined by two magnetic anomalies is probably an old field entrance.

Although this survey does not provide the clarity of walled structures identified in other areas, the ground truthing of similar anomalies at Black Grove, where similar positive features were confirmed to be (well-preserved) stone walls, reinforces the impression of a collection of Roman buildings in this area. None of these can be reconstructed into a clear villa form, although F4025 is perhaps most convincing. Certainly, the area here and around F4020 suggest this is the general focus of Roman occupation and it is a common location for Roman villas constructed on slight terracing in to a southern or eastern facing slope; indeed it is reflected by the positioning of both the Black Grove and Bagendon House villas, only that at Ditches is exceptional. and the focus of occupation may still remain unidentified, in areas inaccessible to the survey. To what extent any Roman structures were destroyed by the building of the modern farmhouse is also open to question. These surveys indicate the potential for a resistivity and/or GPR survey to confirm the nature of archaeological remains in this area.

Overview and discussion

The combination of LIDAR survey, aerial photographs and high-resolution fluxgate gradiometer survey has provided a relatively detailed picture of the landscape around Bagendon village covered by the complex. Several aspects have added particularly to understanding of the nature of both the 'oppidum' itself and the landscape before and after the 1st century AD.

Early Prehistoric (Neolithic and Bronze Age)

Relatively few features that can be definitely identified as earlier Prehistoric were revealed. Previous studies have suggested the presence of a possible Long Barrow, close to Scrubditch (Darvill and Grinsell 1989), which was immediately outside the survey area, but there remains debate on its nature. Another Longbarrow has been identified close to Woodmancote (Darvill and Grinsell 1989) and a Neolithic axe-head was recovered from field survey at Ditches (F. Foulds Chapter 12; Trow 1985). The latter may relate to the causewayed enclosure at Rendcomb, identified through aerial photographs and fieldwalking near Woodmancote (Trow 1985). Despite the evidence for the presence of Early Prehistoric activity, nothing clearly of this date was identified on the geophysics. It is possible that the small enclosure in field B1 is early, but its form is best paralleled elsewhere in the region with enclosures of Iron Age date.

The elliptical arrangement of circular features, probably large pits, overlooking the valley in field E12 might be of an early date. The form appears to have a gap on its south-eastern side, whilst the area to of the northern arc of pits appears to have been disturbed at its north-western end. There is also possible evidence of a pit feature located central to the arc of other pits. Possible comparanda are the small henges and pit arrangements from the Neolithic and Bronze Age. A number of these are known to be oval like Wyke Down, which comprises elliptical arrangements of pits or large post-settings, with an entrance towards the south (see Barrett *et al.* 1991: 96). Similar shaped stone settings are also known from various locations across Britain, sometimes associated with pits left after stones have been removed (see Darvill and Wainwright 2003). Without further investigation, it is difficult to confirm the nature of these features but its form certainly suggests it could be of early Prehistoric origin.

Only two round barrows can confidently be identified on the geophysics, the most convincing in field D3 (previously recognised from aerial photograph: Darvill and Grinsell 1989: 84: Bagendon (a)) and another, probably badly ploughed out, example in field E4, suggested by the RCHME (1976). Another in field B3 (Darvill and Grinsell 1989 (c); RCHME 1976) could not be identified. These isolated roundbarrows reflect the spread of roundbarrows along slopes overlooking the dip-slope Cotswold valleys (Darvill 2010: 135). Whilst the range of earlier prehistoric monuments in the area is by no means exceptional for the region (cf. Darvill 2010), the discovery of a possible pit or henge like monument within the valley is intriguing and, along with the roundbarrows, indicates a landscape that was already being exploited, although how densely inhabited is more open to question.

Field systems and boundaries

Evidence from much of the Cotswold landscape had been cleared by the end of the Bronze Age (Darvill 2010: 172), with only the presence of some field boundaries of Late Bronze Age date supporting environmental evidence that the hills were being relatively intensively cultivated after around 900BC (Darvill 2010: 170-172; Hart *et al.* 2016a). In the Bagendon area, it had previously been suggested that part of the area covered by the survey, including a group of Celtic fields on the Bagendon downs (field E4), is likely to be of Later Bronze Age date. The survey did reveal amorphous linears in this area but it is hard to reconcile these as linear ditches and most seem likely to be natural fissures in the limestone. It seems that any lynchets, as recognised by the RCHME, have now disappeared.

Some caution must be exercised, however, in assuming that all the irregular linears are of natural origin. The recent excavations at Winstone, around 5km to the north-west of Bagendon revealed a similarly sinuous linear feature, apparently representing a complex segmented array of ditches (Hart *et al.* 2016a: 51-55). This was dated to the Late Bronze Age but seems to have remained open into the Iron Age. This bears some similarity to several examples from Bagendon, and the possibility that some, at least, are anthropogenic should be borne in mind. Segmented ditches and pit alignments are well known from the area more generally although they are more common in the Thames Valley (Lambrick *et al.* 2009; Darvill 2010: 172). Rarer examples have also been recognised on the Cotswold plateau, for example at Great Rissington (RCHME 1976: xxxvii). Segmented ditches are also increasingly being recognised, varying in date between the Late Bronze Age and Middle Iron Age (Moore 2006; Lambrick *et al.* 2009), presumably aimed at increasingly defining landscapes. There are no unambiguous examples of either type of feature from this survey, but in field A2 a linear arrangement of anomalies may be a pit alignment. Similarly, in field D3 adjacent to Scrubditch enclosure, some of these anomalies could be segmented ditch alignments. Short alignments of pits, possibly defining settlement areas, have been recognised in the region and appear to date largely to the Middle Iron Age (e.g. Granna Wood: Hart *et al.* 2016a: 64).

Whether evidence for woodland clearance in the Bronze Age indicates that the whole Bagendon area was deforested by the Iron Age is less clear. Environmental evidence from this project (see Chapter 24) may suggest that either woodland clearance was not wholesale and some areas remained relatively wooded, perhaps as wood-pasture, or that some areas were reverted to forms of woodland in the Iron Age. These possibilities are discussed further in Chapter 24.

Iron Age

One of the most interesting aspects of the survey has been the discovery of probable Iron Age features within the Bagendon area, some of which are likely to pre-date the Late Iron Age activity in the valley. Potential evidence for occupation in field A2 had been recognised by the RCHME (1976: 7). This survey not only adds greater detail to the features recognised on aerial photos, but provides some convincing evidence that this activity probably pre-dates the dyke system. The nature of this occupation is hard to determine as these features have almost certainly been heavily truncated. Some of the linears may have formed funnel arrangement and considering the nature of the enclosures at Scrubditch and Cutham, the possibility that these represent an additional funnelled enclosure cannot be ruled out.

One of the most important discoveries of the survey was revealing two morphologically unusual enclosures within the complex in field D3, called Scrubditch enclosure, and in B5, called Cutham enclosure. Both of these enclosures were subsequently targeted for excavation to determine their date and relationship to the Late Iron Age occupation. These sites are discussed in more detail in Chapter 3.

The location of Scrubditch enclosure at the head of the two dry valleys (combes) to the south of Scrubditch dyke, may suggest it was deliberately located at the base of a funnel formed by the outer dykes and ditches. The geophysics shows no clear association however, between the enclosure and the ditch (F1020) which projects from the end of Cutham Dyke. The presence of other linear features, some of which may be archaeological, could indicate the that other ditches or pit alignments define and channel movement towards the funnel entrance of the enclosure, but this is impossible to confirm at present.

A second 'banjo'-like enclosure (Cutham enclosure) in field B5 has also proved to have earlier origins, although is partly contemporary with the activity in the valley (see Chapter 3). As discussed above, and in more detail in Chapter 3, the geophysics survey suggests that the trackway or avenue seemingly associated with the enclosure, runs underneath the main Cutham dyke, suggesting it was arranged prior to the building of Cutham Dyke— like activity in field A2. It appears that linears F1034 and F1035 complemented the Cutham enclosure as part of the same arrangement and were, at least partly, contemporary. Although their form is unusual, such sinuous, complex linears are characteristic of systems designed to corral livestock and can be noted elsewhere in the region and beyond.

Further to the east, another possible Iron Age feature was recognised. Enclosure F1022 in field B1 is similar to small Iron Age enclosures from the region, for example an enclosure excavated at Evesham (e.g. Edwards and Hurst 2000) and a range of relatively similar, deeply-ditched enclosures from complexes in the Upper Thames Valley, such as Claydon Pike and Thornhill, Lechlade (Jennings *et al.* 2004; Miles *et al.* 2007: 74). Other small enclosures are known from cropmarks and geophysical survey, for example at Cold Aston (Marshall 1999) and Great Rissington (RCHME 1976: 60). The majority of these other examples are part of broader settlement complexes, however, and the isolated nature of this example is unusual.

The presence of a probable roundbarrow approximately 40 m to the west of Scrubditch enclosure is also intriguing. The barrow is situated on the highest point in the area; the Scrubditch enclosure itself is situated slightly off the summit toward the east. If the barrow is of Bronze Age date, as seems most likely, it seems probable that it would have remained visible in the Middle Iron Age at the time the enclosure was constructed. This raises the interesting possibility that the enclosure was deliberately sited adjacent to the barrow. A far less likely possibility is that the barrow is of Iron Age date. Barrows of Iron Age date associated with polyfocal complexes similar to Bagendon are know from a number of sites; for example at Blagden Copse, Hampshire (Stead 1968) and a poorly understood example from Gussage Cow Down, Dorset (Corney 1989). There is a possibility that an additional small square enclosure (F1007) in field D3 could be funerary in nature, and perhaps imply a complex of Iron Age funerary monuments, but this seems unlikely.

Occupation within the Late Iron Age oppidum

For the first time the survey of the complex also allows the 1980s and 1950s excavations to be placed in context. Until these surveys, it was impossible to determine how representative the excavation results were of the nature and extent of occupation within the complex. We can now begin to build a more coherent picture of the nature of settlement within the valley and, allying this to the excavated evidence, discuss the nature of Late Iron Age occupation.

Most striking is evidence that the features recognised by earlier excavations (Chapter 4) were part of a much larger area of activity. It is now clear that the 'roadway' identified (if misinterpreted) by Elsie Clifford, was part of a trackway which extended along the valley, along the terrace was still visible in the field. This was associated with a range of small enclosures defined by ditches and gullies aligned along the trackway, with entrances into these enclosures at various intervals. There is also evidence of additional short trackways aligned perpendicular to the main trackway creating an almost grid-like arrangement. These internal divisions of this area may signify either different activity areas or, as seen in some oppida elsewhere, distinct households. Clearly the valley floor was the focus of occupation, although this appears to have varied in intensity and probably represented numerous activities.

Within the apparent enclosures in the area a variety of circular and more irregular features, on the basis of the excavated areas, are likely to be pits, large postholes and quarries, with short segments of gullies and other linears perhaps denoting activity areas. In some areas magnetically weak linear anomalies may well be stone-built drains such as those encountered in the 1950s and 80s (see Chapter 4).

Defining the limits of this occupation to the west is somewhat harder. Surveys appears to indicate that the density of occupation declined to the west of Bagendon village, with significantly fewer obviously archaeological features. The extent to which this merely reflects the re-use of this area in the Medieval and Post-Medieval period which may have destroyed Iron Age activity is unclear, although any dense activity (like that seen in fields C3 and C2) would be unlikely to be completely erased by later actions. The trapezoidal enclosure located in field D6, and some of the associated pit-like features to the north, are also likely to be of Iron Age date, indicating activity also occurred in this area. Considering the nature of this enclosure, separated from the dense occupation area identified further east in the valley, it could even be that this was the focus of the complex. The question of where the trackway in the valley was heading to is an intriguing one. It may have been this enclosure, although there is little clear sign of it on the survey. Alternatively, it may have remained on the course of the current road and headed towards the occupation at Duntisbourne and Ditches, which seem likely to have also been significant foci in the complex (see Chapter 24).

It seems clear that most of the activity in the valley revealed by the geophysics dates to the Late Iron Age. A watching brief in 2005, to the south of Bagendon Manor cottage, in the area immediately to the west of field C4, revealed at least two ditches, running roughly north-south, and one possible ditch or pit (Mayer 2005). The close proximity of these features to the east-west ditch

F1178 and cluster of pits F1182, suggests these are almost certainly contemporary. To the north, residual Late Iron Age ceramics found in the area of the Old School also imply activity in this area of that date continued around the area of the present village. Meanwhile, excavation in 2015 on the site of the Roman villa here (Chapter 5), produced Late Iron Age material, suggesting that many of the features recognised on the geophysics in this area are of similar date to those encountered in the 1980s (see Chapter 5).

Considering the currently limited evidence for buildings, and confirmed occupation areas in general, within the Bagendon complex, the presence of possibly two roundhouses in field C5 is significant. The presence of such structures in this area is in stark contrast to the lack of such buildings visible elsewhere on the survey. The discovery from the recent excavations at Scrubditch enclosure of a post-built roundhouse supports more widespread evidence that such structures on the limestone plateau generally did not possess drip-gullies in this area, although examples do exist (e.g. at Baker's Wood: Hart *et al.* 2016a: 91). As survey at Scrubditch illustrated, it is unlikely that the postholes of such houses will be detected by even high-resolution magnetometry. No roundhouses were encountered in the 1979-1981 excavations, although Clifford's excavations recorded at least two 'hut' features—only one was confidently confirmed as a hut and that was not fully excavated (Clifford 1961: 18). Unfortunately, little photographic evidence survives to verify the descriptions given in the report. Clifford describes them as having dry-stone walls and being *c.* 17 feet (*c.* 5m) in diameter. This would be substantially smaller than either of the possible examples revealed in field C4, although the presence of dry-stone walled circular buildings (examples of which are known from further north in the region at Conderton Camp, all of Middle Iron Age date: Thomas 2005a) might explain the apparent existence of a 'positive' anomaly representing the circular structure at F1198. The presence of putative roundhouses in this area is highly significant and contributes to the limited evidence for permanent settlement within the Bagendon complex. The possibility of other buildings remains, however and it is worth noting that should buildings like those uncovered at Silchester (Fulford *et al.* 2018) have occurred at Bagendon, it seems unlikely they would have been recognised by the geophysics and previous excavation approaches are unlikely to have identified them.

Occupation within the valley is defined by two linear features: one on the south side of the valley and another, on the northern side, comprising the southern arm of the trackway (avenue) which extended from Cutham enclosure. It would appear that these ditches deliberately separated areas of activity and occupation from what were largely open areas on the plateau. The avenue associated with Cutham enclosure, and specifically the northern ditch (F1034), appear to demarcate an area of activity, to the south, from what was a relatively empty area to the north. The same can be said of the ditch to the south which defines a relatively empty area between this ditch and Perrott's brook dyke. Both these areas appear to be largely devoid of archaeological features. The extent to which this may be related to later plough damage is uncertain, but indications from other fields, which appear to have had similar agricultural histories, suggest that any archaeological remains should be visible on the survey. A scatter of pits in field E8 might represent Iron Age activity and the enclosure in B1 may be of Middle-Late Iron Age date. The implication however, is that, aside from the enclosures at Scrubditch and Cutham discussed above, large areas of the complex were largely devoid of occupation and must have had other roles, perhaps for keeping livestock or farming, or even for the assembly of large numbers of people. The implications of this are explored in Chapter 24.

Dykes and ramparts

The dyke system which led Bagendon to be first recognised was well studied by the RCHME in the 1970s with earthwork survey and aerial photographs providing a good plan of its main elements. Geophysical survey confirmed many of these aspects, but also added further elements not previously noted by the RCHME or NMP. It has often been assumed that all the dykes were elements of the same layout (RCHME 1976: 7), but the geophysics survey suggests this may not have been the case.

The apparent kink in the alignment of Cutham Dyke where it extends into field A2 remains slightly strange. The possibility has been raised that dyke 'a' may have extended into field B3 (Russell Priest pers. comm.), and although neither the geophysics or aerial photographs are entirely convincing on this matter, the ephemeral feature continuing on a straighter alignment may suggest the dyke had an earlier incarnation. Other aspects suggest that the dykes were not created simultaneously as part of one phase. The linears ditches extending from Cutham enclosure (F1034 and F1035/1045) appear to run up to, and possibly beneath Cutham Dyke. Whilst dyke 'a' is not securely dated, excavation of a section of Cutham Lane dyke further south suggests it is likely to date to the early first century AD, making the linear potentially first century BC or earlier in date. Evidence that the Cutham enclosure was laid out in the Middle Iron Age lends weight to the argument that most of these features pre-dated the monumentalisation of the complex. That these two linears are aligned on the odd gap in the outer earthworks is also intriguing and may suggest this represents some form of earlier entrance.

Ditches F1034 and F1035 appear to have continued up to Cutham Dyke 'a', at least in the case of the former. Ditch F1034 may even have continued under the dyke and emerged in field A6 (see below). The relationship of these ditches with Cutham Lane dyke, therefore, is not entirely clear. The rather unusual arrangement of dykes in field A7 and A8 may be explained as marking an earlier entrance, justifying why these dykes do not align. This might be explained by the fact that ditches F1034 and F1035 seem to align themselves with this gap. If the gap in the outer dykes was an original entrance then it could be argued the two linears form a large avenue, funnelling towards enclosure B5. The apparent indication that linear F1034 continues under Cutham Lane dyke may suggest that, for at least part of their life, these ditches were not contemporary with Cutham dyke. This has important implications for the chronological sequence of the Bagendon complex and the role of the complex as a whole and is discussed in Chapters 4 and 24.

Roman features

From the evidence of both the 1950s and 1980s excavations it is tempting to assume that intense occupation within the Bagendon complex ceased around the AD60s with a clear end in the ceramic sequence from both areas excavated. The geophysical and LIDAR surveys (and subsequent excavations: see Chapter 5) indicate greater evidence of Roman activity in the area than previously anticipated, however. The presence of apparent stone-built structures within the area of intense occupation recognised during, and in close proximity to, the earlier excavations raised significant questions about the use of this area in the Roman period, leading to small-scale excavations discussed in Chapter 5. Recognition that these features were indeed (well-preserved) walls provided the added advantage of allowing for greater confidence in interpreting stone structures elsewhere.

Highly significant is the discovery of what appears to be a second stone structure to the west of the village. This seems to be a small cottage-style Roman villa, the plan of which can be compared to the early phase of Ditches and other villas of late 1st and 2nd century AD date from the region (See Chapter 5). The location of this building in a trapezoidal enclosure suggests it may have been placed within an existing Iron Age settlement; the scatter of pits and other features beyond the enclosure are suggestive of Iron Age activity. The centrality of the enclosure to the complex raises important questions as to whether this was the focus of the complex both in the Late Iron Age and early Roman period. Hints that a trackway may lead towards this enclosure also raise the possibility that this was where the trackway in the valley was headed.

Further to the west, survey confirmed the presence of probably (Roman) stone buildings on the terraces around Stancombe. It seems likely that the main villa building, now largely obscured, lies to the south-west of the modern farmhouse. But a range of structures could be identified in this area. To what extent any of the features to the north east of this area, in field F4, represent field-boundaries and other elements of the Roman landscape is impossible to confirm, but it seems likely that many of these features are related.

Medieval and later landuse

In several areas, the survey revealed elements which provide insights into the post-Roman landscape. The Cotswold region is famous for its drystone wall field boundaries. The oolitic limestone used to construct these walls and also used to construct buildings is often not far from the surface in this area. This explains the large number of small quarries visible on the geophysics. These can sometimes still be seen on the surface although many are no longer visible. They are frequently situated close to modern field boundaries reflecting their prime role in supplying relatively low-grade limestone for wall construction. In order to obtain the better laminated limestone, more suitable for building construction it is sometimes necessary to excavate deeper, below more friable layers. This explains those quarries identified in the area which are excavated in to the hillside (for example in fields C2 and C5); the size of the quarries suggests they are more likely to have been used to obtain material for constructing some of the buildings in Bagendon village. These quarries are likely to vary enormously in date.

Comparison with a tenancy map of 1832 and 'inclosure' map from 1792 (Figure 1.7) allows the identification of more recent features, which are no longer visible on the ground, to be noted in some places. In particular, possible additional medieval and post-medieval buildings may exist in field E6 and E7 related in the former to what appear to be building platforms. Although some additional old field boundaries were recorded, it is notable that the current field systems appear largely to reflect the modern field layout, suggesting it has been relatively static in the last few centuries.

Conclusions

The significant results from remote sensing surveys emphasise the importance in undertaking such work in these landscapes. It should be noted that even those areas which appear largely devoid of archaeological features are fundamental for understanding the role of these complexes. Although difficult to confirm, it seems highly likely that many of the areas within the earthworks at Bagendon—to the west of Cutham dyke and immediately to the north of Perrott's Brook dyke – had a relative absence of occupation in the Late Iron Age. Despite the survey's success, the value of ground-truthing detected features cannot be under-estimated, and provides further confidence in the interpretation of similar features not subject to excavation. A number of areas of the geophysics surveys were the focus of the further investigations of Iron Age and Roman activity within the complex; the results of these excavations are outlined in the following chapters.

Chapter 3

Before the *oppidum*: excavations at the Scrubditch and Cutham enclosures (2012–2014)

Tom Moore

Introduction: aims of the excavation

Two morphologically unusual enclosures within the complex, one just to those of Scrubditch Dyke, henceforth referred to as 'Scrubditch' (Figure 3.1 and 3.2a), and another to the west of Cutham Dyke, henceforth referred to as 'Cutham' (Figure3.1 and 3.2b), represent significant discoveries made by the geophysical survey. Neither enclosure was previously well recorded from aerial photographs (see Chapter 2), although images from 1976 show a possible enclosure at Cutham that has previously been argued by the author to be a banjo enclosure (Moore 2006: 147). The enclosures identified by the geophysical survey appear to be comparable to banjo enclosures found elsewhere in southern Britain, although the examples at Bagendon appear smaller in size and morphologically different (Moore 2012: 391–417).

The presence of these enclosures within the Bagendon landscape raised important questions in relation to the project's core research aims. In particular, they indicated the possibility of earlier Iron Age activity preceding the Late Iron Age complex. Determining their chronology and how they related to the Late Iron Age occupation in the valley (previously examined by Elsie Clifford: 1961), was thus of particular importance. Establishing the roles of these enclosures (whether as permanently occupied farmsteads or for particular agricultural purposes, for example) was also important when assessing if they could explain why this area became the focus of activity in the Late Iron Age.

To address these questions, targeted excavations were undertaken at both sites, focusing primarily on assessing their chronology and function. Four trenches, excavated between 2012 and 2014, were situated across both enclosures to examine key elements visible on the geophysical survey. The area predominantly consists of limestone cornbrash, with small instances of yellow clay and silts occurring at Cutham. Deep ploughing has taken place across both areas, with natural cornbrash approximately 0.3 m below modern ground surface, meaning that only negative features were preserved. It is hard to ascertain how much of the original ground surface has been lost, although the topsoil here may always have been relatively shallow. The excavation methodology followed Historic England guidelines, with approximately 25 per cent (or more) of all linear features excavated and 50 per cent of all other features encountered. Scrubditch was excavated in two seasons (2012 and 2013; Figure 3.3), and Cutham in 2014.

The Scrubditch enclosure

Scrubditch (Figure 3.2a and 3.4) consists of two conjoined enclosures: a sausage-shaped enclosure (B), with associated antenna ditches; and a penannular enclosure (A) arranged at right angles to B. To assess what appeared to be the focus of activity at enclosure A, Trench 1 sampled a large section of its interior while extending into enclosure B to address the relationship between the two enclosures. Trench 2 was positioned to examine the nature of the main entrance to the enclosure and address whether the antenna ditches were contemporaneous with each other and with enclosures A and B. The excavation area totalled approximately 425 m^2.

Trench 1

The entrance to enclosure A (Figure 3.5) consisted of a relatively symmetrical, four-post arrangement (F11: [1040], [1046], [1187], [1186]).[1] The presence of very similar fills in all four postholes implies that they were probably contemporaneous; their size (Figure 3.6) in turn suggests that they held relatively substantial timbers for what must have been an impressive entrance structure for such a small enclosure. Despite the postholes' size, it is notable that the gap between these posts was relatively narrow, perhaps only wide enough for single-file human traffic. Such an elaborate entrance contrasts with other Iron Age enclosures in the region; indeed, The Bowsings had similarly substantial postholes, but they formed only a simple 'baffle' (Marshall 2004: Figure B5), while an enclosure at Guiting Manor Farm (Vallender 2005: 24) had a fence line across the entrance but no gateway structure. Additional pairs of postholes were also identified (F15: [1068], [1088] F3: [1012], [1016]), which were apparently associated with the entrance. Their different form and alignment suggest that they relate to different structures, however; the pair of postholes (F3) and (F15) do not appear to be related to gateway F11. F3 may thus mark a simpler entrance structure from a different phase, while the role of F15, situated some distance from the entrance, is unclear.

The ditch of enclosure B (F1 and F2) was sectioned in four places (Figure 3.7). It was steep-sided with

[1] Associated features were given feature numbers (F00) to denote structures; negative contexts are identified in the text by [0000], and positive contexts by (0000).

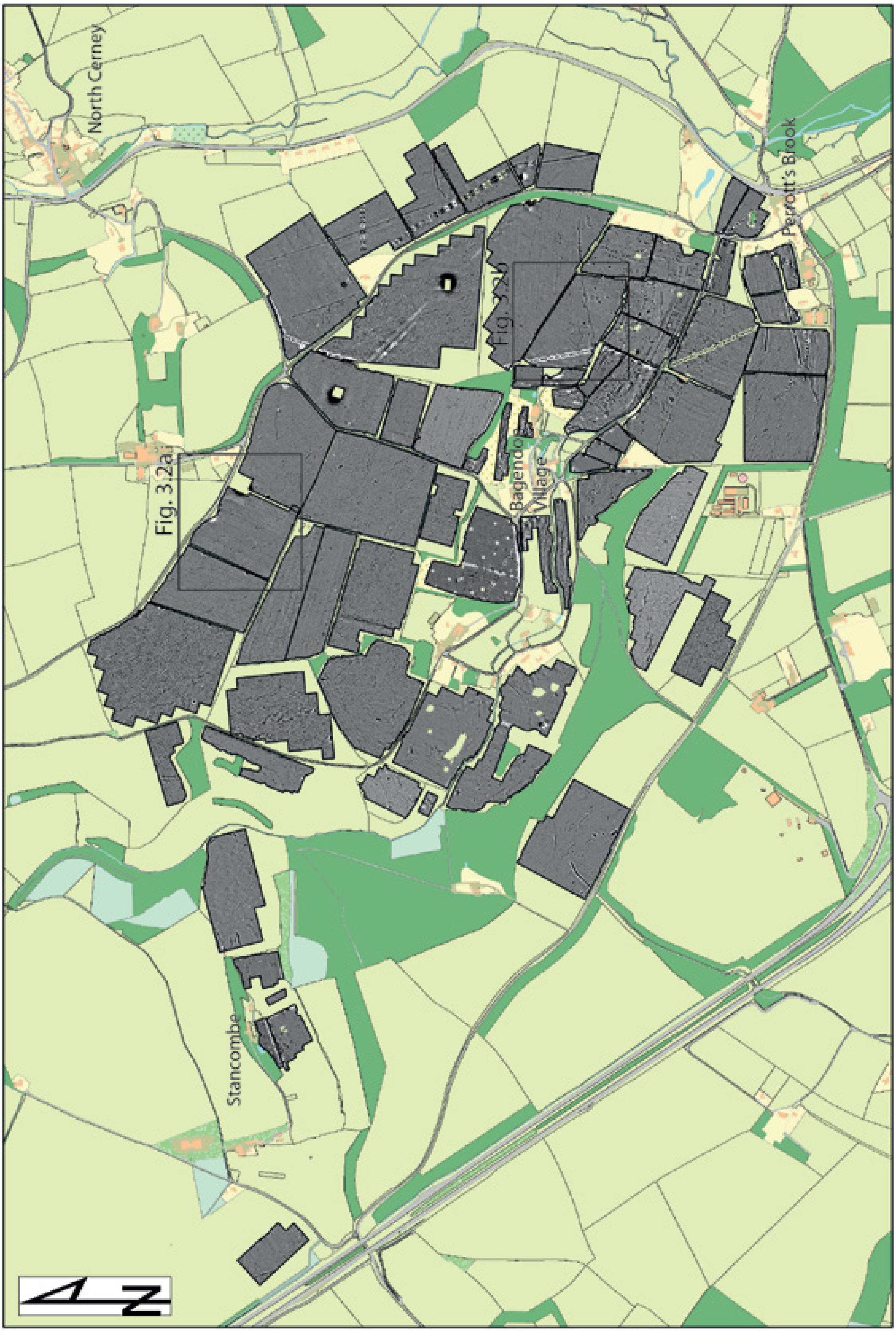

Figure 3.1. Location of Cutham and Scrubditch enclosures in relation to overall geophysical survey.

Figure 3.2a. Geophysical survey of Scrubditch enclosure, showing location of excavation areas.

Figure 3.2b. Geophysical survey of Cutham enclosure

Figure 3.3. Aerial view (looking west) of excavations at Scrubditch in 2012 before Trench 1 and 2 were extended (Photo: Mark Woolston-Houshold)

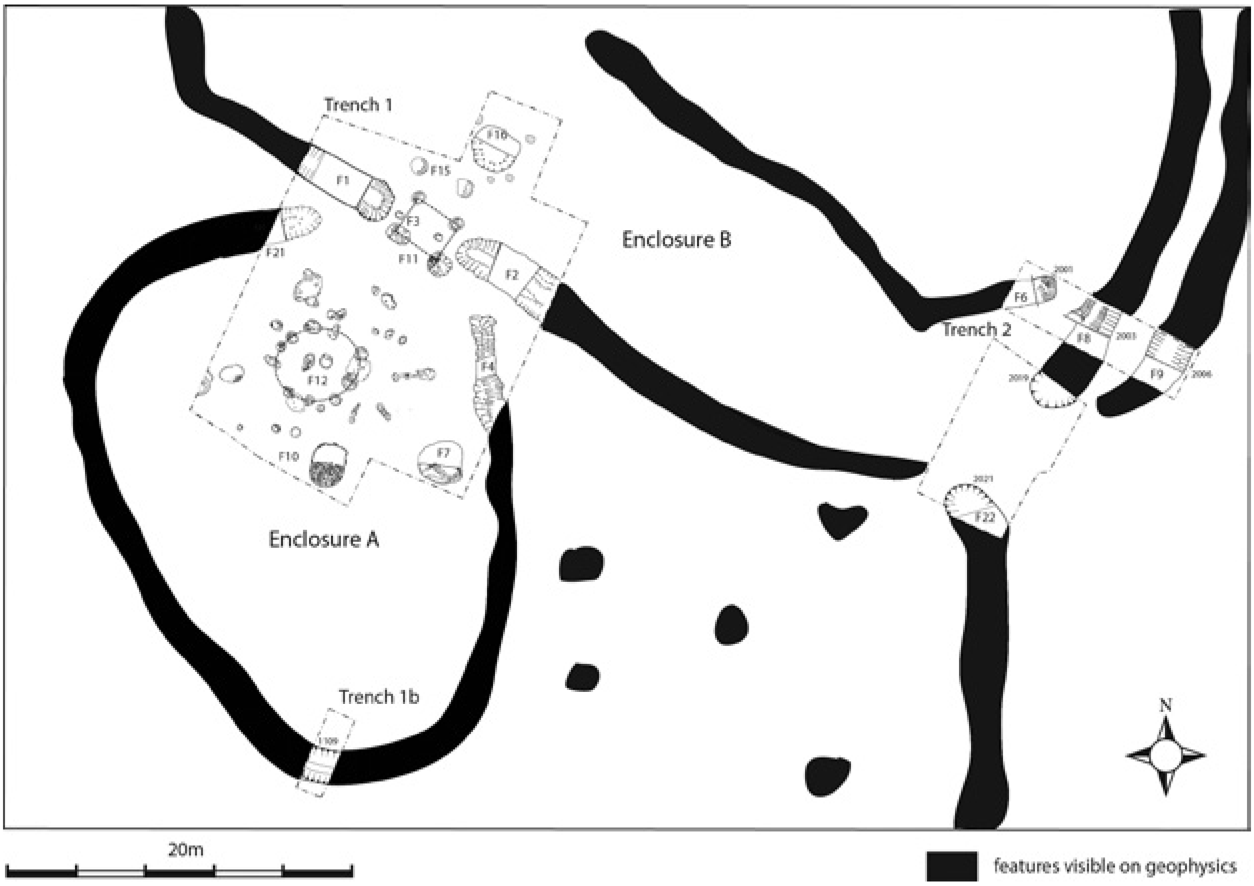

Figure 3.4. Location of Trench 1 and 2 at Scrubditch

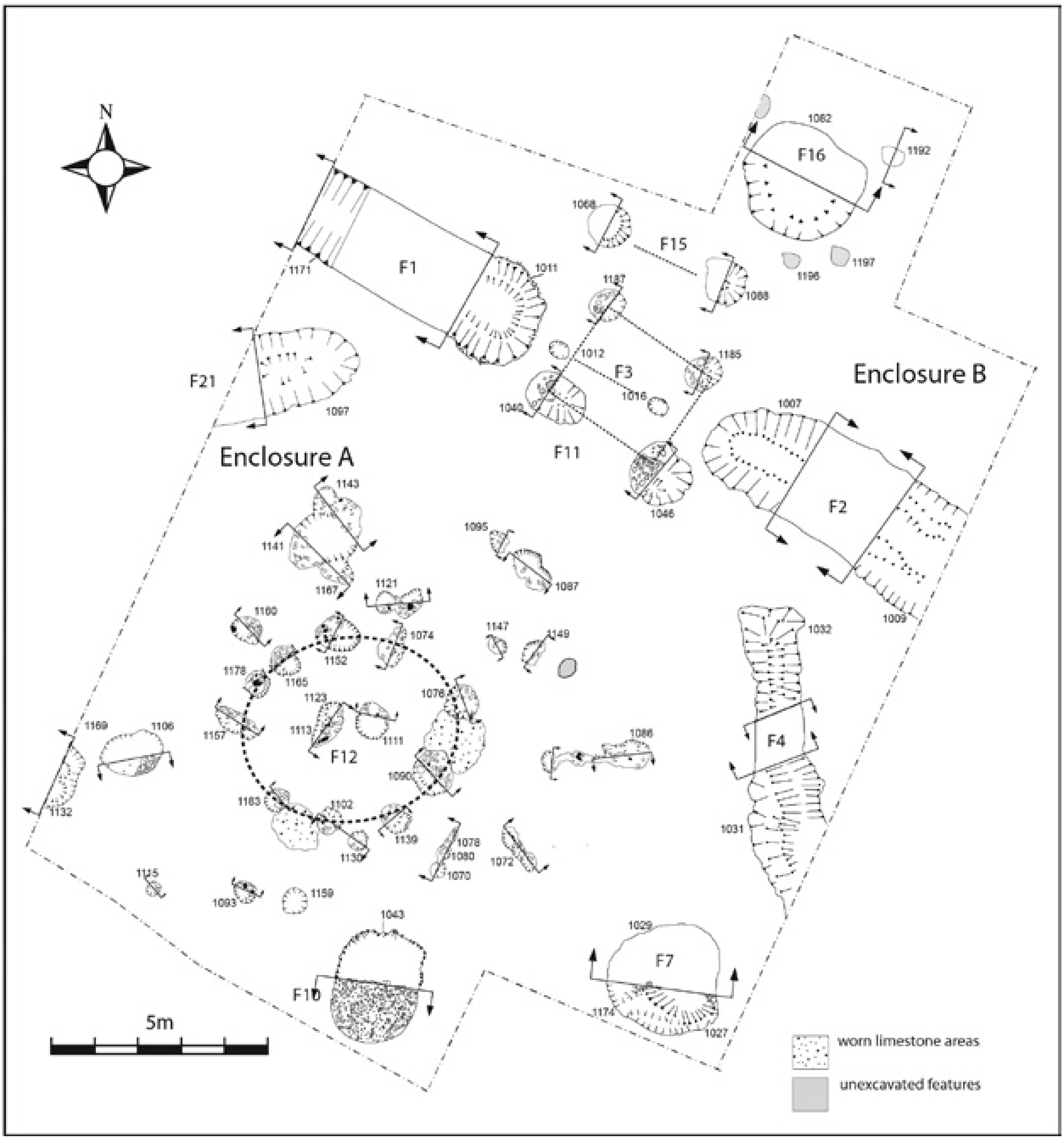

Figure 3.5. Plan of Trench 1 at Scrubditch

a relatively flat-bottomed, rock-cut base. All ditch sections revealed similar sequences: a layer of often void-ridden rubble had been dumped, or slipped, into the ditches in varying amounts above layers of initial silting. This layer of rubble (1054) in F2, section F2 [1009], produced a radiocarbon date of 370–200 cal BC (SUERC-64219).[2] It was then overlain by relatively deep, charcoal-rich layers, which included significant amounts of animal remains and burnt limestone. Similar deposits were found in the other sections: (1042) and (1004) (Figure 3.8). One of these layers, (1004) in F1, produced a radiocarbon date of 350-50 cal BC (SUERC-63691), and a date of 170 cal BC–cal AD 20 (SUERC-064212) from layer (1049) in F2, section [1009]. The absence of the deep charcoal-rich layer in section [1171] may imply that these deposits were focused around the entrances to the enclosures. The charcoal-rich layers were overlain by further stony fills (1013), (1038), (1021), before the ditches appear to have filled up naturally. The presence of some Late Iron Age and early Roman ceramics in some of the upper layers of

[2] All radiocarbon dates have been quoted at 2 sigma, unless otherwise noted (see Chapter 13 for further details).

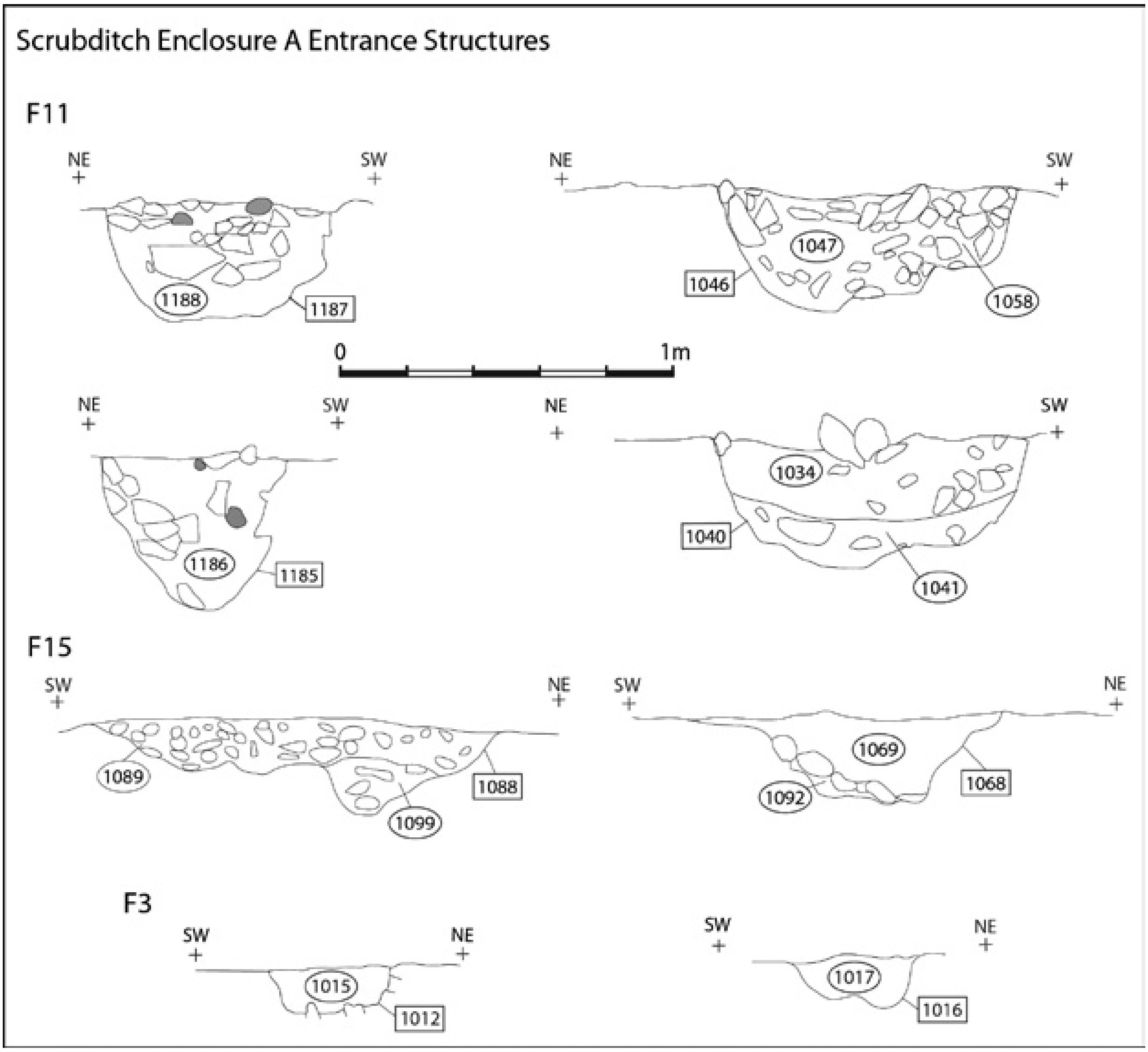

Figure 3.6. Sections of postholes from entrance structures (F15, F3, F11)

the ditch (see Chapter 6), for instance (1173), suggests that these ditches probably remained only half-filled until as late as the 1st century AD. One section [1007] of F2 had evidence of a possible recut, which may denote reorganisation of the site, although clear evidence of this recut was not noted in the other sections and must remain uncertain. It would, however, reflect the situation seen in enclosure A, which may imply that the burnt layers marked a reorganisation of the site in general.

The ditch for enclosure A (F4/21) (Figure 3.9) was sectioned in four places, including both terminals, [1032], [1097], its eastern arm [1031] and an additional section towards the rear of the enclosure in Trench 1b, [1109]. The ditch was less substantial than that of enclosure B. There appeared to be two phases to the ditch, with a recut identifiable in three sections, [1198], [1199], [1200], although no recut was visible in the ditch section in Trench 1b. The initial fills of the phase 1 ditch included some clay silting (1060), (1061), followed by layers of stony material, (1062), (1055), (1105), relatively devoid of artefacts, representing a sequence comparable to enclosure ditch F1/F2. A single sample from this material (1062), in the eastern terminus, produced a date of 370–170 cal BC (SUERC-64217), which is consistent with the first fills of the enclosure B ditch.

Three of the enclosure A sections displaying a recut created a somewhat shallower, more U-shaped profile ditch. As this recut appears to follow the line of the original ditch, it should potentially be regarded as a cleaning-out operation rather than a complete re-organisation of the site, although recuts [1199] and [1200] indicate that the ditch must have been almost completely filled by this time. Furthermore, despite this recut, the sequence of fills matched those from

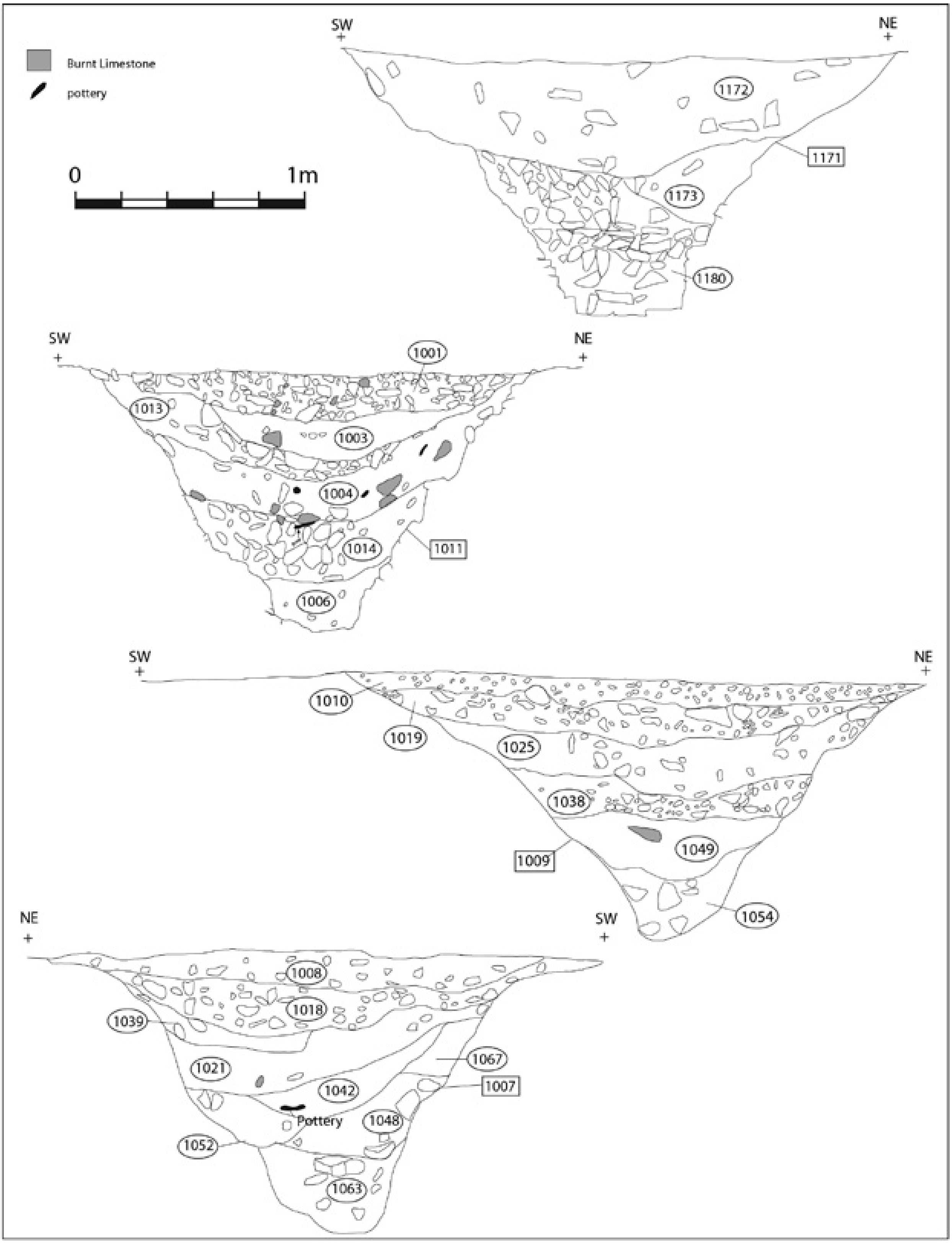

Figure 3.7. Sections of ditches of Enclosure B (F1 and F2)

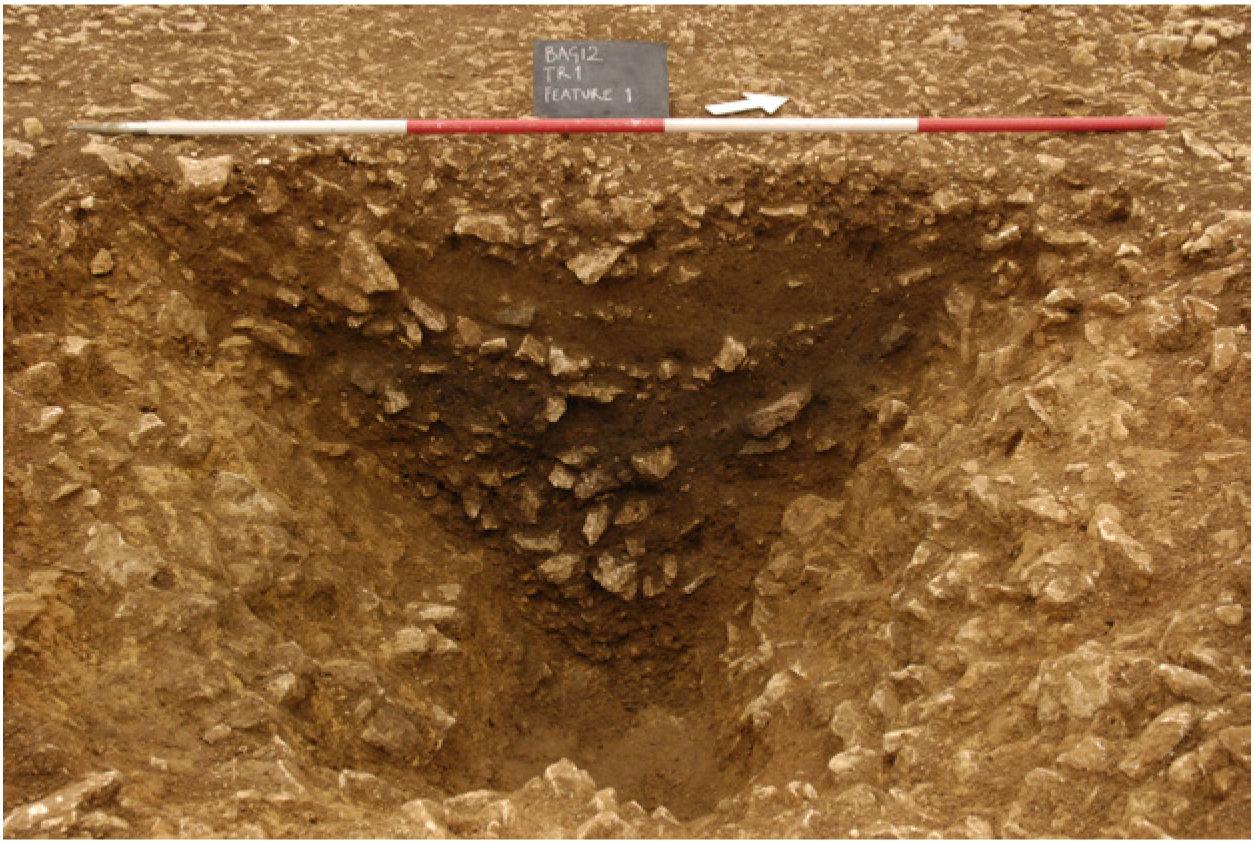

Figure 3.8. Photo of charcoal rich layer in Enclosure B ditch F1 [1011]

the enclosure B ditch, with this second phase of the ditch including considerable amounts of charcoal and ash; significant amounts of pottery and animal bone were also retrieved from these layers (Figure 3.10). A radiocarbon date of 350–50 cal BC (SUERC-63695) from this layer (1104) in the western terminus of F4/F21, provides a date broadly contemporary with deposit (1004) in the enclosure B ditch (F1). The ditch terminals produced interesting finds—including a fragmented but near complete cattle skull from F21, and an almost complete but smashed pot from (1032). Both of these occurred in the charcoal-rich deposit, but whether they represent processes of 'structured deposition' is impossible to determine.

The nature of any banks or fences associated with the enclosure ditches was hard to determine. The location of the rubble backfilling of the ditch could suggest that it derived from a bank on the south side of the ditch, although the proximity of ditch F4/F21 to F1 implies either that these two ditches were not contemporary, or that any bank was insubstantial. An alternative interpretation is that any barrier consisted of a dry stone wall structure, similar to that envisaged at The Bowsings (Marshall 2004: plate 2B), although even this would have to have been relatively wide at its base to account for the quantity of rubble in the ditches. The fills of ditch F4/F21 lacked the large dumps of rubble seen in other ditches on site, perhaps suggesting the lack of an associated bank. Further, the location of pit F7 within the enclosure and immediately adjacent to the ditch would, if contemporaneous, have only allowed space for a very small bank. The presence of a hedge, in lieu of a bank, is also possible and consistent with some of the palaeoenvironmental evidence (see Chapter 18), which indicated the probable existence of thorny hedges. No evidence for postholes for a palisade was uncovered. There is the additional possibility of a bank on the outside of the ditch, with such features relatively common at comparable banjo enclosures (Lang 2016: 6), although again it is unclear how this might relate to the enclosure B ditches.

Within enclosure A, a series of postholes formed a roundhouse structure (F12) immediately to the south-west of the entrance (Figure 3.11 and 3.12). Pottery from the postholes and a single radiocarbon date (370–180 cal BC SUERC-79375) from a fill of one of the central postholes (1112) suggest that this structure was contemporary with the enclosures. The postholes varied in depth and form (Figure 3.11), but most were characterised by the inclusion of at least one large limestone block acting as packing stone. Some (e.g. [1111], [1152]) displayed clear evidence of postpipes, represented by ashy, grey soil. A number of the postholes had been replaced in similar positions, suggesting that the structure was rebuilt at least once. The presence of two posts in the centre of the structure implies a central post, similar to other examples in the region. The two posts are probably not exactly

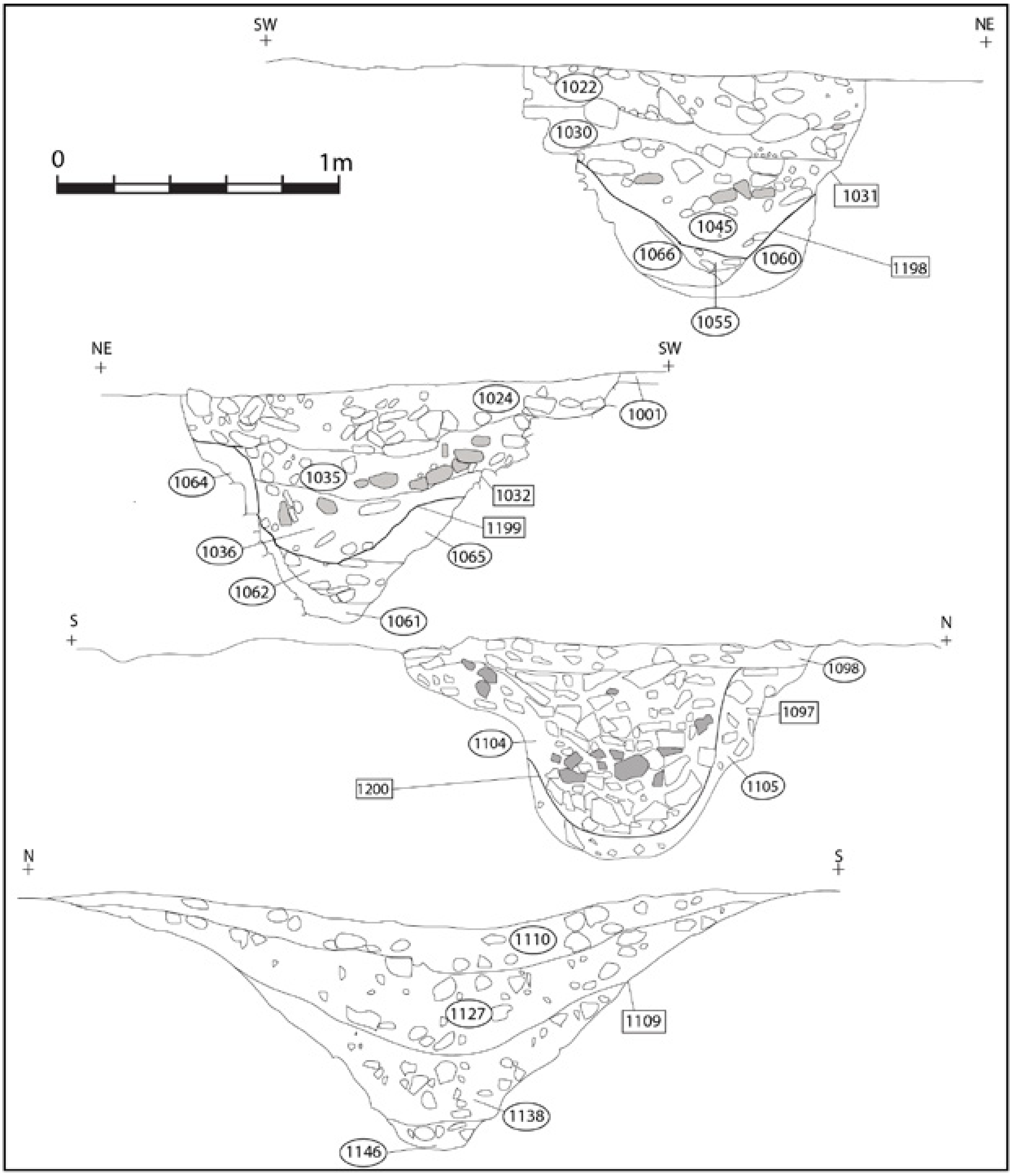

Figure 3.9. Sections of ditches of Enclosure A (F4 and F21)

contemporary and rather suggest that the central post was replaced during the structure's lifetime, or that the house was rebuilt in the same location. Despite the lack of floor surfaces, small areas of crushed, worn stone were identified around certain postholes on the south-eastern side of the structure, probably representing areas where the underlying limestone had been worn by repeated movement. The arrangement of postholes makes identification of a doorway difficult, and none of these surfaces clearly relate to an entranceway. The most probable entrance appears to be towards the north-east, facing that of enclosure A. This reflects a general trend for Iron Age roundhouse-doorway orientation, which is between the south-east and north-east, and as is seen in this region and in southern Britain more generally (Moore 2006: 103; Oswald 1997).

Comparable post-built roundhouses have been noted nearby (Figure 3.13), for example at Kingshill (Biddulph and Welsh 2011: 22); the closest parallels are an Early-Middle Iron Age roundhouse at The Park, Guiting Power (Marshall 2004: Figure P8), and an Early Iron Age

Figure 3.10. Photo looking along Enclosure A ditch (F4) showing charcoal rich layers

structure from Salter's Hill, Winchcombe (Hart *et al.* 2016a). These latter two structures both had a central post. The building from The Park is similar to that at Scrubditch in having a somewhat elliptical form. The posts of The Park example were reconstructed by Marhsall (2004) as representing the wall-ring of the house. However, given the relatively small diameter of the post-ring at Scrubditch (under 5 m), and the substantial size of some of the postholes, it seems likely that these posts formed an internal ring, with an outer wall leaving no subsurface traces, as appears to have been the case at Salter's Hill (Hart *et al.* 2016a). If this was an internal ring it may explain the worn areas of limestone around various postholes, with these having been within the building. One posthole [1076] on the eastern side of the roundhouse contained a large sherd of a ceramic vessel and a fragment of quern stone rubber (see Chapter 12), which suggest some form of structured deposit, apparently inserted when the post was erected.

Other, smaller postholes (1072), (1086), (1070), were potentially associated with the roundhouse; some were linked to linear gullies but none could be resolved into clear structures. There is a possibility that some postholes were part of an outer ring for structure F12. Some may represent a range of more ephemeral structures or various internal divisions within the enclosure. Other, relatively substantial, postholes (1132), (1169), were revealed to the west of the house and may represent an additional structure that was mainly situated outside the excavation area.

Three significant responses on the geophysical survey within enclosure A proved to be pits; these varied considerably in form, emphasising how seemingly similar features on geophysical surveys can be quite different upon excavation (Figure 3.14). Pit F10 was wide and shallow (approximately 0.3 m deep), and filled with a charcoal-rich deposit (1026) containing large amounts of burnt animal remains and burnt limestone. Pit F7 was more scoop-like, with evidence of two separate phases (Figure 3.15). The earliest phase (1037) contained a charcoal-rich layer, with considerable amounts of animal remains, some of which was burnt. A second phase was represented by a coherent layer of burnt limestone, seemingly arranged as the base of a recut [1027] of the pit. This layer was subsequently overlain by an additional charcoal-rich layer (1023), which provided two radiocarbon dates of 360–50 cal BC (SUERC-63696) and 370–180 cal BC (SUERC-82678) from a pig mandible that had unusual isotopic results (see Chapter 17). The role of a posthole [1174] to the west of the pit is unclear but may be associated with the pit. The approximate centrality of pit F10 to enclosure A may imply that it formed a central focus. Its role, however, is unclear. A lack of evidence for burning *in situ* indicates that it was not a hearth, and its final fill suggests 'sweepings' brushed into the hollow. Shallow pit features, although somewhat smaller in diameter, were revealed at nearby Highgate House (Mudd *et al.* 1999: 65), some of which have been explained as abandoned constructions of storage pits. Indeed, the diameter of F10 is consistent with the dimensions of a storage pit, such as F16. Scoop-shaped pits, somewhat similar to F7, have been excavated at The Park (Marshall 2004: Figure P11) and at Birdlip (Parry 1998: 45). Possible explanations for these features include clay-puddling pits or water containers, yet a role as cooking pits seems equally plausible. Certain other features [1141], [1143], [1167] included only relatively sterile orange clay and what may be tree-throws or

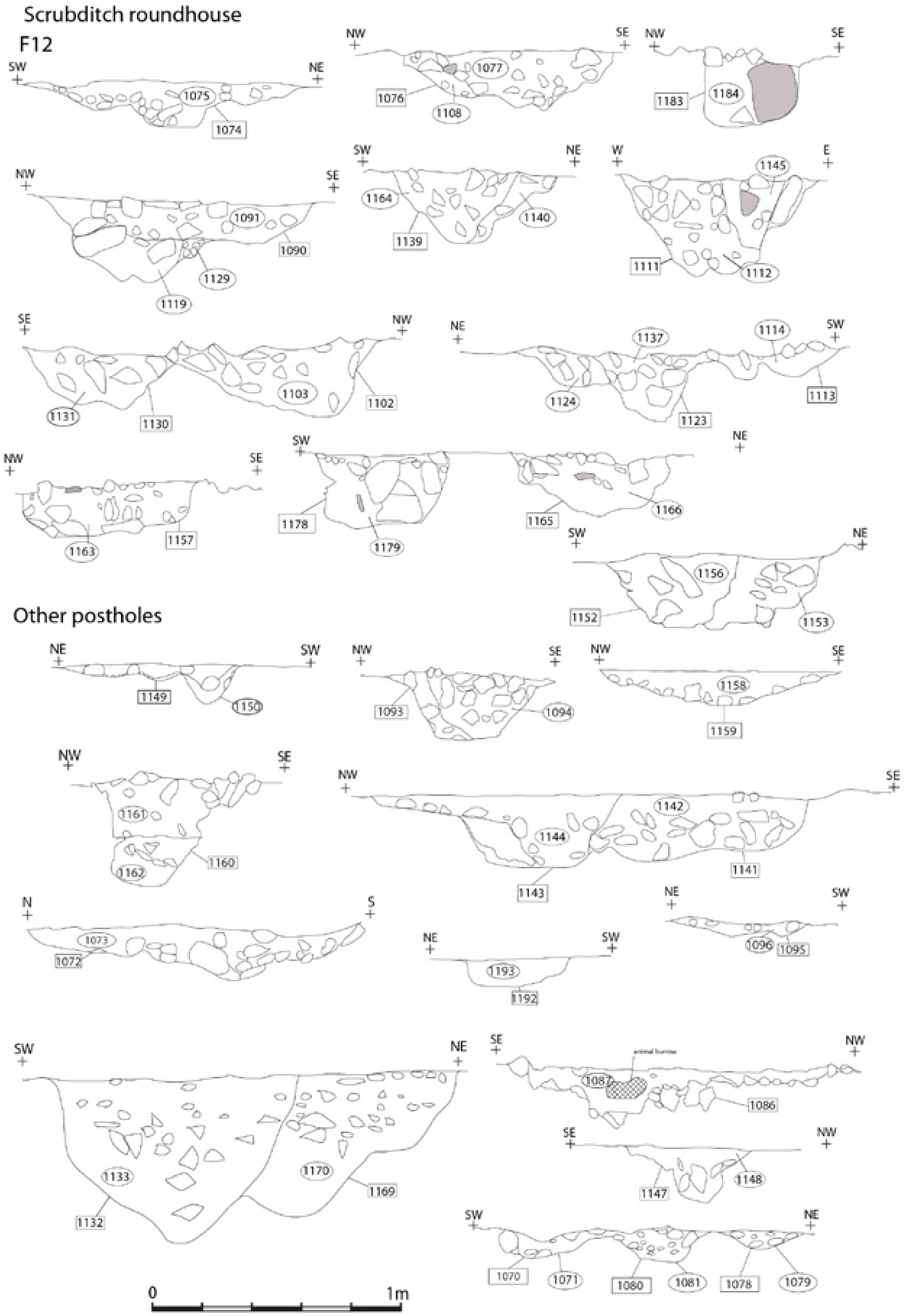

Figure 3.11. Sections of postholes from roundhouse F12 and other postholes from Enclosure A

Figure 3.12. Aerial photograph of Trench 1 showing partly revealed postholes of roundhouse in Enclosure A (Photo: Mark Woolston-Houshold)

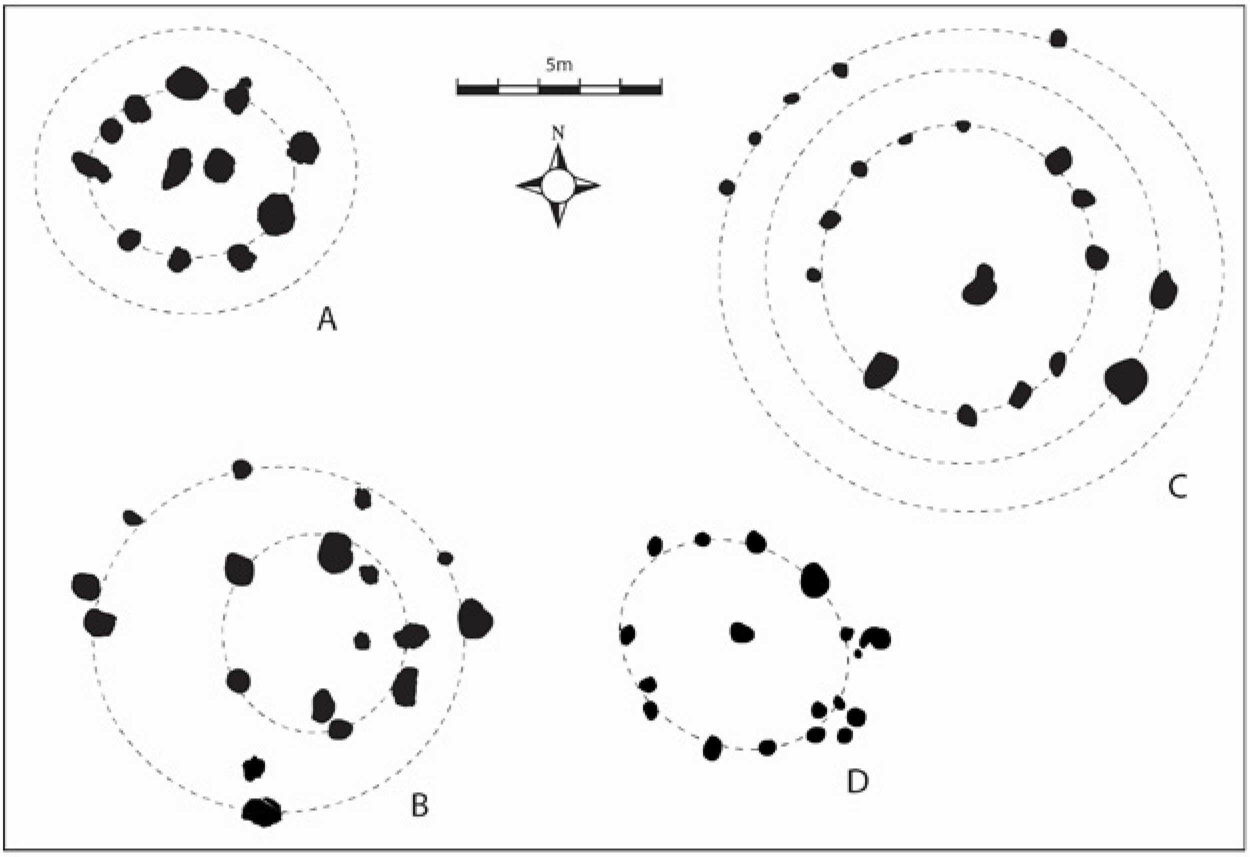

Figure 3.13. Comparison of possible roundhouses at Scrubditch (A)and Cutham (B) with examples from Salter's Hill (C) (after Hart et al. 2016a) and The Park, Guiting (D) (after Marshall 2004).

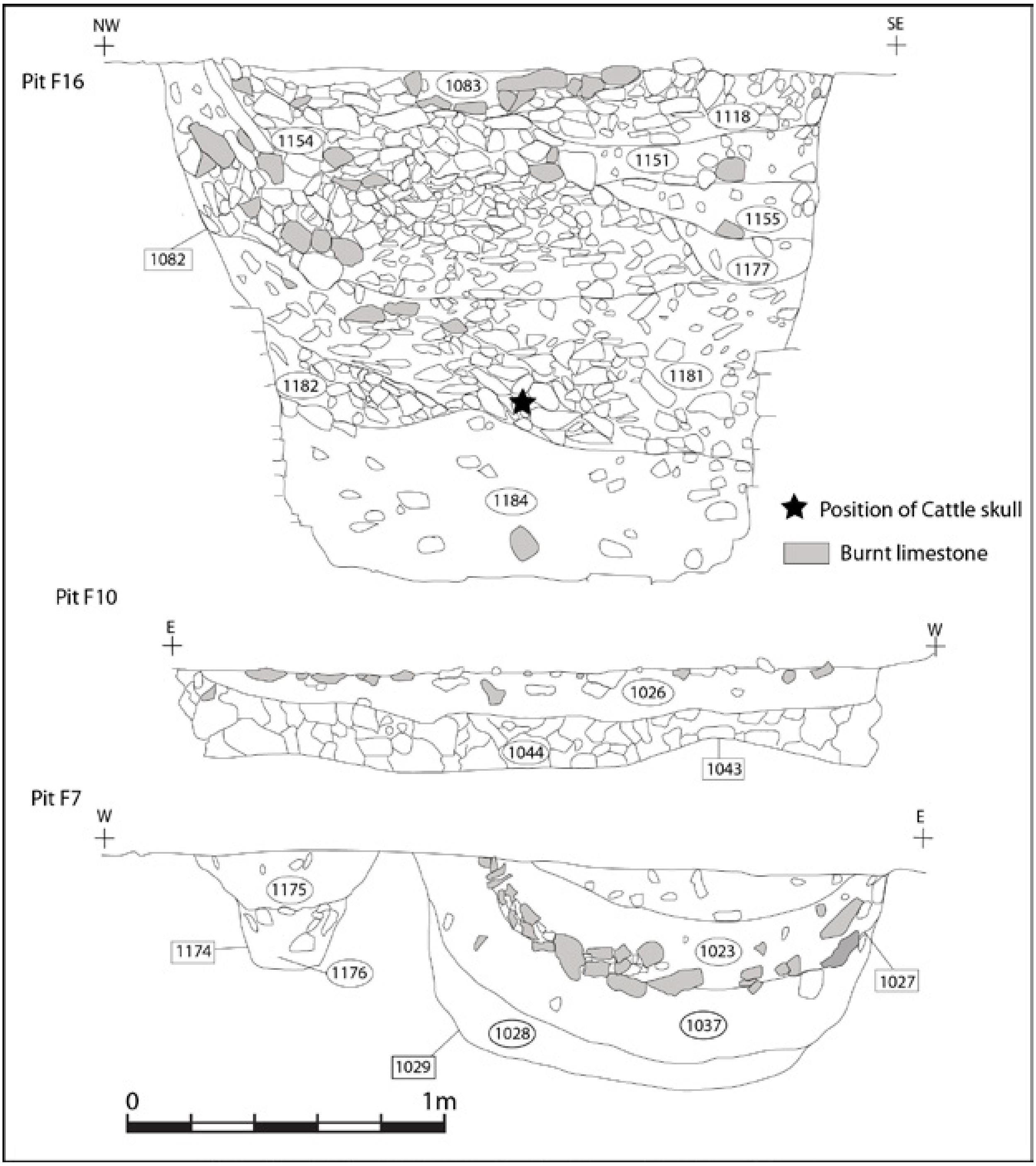

Figure 3.14. Sections of pits F10, F7, F16.

scoops of indeterminate nature, although at least one [1141] displayed evidence of a recut.

In enclosure B, immediately opposite the entrance to enclosure A, a large cylindrical pit (F16) was revealed (Figure 3.14). Its shape and size make it similar to pits designated as 'storage pits' (with comparable examples excavated at Cutham enclosure), although debate remains over the role of such features. The pit had been backfilled with void-ridden rubble: (1184), (1181), (1182), (1154), probably over a relatively short space of time. Above this was a layer of burnt stone, overlain by charcoal-rich material (1083), which appeared to represent a deliberate 'capping' of the pit. Similar practices are noted at other Iron Age sites in the region (e.g. Highgate House: Mudd *et al.* 1999: 67). Few finds were recovered from the backfilled rubble save a virtually complete cattle skull from what may have been a diseased animal (Figure 3.16; see Chapter 16), which produced a radiocarbon date of 370–170 cal BC (SUERC-64218). Such finds are relatively common in the region, with complete horse and cattle skulls

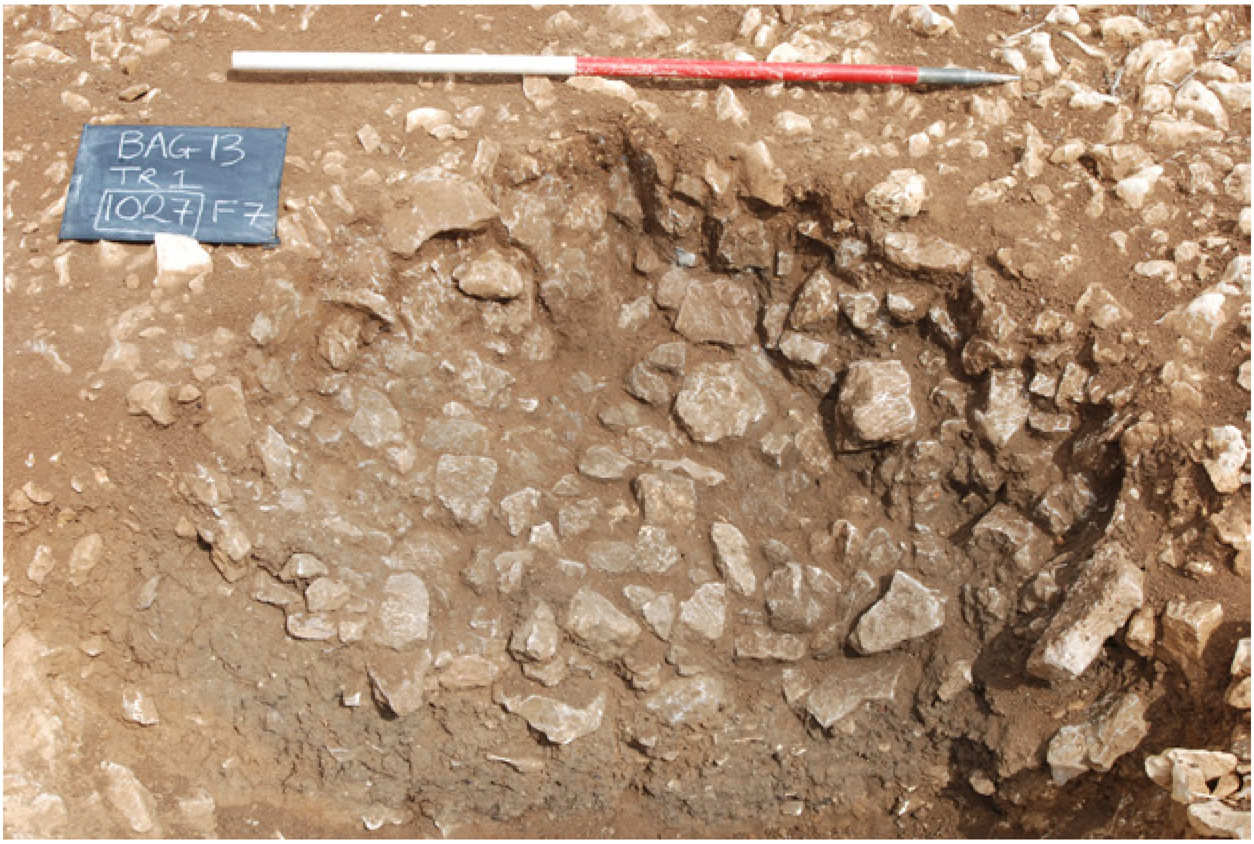

Figure 3.15. Photo of burnt limestone layer in pit F7 after removal of charcoal layer (1023); earlier charcoal layer (1037) can be seen below (Photo: Tom Moore).

Figure 3.16. Photo of cattle skull in pit F16 (Photo: Tom Moore).

potentially representing 'terminal deposits' in the backfill of pits once they had gone out of use (Hart *et al.* 2016a; Marshall 2004). This act does not appear to mark abandonment of the site, however, although the date of the skull suggests that it may represent a change of activity at the site.

A set of postholes located around the pit appear to be some form of associated structure, with similar arrangements noted in association with pits at other sites in the region (e.g. Birdlip: Parry 1998: 46; Guiting Manor Farm: Vallender 2005: 45). These postholes may represent a covering structure (cf. Marshall 2004: Plate 3B) or some form of barrier when the pit was open. If the large excavated pit is the only 'storage pit' within the complex, this would correspond with a number of other Later Iron Age enclosures in the region that appear to have single 'silo' pits that were often isolated from smaller pit clusters (Marshall 2004: 20).

Trench 2

Trench 2 assessed evidence for an entrance structure and the phasing of the antenna ditches flanking the entrance to enclosure B. A lack of postholes in this area indicates that any potential entrance gate would have been relatively insubstantial, in contrast to that for enclosure A. The lack of entrance structures is noted at some other banjo enclosures, for example Nettlebank Copse (Cunliffe and Poole 2000: 27). The best explanation for such an arrangement may be that there was no need for a gateway. The odd morphology of the inter-related enclosures at Scrubditch could relate to a role in managing livestock, and thus explain the gateway's layout with a desire to funnel animals unimpeded into enclosure B and then divide them off using the gateway into enclosure A and through the (unexcavated) entrance opposite enclosure A. Any temporary barrier to enclosure B could have been provided through forms of wattle fencing, which would have left no subsurface traces.

The continuation of the northern ditch for enclosure B (F5), recognised on the geophysical survey, was identified in Trench 2 and appeared to terminate in this area. Its fills were notably sterile compared to those in Trench 1, implying potentially contrasting deposition processes in different areas of the enclosure. Ditch F2, the southern enclosure B ditch, did not extend into Trench 2, confirming that enclosure B and the antenna ditches did not join.

Excavation (Figure 3.17) indicated that the first phases of the inner antenna ditches (F8 and F22) were relatively deep and steep-sided, while the outer ditch (F9) was far shallower, with a concave base; the latter unlikely to have been much use in deterring animals (Figure 3.17). Inner antenna ditches F8 and F22 contained a layer of orangey clay in places, (2012) and (2015) respectively, representing initial silting, followed by large dumps of rubbles (2031), (2030), (2013), which in F22 provided two radiocarbon dates, from (2031), of 730–390 cal BC (SUERC-63689) and 360–50 cal BC (SUERC-79374). The discrepancy in these dates and the correspondence of the second date with material from the layer above (2025) probably indicates that the latter is correct and agrees with dates elsewhere suggesting that the enclosure was constructed in the 4th–3rd centuries BC (Chapter 13). The possibility that the earlier date derives from activity pre-dating the enclosure, perhaps even an earlier linear feature, cannot be ruled out however, although the lack of any early Iron Age ceramics or other early dates suggests that it may simply be erroneous.

Ditch F22 appears to have been recut to create a more dish-shaped feature; its affinities with the shape of ditch [2006] may suggest that this took place at the same time ditch F9 was dug. There is evidence of recutting of the opposite inner ditch (F8) in both sections, which may also be contemporary with recutting of ditches F22 and F9, although F8 seems to have retained a more steep-sided profile.

There is a notable discrepancy between the deposits in the terminus of the northern ditch (F8) and that of the southern ditch (F22); the latter having a substantial layer of charcoal-rich material, (2025) and (2028), similar to that seen in features in Trench 1, which overlay the rubble layer; this was absent from the northern terminus (Figure 3.18). No similar charcoal-rich material was revealed in ditch F9. The charcoal-rich layer provided a radiocarbon date of 360–50 cal BC (SUERC-63690). This was overlain by a subsequent layer of rubble, perhaps from an inner bank, followed again by subsequent charcoal-rich layer (2022), which produced some notable finds, including an iron spearhead (sf.2013-19; Inall, in Chapter 8) and a short tubular copper-alloy object (sf. 2013-20). Late Iron Age pottery in the upper layers of both ends of the antenna ditches F8 and F21 indicate that it was still open—if largely backfilled—at this time. The presence of these deposits in the southern terminus, but not in F8 and F9, may suggest that ditches were treated differently and material deposited preferentially in certain areas, a practice widely noted in the British Iron Age.

The geophysical survey indicates that the antenna arrangement is only bivallate on the northern side, and the divergence of the form of the inner and outer antenna ditches may go some way to explaining this arrangement. The close alignment of ditches F8 and F9 suggest that the former must have been open and visible at the time F9 was dug. The lack of finds from ditch F9 makes it difficult to establish the sequence of ditches, but it seems most likely that F8 and F22 were cut first and then subsequently recut at some later point, with the additional ditch F9 perhaps dug at this time. Whether this outer ditch was intended to have a partner on the southern side is not clear, but it is possible that the ditch was constructed merely to enhance the appearance of the antenna arrangement. Why such an arrangement was not required on the southern side is unclear. That the later phase of the inner ditch was shallower and

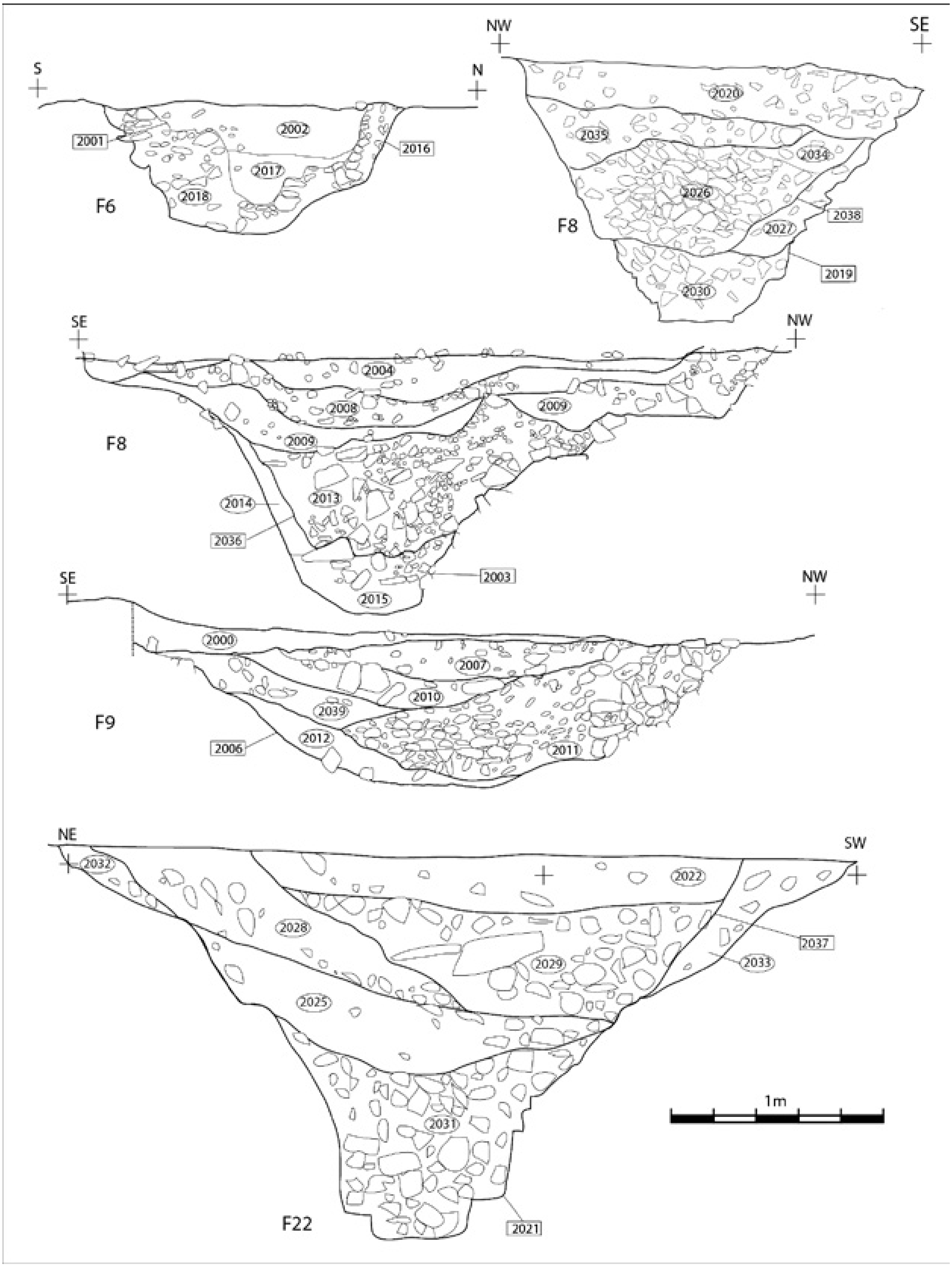

Figure 3.17. Sections of antenna ditches (F8, F9 and F22) and Enclosure B ditch (F5) in Trench 2.

Figure 3.18. Photo Antenna ditch F22 (Photo: Tom Moore).

not as steep-sided as the original may suggest that the role of these ditches had changed, and was more about demarcating space than any functional necessity. The lack of comparable banjo enclosures with bivallate antenna ditches again makes Scrubditch rather unusual.

Scrubditch enclosure phasing and dating

A lack of intercutting features makes clear phasing of activity hard to determine; it may also suggest that enclosures A and B and the antenna ditches were contemporaneous. The occupation span of the complex, based on the suite of radiocarbon dates, was perhaps less than 300 years (Chapter 13). The sequence can be simplified to four phases, although it is highly likely that this obscures a more complex picture of activity:

Phase 1. The construction of antenna ditches and probable contemporaneous construction of enclosures A and B (Middle Iron Age: c. 4th–3rd century BC).

It is hard to determine exactly when the enclosures were laid out, but ditches at both enclosures B and A were receiving material dating to the 4th–3rd century BC in phases 2 and 3. The single early date of 730–390 BC (SUERC-63689), obtained from the lower fill of the antenna ditch, does not seem related to the construction of the enclosures, but could be residual and suggest earlier activity in the area. Some curvilinear enclosures that share morphological characteristics with Scrubditch, such as Groundwell Farm (Gingell 1981; Timby, in Walker *et al.* 2001), have evidence of activity in the Early Iron Age, but there too most evidence points to predominately Middle Iron Age occupation. The lack of any Early Iron Age pottery from Scrubditch may imply, therefore, that the date is simply an anomaly.

Phase 2. Filling of the ditches with rubble (Middle Iron Age: c. 3rd century BC).

Prior to the construction of enclosures A and B, their ditches received deposits of rubble. This may have marked a deliberate, partial backfilling of the ditches or natural slippage, with either scenario denoting the temporary abandonment of the enclosures or indicating that the ditches were no longer needed. The apparent backfilling of the large pit (F16) in enclosure B at this time may also be significant and support the suggestion that the site was temporarily abandoned before reoccupation in phase 3.

Phase 3. Enclosure A and antenna ditches recut: charcoal-rich deposits (Middle Iron Age: c. 3rd–2nd century BC).

Radiocarbon dates from enclosure A and the antenna ditches suggest that these were subsequently recut. The enclosure B ditch might also have been recut at this time, at least in places. These features all then received large quantities of ash-rich material, which contained relatively substantial amounts of animal bones and ceramics. It seems likely that pits F7 and F10 also date to this phase, while pit F16 (now almost completely filled) received similar material. The lack of evidence for any silting prior to the filling of the ditches at enclosures A and B ditches (and antenna ditch F22) suggests that this probably occurred soon after these ditches were recut. On the basis of radiocarbon dates, phase 3 probably too place in the early 2nd century BC, which suggests that these events were at least roughly contemporaneous (although not necessarily a single event) in the later part of the Middle Iron Age, with deposits in pits F7 and F10 similar enough to indicate that they were probably related.

Phase 4. Upper stony fills (natural or deliberate backfilling of ditches): Late Iron Age.

Following the activities related to the ashy layers, the ditches were left open, later receiving rubble, which was perhaps the remains of any banks. The presence of some Late Iron Age and early Roman sherds, as well as a probable Roman hobnail (see Chapter 12) within the upper of layers of the ditches of enclosure B and within the upper layers of the antenna ditches, indicates that activity of some sort continued in the area. It seems, however, that the enclosures had ceased to function by the Late Iron Age, with the small quantity of Late Iron Age material suggesting that any activity was not intensive or was located outside the excavated area.

The chronological sequence outlined above can be refined somewhat by the application of Bayesian statistics on the available radiocarbon dates (Hamilton, Chapter 13). The initial silting of ditches suggests that both Scrubditch enclosures were probably constructed somewhere between 370 BC and 200 BC, reflecting a spate of enclosure construction in the Middle Iron Age (see Chapter 23). It seems likely that the roundhouse was contemporary with occupation in phase 1.

At some point, the ditches appear to have been partially backfilled (or at least ceased to be maintained), and were then recut in a later phase. The dating evidence implies that the recutting of the antenna ditches and enclosure A was roughly contemporaneous, probably in the very late 3rd or early 2nd century BC (Chapter 13). This recutting was followed by a period that witnessed significant quantities of burnt material being created and subsequently dumped in the ditches and pits. Whether these burning phases indicate a change in the nature of activity at the site is unclear. It is noticeable that these dumps of material, despite their widespread presence, were largely restricted to the termini of the ditches (being absent from ditch sections [1171] and [1109], as well as from antenna ditches F8 and F9), suggesting that they were part of a deliberate process of disposal.

By the 2nd or 1st century BC, the ditches appear to have been largely infilled, suggesting that if occupation continued, the need for an enclosure had passed. While Hamilton (Chapter 13) places the date for this infilling of the ditches as relatively early, Late Iron Age and early Roman ceramics in upper layers indicate that some sporadic occupation or activity existed into the 1st century AD, while the ditches silted up or were backfilled. Indeed, a corresponding possibility emerges from some banjo enclosures (e.g. Nettlebank: Cunliffe and Poole 2000), in that they were abandoned and then reused at much later dates.

Role of the Scrubditch enclosure

Although the longevity of occupation might have been relatively short, the limited evidence for intercutting features on the site could also imply that occupation was relatively sporadic and not intensive. The arrangement of the enclosures at Scrubditch is unusual, and its morphology may represent a specific function, allowing for the division of space into discreet areas. Most notable is the arrangement of enclosure A at right angles to enclosure B, with the gateway suggesting restricted access from one to the other. Notably, the antenna ditches and enclosure B did not form a clear funnel, but apparently had gaps to the north and south, although whether these were entrances is not clear. If, as suggested above, enclosure B and the antenna ditches acted as a funnel for livestock, the presence of storage pit F16 is problematic, despite the possible fence structure around it. A number of possibilities thus arise. First, that F16 was not a storage pit, but should instead be regarded as waterhole, similar to that uncovered outside the funnel entrance at Spratsgate Lane (Vallender 2007). This seems unlikely, however, with the Scrubditch example differing in size and form and displaying no sign of a clay lining necessary for water retention on the porous limestone. Second, that F16 was part of a different phase of activity and represents a change in the use of the complex. The centrality of F16 to enclosure B, however, does imply that it was a focal point. The final scenario is that we should not envisage the funnel arrangement as representing the large-scale driving of animals into the enclosure, but as designed to enhance the impressive nature of the entrance.

The faunal assemblage is potentially significant for establishing the role of the site, with some evidence of a higher-than-normal proportion of pig in comparison to most Iron Age sites in the region. Those sites nearby that display similar proportions of pig include the Late Iron Age site at Middle Duntisbourne and the curvilinear enclosure at Groundwell Farm (Gingell 1981: 71). The consumption of pork is often seen as evidence of high-status occupation or feasting. Either scenario suggests that the apparent spatial exclusivity of enclosure A could relate to activities therein. The higher proportion of pig remains may also reflect the nature of the environment; the Middle Duntisbourne area (see below) has evidence for having been a wooded environment, and a similar argument has been made for Groundwell Farm (Gingell 1981: 73). The evidence from Scrubditch therefore implies distinctive agricultural and social roles.

Cutham enclosure

A single season of excavation was undertaken at the second enclosure identified by the geophysical survey (Figure 3.2b, 3.19). This enclosure is situated relatively centrally within the Bagendon complex on gently sloping ground, immediately above the valley, approximately 300 m from the areas excavated in the 1950s and 1980s (see Chapter 4) and approximately 100 m from the Roman buildings and Late Iron Age activity identified in Trenches 5 and 6 (see Chapter 5). Its proximity to occupation in the valley meant that establishing its chronology was a priority. The enclosure's association with a large trackway (or avenue) towards the east also highlighted the importance of determining the nature of activity that it signified: did this trackway represent an impressive entrance into a high-status enclosure and/or was this for managing the movement of animals?

Trenches 3 and 4 (c. 637 m^2) sought to address these questions, with the former exploring activity within the enclosure, and the latter examining the funnel-like entranceway (Figure 3.20). Geophysical survey revealed a cluster of anomalies in the northern half of the enclosure, an aspect confirmed by the density of features exposed after the stripping of the topsoil. Variation in the density of features across the enclosure may relate to a greater truncation of features in the southern area, although it is likely that large postholes and pits would have remained, thereby suggesting some spatial distinction between the northern and southern halves of the enclosure.

In Trench 3, a dense cluster of postholes immediately to the south of enclosure ditch F23 could not be resolved into definitive structures, although the substantial size of some suggests that they comprise the remains of a structure, probably a roundhouse (F32). The varied form of these postholes (Figure 3.21) indicates elements of more than one phase of structure. Some of the closely situated postholes, for example [3079] and [3073], or [3097] and [3053], probably mark the replacement of posts in the same area. An outer and an inner arc of postholes can tentatively be drawn (Figure 3.13), but no clear structure can be determined. Many of these postholes post-date a series of amorphous shallow scoops, such as [3079]. There are examples of a number of scoops in this area, the role of which is hard to determine. It is possible that some, such as [3036], represent extraction pits for the posts, but the role of others is harder to determine, athough a number have affinities to those encountered at Scrubditch.

An arc of postholes in the south-west quadrant of the enclosure (F28) (Figure. 3.22) may also represent a roundhouse; the two central posts [3132] and [3104]

Figure 3.19. Aerial view of excavations at Cutham (Photo: Mark Woolston-Houshold).

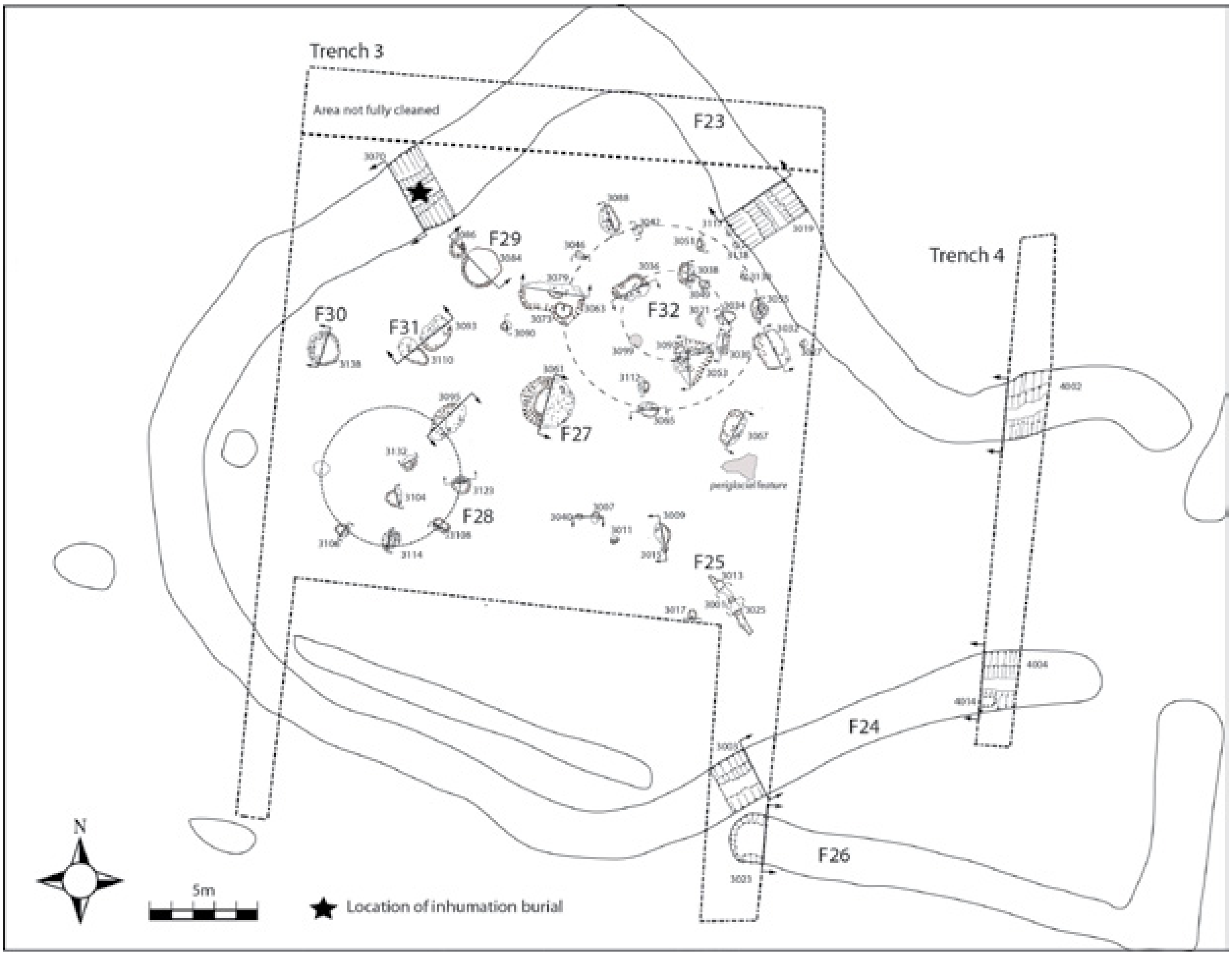

Figure 3.20. Plan of Cutham enclosure excavations.

echo the structural arrangement at the Scrubditch example. The presence of a virtually complete neonate sheep from one of these central posts [3132] (see Chapter 16) could represent a structured deposit, perhaps marking the replacement of the posthole. The lack of postholes on the western side may argue against this being a roundhouse, although the severe truncation of a number of those examined in this area may imply that other elements of the structure were destroyed. The location of this structure, immediately opposite the entrance and situated towards the back of the enclosure, might support the notion of it as the main dwelling and perhaps associated with the first phase of occupation.

The flat stones within some of the postholes from Cutham (such as [3086]) might not have been packing but post-pads, with many seemingly placed flat within the posthole rather than angled. The example from [3086] might have been one of the few remaining *in situ.* Given the uneven, stony nature of the underlying limestone brash, such a building technique would be logical, with Iron Age post-pad structures also suggested nearby at Kingshill (Biddulph and Welsh 2010: 22). To the south-east, part of a linear gully (F25), with incorporated posts, appears to be the truncated remains of a fence line (Figure 3.21). Further postholes to the north-west of this gully may be related, perhaps representing a screening of the south-west interior of the enclosure. The presence of Saxon pottery in [3009] suggests that some of these features are unrelated, however.

Within the enclosure, three cylindrical pits were identified, two fully excavated F27 [3061] and F30 [3084], and a third partially excavated, F29 [3138] (Figure 3.23). Pit F27 (Figure 3.24) was backfilled with rubble (3126) containing substantial limestone blocks; the void-ridden nature of this fill, similar to that in the example from Scrubditch, implies that this backfilling was done relatively rapidly. Within the rubble backfill was a La Tène C brooch (see Chapter 7) dating to *c.* 150–100 BC. Above the rubble was a thick layer of orangey, clay silt (3102), indicating a hiatus between the backfilling of the pit and the overlaying deposits of ash and charcoal (3092) and (3083), potentially representing burning *in situ* and thus a similar use for this hollow to that of pit F7 at Scrubditch. This layer produced a radiocarbon date of 200–40 cal BC (SUERC-64211).

A second, more cylindrical pit (F29) contained a similar sequence of deposits, backfilled with substantial amounts of loose rubble, above which was a charcoal-rich fill. Posthole [3086] appeared to be associated with

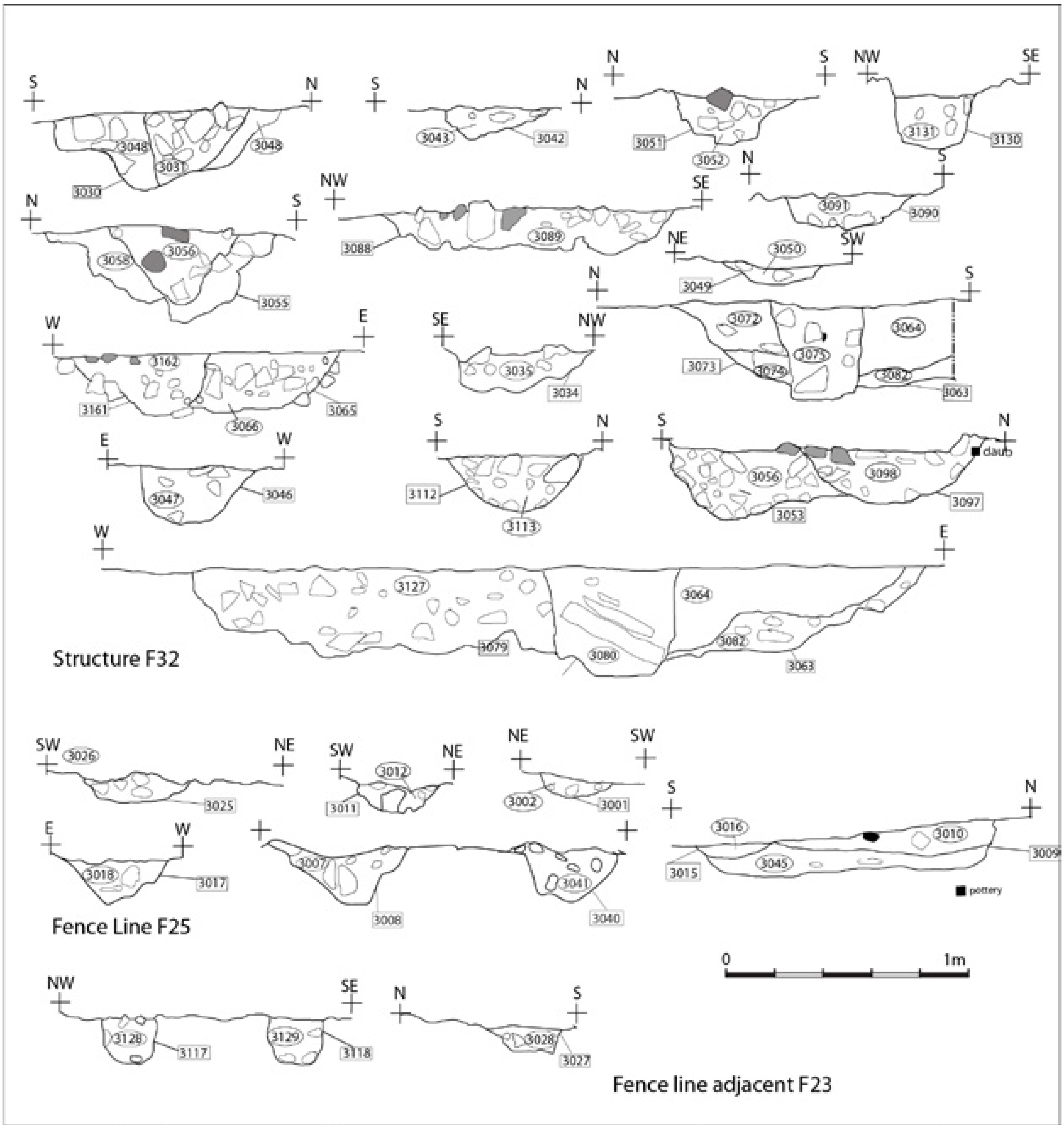

Figure 3.21. Sections of postholes from structure F32 and fence lines.

the pit (in a similar fashion to the posthole adjacent to pit F7 at Scrubditch), but its role is unclear. The form of these pits reflects those of other sites in the region, although F29 appeared more akin to a storage-pit (with a slightly undercutting profile), whereas F27's more concave and larger diameter may imply a different role. Other pits, of uncertain function, such as (F31), and [3088], which may be large postholes, are somewhat like pit F7 at Scrubditch and contained similarly significant amounts of burnt stone and charcoal-rich material. The latter feature also contained the only evidence of hammerscale from the site (Chapter 9), as well as wood charcoal that was probably associated with metalworking (Chapter 18), suggesting that iron smithing was also taking place at Cutham. Whether such shallow scooped pits were directly related to such activities or merely the recipients of sweepings from elsewhere is unclear. A radiocarbon date from (3089) of 360–60 cal BC (SUERC-79376) suggests that these pits were contemporary with the enclosure. A fragment of early Roman ceramic from this feature (Chapter 6) is probably intrusive.

The main enclosure ditch (F23/F24) was sectioned in three places in Trench 3 and twice in Trench 4 (Figure 3.25, 3.26). It appears that the southern arc of

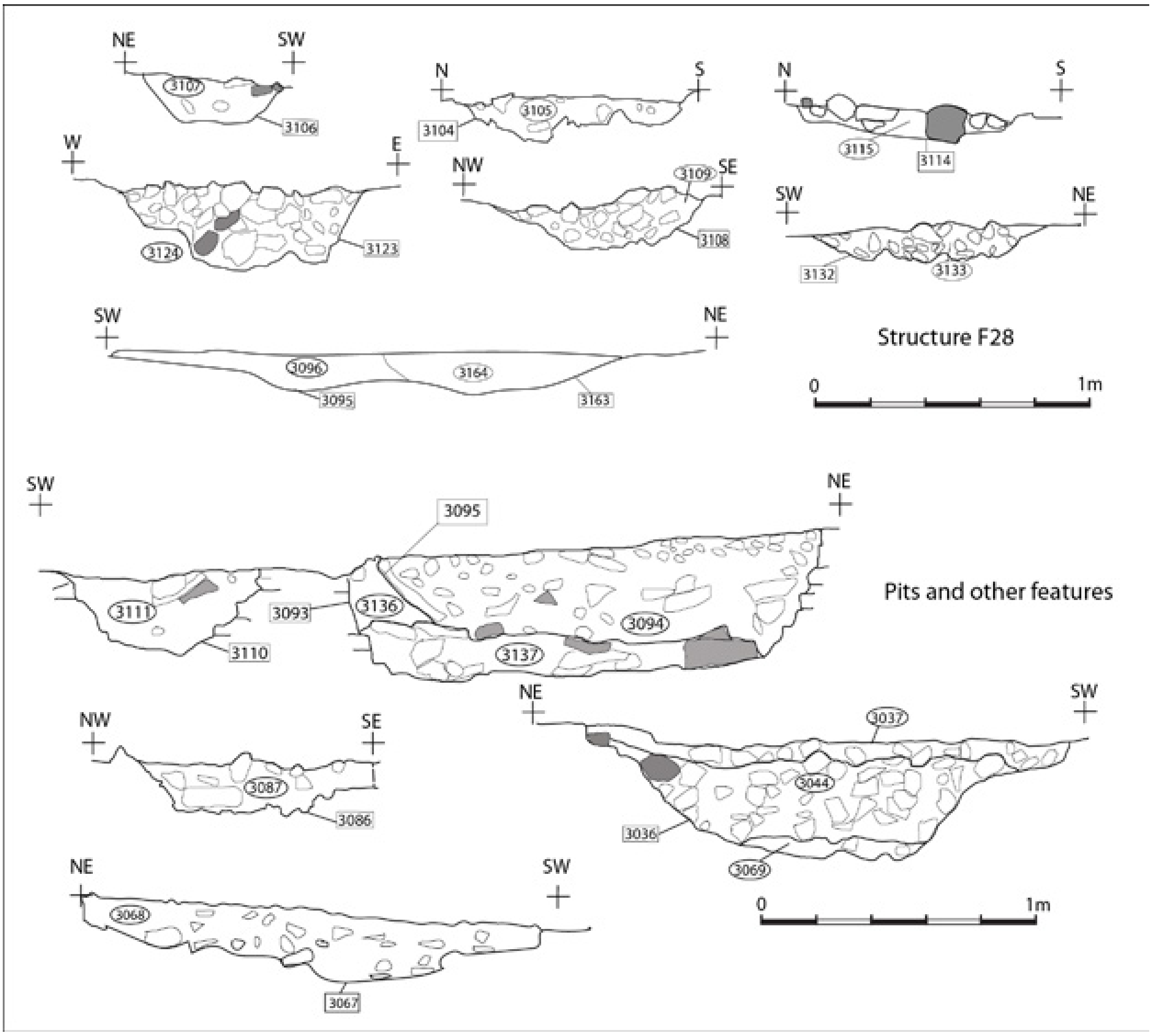

Figure 3.22. Sections of postholes from structure F28 and other pits and scoops from Trench 3.

the enclosure ditch had been more heavily truncated. The first feature [4014] appears to have been an earlier ditch of which only the terminus was identified beneath [4004]. A lack of dateable material from this feature means that it is hard to determine how much earlier than ditch [4004] this took place.

Notably, the southern arm of the enclosure had a slightly different sequence to the northern arm. In the southern arm, F24, initial silting was followed by the filling of the ditch with void-ridden rubble (4015). A date from the initial silting (4019) produced a radiocarbon date of 350–50 cal BC (SUERC-64220).

In some sections of the ditch (e.g. [3003], Figure 3.26) and in some pits (e.g. F27), there was evidence of an orangey-clay silt above this rubble layer, marking perhaps a hiatus of activity or, more likely, the natural silting of these open features. After this, the ditches and pits witnessed dumps of materia, much of it ashy and rich in material, very similar the such layers encountered at Scrubditch. In ditch section [3003], the presence of these deposits appears to be subsequent to the recutting of the ditch, although this sequence was not recognised in the eastern section. Deposit (3004), within ditch [3003] (Figure 3.26), included a diverse array of ceramics, with imports from elsewhere in southern Britain (see Chapter 6). It is notable that the ashy deposit was only present in significant quantities within the southern arm of the enclosure ditch (F24), suggesting differential deposition of this material, as seen between the antenna ditches at Scrubditch. The charcoal layer (4007) in section [4004] produced a radiocarbon date of 200–40 cal BC (SUERC–63697).

The northern arm (F23) appears to have followed a slightly different sequence. This ditch seems to have been recut along its alignment at some point in probably the 2nd or 1st century BC (see Chapter 13).

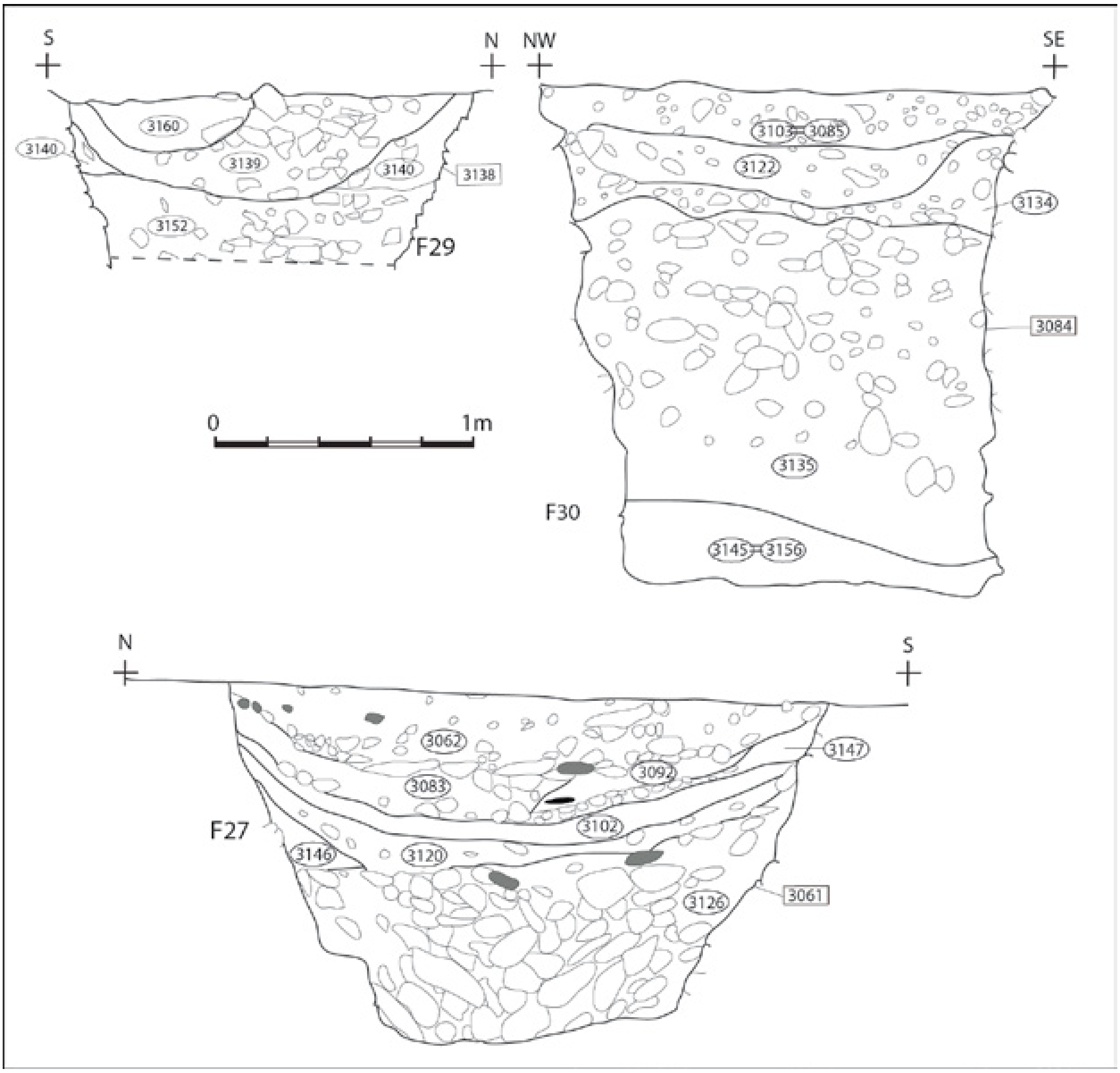

Figure 3.23. Sections of pits from Cutham.

Figure 3.24. Photo of pit F27 (Photo: Tom Moore).

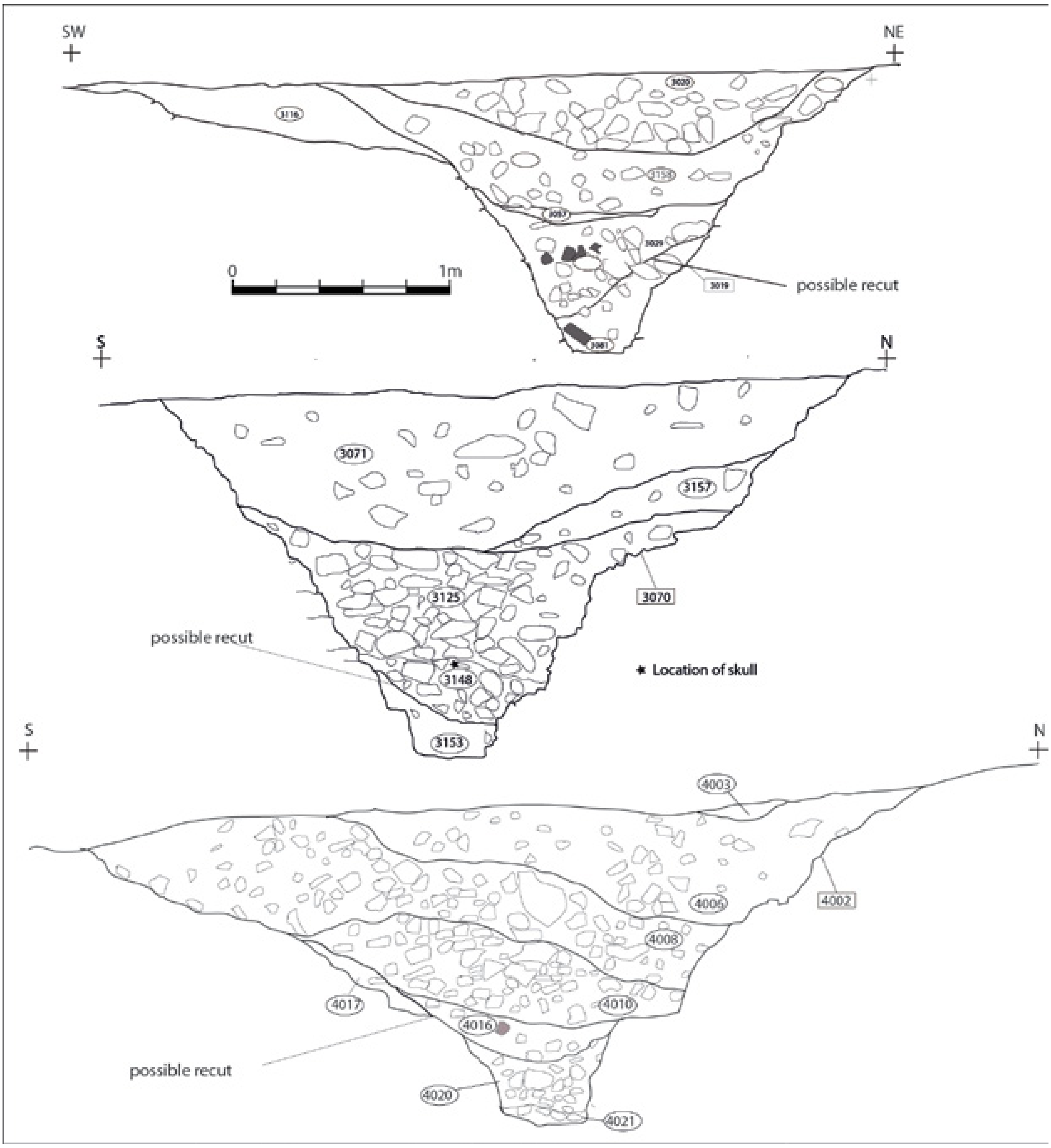

Figure 3.25. Sections of enclosure ditch F23.

This recut was visible in all three sections along the northern arm, although (as at Scrubditch) it seems more likely that this represented a cleaning-out of the ditch, as it closely followed the same alignment. This recut may have truncated the ash-rich deposits seen in the southern arm of the enclosure (F24). Ditch F23 was then back-filled with significant dumps of rubble sometime later towards the end of the 1st century BC. In one section [3070], this deposit (3125/3148) included an inhumation burial of an elderly female adult (Figure 3.27)), which produced a radiocarbon date of 50 cal BC– cal AD 70 (SUERC-64216) (see Chapter 15). Fills that appear to represent the same process in other sections contained Late Iron Age ceramics, suggesting that this process took place at some point at the end of the 1st century BC or, perhaps more likely, in the early 1st century AD. An additional radiocarbon date from this secondary use of the ditch, in (4016), of 190–1 cal BC (SUERC -79377), is relatively consistent; another in (3029), of 370–190 cal. BC (SUERC-65627), may be residual from the earlier ditch or suggest that the recut occurred earlier, before receiving large dumps of rubble. The nature of this rubble (and the body partly within it) suggests that this was a deliberate, perhaps symbolic, filling of the ditch on the abandonment of the enclosure (or the decommissioning of this ditch). It seems that after this backfilling, the ditch remained open, at least as a depression, and was still receiving

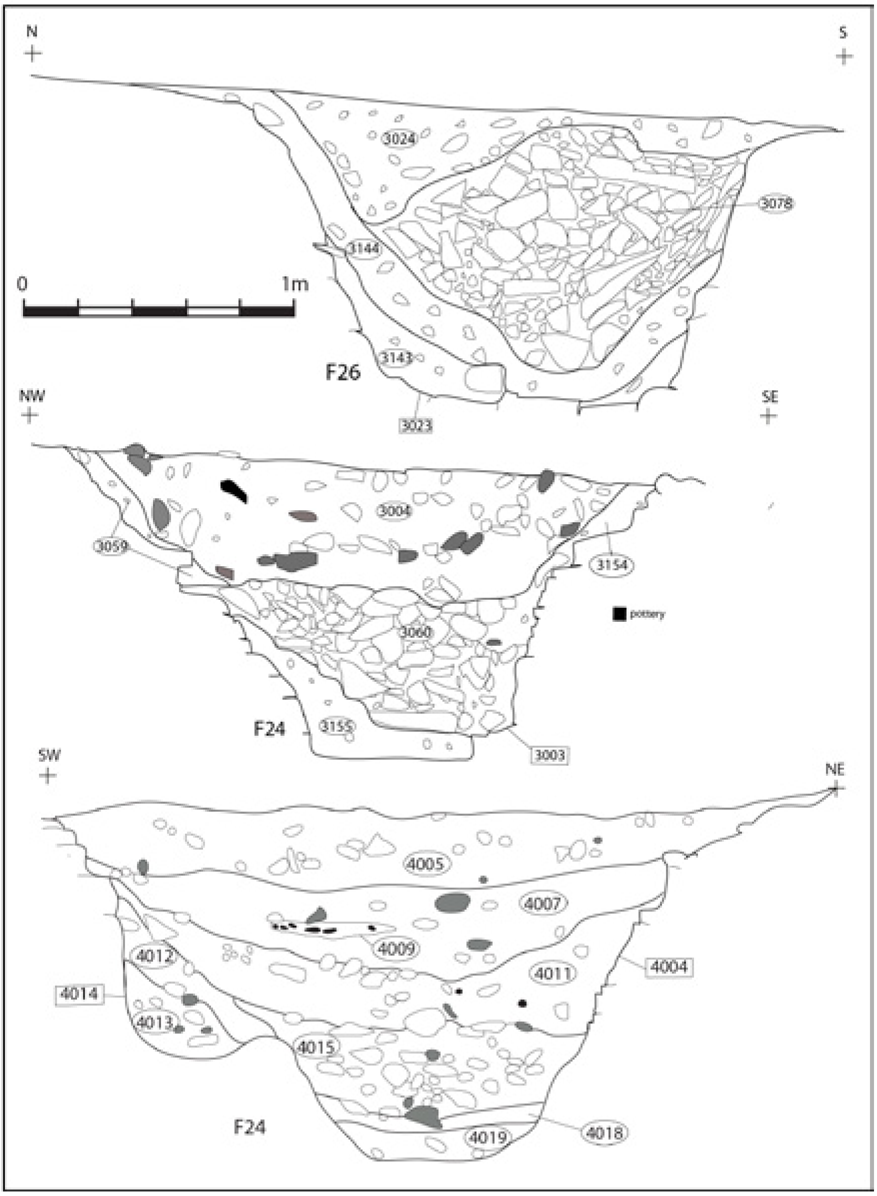

Figure 3.26. Sections of enclosure ditch F24 and F26.

material in the early Roman period. The reason for the apparently different sequence of ditches F23 from F24 is unclear, but it is notable that the northern side of the enclosure marks the edge of the occupation area to the south (see Chapter 4), and therefore may have had more of a functional necessity as a boundary.

Although inhumations within enclosure ditches are relatively common in the region in the Middle and Late Iron Age, the positioning of the example in enclosure ditch F23 is rather unusual. The placement of the body on top of the existing ditch silt (3153), but also in amongst the rubble (3148/3125), means that some of the smaller bones were no longer *in situ*. One of the most striking aspects was the location of the skull amongst the void-ridden rubble, indicating that the stones must have been placed around the body, although the placement of the body was clear. The individual had her legs folded beneath her, as if in a kneeling position when placed in the ditch. The good preservation of the upper body amongst the rubble fill suggests that she was carefully placed, rather than unceremoniously dumped, and that the body of this individual was part of a closing rite or that her death stimulated the abandonment of the settlement and subsequent backfilling of the ditches and pits. The radiocarbon date does, however, appear to suggest her internment was one of the latest things to take place on the site, so this may have happened on its final abandonment. Further analysis (see Chapters 15 and 17) has revealed the individual to be rather unusual, being both relatively elderly and not local to the Cotswolds, instead most likely deriving from south Wales or the Malverns (see Chapter 17). In addition, eel bones (Chapter 16) uncovered in the soil sample taken from her stomach area may indicate that she had consumed this fish, a rather unusual practice in the Iron Age.

The presence of postholes and pits in close proximity to enclosure ditch F23 make it hard to envisage a large bank on the inside of the ditch. There was no clear sign of a palisade associated with the ditch, although an alignment of postholes [3117], [3118] and [3027] close to ditch F23, in the north-east quadrant, could represent some form of fence line. Similar to Scrubditch, the large amounts of rubble in the backfill of these ditches may instead suggest the presence of a smaller, dry-stone-faced wall.

Based on the geophysical survey, ditch F26 was originally believed to continue to the west and intersect with ditch F24. Excavation, however, revealed that it terminated, respecting ditch F24 (Figure 3.28). Ditch F26 appeared to have had two phases, being almost entirely filled with an orangey silty fill that was completely devoid of finds, before being recut. The fill of this later phase of the ditch consisted primarily of a thick layer of extremely void-ridden rubble. The slump of rubble indicates that this came from a bank, or perhaps even a dry stone, wall-like structure, as suggested for Scrubditch, on the southern side of the ditch. Like that seen in ditch F23, the rubble appears to have been deliberately pushed into the ditch rather

Figure 3.27. Photo of inhumation burial in ditch F23 (Photo: Tom Moore).

Figure 3.28. Photo, looking south-west, of ditch [3003] in relation to ditch [3023] under excavation.

than representing a natural accumulation over time. A radiocarbon date from this backfilling provided a date of 50 cal BC– cal AD 70 (SUERC-66848), which, along with Late Iron Age ceramics in overlaying layers, suggests that this dump of rubble was probably contemporary with the rubble which included the inhumation burial in ditch F23.

The relationship between ditch F26 and F24 is rather confusing, but it seems likely that it was at least partly contemporary with the main enclosure ditch F24, forming a small outer enclosure to the south with an entrance adjacent to the main entrance into the enclosure. Such arrangements are known elsewhere in the region (e.g. Spratsgate Lane: Vallender 2007), and may represent smaller enclosures for small groups of livestock.

Cutham enclosure phasing and dating

Echoing Scrubditch, the lack of intercutting features at Cutham does not allow for a clear phasing of the structures. The sequence of deposits within pits and ditches does, however, reveal a relatively clear structural sequence similar to that from Scrubditch.

Phase 0/1. Construction of enclosure ditches and initial silting (Middle Iron Age: late 4th–3rd century BC).

The apparent linear feature [4014] cut by the main enclosure ditch F24 appears to represent the earliest feature, perhaps an earlier incarnation of the enclosure ditch. Unfortunately, no dating evidence was retrieved from this feature, however fills similar to those that are earliest in the subsequent ditch [4004] suggest that it was in use not long before this ditch was dug. A single date from the initial silting of the main enclosure ditch F24, of 350–50 cal BC (SUERC-64220), followed by a date of 200–40 cal BC (SUERC-63697) for the upper layers of ash, and alongside a date of 364–186 cal BC from F23, implies that the subsequent enclosure ditch was probably constructed in the 4th or 3rd century BC. It is possible that ditch F26's first phase also dates to this period. The putative structure of F28 may also be contemporary.

Phase 2a/b. Initial rubble backfilling of many features, including some of the pits and initial fill of ditches (Middle Iron Age: 3rd–2nd century BC).

The end of phase 1 was marked by rubble fill in some of the pits and ditches, most notably in the southern arm of the enclosure ditch. These appear to have taken place in the 4th–2nd centuries BC, with similar dates from both F23 and F24. In some features, such as pits F27 and [3138] there is evidence of a silty clay layer, which is almost certainly silting between the rubble infilling and later ashy deposits, suggesting that some of these features were partly backfilled and left open for some time before receiving phase 3 deposits.

Phase 3. Ashy deposits within pits and some enclosure ditches; possible recutting of ditch F23 (Middle–Late Iron Age: 2nd century BC).

The ashy deposits in the southern arm of the enclosure ditch and in some pits might have been contemporary when considering similar radiocarbon dates from the ashy layers, including that from (4007) in ditch F24, which provided a date of 200–40 cal BC (SUERC-63697), and that from pit F27, which provided a date of 192–41 cal BC. The similarity is notable and consistent with a Middle–Late Iron Age date for the backfilling of features, also commensurate with the date of the brooch in pit F27. These dates may imply that these deposits were somewhat later than the apparently similar processes at Scrubditch, although the broad range of the dates from Scrubditch could indicate that they too took place in the 2nd or maybe 1st century BC. It is possible that in ditch F24, these ashy fills relate to a recut of the ditch (as seen in section [3003]), and there certainly appears to have been a short hiatus between phases 2 and 3, as seen in the silting layers noted above.

At some point in the 2nd century BC, possibly contemporaneous with the phase of use related to the ashy material but more probably subsequent to it, the enclosure ditch was recut, at least along its northern arm (F23), which was also probably the time that F26 was recut. This may mark a redefining of the enclosure.

Phase 4. Abandonment of the enclosure with deliberate backfilling of the enclosure ditches (Late Iron Age: late 1st century BC - early 1st century AD).

Radiocarbon dates from the inhumation burial and from ditch deposit, alongside Late Iron Age and early Roman pottery from the upper fills of enclosure ditch F23, indicate that rubble was deposited in ditches F23 and F26 at the end of the 1st century BC or at the start of the 1st century AD. This is supported by radiocarbon dates that suggest occupation continued as late as the end of the 1st century BC. Late Iron Age ceramics from the uppermost layers of F27 and F29 suggest that some of the pits were also backfilled by this time but that some form of occupation continued until this time. The presence of early Roman pottery in some of the postholes [3079], [3088] and [3108] could further suggest that these coincided with this Late Iron Age activity, with the pottery entering these features as the posts were extracted. The chronological resolution is too imprecise to be sure, but if occupation in the valley commenced as early as *c.* AD 20 - AD 30 (Chapter 4), it appears that this abandonment might have taken place at around the same time, or at least probably in living memory.

Phase 5. Roman activity.

The presence of some early Roman ceramics, including a fragment of 2nd century AD samian ware, in the upper layers of ditch [3070] implies that these ditches were almost completely backfilled by the early Roman period. Another sherd of 2nd century AD samian ware in posthole [3079] and one from putative roundhouse F28 may indicate that some features relate to relatively late occupation. The shallowness of some of these postholes however, such as those from F28, may indicate that such finds are intrusive, with other material from this structure being of Iron Age date. The presence of occasional sherds of Roman ceramics in this area seems likely to derive from the occupation at Black Grove, approximately 100 m to the south, with some of the ditches and other features still perhaps visible as slight depressions.

Phase 6. Saxon activity.

An additional phase of early medieval activity is indicated by the presence of a handful of Saxon ceramics in feature [3009], but it is hard to determine the nature of this structure or what sort of activity it represents. The lack of Saxon material or late Roman ceramics from nearby Black Grove (see Chapter 5 and Timby, in Chapter 6) suggests that it was not related to any form of intense occupation.

The dating evidence and structural sequence from Cutham implies that it witnessed a relatively similar sequence of activity to Scrubditch, with at least two distinct phases of activity in the Middle–Late Iron Age. Cutham has more evidence for continued occupation in the late 1st century BC and abandonment in the Late Iron Age, although this probably partly reflects the site's proximity to the centre of Late Iron Age and Roman occupation and its receipt of such material in greater quantities than Scrubditch.

Role of the Cutham enclosure

The unusual morphology of the enclosure at Cutham is rather different to that at Scrubditch and raises questions as to its function. The presence of significant amounts of settlement evidence emphasises its occupational, rather than livestock-oriented, role; although once again, the presence of smaller enclosures and the lack of conjoining between the antenna ditches and main enclosure (as seen at Scrubditch) could suggest that livestock was divided within the outer areas. Overall, it seems likely that the arrangement of ditches was designed to create a visually impressive entrance into the smaller enclosure. We should perhaps envisage the enclosure at Cutham as having a similar role to enclosure A at Scrubditch, with a focus on human activity. There is little to suggest that this activity was necessarily high status; instead, it reflects the general nature of Middle Iron Age society, with little evidence for status distinction in material culture.

The nature of the activity itself is harder to confirm. The faunal assemblage reveals a slightly higher proportion of neonatal sheep, which may indicate the culling of sheep reared nearby for their meat. The relatively sporadic nature of the activity within the enclosures further evokes that at Scrubditch, and may also suggest that occupation was not intensive. The relatively long structural sequence does, however, suggest that the site was used repeatedly, but such use might have been ephemeral, or at least not year-round. The presence of hammerscale from pit [3088] indicates that iron smithing was taking place at Cutham, but a lack of slag from the site or hammerscale in any other soil sample, despite widespread sampling, suggests that it was not on any significant scale.

Discussion

Excavation of these two enclosures provides the first conclusive evidence of Middle Iron Age occupation within the Bagendon complex, indicating that the area was not devoid of activity prior to occupation in the valley in the 1st century AD. Both enclosures were only sampled by excavation, rendering discussion of their spatial and chronological sequences somewhat tentative. They do, however, provide a rich dataset enabling better informed observations on the Bagendon landscape to be made.

Both enclosures at Scrubditch and Cutham appear to have been constructed in the Middle Iron Age. According to Derek Hamilton's Bayesian modelling (Chapter 13), this is likely to have been in the 3rd, rather than 4th, century BC. Although the start date for Scrubditch appears to be somewhat earlier than Cutham, they are close enough to suggest a roughly contemporaneous construction and that they were part of an integrated complex.

Both sites also appear to have ceased to be used or, more accurately, witnessed the backfilling of ditches as part of a radical restructuring in the late 2nd or early part of the 1st century BC. It seems likely that both enclosures remained occupied in some fashion after this point. The lack of radiocarbon dates taken from the upper layers of features may be skewing impressions of the extent of later activity, however, especially at Scrubditch. The chronological resolution does not allow us to date precisely whether these enclosures were occupied immediately prior to occupation in the valley. At Cutham, the site may well have been abandoned, perhaps ceremonially, at the time occupation in the valley was commencing. The fact that the ditch [F1034] of Cutham's associated avenue, which is shown on the geophysical survey (Chapter 2), demarcates the area of Late Iron Age occupation in the valley implies that these features remained visible and were important boundary features well into the 1st century AD.

The deposition of a large amount of rubble into ditches and pits is relatively common on sites elsewhere in the region, marking the abandonment of particular features or of the site itself. The chronological sequence from both enclosures suggests that this process happened at least twice, the first rubble fills were followed by layers of charcoal-rich material, and a second later on (certainly at Cutham) marking the decommissioning of the recut ditches. Whether either of these processes necessarily marked the settlements' abandonment is less clear, for activity resumed (or continued) at both sites after the ditches had been partially filled.

The pits follow similar sequences to the ditches in many cases. Elsewhere, it has been suggested that pits were deliberately backfilled during the active period of a settlement, including placing the upcast from new pits into disused pits (Hart *et al.* 2016a), while those left to decay naturally reveal abandonment of the site (Vallender 2005: 51). At Scrubditch and Cutham, it is interesting that the partial backfilling of the large pits with rubble led to many, such as F27, to be used as repositories for the burnt material and leading them to resemble (in this form) scooped pits such as F7 at Scrubditch (see Figure 3.24). Whether this entails a change of function too is unclear, but it could imply that their later form matched roles related to the charcoal and ashy deposits. This widespread evidence of layers of charcoal and ashy material at both sites is intriguing. The presence of burnt limestone is common on Iron Age sites in the region (see e.g. Parry 1998), although no definitive explanation as to what this material represents has been established. At Scrubditch and Cutham, burnt limestone is frequently comingled with layers high in charcoal and ash, which often included (some burnt) animal remains. The nature of this material suggests that this burning was potentially *in situ* or nearby, indicating that it was derived from cleared-out hearths or cooking pits, one of which might even be represented by F7. At both enclosures, these dumps of charcoal-rich material are associated with the secondary phase of use of the site, possibly representing a change in the nature of activity to that which preceded it. It seems clear that these burning phases were not related to the end of the site, and seem more likely to relate to occupation activity.

The similarities in activity at both enclosures and their form provides hints of their relationship to the wider landscape. The ditches extending from Cutham seem to represent some form of avenue and, based on the geophysical survey, appear to run beneath Cutham Dyke (dyke 'a'), and are possibly associated with a gap in the outer earthworks (dykes 'b' and 'c': see figure 4.24) in this area. Similarly, the arrangement at Scrubditch, although showing no direct association with dyke 'a' and Scrubditch Dyke, is situated at the head of the funnel-like arrangement that they create (See Chapter 2).

To what extent any of these other earthworks had earlier antecedents is discussed more in Chapter 4. However, the radiocarbon dates from the excavation of a section of dyke 'e' in 2017 (discussed in Chapter 4), support the hypothesis that some of the linear earthworks and dykes were constructed in the Middle Iron Age, rather than all in the Late Iron Age, as often assumed. These two dates (407-261 cal BC: SUERC-90671; 380-200 cal BC: SUERC-90672 from initial silting of dyke 'e' suggest it was open between around 375-200 BC, contemporary probably with the digging of ditches around the Scrubditch and Cutham enclosures. Alongside the circumstantial evidence that others of the dyke may have had earlier antecedents (discussed in Chapter 4). Combining all this evidence, it seems probable that, as with some of the other clusters of banjo enclosures in the region, Scrubditch and Cutham were integral to a wider complex. To these might be added the areas of activity in fields A2 and B1 (see Chapter 2), which remain undated but seem likely to be Middle Iron Age.

Morphological parallels for the enclosures at Cutham and Scrubditch are relatively uncommon. Their funnel-like entrances suggest some affinities to so-called banjo enclosures, such as those in Hampshire and the Oxfordshire Cotswolds (Figure 3.29; cf. Lang 2016), but these examples appear morphologically distinctive. A relatively close parallel for the enclosure at Scrubditch is a funnelled enclosure at Spratsgate Lane, approximately 10 km to the south in the upper Thames Valley (Figure 3.29, c; Vallender 2007). Like those at Bagendon, the Spratsgate Lane enclosure was related to a linear feature that appears to both funnel movement to the enclosure, but is also part of a longer linear boundary. Relatively nearby, another set of curvilinear enclosures at Cotswold Community (Powell *et al.* 2010; Figure 2.52) have some similarities to the arrangement at Scrubditch, although those are far smaller (Figure 3.29, d). At Cotswold Community, these roundhouses, associated with a short trackway or funnel, seem to be related to a larger enclosure or possibly linear boundary similar to the arrangement at Spratsgate Lane. The ditches of the outer system at Spratsgate Lane also do not join the trackway/avenue to the circular enclosure. The narrow funnel for these enclosures creates an impressive entrance to the small (approximately 20 m diameter) curvilinear enclosure at the end of the avenue. There is little to suggest that this was for funnelling livestock, but instead seems aimed at creating a dramatic entrance to the main habitation area. An additional banjo-like enclosure, with some affinities to Cutham enclosure, has been revealed by John Samways, Wiltshire Archaeological Field Group. close to Worms Farm, Siddington, where Roman and Iron Age finds have been discovered (Figure 3.29, e; GlosHER2358; RCHME 1976: 102).

The arrangements at Scrubditch and Spratsgate Lane are somewhat reminiscent of some of the double banjos, such as those seen at Gussage Cow Down (Figure 24.18), with two separate complexes side by side or interlinked, possibly representing different households with associated smaller paddocks, working areas and secondary house structures (either for occupation or other activities). These arrangements imply the same possible emphasis on habitation within the main, deeply ditched enclosure, with areas for other activities and managing livestock accessible elsewhere.

More broadly, banjo enclosures have been identified along the Cotswold dipslope, although they are far more common in the eastern Cotswolds (see Figure 24.5; Lang 2016; Moore 2006). Those to the east in

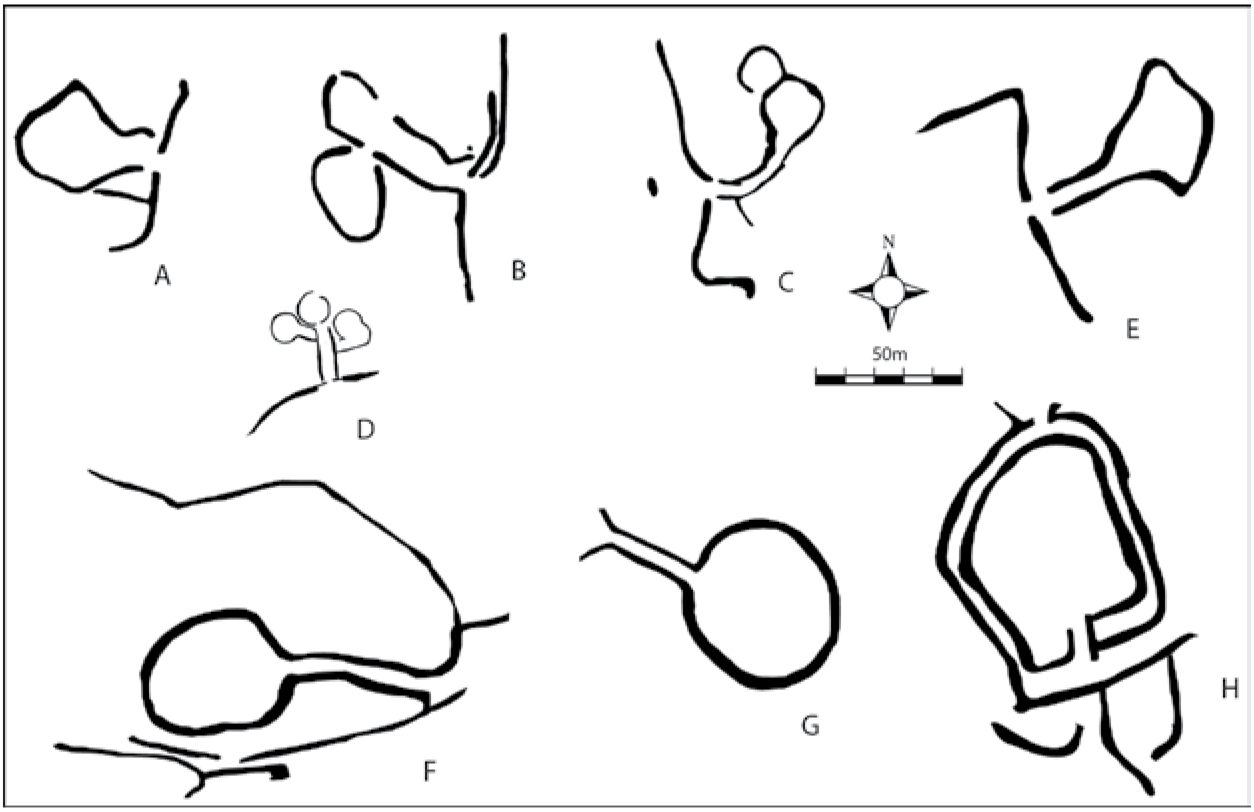

Figure 3.29. Comparison of Scrubditch and Cutham enclosures with banjo and funnel enclosures (A: Cutham; B: Scrubditch; C: Spratsgate Lane, Glos.; D: Cotswold Community, Glos. (after Powell et al. 2010); E: Worms Farm, Siddington, Glos. (after John Samways unpub.); F: Nettlebank Copse, Hampshire (after Cunliffe and Poole 2000a); G: Micheldever, Hampshire (after Fasham 1987); H: Groundwell Farm, Wilts. (after Gingell 1981).

particular represent enclosures more classically 'banjo' in form compared to those at Bagendon (Moore 2012). The association of multiple funnelled enclosures as part of a wider complex is also known elsewhere in the region. The most convincing parallel for the situation at Bagendon is near to Northleach, approximately 10 km to the north-east. Here, a complex of banjo-like and other enclosures exists interlinked with various linear features, although it is known only from cropmark evidence (Figure 3.30, 3.31 and 3.32; Janik *et al.* 2011: 43; Moore 2012). Among this group, a number of smaller enclosures show similarities to both the Cutham and Scrubditch enclosures (Figure 3.32; Moore 2006: 57). At least two of these possibly contain curvilinear features (roundhouses?). In a similar fashion to Bagendon, these enclosures are connected to long linear boundaries, which appear arranged to direct movement towards different elements of the complex, with the banjo enclosures also facing adjacent valleys. There is no dating evidence from the complex at Northleach, but the discovery of Late Iron Age coins and brooches on the northern edge of this complex might imply occupation at this time.

At all of these complexes of funnel enclosures, the presence of linear boundaries to which they are connected suggest that they were part of larger arrangements for managing the landscape. At Spratsgate Lane, the antenna ditches appear to have been part of longer field boundaries. Those at Cutham are similar in this respect, marking part of broader land boundaries and allowing movement to particular enclosures while defining different parts of the landscape. It is possible that the antenna ditches at Scrubditch were also part of longer linear features, and it is worth remembering how more ephemeral fences related to these may have been lost to ploughing. While the inter-relationship of these elements is not well, they potentially represent areas for different agricultural activities, perhaps livestock management. The positioning of these enclosures and linear boundaries to direct movement from adjacent valleys is seen at both the Bagendon complex and that at Northleach. It might mean that the wider complex, if not necessarily the specific enclosures themselves, had a role in controlling the marshalling of livestock, presumably driving them up from the valleys. This is common to banjo enclosures elsewhere in southern Britain (Moore 2012), and may suggest that most had similar agricultural roles. The question remains as to whether the funnel-type enclosures at Bagendon represent the most northerly example of a wider phenomenon found on in the upper Thames Valley or a different type of activity.

On balance, the similarities in location in the landscape indicate that all the banjo-like enclosures had a relationship to the Cotswolds-Thames Valley interface. The topographic location of such enclosures, both at the macro and micro scale, on the interface between upland and lowland, certainly supports the notion that

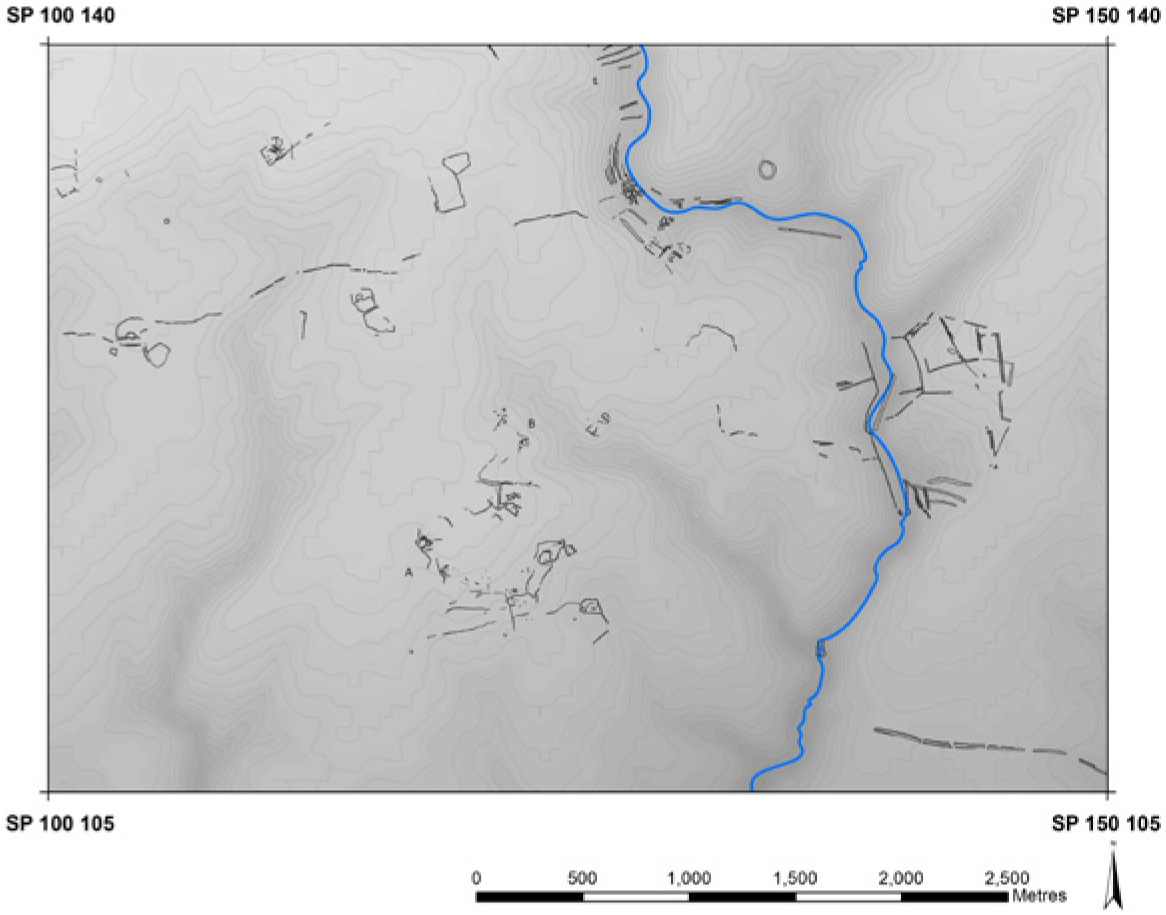

Figure 3.30. Plan of complex of banjo and other enclosures near Northleach based on aerial photographic data (from NMP data, after Janik et al. 2011). A: location of features on Figure 3.31: B: location of features on Figure 3.32.

Figure 3.31. Aerial photograph of one of the 'banjo' enclosures making up the Northleach complex (© Crown copyright, Historic England).

Figure 3.32. Aerial photograph of enclosure within the Northleach complex of enclosure with antenna ditches similar to the enclosures at Bagendon (© Crown copyright, Historic England).

their role was in directing livestock movement between these landscapes, but the reasons behind this remains somewhat obscure.

The morphology of these enclosures may also imply they had roles for the management of livestock, as has been suggested for some similar banjo enclosures (Cunliffe and Poole 2000). It seems clear from both Cutham and Scrubditch that the enclosures were not intended to intersect with the outer antenna ditches, leaving deliberate gaps to allow access to areas beyond. A similar arrangement can be seen at Spratsgate Lane, where it has been argued as representing a complex gating system that allowed for the division of animals (Figure 3.29; Vallender 2007: 39). The same can be envisaged for Scrubditch and Cutham, with animals driven into the main enclosure(s) and then divided off into discreet areas. At both sites, however, the geophysical survey shows evidence of pit-like features, which are possibly evidence of occupation, although these could mark a different phase of use. Similar to banjo enclosures elsewhere (Lang 2016), evidence of habitation within them suggests that the corralling of livestock was not the role of the main enclosures, even if it was important for the complex as a whole.

What types of livestock may have been the focus of such management then? The faunal assemblage does not seem to point to a particular focus, with sheep, cattle and horse all present, none in especially unusually high proportions. The isotopic analysis undertaken of the horses was striking, however, in revealing that all the horses tested were not local to the Cotswolds (Chapter 17). Intriguingly, this was also true of one of the pigs. While the exact origins for these animals cannot be confirmed, it seems most likely this was from somewhere in Wales. Bagendon's situation on a natural routeway across the landscape (see Chapter 24), as well as on the interface between upland and lowland, indicates that animals were being moved here from significant distances, perhaps for exchange.

The faunal assemblage (see Chapter 16) hints at slightly different agricultural roles for each enclosure. Scrubditch displays somewhat more focus on the consumption of pig, whereas Cutham has a greater emphasis on sheep, which is typical of the Cotswolds in the Middle Iron Age, yet whether it was focused on the culling of neonates is not clear. Although the relatively small size of each assemblage must be noted, if the enclosures formed part of a wider complex, it is probable that different parts had distinctive roles. The presence of small numbers of pits, some of the 'silo' form identified by Alistair Marshall (2004), might indicate the short lifespan of these enclosures, the presence of a small populace and/or that they were only seasonally occupied, rather than high-status occupation.

The larger proportion of pig remains from Scrubditch might imply that this site specifically was more focused on meat consumption, perhaps feasting, as further indicated by the possible fire-pit features. This meat consumption need not denote an elite status, however, but could just as easily represent the assembling of a wider community at certain times of year, with feasting part of the agricultural cycle, and potentially supported by the pigs brought to the site from some distance away. The visible nature of the Scrubditch enclosure would also mean that any such acts would have been highly conspicuous across the landscape (see Figure 24.4 and Chapter 20).

An alternative and not necessarily mutually exclusive explanation for the higher pig presence at Scrubditch is that they were being reared in the area. The palaeoenvironmental evidence provides tantalising indications that the landscape in the Middle Iron Age was a mixture of woodland and hedgerows, suggestive of a wood-pasture-type landscape (Chapter 18). This type of landscape facilitates animal grazing while retaining significant elements of woodland. Environmental evidence from Middle Duntisbourne and Dartley Bottom, a few kilometres to the west of Scrubditch, suggested a potentially relatively wooded landscape here until the Late Iron Age (Mudd *et al.*1999: 85). As at Scrubditch, pig also represented a high proportion of the faunal assemblage from Middle Duntisbourne (Mudd *et al.* 1999: 86). Adding weight to this argument is the evidence from the isotopes, which indicates that the pigs had an unusual diet for the Iron Age (Chapter 17) of woodland pannage, a common occurrence in other periods but as yet not widely recognised in the British Iron Age. Taken together, this is strong evidence that these enclosures were situated in an area of landscape that remained relatively densely wooded, an appropriate environment for pig rearing. The two enclosures therefore potentially marked part of a complex with distinct and varied agricultural roles.

The excavations at the Scrubditch and Cutham enclosures have indicated the presence of more Middle Iron Age activity in the Bagendon area than was previously imagined. There is tentative evidence from their unusual morphological form and faunal assemblages that these enclosures had a distinct agricultural role. Meanwhile, the faunal and environmental evidence (Chapter 18) suggests that the area may have retained significant elements of managed woodland. This would have made the landscape quite different from the more intensively farmed landscapes to the south, in the Thames Valley.

Such evidence might support the notion that *oppida* emerged in landscapes somewhat separate from existing social networks and farming regimes (Hill 2007; Moore 2006), but whether these were isolated from wider social systems or an integral part of them remains open to question. The location of the Scrubditch and Cutham enclosures, on the interface between the different agricultural and settlement landscapes, would have made them ideal to access for a wide range of different farming communities, and they may have been part of a wider land-use stretching well beyond the immediate Bagendon area. Importantly, the presence of these two enclosures provides new insights into what preceded the *oppidum*, and suggests that the area had a pre-existing role, perhaps as seasonal agricultural meeting place, which was significant and certainly cannot be overlooked when exploring why the *oppidum* was established in this area in the early 1st century AD.

Importantly, there is convincing evidence from the enclosures, certainly from Cutham and possibly at Scrubditch, that they were in use as late as the end of the 1st century BC and possibly into the 1st century AD. The filling of the enclosure ditch at Cutham with rubble—and the body of a woman—around the beginning of the 1st century AD indicates that its abandonment may well have coincided with the commencement of occupation within the valley, which potentially began as early as *c.* AD 20 —30 (see Chapter 4). The Cutham enclosure appears to have probably been remodelled in the Late Iron Age, perhaps the 1st century BC, seemingly reusing the ditch of the curvilinear enclosure, possibly to create a different enclosure arrangement. Such a reconfiguration of a Middle Iron Age banjo enclosure, in to a set a of smaller enclosures in the Late Iron Age has affinities with the development of Owslebury, Hampshire, a site which also seems to have been of some status in the 1st century BC-1st century AD (Collis 2006: 156).

At least at Cutham, this decommissioning of the enclosure ditch appears to have been a deliberate and symbolic act, and the inhumation burial from the enclosure there provides particular insights into the nature of this transformation. The positioning of the body seemingly on the top of the ditch silts, with then void-ridden rubble placed (or dumped) on top of her suggests that she marked part of a process of the deliberate abandonment or decommissioning of the ditch. The arrangement of the body, legs folded beneath her, also seems particularly unusual (see Chapter 15), perhaps suggestive even of deviant burial or that she was deliberately killed in this location, although neither can be proven from palaeopathology (see Chapter 15).

Detailed analysis further revealed that this individual probably did not grow up locally, with the strontium isotope evidence placing her origins somewhere in Wales, possibly south Wales, arriving at the site perhaps alongside other material, such as iron from the Forest of Dean or horses. This individual was an elderly female, suggesting perhaps that she held status within the community or was someone who had a long and complex biography. Stranger still was the discovery of eel remains in the soil samples taken from around her stomach area (Chapter 16). A connection to her diet cannot be directly inferred, but it is noticeable that few other soil samples revealed fish remains and none from elsewhere on the Cutham and Scrubditch enclosures, despite a rigorous soil sampling regime (see Chapter 18). This is unsurprising given the limited evidence of fish consumption in the Iron Age (Dobney and Ervynck 2007) and even less for eel consumption (Rainford and

Roberts 2014). The other contexts at Bagendon which did reveal fish remains were either from the Roman period, or from the Late Iron Age pits sampled in 1981 (see Chapter 16). She seems therefore to be part of changing dietary habits in the Late Iron Age, which now incorporated freshwater fish resources, and/or that she was somewhat special and had a distinctive diet, perhaps related to her age, status or role in society. Ultimately, there seems sufficient evidence to suggest that she was an important member of society. Whether she was the only individual interred in the process of backfilling the enclosure ditch remains an intriguing question. At Cutham, only approximately 10 m of the 112 m long enclosure ditch was excavated, representing less than ten per cent of the total; it thus seems highly probable that more remains exist. The enclosure at Cutham, or the recut ditch at least, was therefore seemingly backfilled, perhaps symbolically, at the same time that the complex as a whole appears to have been transformed. Did this mark the end of one phase of use of the Bagendon landscape; a deliberate modification as its role changed?

Chapter 4

Revisiting the Late Iron Age *oppidum*

Tom Moore

The discovery of two Middle Iron Age enclosures and other earlier activity at Bagendon (discussed in Chapter 3) and recognition that these were abandoned contemporary with the major transformation of the complex make understanding the nature of Late Iron Age occupation at Bagendon all the more important. This chapter focuses on the light the previously unpublished excavations between 1979-1981 shed on Elsie Clifford's (1961) earlier findings. These are followed by discussion of more recent investigations by this project, included the excavation of part of dyke 'e' and a reassessment of the earthworks. Combining this evidence, finally a summary of the wider evidence of the nature of occupation in the Late Iron Age at Bagendon is presented.

Excavations in Bagendon valley (1979–1981)

Introduction

Richard Reece, with the assistance of Stephen Trow, directed three seasons of excavation at Bagendon between 1979 and 1981. These comprised two open-area excavations to the north and west of the areas (B and C) excavated by Elsie Clifford in the 1950s (Figure 4.1a and 4.1b; Clifford 1961). The excavations were originally intended to locate Clifford's trenches and reassess the chronology for Bagendon established by Clifford and subsequently redated by Vivian Swan (see Chapter 1; Swan 1975; Trow 1982a). In addition, as with the excavations at The Ditches (Trow *et al.* 2009: x), which were undertaken slightly later, an assessment of the preservation of archaeological remains at Bagendon was regarded as important. While Trow (1982a) subsequently published some of his initial perceptions on how the dating at Bagendon could be used to reassess the chronology of the site, full reassessment of Clifford's material was never undertaken. Within the current study it has not been possible to re-examine all of Clifford's material, and there are some significant problems with how some of it can be interpreted (see Chapter 1). Where necessary however, comparisons have been made between the material from the 1950s and that from 1979–1981, thereby enabling a reappraisal of both Clifford's and Swan's chronologies of the site.

The excavations covered two areas, one immediately to the north of Clifford's site B (Area A) (Figure 4.2), excavated in 1979 and then again in 1981, and a second approximately 60 m to the west (Area B), which was excavated in 1980. Geophysical survey of the area (Chapter 2) has now revealed that the areas originally investigated comprise only a small window on what was a relatively large area of occupation. The geophysical survey allows a better appreciation of how these excavations relate to the organisation of this area.

The two areas examined in 1979–1981 have had significantly divergent agricultural histories. The vicinity of Area A appears to have been ploughed, at least in the 20th century, causing some degradation of the archaeological remains. To the west, around Area B, there is little evidence for ploughing in recent history, thus ensuring potentially better preservation.

Rationale, issues and methods

Following her recognition of the potential importance of Late Iron Age occupation at Bagendon (discussed in Chapter 1), Clifford opened up two areas of excavation adjacent to the small gravel quarry where she had identified 'Belgic' material. As discussed in Chapter 1, she used an excavation methodology that was novel for the time; rather than the box method espoused by many of her contemporaries (e.g. Wheeler 1954), Clifford opened long trenches that were extended over time to form larger areas (Figure 1.10). In some places, this allowed for a better overview of the nature of the activity. She retained numerous baulks however, and in some instances, these meant that certain features were not understood in their entirety.

Clifford's excavations were crucial in identifying the Late Iron Age occupation at Bagendon as what she described as a 'Belgic *oppidum*', with the evidence for coin minting at her site C of particular significance (Clifford 1961). The chronology of the complex remained somewhat controversial, however, partly because of the contemporary perspectives which regarded Bagendon's place as being within the periphery of 'Romanisation'. This controversy led to re-evaluations of the dating evidence, which suggested to some that much, if not all, of the excavated area could be dated to after the Roman conquest and was closely related to the movement of the Roman army (Swan 1975). Concerns over some confusing aspects of Clifford's stratigraphy (see Chapter

Figure 4.1a. Location of 1979-81 excavations in relation to overall geophysical survey.

Figure 4.1b. Geophysics from eastern end of Bagendon valley.

Figure 4.1c. Location of 1980s trenches in relation to interpretation of geophysics.

1) meant that in an attempt to resolve these issues, Reece and Trow (Reece 1984: 24; Trow 1982a) examined an area connected to Clifford's excavations to provide a clearer chronological framework.

Further work undertaken by Trow as part of an assessment of the area, including excavations at The Ditches (Trow 1988a; Trow *et al.* 2009), has since been published. For various reasons, the investigations at Bagendon were never published. Due to the long delay in publication and the nature of the original recording methods, there are certain problems in reassessing the 1979-1981 material. Many of the recording techniques and procedures, so ably applied in subsequent excavations at The Ditches (Trow 1988a; Trow *et al.* 2009), were only in their infancy in 1979–1981. The use of context recording, for example, was not universal in British archaeology, and was inconsistently applied on these excavations. For example, no 'cut' numbers were allocated, with fills assigned to named features. For the 1979–1981 excavations, rather than create new context numbers for cuts, these were added in the form 'cut of …'—to the Harris matrices, for example.

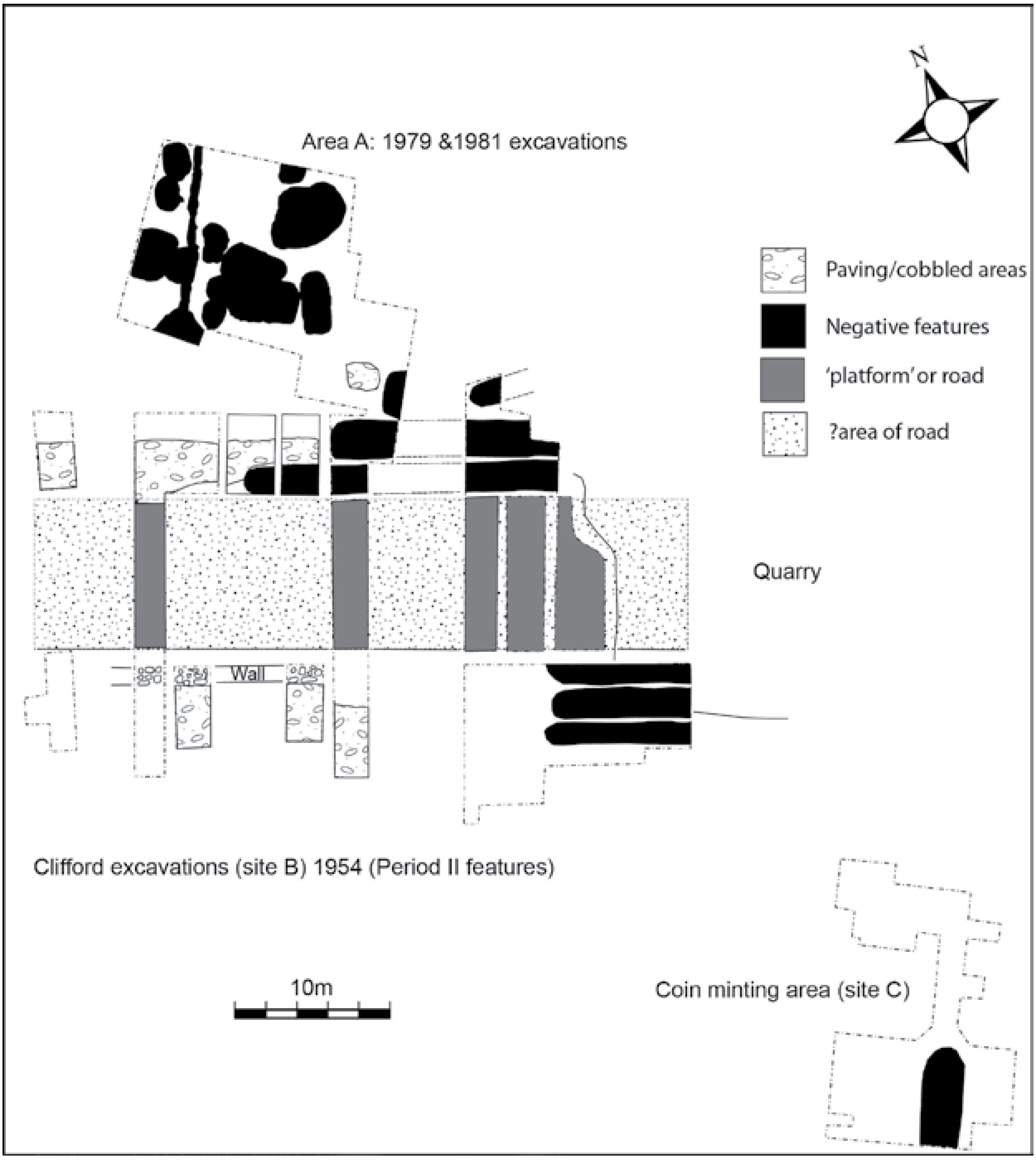

Figure 4.2. Area A in relation to Clifford site B and C.

Some information was not listed for contexts, meaning that the stratigraphic relationship between contexts and, in some cases, their location is unclear. The same context numbers were used in 1979 and 1981 (the two seasons of excavation of elements of Area A), meaning that numbers were doubled up. It is possible that this may have led to some confusion in the later reordering of finds. All the contexts have now been prefixed with the year of excavation (e.g. 79-00, 80-00, 81-00). Where contexts are equivalents between 1979 and 1981, this has been established and noted. Features were given double-letter labels at the time of the excavations; these have been retained (such as AA in Area A). No specific identifiers seem to have been given to features in Area B; to identify these features, a similar naming system has been adopted for this area (e.g. BA). The records for the excavations in Area B were particularly problematic, making it harder to assess the nature of these remains and their relationships than for Area A. This means that some of the conclusions and phasing of features remains uncertain.

Comparison between the small finds lists from the excavation archive with the material retrieved from Corinium Museum also appears to indicate that some finds (predominantly from the 1979 season) appear to have been lost in the intervening years. There are indications from notes found in the boxes of the material that finds were re-sorted in the museum at some point in the 1980s or 1990s, and that at that time certain finds appeared to be missing, which may explain this loss. Searches for the missing artefacts have proved fruitless. Where material was recorded in the notebooks from the 1980s but the find itself is now absent, this has been noted on the relevant list of materials (Chapter 12). Some environmental samples were taken in the 1981 season (but not apparently in 1979 and 1980), although the nature of the sampling strategy and the size of the samples is unclear (see Chapter 18). These samples had already been partially processed before this assessment of the site. Although they provided some burnt grain and other material (see Chapter 18), the small number of samples meant that they could not be used for a systematic programme of radiocarbon dating. Despite these issues, much of the recording was of a high quality and enables a good appreciation of the nature of the archaeology and reconstruction of the phasing and activity. This allows comparison with Clifford's excavations and reflection on long-standing debates concerning the chronology and nature of occupation at Bagendon.

Area A (1979 and 1981)

Area A (approximately 200 m^2: Figure 4.3) was located adjacent to Clifford's site B, with a small area extending over her trenches to establish a relationship between the two excavations. Area A was excavated over two seasons in 1979 and 1981. The natural subsoil proved to be ill-sorted deposits of limestone, except for the southernmost part of the area where it was river gravel. The southern part of Area A was covered by relatively significant amounts of colluvium, up to 0.5 m in some areas. Similar levels of colluvium were noted by Clifford (1961: 21) in her site B and also in some of the 2017 test pits (see below). The northern part of Area A does appear to have suffered some plough damage, which may explain the variable preservation across the area (Stephen Trow pers. comm.).

The majority of Area A included a series of pits (Figure 4.4; 4.5; 4. 6). Their original function is uncertain due to their varying shape, size and depth. Many of these pits contained significant quantities of material, seemingly representing a mixture of both domestic rubbish, including high-status ceramics such as *terra sigillata*, *terra nigra* and *terra rubra*, and evidence for metalworking, coin minting and other activities.

The siting of the pits in close proximity to each other, with relatively little overlap, suggests that they were almost contemporaneous. This interpretation is supported by analysis of the finds, which reveals quite limited chronological divergence between them. Although the relationship between the pits is not entirely clear, there does appear to be a sequence to them, however. For example, it appears that pit AD cuts an earlier pit, ADa. This was not noted on the original drawings, but it would explain the odd step arrangement and fill patterns in this pit. Pit AD may have been cut at the top by pit AE, but the fact that these pits appear to respect each other may indicate that they are probably near contemporaneous, even if AD was filled by the time that AE was dug. A similar situation occurs with AD seemingly cutting AO, but also closely respecting it. Elsewhere, pit AH cuts pit AK, while pit AE possibly cuts AM, and pit AO also probably cuts pit AN.

The three westernmost pits were separated from the others by a shallow gulley, which appears to cut, or is possibly cut by, unexcavated pit AP. Given that gully AJ respects most of the pits, it seems likely that it was, at least partly, contemporaneous with many of them. This gully runs roughly north–south, echoing the axial arrangement of linear ditches seen on the geophysical survey, including linear freature F1070 and those of the north–south trackway F1073 (Figure 4.1b, c). Although this gully does not appear on the geophysical survey, it seems probable that it was part of this linear arrangement, and supports the suggestion (Chapter 2) that the valley was divided into discreet enclosures arranged axially along a main trackway. Feature AB is located away from the rest of the pits, and seems likely to represent an additional pit, but it could also be the terminus of a ditch. The latter possibility is unlikely, as no ditch occurss in Clifford's trench 1N, situated

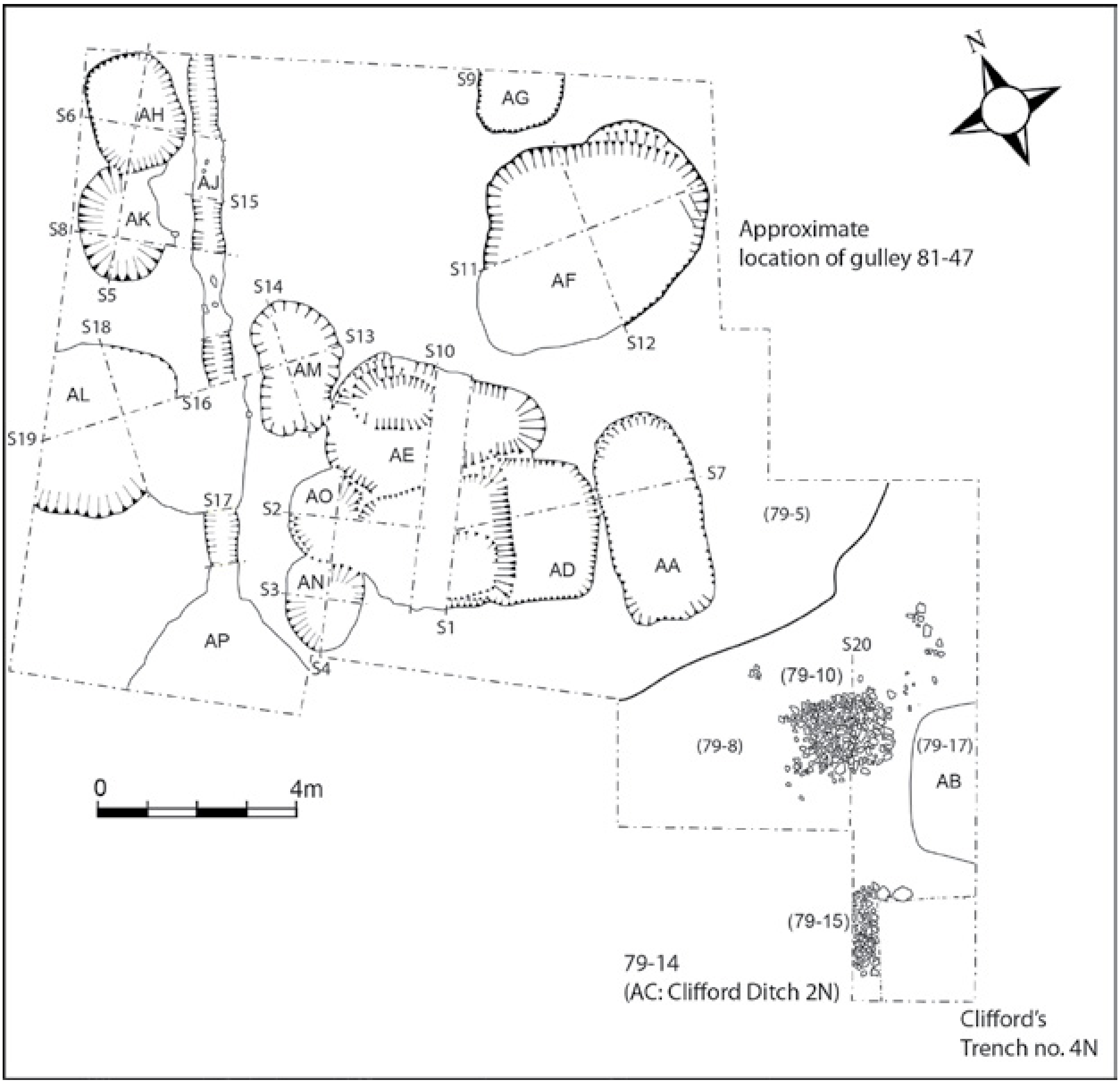

Figure 4.3. Plan of Area A.

to the east, which contains the probable terminus of another ditch. Based on the geophysical survey, the arrangement of pits encountered in Area A appears to represent a cluster located within the south-west corner of an enclosure, adjacent to the main trackway.

Thirteen pits were encountered in Area A (Figures 4.4-4.6), a number of which were large (pit AF is nearly 5 m across); and these also vary in form, some being relatively cylindrical, indicative of so-called storage pits (AH, AA, AD, AG), although whether this was really their role remains debatable. Others are relatively shallow scoops (AF, AE, AK, AO and AN), in particular (AM). This variation in depth suggests that they had a range of functions, with some possibly dug as rubbish pits. The fills of some of these pits, such as AD, appear to show evidence of silting and backfilling in periodic sequences, while others appear to have been filled more rapidly. Pits AH and AG, for example, have similar organic-looking layers within the pits, somewhat resembling the fills in pit AD (Figure 4.7). It seems likely that these pits were filled with material that subsequently rotted, leaving shallow depressions, and was then 'topped up' later. Pits AH and AG, which have such fills, also have upper layers of stone slabs that may be evidence for later stone surfaces, akin to those identified in Area B, which had slumped into these pits because their fills had rotted. The stone slabs are significant, as it appears any other traces of such layers on the surface have been removed by ploughing. Alternatively, these stones may represent material dumped in to consolidate slumping pit fills. Those pits that are more scooped and shallower in profile (specifically AN, AO, AE and AK) are less

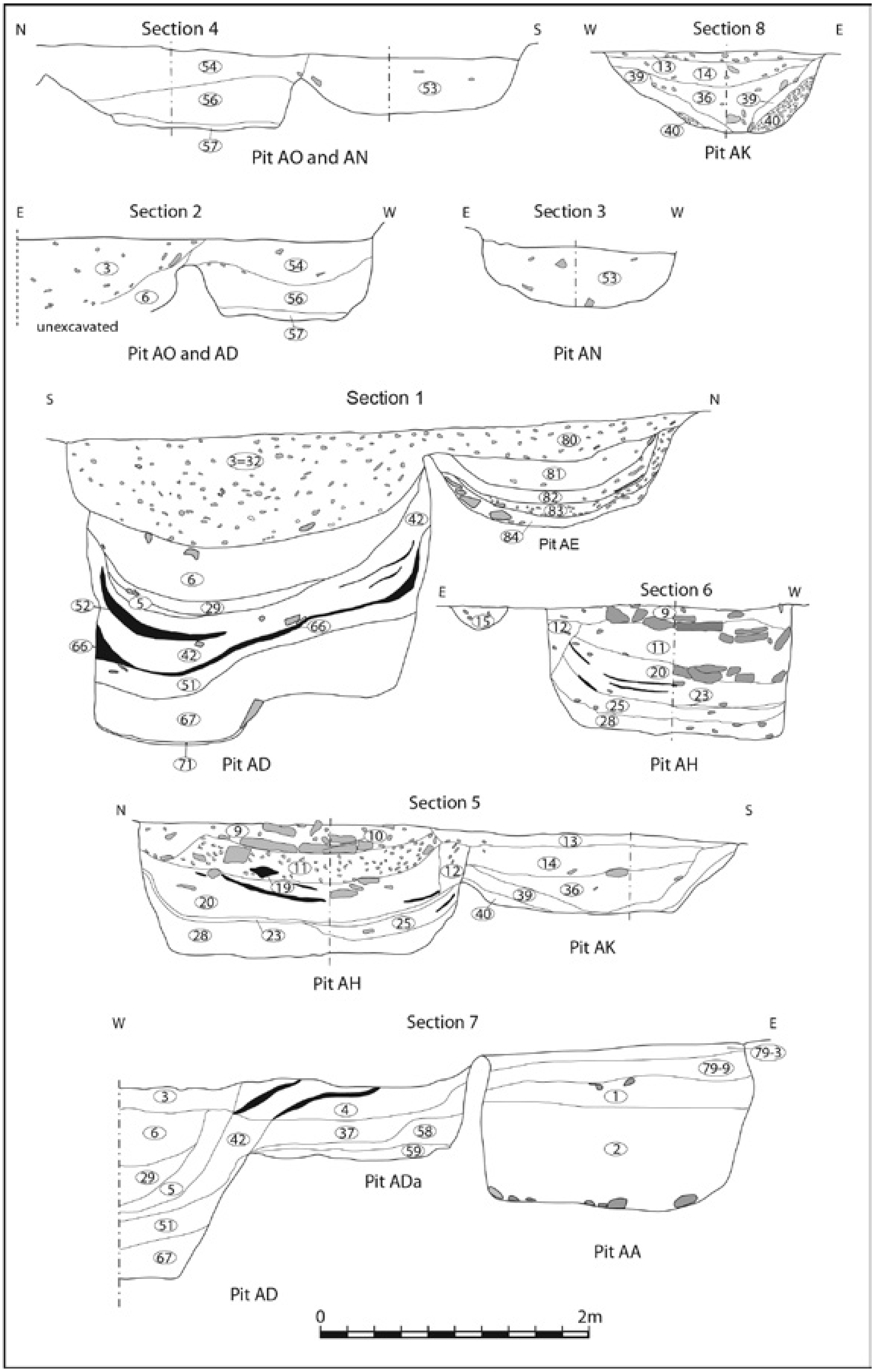

Figure 4.4. Profiles of pits in Area A.

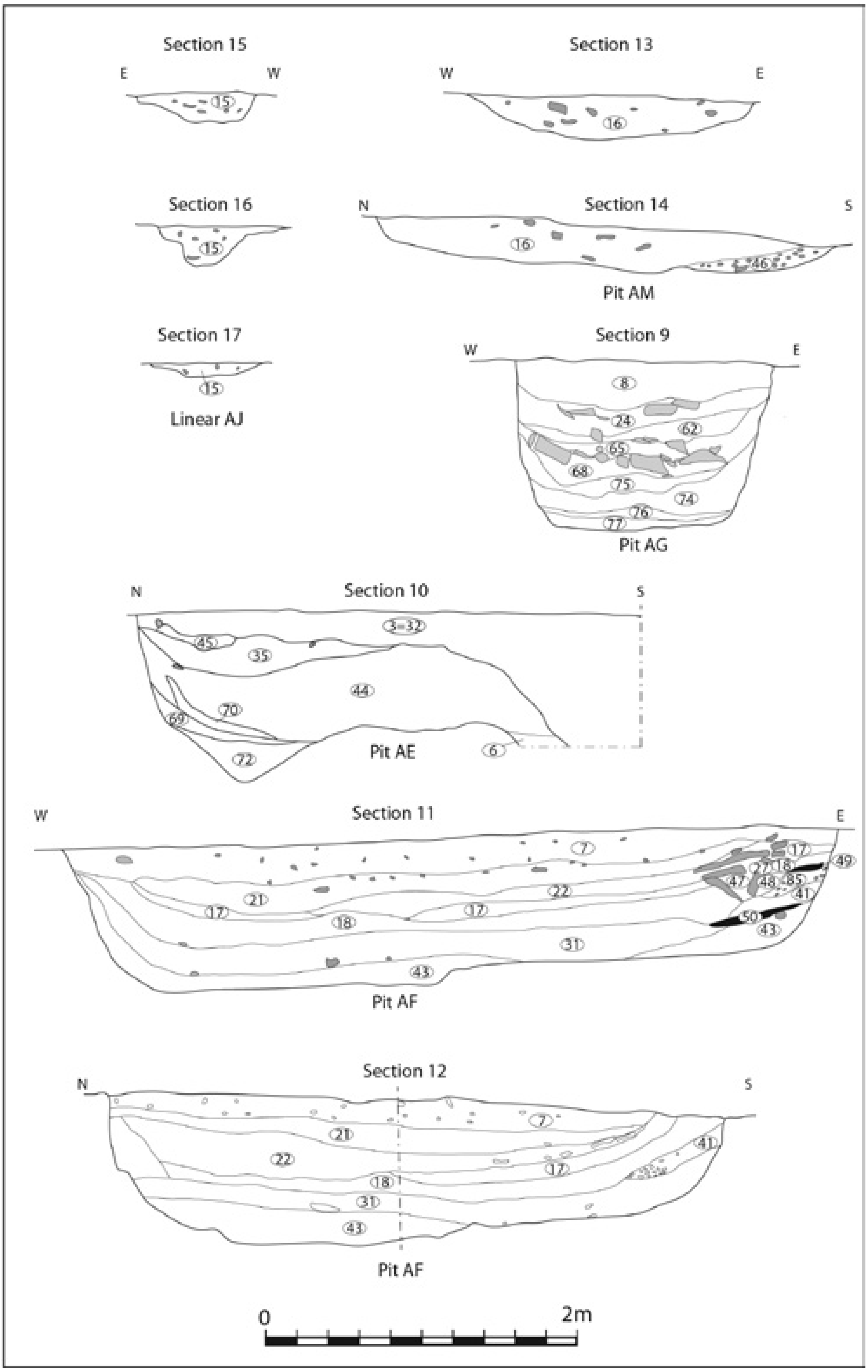

Figure 4.5. Profiles of pits and other features in Area A.

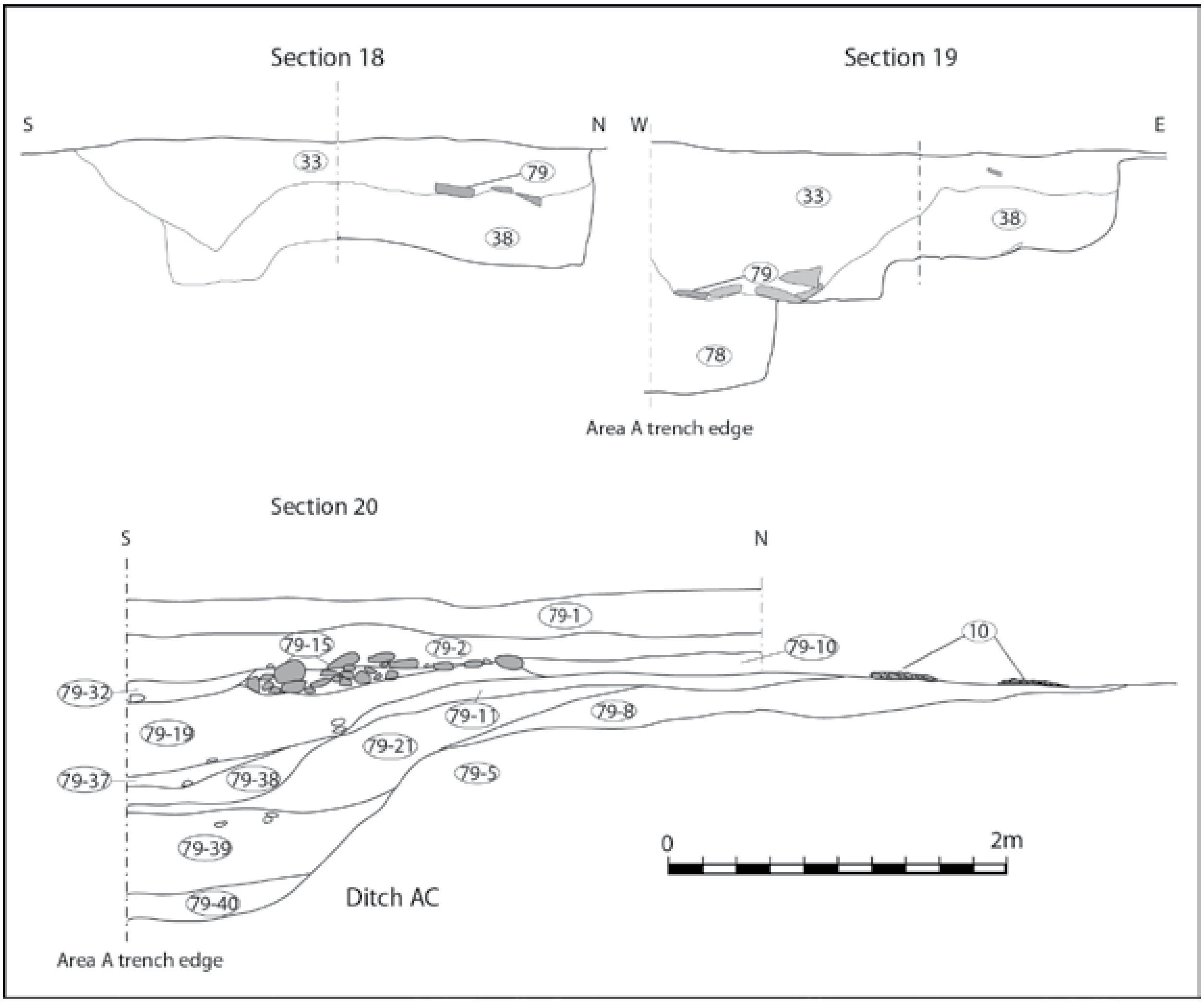

Figure 4.6. Profiles of pits and other features in Area A.

complex in terms of their fills, with less evidence of the organically rich materials within them, which is potentially indicative of their possessing other, undetermined functions.

Despite its large but shallow profile, pit AF (Figure 4.8) had a complex layering of fills, similar to the storage-type pits. Its upper fills contained the remains of a later culvert (AZ, 81-27), which appears to have slumped into it due to the subsidence of the underlying organic fills. This culvert was absent elsewhere on the site and is only preserved in pit AF, thereby reiterating that plough damage in this area could well have removed any floors or surfaces like those revealed in Area B. Comparable culverts were further revealed in Area B. The alignment of the remnants of this culvert may correlate with a low-magnetic susceptible feature on the geophysical survey to the north (see Chapter 2: F1089). As with a similar feature in Area B, such culverts appear to be late in date and are likely to be for drainage, relating to the latest phase of occupation on the site.

Distinguishing the roles of pits by their contents is difficult. Pit AA had a notably large assemblage of *terra sigillata*, probably partly reflecting its relatively late date compared to other pit assemblages. It also contained a number of coin mould fragments (see Landon, in Chapter 11), as well as a varied assemblage of other finds, including brooches, blades, a whetstone and shale armlet. Some other pits, such as AH, also have a relatively rich assemblage of *terra sigillata* as well as two *Dobunnic* coins, while pit AO includes a relatively rare blue glass bowl (Shepherd, in Chapter 12). In general, the rich assemblage of material from these pits, including a diverse array of ceramics, suggests that much of their content may be rubbish, perhaps from middens nearby, and relates to occupation, possibly of high status, whether in the immediate vicinity or elsewhere in the valley.

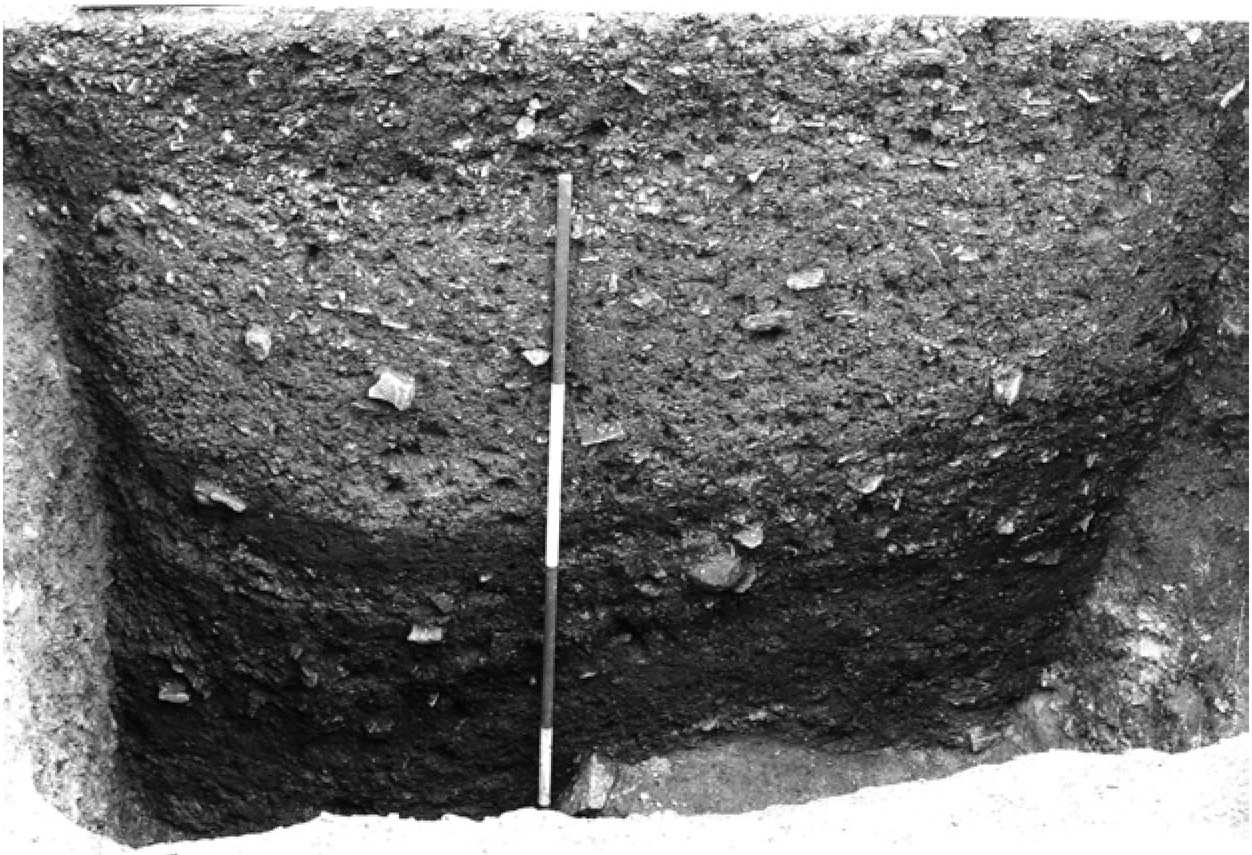

Figure 4.7. Photo of pit AD in Area A showing organic like fills (Photo: Bagendon archive).

Area A provides some of the few *Dobunnic* (Western) coins from a secure archaeological context anywhere in Britain that may be of pre-, or immediately post-Roman, conquest date. This includes one from context (81-28), in pit AH, which produced two coins (Haselgrove, in Chapter 10). Based on the *terra sigillata*, this context is no earlier than AD 35, and seems most likely to be Claudian in date (Willis, in Chapter 6).

Stone layer in the south-east corner and ditch AC

An area of gravel or cobbling was identified in the south-east corner of Area A (79-10) (Figure 4.3; 4.6), representing a possible occupation layer, although its role is unclear. It appears too small (around 2 m in diameter) to be the flooring of a hut similar to those suggested by Clifford (1961). Although the presence of colluvium suggests that less plough damage has occurred in this area than in the north of Area A, it may be that this layer is all that remains of cobbling, similar to examples in Area B.

In the south-east corner of Area A, the trench was extended to join Clifford's excavation area: site B. This revealed the end of Clifford's trench 4N (Clifford 1961: Figure 8). The fill of trench 4N (79-14) was removed and the original sections straightened. Under a layer of colluvium (79-2), which covered the area around Clifford's trench, an expanse of angular limestone cobbles (79-15) was found. This expanse of cobbles may represent the wall of Clifford's 'hut' from her Period IV (Clifford layer 4), although she also speculated that it might be another cobbled platform. It is certainly hard to see this as definitive evidence of a hut wall, and there is little to indicate any curvature as Clifford indicates in her plans. Beneath this was the ditch that she encountered (her ditch 2N, identified as ditch AC in 1979: Figure 4.6 and 4.9). Clifford's dating of the ditch identified it as from her Period II, which she dated to the AD 20s–40s, with the huts from her later Periods III and IV. It seems likely that Clifford's dating may be too early, with evidence from the 1979 excavations indicating that this ditch was filling up with material by at least the AD 40s, with *terra sigillata* of this date in its upper fills. It appears too that this ditch cut through an existing occupation layer or hillwash, which contained *terra sigillata* dating no earlier than the AD 20s.

Only a very broad phasing for the features in Area A can be suggested. As noted earlier, most of the pits do not intercut each other, making phasing problematic. The assemblage of *terra sigillata* may suggest some slightly earlier pits cut into by later ones; AO, for instance, has a relatively early assemblage compared to AD, which appears to cut this (already filled) pit. The assemblage of *terra sigillata* from pit AA must post-date the AD 40s

Figure 4.8. Photo of pit AF with stone culvert (Photo: Bagendon archive).

and also provided a radiocarbon date from its upper fill of 1 cal BC– cal AD 140 (94%) / cal AD 50–130 (65.7%) (SUERC-79378), which suggests a date for the filling of this pit probably after the mid 1st century AD. The lower fills of pit AF, into which the later culvert (AZ) slumped, contain *terra sigillata*, which is no earlier than AD 25, and a brooch dating to before AD 55 (Chapter 7). It also seems that in pit AL, a later pit may be cutting an earlier feature represented by (81-78). On this basis, the pits in Area A have been tentatively divided into two phases. The first phase is represented by pits ADa, AN, AK and (81-78) in pit AL, with the rest in phase 2; this undoubtedly masks a more complex picture, however. Dating of fineware ceramics does not allow for a clear distinction between these phases, with none of the Gallo-Belgic wares in phase 1 pits necessarily pre- or post-conquest in date. A single sherd of a Cam 16 from (81-58) in pit ADa must date to after the conquest, suggesting that, if these are earlier, they may still date to the AD 40s. The recovery of a hobnail from a fill of pit AK (Chapter 8) might suggest a post-conquest date, but the existence of hobnails in Britain from around the time of, and before, the Roman conquest is demonstrated at Silchester (Crummy, in Fulford *et al.* 2018: 139–140), meaning that this is not indicative of post-conquest activity.

As all the pits respect the area demarcated by ditch AC, there is no reason why some of these might not be contemporaneous with this feature. Some, however, could also be contemporary with the stone surface (79-10 and 79-15), none of which overlie the pits. Stone culvert AZ (81-27) is the only feature clearly later than the pits. Its resemblance to the latest culvert recorded in Area B may suggest that it was part of a similar (late) phase of activity in this area.

Area B (1980)

In 1980, a second trench of approximately 240 m^2 was opened to the west of Area A (Figure 4.10 to investigate the terrace on the side of the valley, which appeared to have been constructed for a road, a continuation of that identified in Clifford's excavations (but described by her as platforms). The geophysical survey (Chapter

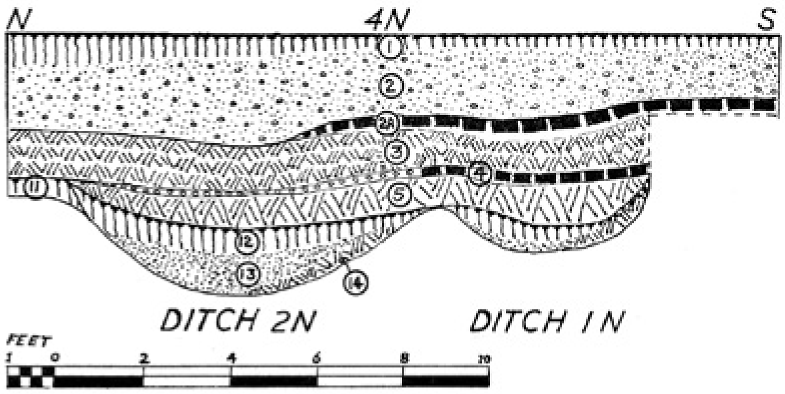

Figure 4.9. Section of Clifford ditch 2N in Trench 4N (from Clifford 1961: fig. 6).

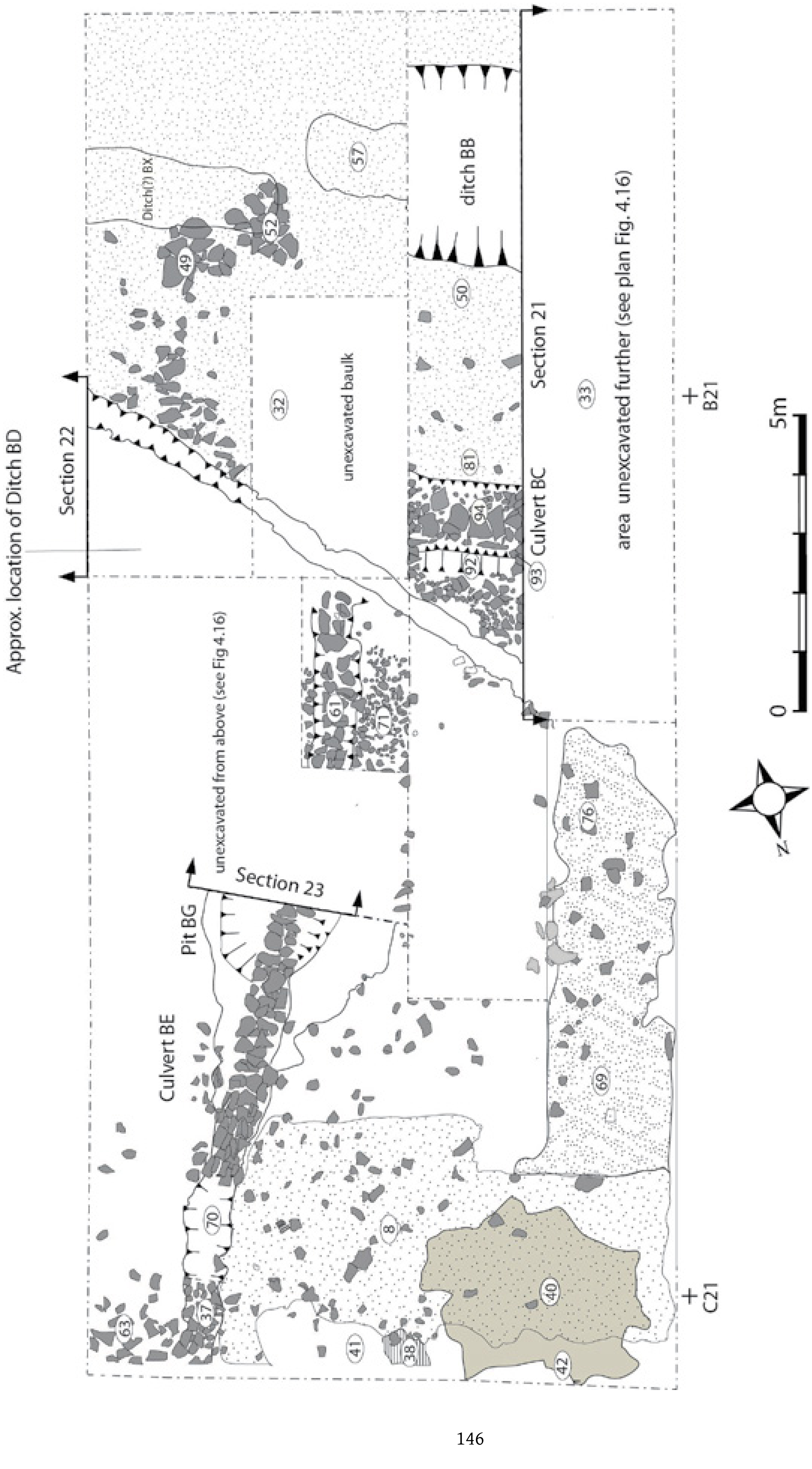

Figure 4.10. Plan of Area B, features from phase 1 and 2.

Figure 4.11. Photo of excavation of Area B showing methods used (Photo: Bagendon Archive).

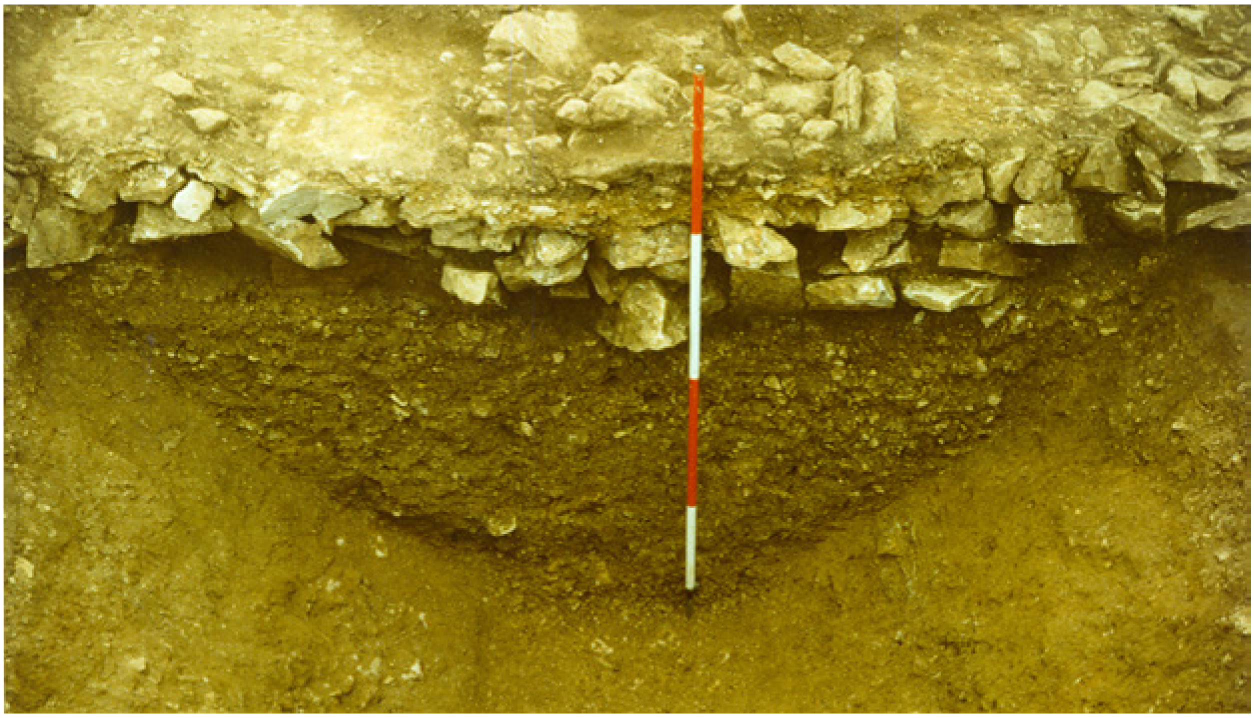

Figure 4.12. Photo of section of ditch BB (Photo: Bagendon Archive).

2) now confirms this terrace as the location of an apparent trackway, identifiable by two parallel ditches. These ditches seem to have represented a trackyway that preceded a stone road and/or acted as roadside ditches. This area provided a very different aspect to the site than Area A, with a sequence of features more similar to those examined by Clifford in her site B. Area B was excavated in a series of sondages, retaining the

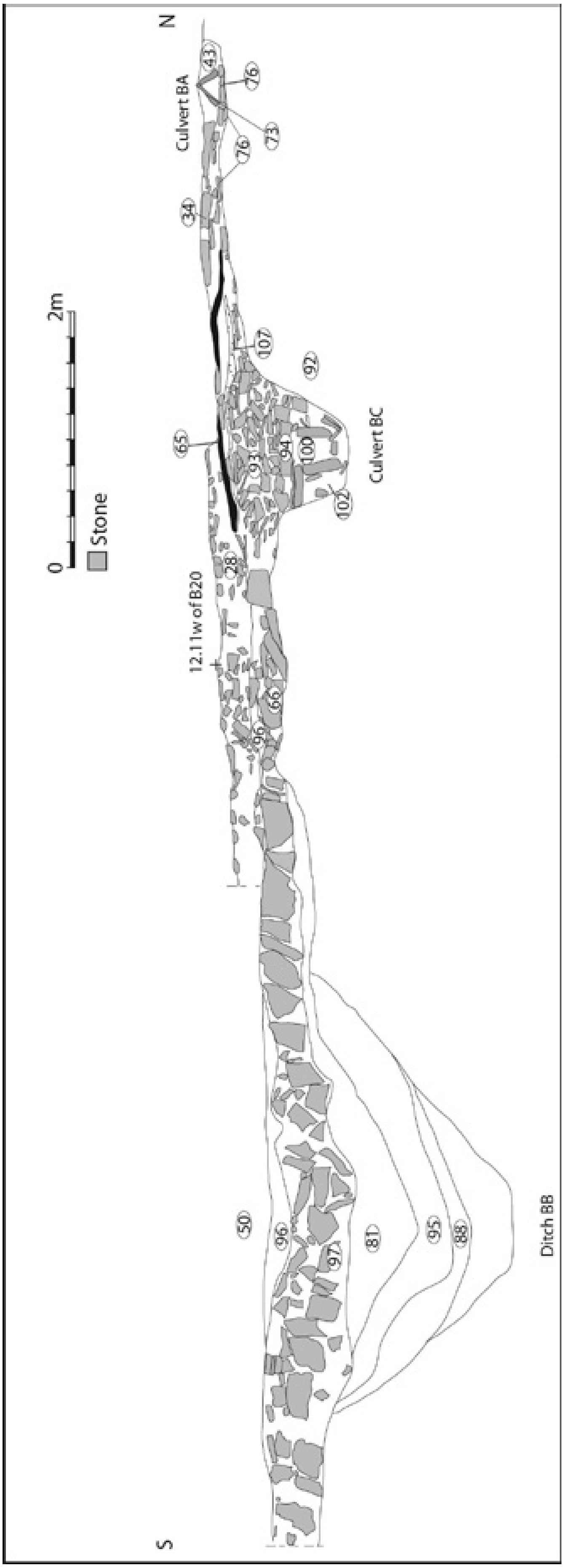

Figure 4.13. Section of ditch BB and Culvert BC.

later layers *in situ* (Figure 4.11), ensuring that only small areas of the earliest phases were examined.

Area B can be divided into three broad phases, although this almost certainly simplifies the structural sequence. Defining some of the cobbled layers as separate phases has proven problematic. Some of the records indicate that particular layers are stratigraphically earlier or later than others, but distinguishing between them chronologically is difficult. The nature of Area B suggests that these were layers of paving and gravel, which were re-laid periodically and therefore may not necessarily represent distinct phases of activity or specific structures. The dating evidence from all three phases is relatively similar, and all may have occurred between *c.* AD 30 and 60 (Chapter 6). The notable lack of ceramics from some features, such as ditch BB, hints, however, that some features in phase 1 are probably earlier in date.

Phase 1. Trackway ditch and pit BG.

The earliest feature appears to be the large east–west ditch (BB) (Figure 4.12 4.13). The geophysical survey (Chapter 2) indicates that this was probably part of a ditch running parallel to another to the south and seems likely to represent a trackway (F1113/F1074). Feature BB did not produce any material according to the excavators (Richard Reece pers. comm.). While the original plans seem to indicate that ditch BB did not continue across the entire trench but was segmented and perhaps related to another ditch (unexcavated BX), the excavators suggest that the opposite was true (Richard Reece pers. comm.).

If ditch BB is indeed the trackway ditch, it may be possible to correlate it with the northern ditch excavated by Clifford (1961: Figure 7; Figure 4.14), labelled by her as ditch 4N. She regarded this ditch as relating to the earliest phase of the site. Clifford's sections did provide material in the form of *terra nigra*, coarse ware ceramics (including limestone-tempered, Savernake and Severn Valley wares: Clifford 1961: 252) and early southern Gaulish *terra sigillata*, which suggested to her that the ditches were not out of use until *c.* AD 20–25 (Clifford 1961: 12). Clifford, proposed however, that this did not date the digging of the ditches, which she suggested might have been earlier.

Pit BG is also potentially early (Figure 4.15). The north–south culvert (BE) appears to have cut through this pit's earliest silting (80-109) and (80-108), while the upper fills of BG appear to consist largely of cobbled layers that have slumped into this earlier pit. Much of the dating evidence from this pit therefore belongs to phase 3 (Chapter 6), and gives a later impression of the pit than its original use.

There is a second possible ditch (BD), beneath flagging (80-47), which may date to this phase, although this was not fully excavated (Figure 4.15). If so, it could correspond to Clifford's second ditch (5N), which she identified as running parallel to ditch 4N; interestingly, she indicates that this was seemingly a segment of ditch (Clifford 1961: figure 7) and that therefore BD might not be continuous.

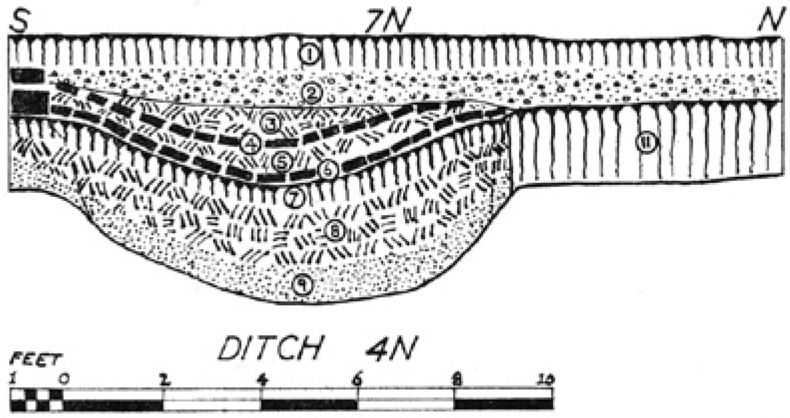

Figure 4.14. Section of Clifford ditch 4N (from Clifford 1961: fig 6).

It is not clear which, if any, of the surfaces relate to this phase. The arrangement in the first phase is not dissimilar to that identified in Area A, although the identification of only a single, relatively shallow, pit is surprising. This may partly relate to the different choice of excavation methodology in Area B, retaining areas of cobbling and thus leaving large parts of potentially earlier phases of activity unexamined. Alternatively, it could signify that Area B was used somewhat differently. An apparent

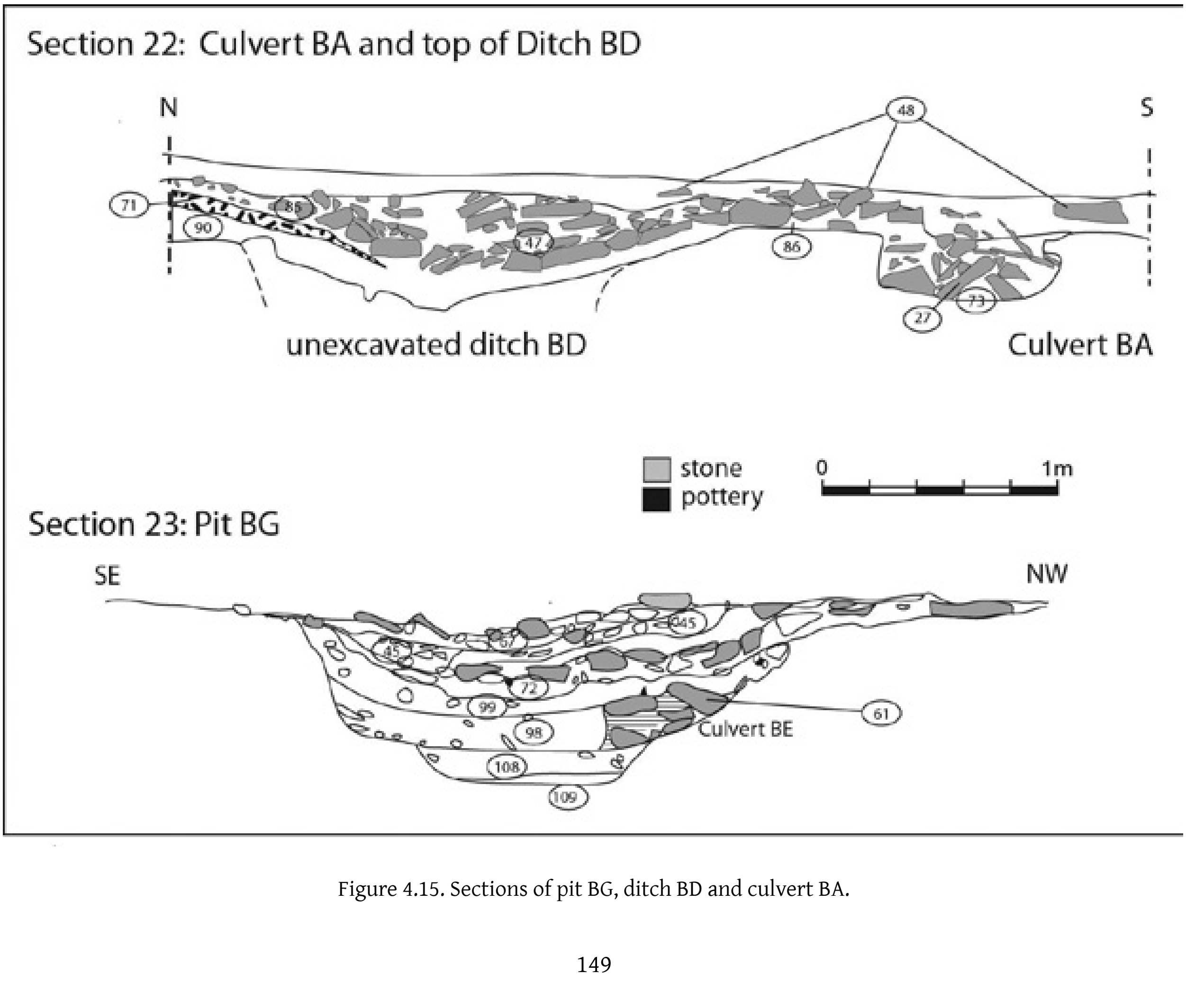

Figure 4.15. Sections of pit BG, ditch BD and culvert BA.

lack of the large negative features in this area on the geophysical survey may corroborate the idea of differently used areas.

Phase 2. Cobbling, culverts and road construction.

The second phase consisted of the construction of the north–south culvert (BE) and east–west culvert (BC). These seem likely to be contemporaneous, with culvert BE flowing into culvert BC, although the excavation did not examine their relationship. Some cobbled layers appear to be associated with these culverts, but their relationship and role is not immediately clear. Surface (80-8), underlying an ashy deposit (80-40) seems likely to be contemporaneous with culvert BC, which runs parallel to ditch BB but does not seem to have been contemporary with it. It is more likely to be contemporary with the thick, flagged surface (80-97) and (80-66) used to infill the slumping top of ditch BB, possibly representing the underlying surface of the metalled road, which also appears to have been contemporary with the stone layers overlying culvert BC (80-93). It is possible, however, that culvert BC had earlier origins but stayed in use into the later phases. A single culvert was recorded from the first phase in Clifford's excavations, also running parallel to the (southern) trackway ditch and apparently of similar construction technique (Clifford 1961: Plate XXV), suggesting that they may have been contemporary. It is also possible that what Clifford (1961: Figure 9) described as a wall was also a culvert and thus reflects a similar association of a culvert running parallel to the road (Stephen Trow pers. comm.).

Above cobbled surface (80-8), the black ashy layer (80-40) contained significant quantities of slag resulting from iron smelting (Chapter 9). The lack of burning on the stones in layer (80-8) itself suggests that this was not the site of smelting. Yet, the presence of fragments of furnace-lining from the same context (Poole, in Chapter 12) suggests, however, that it was occurring nearby. Intriguingly, this ashy deposit also included finewares, such as *terra nigra* and *terra rubra*, thereby highlighting the odd combination of both high-status material and 'industrial' waste found in both Areas A and B.

Phase 3. Stone surfaces.

Above the compacted spreads of cobbling in phase 2, layers of silt had accumulated, some of which (80-54, for example) were rich in finds. This may suggest a significant period of use before larger layers of cobbling and blocks were laid down across most of the area (Figure 4.16). These layers often consisted of flagstones, such as (80-2) and (80-5) and overlay the culverts. Despite this, some of the culverts could have continued in use, such as BC, although BE appears to have already slumped into pit BG.

These cobbled layers are hard to form into structures and appear unrelated to any postholes or evidence of buildings. Some of the cobbled layers overlay others and suggest an element of sequence in the laying and relaying of these surfaces. The layers immediately above these surfaces provided significant evidence of burning and metalworking, which could have been redeposited from activity in phase 2, such as the metalworking evidence associated with feature (80-40). Much of the slag derives from these layers, however, suggesting that metalworking was also associated with these surfaces.

Dominant among the layers of flagging is a consistent area of paving and cobbling (80-29; 80-32) in the southern part of the trench The east–west axis of this arrangement appears to correlate with the stone layers identified in Clifford's site B. She recorded these as platforms, but their consistency and linear arrangement on the terrace suggest that this was, in fact, a road surface. Clifford proposed that these stone layers were initially constructed in her Phase IIIA, which she dated to the Claudian and Neronian eras . In Area B, it seems that these surfaces were also relatively late. Ditch BB had been backfilled by this time, and the silted ditch was overlain by large blocks of rubble, apparently acting as foundation for the road above. Clifford's ditch 4N (Figure 4.14) is also overlain by surfaces (probably two) of limestone blocks that are suggestive of two phases of cobbled road surface. Only one is evident in the section of ditch BB, but some of the phase 3 surfaces (e.g. (80-29)) probably represent later additional road surfaces. Evidence from both ditch BB and Clifford's ditch 4N seem to indicate that the earlier trackway was replaced by a stone road, probably of multiple phases. The stone road appears to have slight realigned the earlier routeway, after the ditches of the trackway had already begun to silt up. It is worth emphasising here that Clifford's sections are somewhat confusing, and other sections of this ditch (Clifford 1961: 8N) show no indication of an overlaying stone surface. Considering the methodology employed by Clifford did not fully open up areas, and due to the inconsistent way in which sections were drawn, it cannot be assumed that her representation of the stratigraphy is accurate.

Culvert BA from phase 3 is the latest of the series of culverts. It notably ignores the pervading axis of activity from the rest of phases 1–3, cutting diagonally across the top of culvert BC and even part of the stone road. The geophysical survey suggests that this culvert might be related to an apparent low-magnetic (stone) feature running north-west to south-east, which continues to the north-west (see Figure 4.1c). Clifford (1961: Figure

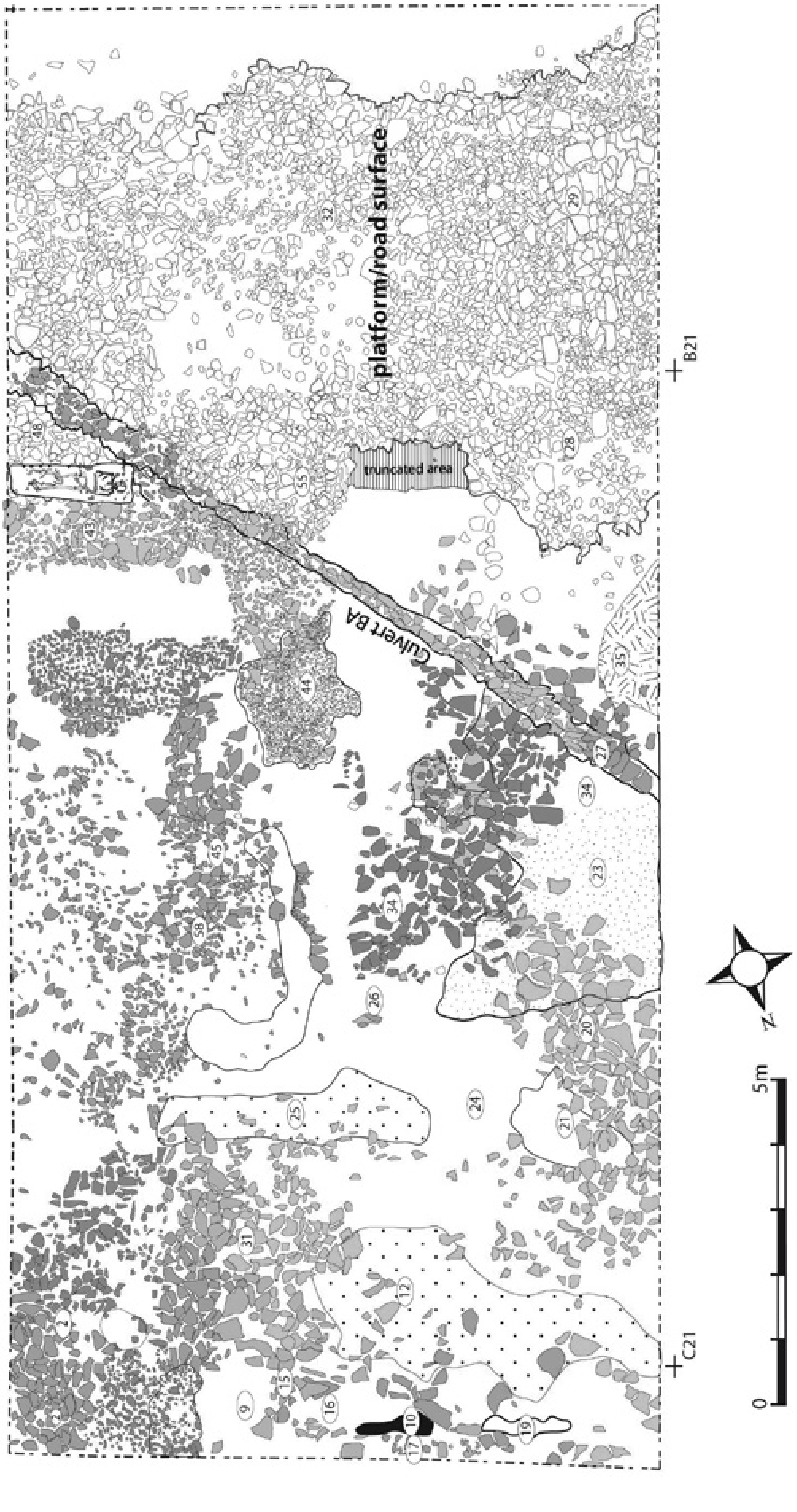

Figure 4.16. Plan of Area B, features from phase 3.

13) also noted several less well-constructed culverts associated with limestone flag surfaces overlying the earlier ditches. These she placed in her Period IV (Clifford 1961: 20). No late Roman pottery occurs in this feature (Chapter 6), perhaps suggesting that although from a final phase, it is not significantly later than the rest of the activity in the area.

The lack of later Roman pottery from Area B, compared to that encountered in Trenches 5 and 6 at Black Grove (see Chapter 5), suggests that most of the cobbled surfaces in phase 3 were contemporary with the final use of pits in Area A. It is possible, however, that the stone layer that overlies the main trackway ditch was in use in the 2nd century AD and even later. It was situated some way from the area of occupation at Black Grove (approximately 150 m to the north-west), and therefore may not have seen an accumulation of finds related to later occupation.

A grave (BF: Figure 4.17) was also revealed on the eastern side of Area B, located north of culvert BC but seemingly cut into the (unexcavated) ditch BD. It appears to have been overlain by a layer of what may have been disturbed phase 3 cobbling (80-85; Figure 4.18; Richard Reece pers. comm.), having cut through the upper layers of the limestone surface. This would make it one of the latest features in this area. The burial is associated with sheep remains that appear to have been laid over it. It has been claimed as late Roman (e.g. Philpott 1991: 202), largely on the basis that similar inhumations are are a relatively common late Roman rite in the region (e.g. Booth *et al.* 2007; Philpott 1991: 202–203), although some early Roman inhumations are known from this part of Britain (e.g. at Hucclecote: Smith *et al.* 2018; Thomas *et al.* 2003). A sample of the skeleton was sent for radiocarbon dating, which failed due to lack of carbon, possibly because of intermittent waterlogging in this area; its date therefore remains uncertain. As some of the upper levels of cobbling in this area may be relatively late in date and given that the road probably continued to be used well into the Roman period, it is possible that the burial is as late as the 3rd–4th century AD (Philpott 1991). Further, the burial could relate to occupation at the 'villa' at Black Grove (approximately 150 m to the north-west), which continued to be occupied into the 4th century AD (see Chapter 5). Such rural burials, associated with boundaries on the periphery of settlements, are well known from the general region (Booth *et al.* 2007: 227). Its alignment, parallel to the phase 3 road surface, also suggests that the road remained in use, or that this alignment (perhaps as a field boundary) was still significant well into the Roman period.

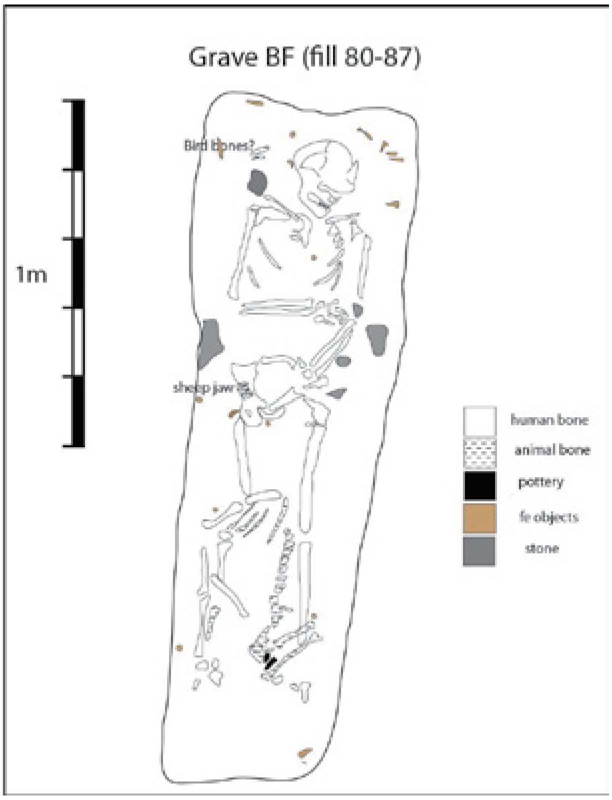

Figure 4.17. Plan of Grave BF.

Figure 4.18. Photo of Grave BF (Photo: Bagendon Archive).

Discussion of the 1979–1981 excavations

Reconstructing the phasing of the 1979–1981 features has been significantly hampered by the vagaries of time. Despite this, the sequence from both Areas A and B generally reflects that proposed by Clifford for her site B. Clifford (1961: 11) suggested that the earliest features (her Period IA) at site B were ditches 4N and 4S, which ran parallel east–west. Ditch BB in Area B probably equates with Clifford's ditch 4N and seems to be of relatively similar size, as well as having a corresponding sequence of fills. Both ditches were replaced with a stone surface. As she noted, these ditches were parallel to the later stone layers that she described as a 'platform', and were themselves overlain by stone in places. Clifford (1961: 18) argued that in Period IIIA the ditches had all largely silted up, and there was increasing evidence of stone flooring and what she postulated might be hut floors. This reflects the sequence revealed in Area B, where the stone flooring and associated metalworking appears to be part of a later phase of activity.

The evidence from Area B, coupled with that from the geophysical survey, suggests that Clifford's sequence was basically correct, with (at least) two phases of routeway along the valley into the site. The first, represented by a trackway of parallel ditches (of which ditch BB is one), was then replaced by a stone road with the ditches filled in by this time. Ditch AC, apparently associated with the stone road, appears to be somewhat later, with material indicating that it was filing up by the AD 40s. Ditch AC also cuts an earlier occupation layer, or accumulation of hillwash, which can be no earlier than the AD 20s.

A lack of environmental samples or material culture from ditch BB frustrates attempts to refine the date of this feature. The lack of material from this feature could be instructive, however, suggesting perhaps that ditch BB might pre-date the dramatic increase in material culture seen elsewhere on the site, which took place around the mid 1st century AD. If this was the case, it could have been contemporary with the final phase of activity at Cutham enclosure (see Chapter 3). Even if this were the case, we might still expect some ceramics from feature BB, with few Middle Iron Age features examined at the Scrubditch and Cutham enclosures being completely devoid of material. Those that were, such as the antenna ditches at Scrubditch enclosure, appear to have been situated away from occupation areas and were less susceptible to material being dumped in them. One possibility is that ditch BB was in an area where there was little occupation activity in phase 1 and so received a limited amount of material culture. Regardless, the dating of ditch BB and phase 1 in Area B is of some significance. If ditch BB was associated with Clifford's ditch 4N, then the dating of that feature—and of Clifford's phase IA—becomes all the more important.

Test pits in the valley occupation area in 2017

In 2017, a number of test pits (Trenches 9, 10 and 11) were excavated in the valley area (Figure 4.1c), primarily as part of ground-truthing the augering, which was undertaken at this time (Allen, in Chapter 19). An additional test pit (Trench 8) examined the area to the south of Trench 7 (the trench opened across the eastern terminus of dyke 'e'), but produced only modern remains. The test pits in the valley were largely aimed at confirming whether colluvium or alluvium overlay the archaeology in this area and, if so, attempting to secure any dating evidence from such deposits. All three test pits encountered archaeological layers, but it was not possible to excavate them fully to natural.

Trench 9

Trench 9 consisted of a 1 × 1 m test pit (Figure 4.19). This test pit appears to have clipped a feature (F1128) identified on the geophysical survey that represents a probable linear ditch running north-north-west to south-south-east. This linear feature defines a set of enclosures adjacent to the main trackway into the valley and runs parallel to the modern course of the brook. It was not possible to excavate this feature to its base, and only what are likely to be the uppermost layers of this feature were examined. These included plentiful fragments of burnt-blue limestone. Above the top of the ditch feature was an alluvial layer of relatively clean orange clay (9003). This was overlain by an occupation layer (9002), which contained animal bones but no dateable ceramics. An additional layer of alluvium (9001) was revealed beneath current topsoil. Roman pottery from the ditch dated to as late as the 3rd century AD in the uppermost layers, with the lower fills comprising late 1st century AD material, suggesting that this ditch had earlier origins, which were probably contemporary with activity in Areas A and B, but it remained open into the time of the occupation of the villa at Black Grove.

Trench 10

Located at the foot of the terrace on which the road is situated, Trench 10 (1 × 1 m) (Figure 4.19) was at the lowest point of the field and probably the scene of an earlier course of Perrott's Brook. The layers encountered here included thick deposits of stone and other material. It appears from the geophysical survey that the test pit clipped an amorphous feature, possibly a large rubbish pit, which was perhaps akin to those encountered in Area A. Material from the upper layers of the pit dates to the 2nd century AD, with the lowest layer containing earlier, 1st century AD material. As with the feature in Trench 9 and the pit in Trench 5, this may be Late Iron Age ditch that remained partially open, accumulating material in its upper fills into the 2nd century AD.

Trench 11

An area 2 × 1 m was exposed on the terrace where the road was located to determine whether natural limestone was close to the surface in this area (Figure 4.19). Beneath the topsoil, two layers of rubble material (11002 and11003) were encountered. A short section of a possible wall (11004) aligned north–south was unexpectedly below these layers, but on closer inspection, there is a low-magnetic feature on the geophysical survey running north-north-east to south-south-west across the trackway in this area that may be an element of a structure, although no clear plan can be discerned. Adjacent to the wall, an area of flagging was identified (11005) along with another (11006). The latter had the appearance of natural bedrock, but it is more likely that this is stone flagging, similar to that encountered in Area B and by Clifford at site B. Sequentially, the wall appears relatively late in date. The fact that this wall runs across the direction of the road surface suggests that the road was potentially no longer in use and it may therefore be of Roman date and relate to the Roman buildings at Black Grove in Trenches 5 and 6. All of the ceramics from Trench 11 were of 2nd century AD date, also suuportng the notion that any structure here was related to Black Grove villa (see Chapter 5). Alternatively, it is possible that this was not a wall but a culvert, similar to those encountered farther east, perhaps explaining its odd location; the upper stones were not removed to examine what was beneath, so either remains a possibility. The area was not excavated below stone surfaces (11005/11006), and thus provides information on only the latest features from this area.

Discussion

The test pits excavated in the valley confirmed the intense nature of activity there, as witnessed on the geophysical survey. Only Trench 9 revealed substantial information on the processes of alluviation, confirming at least two significant periods of inundation. In order not to damage the *in situ* archaeology and to retain this until larger-scale examination can take place, these test pits were not excavated fully. It was therefore not possible to determine if there was alluviation prior to the Iron Age occupation. That much of the material from these trenches dates to the Roman period perhaps emphasises their closer proximity to the Roman occupation at Black Grove than Areas A and B. It seems likely, however, that many of the earliest phases of some of the features encountered were contemporaneous with the occupation examined in Areas A and B. As none of the features encountered were fully excavated, their earliest date is impossible to determine.

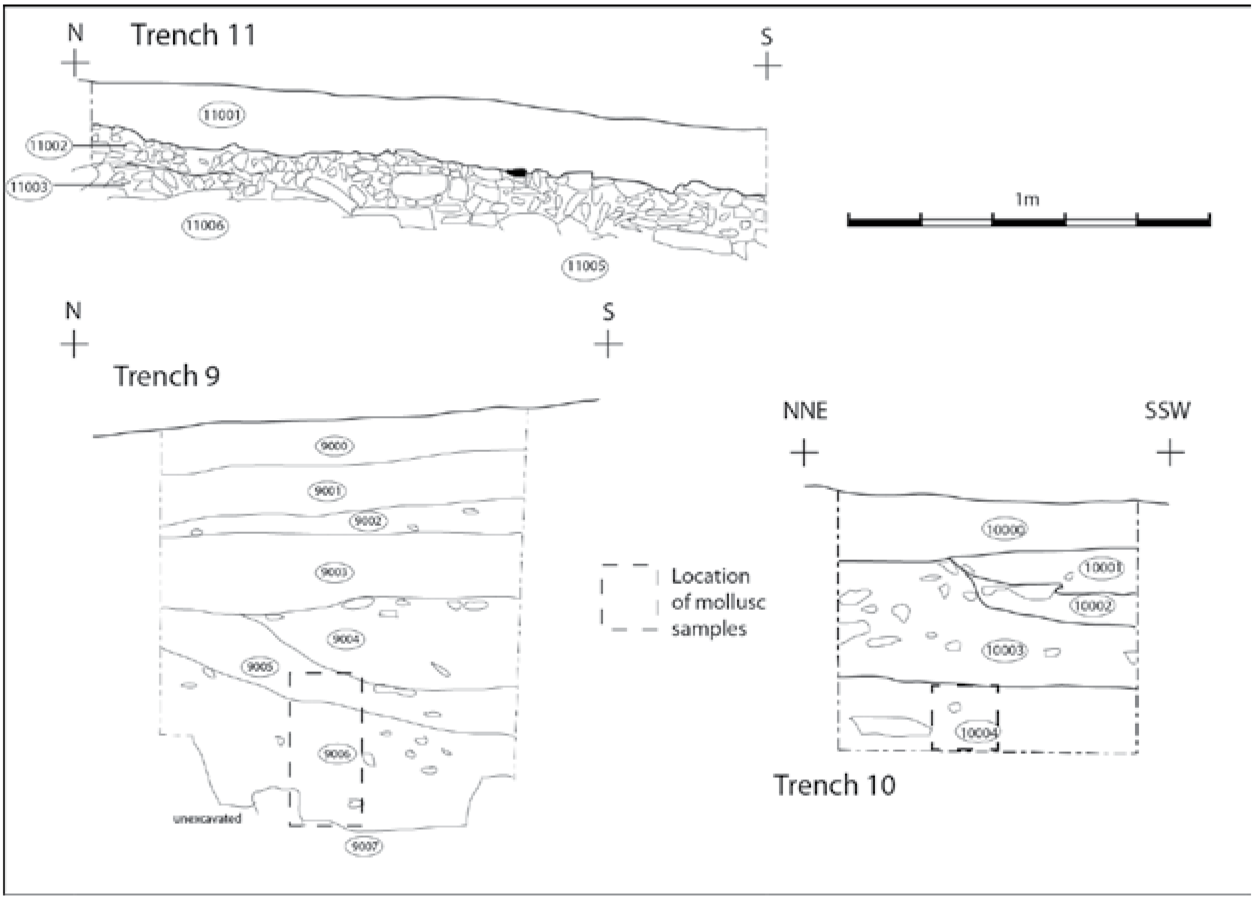

Figure 4.19. Sections of test pits from 2017.

Table 4.1. Comparison of chronological frameworks for Bagendon valley occupation area.

Clifford 'Period'	**Clifford area activity phase**	**Clifford (1961) Date**	**Swan (1975) Date**	**Comparison of activity in Area A/B (1979-81) and Cutham enclosure (2014)**	**Suggested date/ Phase for this project**
I	Main defences constructed	AD1-20	Uncertain /pre conquest?	Cutham ditches backfilled	Early 1st century AD
IA	Site B ditches dug; metalworking	AD1-AD20/25	Probably post AD43	Ditch BB dug (first trackway) Some of the pits in Area A in use?	Area B phase 1: (AD30-AD40?)
II	Secondary ditches dug; platforms in use Coin mint ditches	AD20/25-AD43/45	Post conquest AD43-50s	Metalworking in Area B (Phase 2), most of pits in Area A back filled; stone-surfaced road constructed; ditch AC dug.	Area-B Phase 2. Area A (secondary pits) (AD40-50s)
III	Secondary stone surfaces; stone surface over mint area; huts built	AD43/45-AD52/57	AD50-60s	Area B Phase 3 Stone surfaces in use; secondary pits in Area A filled. Ditch AC backfilled.	Area B-Phase 3. Area A secondary pits (AD50s)
IV	Final stone surfaces. Final culverts	AD40s-AD50/60	AD50s-60s	Area B phase 3 stone surfaces in use; Latest culverts in Area B and A.	Area B-phase 3 (AD60s)

Dating occupation in the Bagendon Valley

Since Clifford (1961) published her excavations, the question of the dating of the activity at Bagendon has been the subject of debate. Clifford (1961) argued that occupation at Bagendon began at least as early as AD 20, largely on the basis of *terra nigra*, *terra rubra* and *terra sigillata* finewares (Table 4.1). She did recognise, however, that there was a lack of clearly Augustan finewares, and this was supported by further analysis which compared it with material from Leaholme Fort (Rigby 1982a). Swan's (1975) assessment of the dating of Savernake ware from Oare and reassessment of Bagendon led her to argue that Clifford's dating was too early and that all of her material could be dated to after the Roman conquest. She argued that all of this material must have arrived with the Roman army, with the majority of, if not all, the activity at Bagendon dating to after AD 43. Assessing the veracity of Swan's redating is therefore important, in establishing the chronology of the complex, especially considering the new evidence that activity nearby at Cutham enclosure (and possibly Scrubditch enclosure) continued to be occupied into the early 1st century AD (see Chapter 3).

Clifford divided her sequence of activity into four broad phases with a number of subphases (Table 4.1). As discussed in Chapter 1, there are some problems with Clifford's recording with issues with the renumbering of material making it difficult to reassess her assemblages. Despite these factors, and the questionable coherency of her phases, Clifford's assessment of the sequence of activities seems broadly correct. Her earliest phase (Period IA), which may correspond to some of the earliest features from Areas A and B (such as trackway ditch BB), was dated to the early decades of the 1st century AD (no later than AD 25). She also dated Period II, corresponding with the earliest stone surfaces (now identified as the stone road above ditch BB and possibly some of the cobbled surfaces in phases 2 and 3 in Area B), as pre-conquest, *c.* AD 20s–40s. Clifford further argued that Periods III and IV dated between the AD 40s and 60s, at which point she suggests the site was abandoned in favour of the new town at *Corinium*.

In general, Swan (1975: 60) was correct in noting that the majority of the activity from Clifford's excavations seems to post-date the conquest. This is largely corroborated by the coarse ware and Gallo-Belgic ceramics encountered in the 1979–1981 excavations (Chapter 6; cf. Rigby 1982a: 181), which show a broad emphasis on material dating to immediately after the Roman conquest. Based on the *terra sigillata*, the backfilling of ditch AC (Clifford's ditch 2N from her Period IIA), for instance, is not earlier than the AD 40s, although this of course does not necessarily date when the ditch was dug. This evidence by extension suggests that Swan was correct in stating that the dating of Clifford's Period IIA should be revised to after the Roman conquest, possibly to the AD 40s or 50s. Similarly, some of the pits examined during 1979–1981, such as AA, contained fineware assemblages that must be of post-conquest date. Swan also argued that most of the metalworking at Bagendon took place after the conquest, and it does appear from Area B that most metalworking evidence derives from phases 2 and 3, which likely date to the AD 40s–50s.

Swan's overall assessment, that all of the activity at Bagendon must date to after AD 43, is questionable, however. First, it is worth asking to what extent the Roman conquest represents a meaningful chronological horizon and how identifiable is it in the material at Bagendon? Swan was keen to use Bagendon as part of a broader argument that Savernake ware, produced at Oare, indicated the influence that the Roman Army had on wheel-thrown pottery production. Her argument thus contains some assumptions; for example, that such 'native' wares can be dated as post-conquest because of their 'Romanised' forms. Swan also saw the Roman army as responsible for the influx of pottery to Bagendon (Swan 1975: 61), which formed part of her wider belief that the Roman army was the prime economic driving force in pottery industries and ceramic distributions. Since Swan's assessment, some of the wheel-turned coarse wares in the region, such as early Severn-Valley wares, have convincingly been argued to pre-date the Roman conquest (see Chapter 6; Timby 1999). It now also seems certain that Swan was incorrect in regarding all Savernake-ware industries as related solely to the arrival of the Roman army and dating to after the Roman conquest. Geoff Dannell's (1977) reassessment of the *terra sigilatta* assemblage from Clifford's site did not mention Swan's (1975) redating of the site, but arrived at a somewhat different conclusion. He argued (from what he admitted was a small assemblage) that occupation started *c.* AD 20–30 (somewhat later than Clifford's hypothesis), and on the basis of little later *terra sigillata*, must not have continued much later than the AD 40s.

As Swan (1975) rightly emphasised, the dating of Clifford's phase IA is crucial; she argued, however, that the assemblage from Period IA was insufficiently diagnostic to allow for clear dating, and she focused instead on redating the material from Period IIA. Attempting to reassess the chronology of the areas examined by Clifford is somewhat problematic. There was a significant process of renumbering (and reassigning) layers and contexts at the time of post-excavation analysis, leading to some confusion in the existing collections about which finds are from which contexts, with discrepancies between labels marked on ceramics and published records. Thanks to correspondence from Clare Fell in the 1970s, some sense of the renumbering can be made from notes in the archive, but there remain some discrepancies and inconsistencies between records. For this reason, we must exercise caution in using Clifford's material to establish the chronology of her site.

Despite these issues, reassessment of the date of finewares from the earliest levels of the ditches assigned to this phase does suggest that Clifford dated Period IIA too early and that it should probably be placed in the AD 40s. The extent to which phase IA may be pre-conquest remains uncertain. Dating the initial fills of Clifford's earliest phase ditches (4N, 5N, 5S) (ditches that were probably contemporary with 1980 ditch BB from Area B), is difficult. Gallo-Belgic[1] wares from Clifford's ditches 4N and 5N include a CAM 16 sherd dating to AD 40–85 from the secondary fill of ditch 4N (level 9 in section 6N). Meanwhile, a sherd of CAM 82-84 from the initial silting of ditch 4N is likely to be significantly earlier, probably pre-conquest in date. Similarly, the secondary fill of ditch 5N (level 8) contains sherds of CAM 8, CAM 12 and CAM 5, as well as a CAM 112, two of which must be pre-conquest. Steven Willis's reassessment of a selection of the *terra sigillata* (Chapter 6) from what are probably some of the early contexts from Clifford's excavations, indicates that her Period II was probably post-conquest, but that there is significant pre-conquest material within the overall assemblage and that Period IA could well be pre-conquest. These ditches were thus backfilled, perhaps by the AD 40s and not in the AD 20s as Clifford argued, although they were likely to have been silting up far earlier and were certainly dug prior to the AD 40s. The overall assessment of the Bagendon assemblage from 1979–1981, alongside the selected material from Clifford's excavations (Willis, in Chapter 6), ultimately emphasises an exceptionally early set of material, with the suggestion that much of it came to the site before the conquest, by around AD 30. There are, however, no Gallo-Belgic finewares from the initial silting of the ditches of Clifford's Period IA with which to corroborate this interpretation. Some of the Gallo-Belgic ware sherds do suggest, however, that the activity in Clifford's Period IA was in the AD 20s–40s, rather than as early as the first decades of the first century. If, as Swan posited, these ditches were dug after the conquest, this would squeeze the phases of activity seen on Clifford's site B (and, in 1979–1981, Areas A and B) into a very rapid sequence of floor levels between AD 40 and 60. It seems highly likely then that the occupation began well before the conquest, which Swan (1975: 61) accepted as a possibility.

The nature of the ditch fills encountered by Clifford and of the pits excavated in 1979–1981 suggest that these features were backfilled with organic material, which then rotted down causing significant slumping of the layers above. A similar situation appears to have occurred at Clifford's site B where her sections show consistent evidence for stone cobbling having slumped into the ditches. This may suggest that the trackway ditches and some of the pits were backfilled relatively rapidly, perhaps as a single event, with organic material that later slumped and required additional stone surfaces to create level areas. It may be that this organic material, which contained such a diverse array of finds, derived from middens elsewhere on the site. The dating of the material in this backfilling,

[1] These have followed the identifications in Rigby and Timby: Gallo-Belgic pottery database. Available at: http://gallobelgic.thehumanjourney.net/ (accessed 8 August 2018).

which includes relatively early *terra sigillata* dating, indicates that this process took place not long after the Roman conquest—perhaps in the AD 40s or AD 50s. Certain features, such as Clifford's ditch 4S, probably acted as roadside ditches, with possibly two phases of such features in this area, with 4S and 5S not necessarily contemporary. This sequence implies a re-ordering of the area, which included the replacement of the trackway with a metalled road and also led to the backfilling of other contemporary features. How this relates to the enclosures recognised on the geophysical survey is not entirely clear, but it seems that, in places at least, it also led to these being backfilled and reorganised.

How then do the 1979–1981 excavations contribute to the debate over Bagendon's chronology? Nothing encountered in Area A can be directly attributed to Clifford's Period IA. Ditch AC (Clifford ditch 2N) was regarded by Clifford as Period II, and while the 1979 material would suggest that her dating of this phase is too early, it was cut into an occupation layer or layer of colluvium, which could be as early as the AD 20s. McSloy (Chapter 6) argues that much of the fineware from Areas A and B could be of post-conquest date, yet some of the material could date from immediately before the AD 40s. Indeed, the relatively early date for the fineware assemblage overall and the presence of early material in some pits could suggest a pre-conquest date for some features in the area—although not earlier than the AD 20s. Certain assemblages, such as those from the lower levels of (81-78), which may represent an earlier pit cut by AL, appear to be pre-conquest in date. Conversely, layers in other features cut by later pits, such as AN, contain both Gallo-Belgic material and *terra sigillata*, which must be post conquest.

The *terra sigillata* from 1979–1981 (Willis, in Chapter 6) seems largely to support Dannell's dating of Clifford's assemblage, but implies a somewhat earlier date for the materials arrival, prior to the AD 40s. As Willis emphasises, the overall early nature of the assemblage places it on a par with sites such as *Camulodunum*, Silchester and *Verulamium*. Although much material is in potentially later contexts, it appears to indicate that a start date for occupation in the valley of post-AD 40 is overly conservative. Indeed, as Willis discusses, the assemblages from both Areas A and B is notable in having very little material later than AD 40s and significant quantities of material that may have arrived at Bagendon in the first few decades of the 1st century AD. Even accepting that such material could be used for some time after its introduction, the limited amount of late 1st century AD *terra sigillata*, even from the upper layers, suggests that it entered the archaeological record relatively soon. Correspondingly, the amphorae assemblage, although small, is of types normally found in pre-conquest situations (Williams, in Chapter 6).

The dating of the brooches (Chapter 7) supports indications from Willis's reassessment of the *terra sigillata* that activity did not continue after the AD 60s. While the brooches are not necessarily pre-conquest, many could fall within this range. The usefulness of Late Iron Age coinage in dating is highly questionable, but the assemblage perhaps provides corroboration. There are slightly more coins that can be placed in Leins's (2013: 307) early phase of Western coins (40–10 BC), than can be attributed to the secondary phase (10 BC–AD 20). The majority of inscribed coins, however, relate to the final phase (AD 20–45), which, on the basis of the ceramic assemblage, appears to mark the heyday of activity. The apogee of occupation in the valley at Bagendon thus probably spanned between the AD 30s and 50s.

For all of this material, a significant issue centres on how long it was in use for and when it entered the archaeological record. Indeed, it may have been around for some time before entering these pits and ditches, presumably as rubbish. At Silchester, much of the material that is of pre-conquest date, and may signify pre-conquest activity, derives from contexts that post-date the conquest (Fulford *et al.* 2018). At Bagendon, as at Silchester, this may partly relate to the amount of activity that took place in the Claudian–Neronian periods, meaning that many earlier contexts were disturbed and significant material redeposited (Timby, in Fulford *et al.* 2018). The Bagendon assemblage's overall narrow date range does, however, suggest a relatively coherent focus of activity that was no later than the AD 60s and represents significant activity between AD 30 and the AD 50s.

Earlier activity (probably in the early 1st century AD) was taking place nearby as is now evident from the Cutham enclosure (see Chapter 3). Based on the modelled radiocarbon dates (see Chapter 13), the enclosure ditch at Cutham seems to have been backfilled around the turn of the millennium or probably a little later. Unless we suggest that there was a hiatus of some 40 years between the backfilling of the Cutham enclosure ditches and occupation in the valley, it seems likely that the two events were coeval and that some of the earliest features from both the 1979–1981 excavations and from Clifford's excavation date to the early 1st century AD. The presence of slightly earlier activity would reflect recent reassessment of some other large Late Iron Age *oppida* in Britain. Recent excavations at both Silchester (Fulford *et al.* 2018) and Stanwick (Haselgrove 2016) have argued that occupation began earlier than previously suggested. It is likely that, at Bagendon, this conundrum will only be resolved by further excavation within the valley and the application of a large-scale radiocarbon dating regime.

In conclusion, two phases of activity can be broadly identified for the occupation in the valley at Bagendon (although this almost certainly simplifies the sequence of activities). The first phase was marked by the trackway (represented by ditch BB) and probably some of the pits in Area A. It seems probable that the enclosures recognised on the geophysical survey (which some of Clifford's ditches may represent) date to this phase too. The start of this phase is hard to determine, but it seems likely to pre-date, and perhaps straddle, the Roman conquest. The second phase of activity took place in the AD 40s or 50s. This latter phase is represented by the backfilling of the trackway ditches and many of the pits, and by the replacement of the track with the metalled road and adjacent cobbled surfaces and culverts that overlay some of the earlier pits and ditches.

The end of activity in the valley area is easier to determine. Clifford (1961: 21) suggested that occupation ended by AD 50–60, roughly concurring with Rigby's observation (1982: 181) that activity ceased in the Neronian era. The Gallo-Belgic finewares and *terra Sigillata* from 1979–1981 also contain nothing potentially later than the AD 60s. The only later material from these areas was found in the overlying layer of colluvium in Area A (79-2: Chapter 6), and which probably relates to more general Roman activity nearby associated with the Black Grove villa (Chapter 5). Similarly, Clifford found little to indicate later Roman activity other than a handful of unstratified late Roman 3rd and 4th century AD coins (Clifford 1961: 114). Further assessment of her *terra sigillata* did, however, lead to the identification of a 2nd century AD sherd from the colluvium overlying part of site B (Dannell 1977: 229). It is likely this derived from the Roman occupation around the villa at Black Grove, suggesting that there was little or no activity in this area after the AD 60s. If anything did continue, it seems probable that it was the routeway, represented by the stone road, which continued to be the main route to the Roman villas now identified along the Bagendon valley (see Chapter 5). All the evidence points to the activity around Areas A and B having a narrow floruit that probably started as early as a decade before the conquest and ended only a few decades later.

Layout and nature of activity

The layout of activity and the relation of areas of the Late Iron Age and early Roman complex can be better appreciated through a combined study of the results of the excavations in the 1950s and 1979–1981 and the geophysical survey. It is now clear that the total excavated area, from 1954–1956, 1979–1981, Trenches 5 and 6 at Black Grove (Chapter 5) and the test pits in 2017, represents a tiny fraction of the (probably greater than) 20 ha occupation area revealed by the geophysical survey. Occupation was focused around a trackway that ran east–west along the valley (Figure 4.1) with a co-axial arrangement of ditches and enclosures arranged along it. What this trackway related to and where it went is open to interpretation. One possibility is that it went to the (unexcavated) rectilinear enclosure identified by the geophysical survey to the east of Bagendon House, which seems to pre-date the villa identified within it (see Chapter 2). It may also have later served as the main access to the villa at Black Grove, as well as the other occupation areas situated along the Bagendon valley at The Ditches and Duntisbourne.

It seems likely that the ditches here, which appear to be segmented in Clifford's site B and possibly in Area B, mark entrances into the enclosures, as is also visible on the geophysical survey. To the west of Clifford's site B, a gap in the trackway and an adjoining north–south track can be recognised, and other entrances from the main east–west trackway are evident on the geophysical survey. Within the enclosures adjacent to the track and later road were clusters of pits, a series of which were examined by the excavation of Area A. The lack of complete excavation for Area B in 1980 may mean that other pits, representing earlier features contemporary to pit BG, were not identified and could have existed here. A series of later phases in Area B appear to consist largely of stone surfaces laid adjacent to the trackway and later road, seemingly representing working surfaces. These were associated with a series of culverts. It is possible that a similar sequence was present in Area A, with these surfaces destroyed by plough action.

The significant quantities of iron slag retrieved from Area B suggest that these surfaces represented areas for various industrial activities and may not have been associated with any permanent structures. The metalworking included both smelting and smithing practices (Chapter 9), with the majority of the slag recovered from Area B, although it has also been recovered from other features, including pits in Area A (Table 4.2). It seems that the slag largely relates to the later phases of activity (Area B, phases 2 and 3), possibly as part of an intensification of metalworking activity around the time of the Roman conquest. Hammerscale was also recovered from the soil samples taken from Area A features, including from pits AA, AL, AE and AF, and is indicative of iron smithing. Given the extremely small number of soil samples taken from the 1980s excavations, that almost all samples contained hammerscale suggests widespread smithing in this area. The discovery of iron currency bars from Bagendon (Allen 1967: 332) and nearby at The Ditches (Trow 1988a: 41) also reveals the presence of imported iron ready for smithing. Despite some complexity in the origins of currency bars (Hingley 2007), these spit-shaped examples seem likely to derive from the Forest of Dean (Hingley 1990). The dating of these activities,

Table 4.2. Contexts from Area A and B with iron working slag.

Context	Area / Phase	Weight (g)
79-6	A [subsoil]	320
81-3	A [overlying pit AD/AO]	215
79-13	A [pit AA]	210
79-18	A [pit AA]	250
79-29	A [pit AD]	105
81-69	A [pit AE]	25
81-61	A [pit AG]	40
79-2	A [subsoil]	89
80-27	B / Ph 3	141
80-40	B / Ph 2	4122
80-42	B / Ph 2	154
80-60	B / Ph 2	2512
80-8	B / Ph 2?	361
80-16	B / Ph 3	413
80-24	B / Ph 3	281
80-25	B / Ph 3	163
80-36	B / Ph 3	670
80-5	B / Ph 3	454
80-56	B / Ph 3	234
80-12	B / Ph 3	85
80-99	B / Ph 3	1230
80-10 / 80-38	B / Ph 3 or 2	241
80-67	B / Ph 3 or 2	3
80-1	B / Ph.3	4938
80-7	Unphased	8
80-US	Unphased	988

primarily to the AD 40s–50s, contrasts with Clifford's (1961: 19) suggestion of a transition in the role of the site from metalworking (prior to the conquest) to a more 'residential' use in Period III (the Claudian era). Instead, ironworking seems to have been a prime focus of activity in the immediate post-conquest period.

The presence of hammerscale in the upper layers of the feature encountered in Trench 10, located approximately 100 m to the west of Area B, could imply that iron smithing was undertaken across the valley. The layers in Trench 10, probably the uppermost fill of a ditch or pit situated at the base of the terrace for the road/trackway, date to around the 2nd century AD, apart from the lowest layer, which is likely to be 1st century AD in date (see Timby, in Chapter 6). It seems probable that these layers result from material washed from the terrace on which the road is situated to the north, and thus represent a mixture of earlier and later material. Whether the hammerscale relates to iron working from the 1st century AD, contemporary with that from Area B, or later iron smithing in the 2nd century AD, remains open to question.

The presence of pellet or coin moulds from Area A supports the notion that coin minting was taking place there too. Although there remains some debate on the role of these moulds in coin minting (Haselgrove 2019), this seems their most likely use. The quantity of coin moulds is not of the scale found by Clifford at her site B and C, the latter what she designated as the 'coin mint' (Clifford 1961: 16). This suggests that minting primarily took place to the south of Area A. Evidence for the actual coin minting may also be indicated by a stray-find discovery of a coin blank from this area (CCI-920274), and by the possible coin dies identified by Clifford (1961: Plate XLVI).

The presence of other artisanal activity is also possible. Bronze working nearby might be implied by some of the evidence from Clifford's excavation (1961: 153), and, tentatively, by a droplet of bronze from Area A, although there is no definitive evidence from the 1979–1981 excavations. Clifford (1961: 153) argued that the presence of a lead ingot was evidence for lead working. A number of fragments of lead sheet that had been folded over (predominantly from Area B) may be suggestive of some form of recycling. Lead extraction in the AD 40s in the Mendip area has been well attested (Todd 1994); the Mendips was probably already being exploited in the Late Iron Age and may have been the source of some of the lead in *Dobunnic* silver coinage (Ponting 2018). As coin minting was clearly taking place at Bagendon, Clifford could have been correct in her assumption that the two activities were related.

Putative evidence for glass working in the area excavated by Clifford has been suggested (Henderson 1982: 289), although it is contentious (Peter Crew pers. comm.) and unsubstantiated. While no direct evidence for pottery manufacture was encountered in the 1979–1981 excavations, local production of the grog-tempered fabrics has been suggested (Clifford 1961: 153; Rigby 1982a: 199), and probable kiln furniture that might be related (Moore 2009b: 130) from a mid 1st century AD context was recovered nearby at The Ditches. Spindle whorls from Area A (Chapter 12) and Clifford's site B (Clifford 1961: Plate LII) also indicate textile production. How such activities related to production more generally is not clear, but it seems unlikely to have been a specialised activity and may relate to domestic occupation.

There are hints of concentrations of particular activities in certain areas of the site, with a greater prevalence of iron slag from Area B compared to Area A. Conversely, no coin or pellet moulds were found in Area B, with

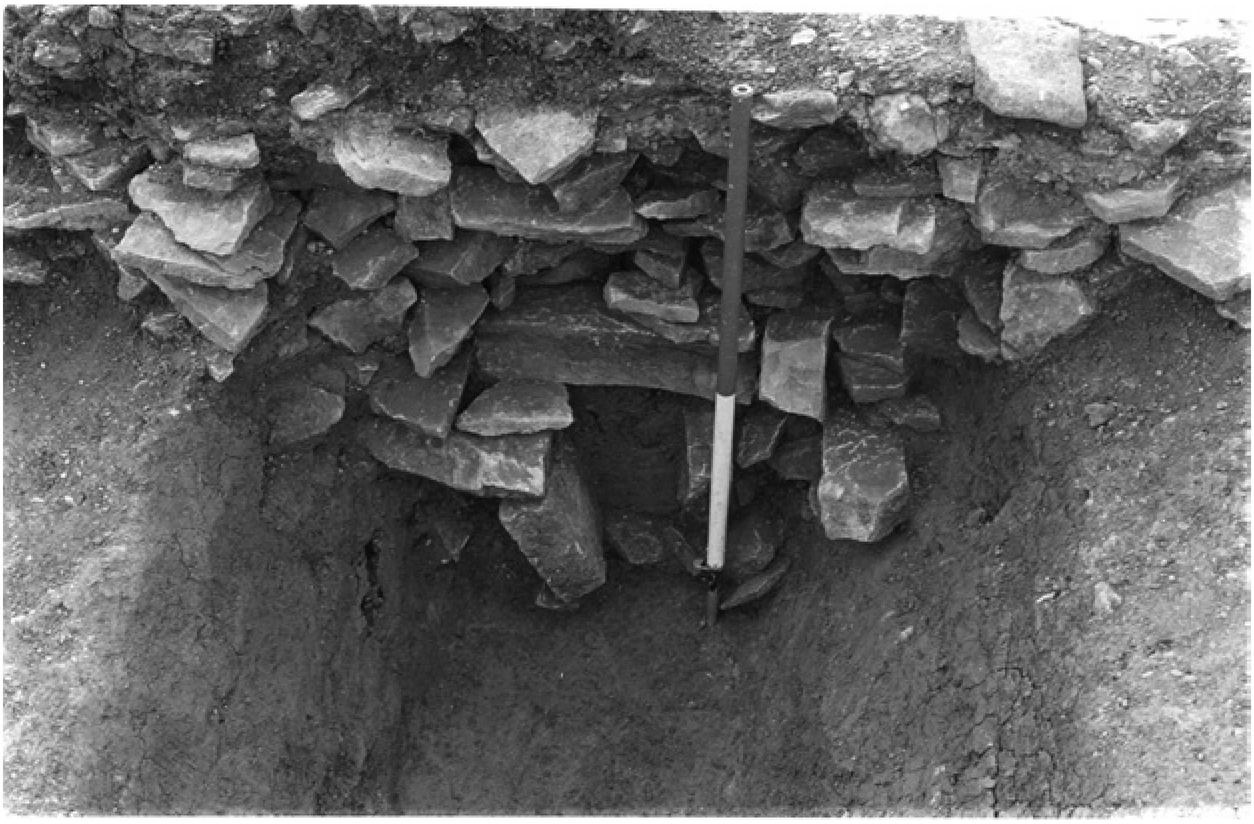

Figure 4.20. Photo of Culvert BC.

all of this material deriving from Area A (Chapter 11). Alongside the smaller quantities of *terra sigillata* in Area B, this could indicate some division between working zones in Area B and occupation zones closer to the pits in Area A. As discussed above, however, this may also reflect the differing investigation strategies used in these two areas. Perhaps most intriguing is the nature of the material from both Areas A and B, which includes unparalleled assemblages (in the region) of high-status ceramics from before and at the time of the Roman conquest. This also includes a relatively significant assemblage of brooches as well as a range of other items. Associated with this is evidence of other artisanal activities, including iron smelting and smithing. The range of finewares may suggest that both feasting and 'high-status' activity was taking place in relatively close proximity to the artisanal activity.

The secondary phases of activity are associated with the use of stone-built culverts (Figure 4.20). Some appear designed to channel water from the various springs in the area, and the presence of probable stone features on the geophysical survey may indicate that similar culverts exist elsewhere. Culverts of this design are not known from pre-Roman conquest sites in Britain, but are relatively common on Roman sites, often associated with drainage for roads (Bishop 2014). For example, a less well-constructed culvert identified at Winchcombe, in association with an Iron Age and Roman settlement, was dated to the 2nd century AD (Simmonds *et al.* 2016: 166). Elsewhere, well-built examples created for Roman road construction, to which culvert BC is most similar, tend to date to the later 1st century AD and are generally found in military contexts, such as along Stanegate at Corbridge (Bishop 2014). Interestingly, a culvert of very similar design was recognised at the eastern end of the valley, at The Malt House, where it was described as 'demonstrably post-medieval' (Hood 2017), although the reason for this dating is not clear. The association of culvert BC with the road surfaces suggests that it too related to the road (some of those recognised by Clifford also run parallel to the road), which in turn suggests that its role was to divert water running down the hill and away from the road. There is some evidence that the bottom of the valley could flood on occasion (see Chapter 1), and thus culverts may relate to a need for drainage. Many seem over-engineered for this purpose, however, and may have been part of a more elaborate water-management system. Culvert BE, for instance, appears to have been designed to divert water from the small spring located to the north of Area B into the main culvert BC, which then took it eastward. One possibility is that this management of water was related to artisanal activities, such as providing water for quenching in iron smithing (as suggested by Clifford 1961: 153).

No clear evidence of buildings could be discerned from the 1979–1981 excavations. This is in contrast to Clifford's claim to have identified a number of huts

Figure 4.21. Photo of area where Clifford's 'huts' were located (from Clifford 1961: fig 4).

from her Periods II, III and IV. This included one from Period II, two or three from Period III and two more from Period IV. She illustrates these on her plans as between approximately 3.6 m and 5.1 m diameter, making them comparably small for Iron Age roundhouses in the region (Moore 2006: 100). She describes one of these as consisting of dry stone walling with postholes situated within the wall (Clifford 1961: 21). The nature of Clifford's 'huts' are hard to discern from her plans and photographs, so their veracity is hard to gauge (Figure 4.21). Dry-stone-walled roundhouses are known from the region at Conderton (Thomas 2005a), but these display far more convincing foundations than those identified by Clifford. The layer of cobbling (79-18), which seems to correspond with Clifford's Period III hut foundation in this area (Figure 4.22), does have hints of facing stones, but this is just as likely to be an area of cobbled surface. Overall, there is little convincing evidence for buildings, from either Clifford's site B or Areas A and B. The possibility of cob-walled structures or timber buildings resting on post-pads, which have left little archaeological trace, should be borne in mind, however. It is also worth considering that any

Figure 4.22. Photo of section of Ditch AC showing possible? hut wall in section (Photo: Bagendon Archive).

structures comparable to the long halls argued for at Silchester (Fulford *et al.* 2018) are unlikely to have been detected in the 1950s or 1979-1981 excavations. While a few fragments of clay that may be daub were identified from the 1980s assemblage, only a single piece appears to have wattle marks (see Poole, in Chapter 12). Such small amounts might support the inference of a lack of buildings, although few wattle-impressed pieces also appear to have occurred in the earliest phases at Silchester, despite the apparent presence there of major buildings (Timby, in Fulford *et al.* 2018: 238). The ephemeral nature of buildings within Late Iron Age complexes is not restricted to Bagendon, with those at Sheepen, part of *Camulodunum*, also hard to recognise and seemingly different from contemporary buildings in the region (Gascoyne and Radford 2013: 44).

Clifford also identified a number of other possible postholes, including what might have been a rectangular structure situated at right angles across the stone road. She rightly suggested that if the rectangular arrangement of postholes represented a building, it would seem oddly placed, being situated over the road surface. Discovery of the wall running across the presumed road surface in Trench 11, farther west, might also indicate, however, that later structures do exist in the area and post-date the use of the road (although that structure could well be another culvert). The aforementioned postholes seem to form a 9- or 12-post structure, with the three rows situated approximately 2.5 m apart and forming what Clifford regarded as at least a 22 by 16 ft (7 × 5 m) building. The postholes seem rather small (approximately 0.3 m diameter) to constitute the posts of anything like a gateway into the complex, and any such gateway would potentially be situated farther east. To what extent this represents a real structure remains highly debatable, and it seems likely that none of these features represent evidence of buildings.

The question of Roman military involvement at Bagendon

The apparently dramatic and relatively sudden transformation of the Bagendon complex around the middle of the first century AD requires some explanation. From what seems to have been little more than a trackway and perhaps a few associated pits, the Bagendon valley appears to have changed significantly around the AD 40s into an area of enclosures, with the trackway replaced by a more substantial metalled road with associated culverts.

Is it possible that the apparent remodelling of the occupation area in the AD 40s–50s was brought about by Roman military influence? In the past, there have been claims that Bagendon represented a staging post for the Roman army (see Chapter 7); it has been suggested, for example, that the brooch types identified in the Bagendon assemblage represent a particular legion, although such an argument now seems highly problematic (Eckardt 2005).

The well-built stone road was certainly a novel development, one that some might attribute to Roman military builders. The existence of metalled Iron Age roads has now been recognised (Malim and Hayes 2009) and can no longer be automatically argued as evidence of Roman military involvement. Yet the metalled road has its best parallels in Roman roads; the *agger* visible in Clifford's sections (Figure 4.23)[2] and associated roadside ditches certainly appear similar to

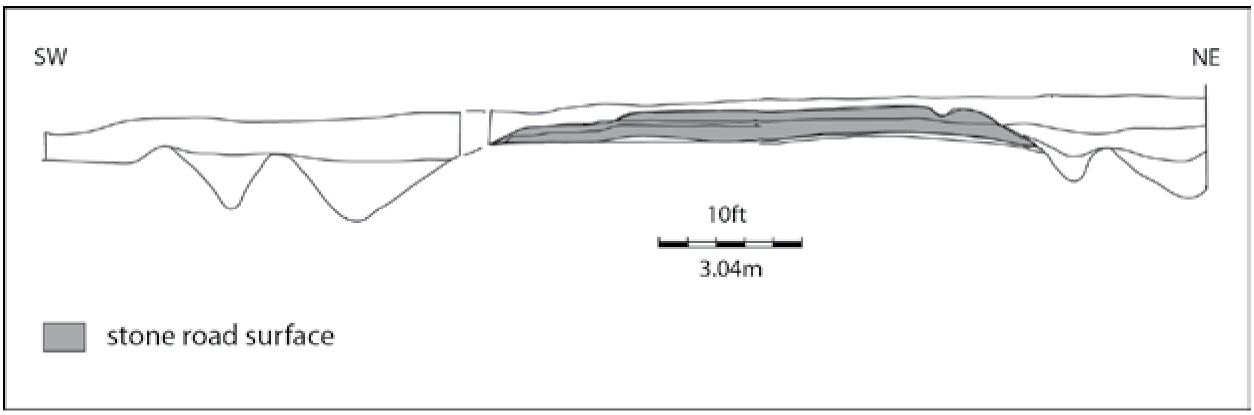

Figure 4.23. Reconstructed composite illustrating Clifford's 'platforms' are most likely a Roman (style) road with a clear agger. Stone layers in grey. Reconstructed by combining north-south sections of area 1N and 4S (Clifford 1961: fig. 11 and fig. 5).

[2] It should be noted that combining sections to create a composite of the *agger* is problematic. Clifford's (1961) sections do not completely match and there is thus some uncertainty on how areas 1N and 1S relate to each other. Figure 4.23, however, merges information from plans and sections to create the most probable representation of the combined north–south section.

examples nearby, such as the earliest phases of Ermin Street (Mudd *et al.* 1999: 263). As noted above, culverts associated with Roman roads are known from a variety of contexts, especially military (Bishop 2014: 30). If the road was built by Roman engineers, based on the dating evidence, it would have occurred not long after (or at the same time as) the Roman roads of Fosse Way and Ermin Street were constructed, with the alignments of the latter probably dating to the AD 40s (Mudd *et al.* 1999: 278) and metalled within the following two decades (Brindle *et al.* 2018: 168). It has even been argued that, prior to the formal construction of Akeman Street (*c.* AD 70s), an earlier incarnation of this road from the AD 40s used a route through the Bagendon area to connect it to Ermin Street (Copeland 2009: 47).

The stationing of Roman soldiers within Late Iron Age *oppida* immediately after a conquest is a well-known phenomenon from the continent (Reddé 2018), and took place at *Camulodunum* and probably other indigenous complexes, such as Hod Hill, Dorset. John Creighton (2000: 63) has even suggested that some soldiers may have been garrisoned at *Camulodunum* prior to the Claudian conquest. Evidence for Roman soldiers being stationed within the Bagendon complex is scarce, however. Hobnails occur in a number of contexts, but these have been shown to be pre-conquest in some instances and need not be associated with the military. More intriguing is the indication that the *terra sigillata* assemblage could denote a military connection (Willis, in Chapter 6), but this may relate to the supply networks into which the occupants were connected, rather than the garrisoning of Roman soldiers within the complex. At The Ditches, one of the possible high-status foci for the complex, there is evidence of Roman military equipment in the form of part of a probable dagger and a horse harness (James 1988). As discussed for The Ditches itself (Trow *et al.* 2009: 69), such isolated pieces of Roman military equipment might, however, denote local elites wearing Roman military dress and/or serving as Roman auxiliaries, rather than the presence of Roman military units. Overall, assessment of the 1979–1981 finds reveals nothing that directly implies the presence of Roman soldiers.

The evidence for the stationing of Roman military units in proximity to Bagendon in the decades after the Roman conquest is controversial. Wacher and McWhirr (1982) argued for the presence of a small Roman fort at Leaholme, Cirencester, dating to as early as AD 49 and perhaps in use until the AD 70s (Wacher and McWhirr 1982: 65). Subsequent discussion of the fort suggested that it was more likely to date to the AD 50s–60s (Darvill and Holbrook 1994: 53; Holbrook 2008a: 310). Further assessment of the *terra sigillata* (Dannell, in Chapter 14) and Claudian coinage (Kenyon, in Chapter 14) supports a relatively late date for the fort and that it was not connected to the initial conquest. It could even be argued that some of the features identified by Wacher and McWhirr were not related to a fort at all. Evidence of the Roman military in early *Corinium* are plentiful, however, and it is possible that some of these troops were located there in order to provide assistance to friendly rulers at Bagendon. If a fort had existed close to the occupation at Bagendon, it was not for the purpose of controlling the community there. Indeed, it can instead be explained as placed to allow access to the radiating Roman road network at the junction of Ermin Street and the Fosse Way, while also perhaps offering support to the existing elites at Bagendon (Darvill and Holbrook 1994: 55; Holbrook 2008a: 311). Involvement of any troops based in the area in the construction of the road at Bagendon is therefore theoretically possible. The relatively large-scale iron production that seems to have taken place, or at least significantly increased, in the AD 40–50s at Bagendon seems unlikely to be evidence of Roman military iron working, however (Chapter 9).

Overall, there is little reason to see the Roman army as involved significantly in the transformations at Bagendon. Much of the evidence from the complex suggests possible links at this time to *Verlamion* (see Chapter 24), visible for instance in the unusual Puddingstone quern from Hertfordshire (Green, in Chapter 12). Such connections may denote that indigenous leaders were keen to demonstrate their similar status and organisational skills to their *Catuvellauni* associates. The Roman conquest, and dominant presence of the army in the region (Mattingly 2006: 142), might however have been a factor in the social and political transformations. As Bagendon's political role transformed around the conquest, it seems likely that its role as a centre of production and exchange also increased, particularly as a hub (politically and economically) for contact with the invading forces and colonial administration. There seems no reason not to assume that for nearly three decades, before the development of the town at *Corinium*, Rome used Bagendon as a location by which to administer this part of the new province. Similarly, the appearance of two (possibly three) relatively precocious villa buildings in the Bagendon area in the late 1st and early 2nd centuries AD (The Ditches, Black Grove and probably Bagendon House) emphasises that the location, and presumably some of its higher-status inhabitants, remained socially significant after the occupation in the valley had been abandoned (see Chapter 5).

Caution should also be exercised in assuming that activity was really far more intensive in the AD 40s. Our recognition of this comes from the presence of imported ceramics, both regional (in the form of Severn Valley and Savernake wares) and from farther afield (in the form of *terra sigillata* and Gallo-Belgic pottery). Undoubtedly, these imports occurred alongside a structural development. We should bear in mind, however, that people may have been gathering in this area prior to the AD 40s. If occupation from that earlier phase was more ephemeral, and considering that the material culture explosion of the Late Iron Age seen in south-east England (and seen after the conquest) did not take place in this region until later, evidence for that earlier activity may be obscured by the intensity of later occupation. These caveats aside, Bagendon appears to have undergone two phases of transformation. The first, with the abandoning of the enclosures at Cutham and Scrubditch, saw initial activity along the valley floor, which was probably contemporaneous with the building of the major ramparts. A second took place around the time of the Roman conquest, with a restructuring of the valley occupation area. The implications of these developments for understanding the transition of the region from the Late Iron Age to Roman period are discussed further in Chapter 24.

'A place of mighty ramparts': the Late Iron Age earthworks

The earthworks around Bagendon were first noted in the 18th century (Chapter 1), and finds from them recorded in the 19th century (Rees 1932; Chapter 1), but Clifford (1961) was the first to excavate these earthworks. The location of her section through Cutham Dyke, approximately 1.5 × 12 m, appears to have been chosen for largely pragmatic reasons (Clifford 1961: 8), being devoid of the large beech trees that are still standing along much of the bank today (Figure 1.4). The Royal Commission subsequently undertook a detailed survey (RCHME 1976: 7)[3], which identified additional elements to the dyke system and emphasised their complex arrangement (Figure 4.24).

While the overall plan of the earthworks identified by the RCHME in 1976 remains accurate, with a few small additions provided by the geophysical survey (see Chapter 2), some of the earthworks identified then are now hard to identify. Evidence for the proposed additional dyke in the north-western part of the complex (RCHME 1976: 7; dyke 'x') appears limited, although there are possible Iron Age features in this area (see Chapter 2). Elsewhere, there have been suggestions that dyke 'h' continued to the west, in the area of Grove Hill, near Daglingworth (see Chapter 23: BE286), although visits in the 1980s could not confirm any prehistoric feature, and nothing is evident on the ground today. If correct, however, this would make dyke 'h' more like a cross-dyke, using the two dry valleys in this area to create an effective barrier. And if the aim of the Bagendon earthworks were to direct movement through the valley (See Chapter 24), then the creation of such a barrier on this route (later bisected by the Roman road of Ermin Street) would make sense.

Further investigations of the earthworks have taken place as part of development in the area. These include a section through Perrott's Brook Dyke in 1983 (Courtney and Hall 1984), with a later small sample of the bank in 2006. The former produced no finds, apart from residual flints, and the latter only revealed the uppermost levels and produced no finds (Coleman 2006). In 2010, a section of the ditch associated with Cutham Dyke was revealed at Cutham House (Wright 2005), although it had been heavily truncated and no dating evidence was retrieved.

Excavation of dyke 'e' in 2017

In an attempt to provide additional information and dating evidence on the nature of the earthworks around Bagendon, a previously unexamined section was excavated across dyke 'e' (Figure 4.25). Geophysical survey had revealed that this earthwork extended to the west, where it appeared to have a gap or possible entranceway. The presence of a linear feature extending across this gap was also worth examining to establish if it represented an earlier ditch, pre-dating the main dyke. To assess these features an area of approximately 100 m^2 (Trench 7) was opened. This revealed the eastern terminus of the ditch of dyke 'e'. Although the geophysical survey appeared to indicate a possible linear feature between the two termini of the main dyke 'e', this was not visible and only a small possible feature was revealed: the very truncated remains of a posthole. No evidence for a bank could be determined to the north of the ditch or any structure possibly associated with it. Both Perrott's Brook Dyke and Cutham Dyke showed evidence of a berm (5 m wide at the former and 2 m for the latter), but no bank material or 'bank shadow' could be identified in the northern part of Trench 7, although significant ploughing in this area suggests that any such features would have been completely erased.

The ditch was cut into the limestone bedrock of the slope. The profile of dyke 'e' in ditch [7002] was much wider than that encountered in the previous excavations of Cutham Dyke and Perrott's Brook Dyke (see Figure 4.26, 4.27). It is possible, however, that the ditch may shelve to the east and that the flat bottom at the terminus represents a large shelf at least 2 m wide. The sequence of fills appears similar to those encountered by Clifford at Cutham Dyke and at Perrott's Brook Dyke. Beneath stony fills in the upper levels lay more organic-rich material with charcoal. Fragments of post-medieval ceramics from an upper fill of the ditch (7008) and a radiocarbon date from this layer of cal AD 1405–1456 (SUERC-79379) indicate that the ditch was still filling up with material at a relatively late date and remained a visible feature well into the post-medieval period. Only a single piece of residual Roman CBM was retrieved from these upper layers.

[3] The labelling of the earthworks by the RCHME (1976) is also used here.

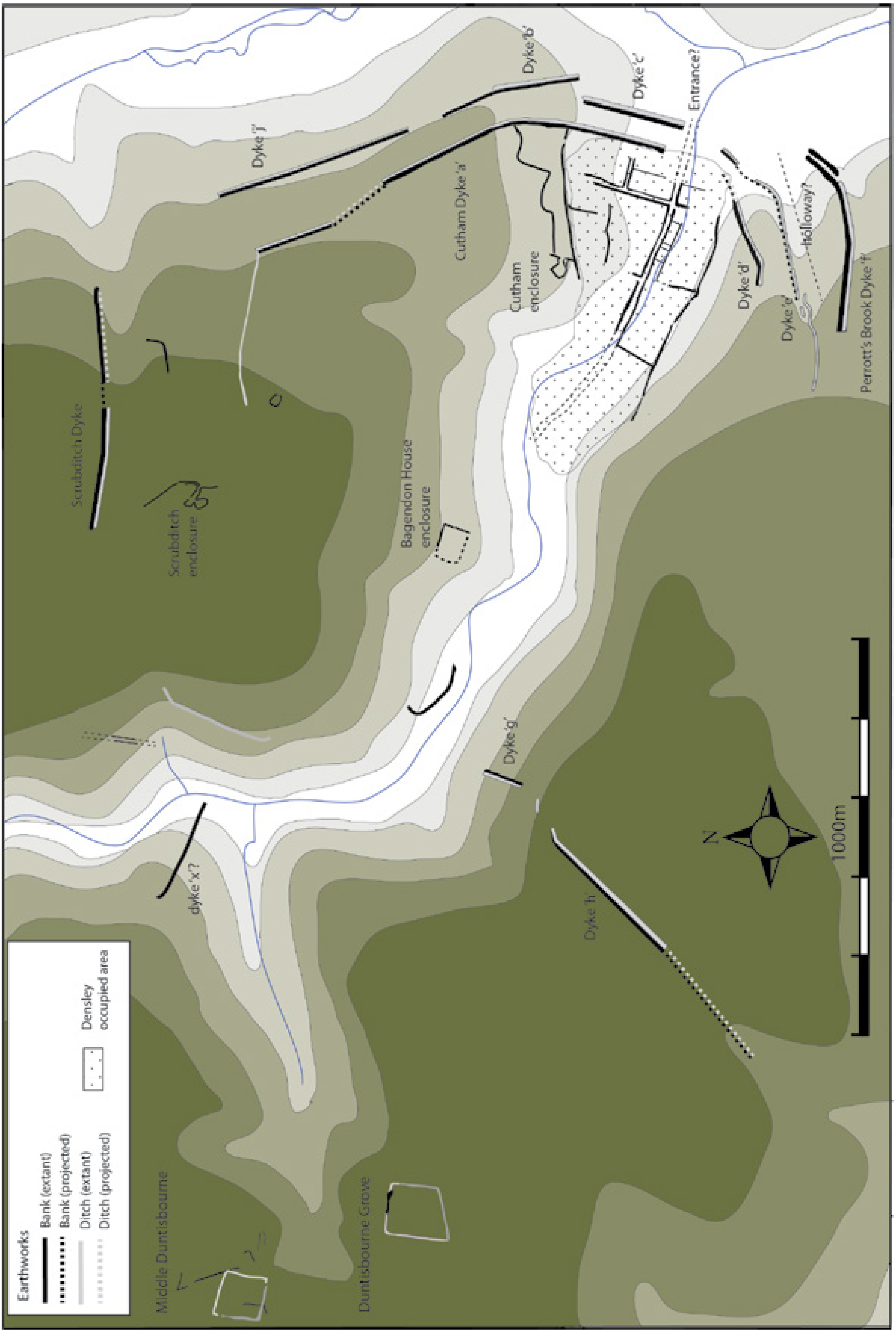

Figure 4.24. Plan of earthworks at Bagendon combined from RCHME 1976, cropmark data and geophysics with location of sections by different projects.

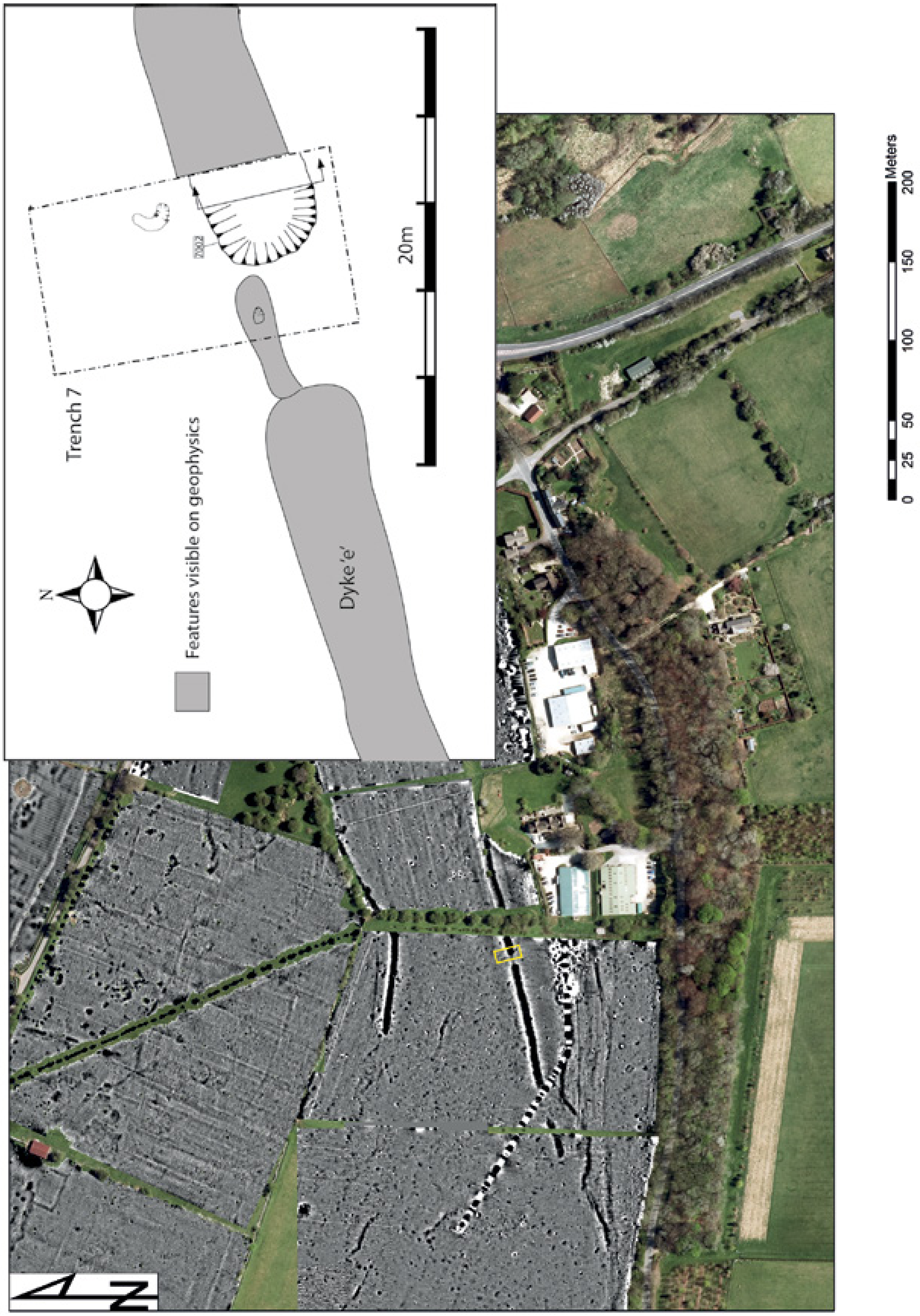

Figure 4.25. Location and plan of Trench 7 in relation to geophysics.

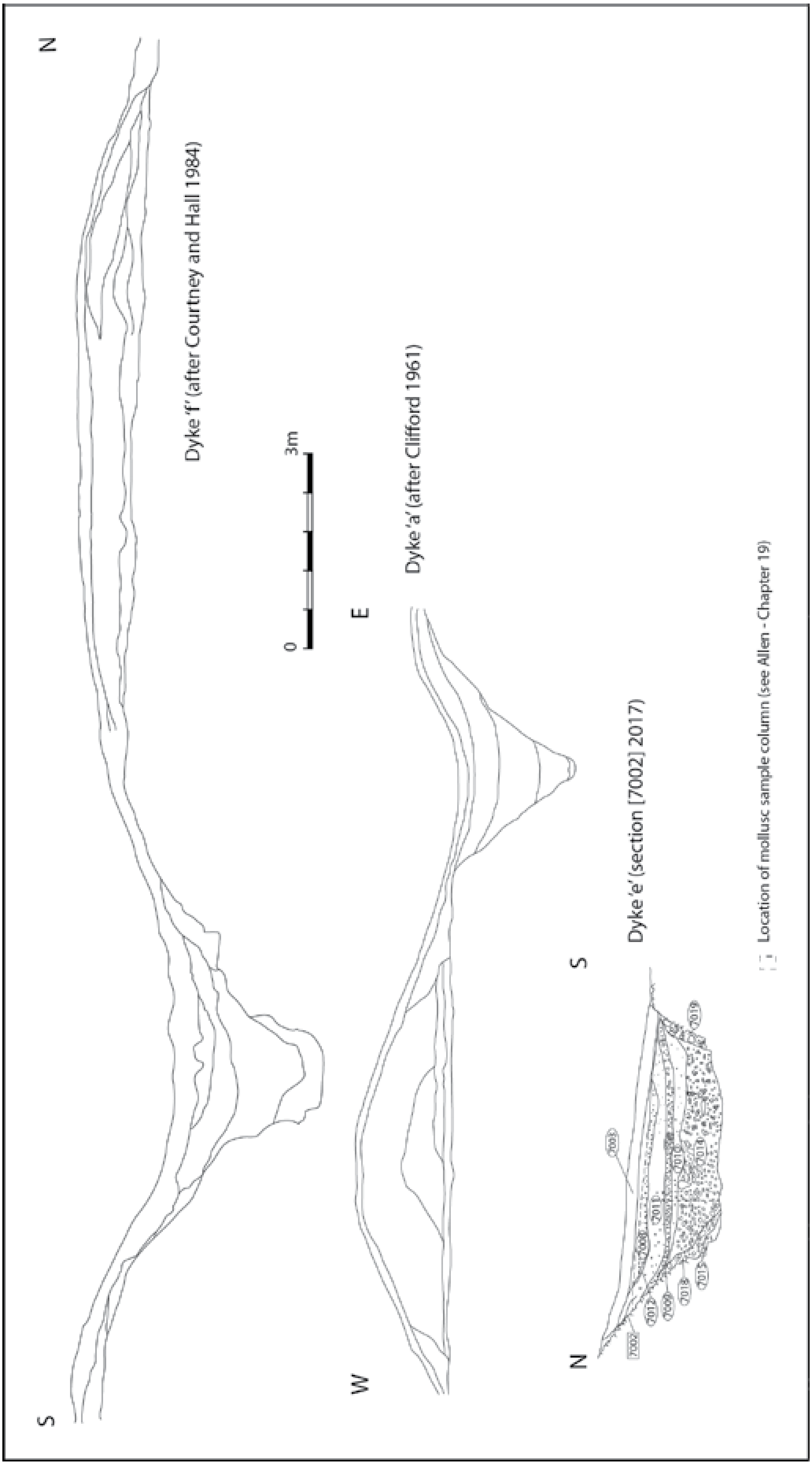

Figure 4.26. Section of Trench 7 compared to other sections of excavated earthworks at Bagendon.

Figure 4.27. Photo of section of Dyke ‘e’ ditch (Photo: Tom Moore).

Figure 4.28. Photo showing excavation of Trench 7 and Dyke ‘e’ following the slope of the coombe in this area. (Photo: Tom Moore).

Figure 4.29. Aerial photograph of Perrott's brook dyke (far right, under the trees), dyke 'e' and dyke 'd', with possible feature (hollow-way?) in between Perrott's brook dyke and dyke 'e', taken in 1931 (CCC 19325/7048, © Crown copyright, Historic England Archive. Crawford Collection).

Beneath these levels was a layer of thick rubble (7014), and under this were layers of rubble representing slippage into the ditch (7018 and 7019) and probably its earliest dump of rubble (7015). Two radiocarbon dates from this early fill, taken from land-snails because of the lack of organic remains, were dated to 410-260 cal BC (SUERC-90671) and 380-200 cal BC (SUERC-90672), the implications of which are discussed below. A thin layer of (materially sertile) initial silting (7016), not revealed in section, was identified at the western end of the terminus.

The general absence of much evidence for a silting layer similar to those encountered in ditch sections at the Scrubditch and Cutham enclosures may suggest, that the ditch was probably not open for a substantial period of time before the rubble infill was deposited. It seems likely that this rubble represents a deliberate deposit rather than a process of natural slipping, leaving the ditch half-filled with subsequent layers from natural deposition and later plough action. The rubble fill in the ditch does not appear to have been encountered in the Perrot's Brook section (Courtney and Hall 1984: 200). Like the section of Perrott's Brook Dyke (Courtney and Hall 1984) no artefacts were retrieved from the ditch indicating that it was likely to have been situated some distance from occupation areas.

The lack of significant features associated with the gap in the ditch suggests that, if it was an entrance, it did not require a substantial structure. It is also notable that dyke 'e' was positioned along the natural slope of this dry valley, with the ditch (and presumably associated bank) likely to have accentuated the slope, making the rampart look much bigger than in actuality (Figure 4.28). This would have created a considerable impression when approaching the rampart along what may have been a hollow-way in the dry valley, with Perrott's Brook rampart also visible on the left.

Because of the lack of other material to date, it was decided to use the land-snails present for radiocarbon dating. The choice of species sampled and technicalities in ensuring the veracity of these dates is discussed in Chapter 13. They provide startling new information on the chronology of some of the linear earthworks at Bagendon. With the initial fills providing dates suggesting it was beginning to silt up in the 4th-3rd century BC. It is possible that the profile of the section represents a recutting of the ditch, with (7014) possibly the fill of a later phase feature, although this was not recognised on excavation. The implication is that the original ditch was contemporary with occupation at the enclosures at Cutham and Scrubditch, and may then have been remodelled in the Late Iron Age.

A recent investigation at The Malt House within the hamlet of Perrott's Brook (Figure 1.6; Hood 2017) partially revealed a ditch approximately 1 m deep and over 3 m wide, which was probably far larger at its full width but the extent was not determined. The feature contained Late Iron Age/early Roman ceramics comparable to those from excavations within the valley discussed above (Hood 2017). The excavators suggested that this feature might represent the ditch of dyke 'e' continuing to the east (Hood 2017). If this is a continuation of dyke 'e', it is odd that it does not appear in the geophysical survey results to the west of the road, although admittedly there is some magnetic disturbance in this area. From the geophysical survey (Chapter 2), dyke 'e' appears instead to have turned to the north, evident as feature F1286, and may have continued into the field to the north of the Malt House.

The feature encountered at The Malt House might instead be evidence of an additional earthwork. An aerial photograph from 1931 (Figure 4.29) hints of a feature that was located between dyke 'e' and Perrott's Brook Dyke at the bottom of the dry valley in this area; it was also identified on the enclosure map of 1792 (see Figure 1.7), although it is not entirely clear what exactly was being depicted. It appears to run under the buildings here and may just be visible on the geophysical survey, although no archaeological finds were recorded when the houses were built (Gracie 1961a). Rather than a ditch, survey results to the west of this area (Chapter 2) suggest that it may represent a trackway or hollow-way, an interpretation supported by the cobbled surface at its base (Hood 2017). This may then support the notion that a hollow-way existed between dyke 'e' and Perrott's Brook, with convincing evidence from the Malt House that this was of Late Iron Age date.

Chronology of the ramparts at Bagendon

From the three investigations of the ramparts at Bagendon, only Clifford's (1961: 8) section through Cutham Dyke (her site A) and the excavations of dyke 'e' in 2017, discussed above, provide useful dating evidence. Clifford's section included what she described as 'Arretine ware' from the initial silting of the ditch. Willis has now reassessed these two fragments (Chapter 6), the one deriving from the initial silt of dyke 'a' provides a date of AD 20–40 or AD 20–50, with a corresponding date for the sherd from higher up the ditch fill. Other finds from Clifford's section are undiagnostic, but, as with the finds from the hollow-way at Malt House (Timby, in Hood 2017), they do imply a date consistent with their backfilling in the mid 1st century AD. In stark contrast to the dating evidence provided by Clifford, the 2017 excavation of dyke 'e' provided very different evidence. The two radiocarbon samples indicate the ditch was beginning to be infilled in the Middle Iron Age and was probably constructed in the 4th or 3rd century BC. As discussed above, it is possible that the ditch was then recut later and the ditch was probably still visible as a relatively prominent ditch-feature well into the post-medieval period, emphasising that such features could have long and complex histories of re remodelling over time.

The implication is that some of the earthworks at Bagendon had origins back in the Middle Iron Age, something supported by circumstantial evidence of the arrangement of some of the dykes recognised on the geophysical survey. Whilst Clifford (1961: 10) might have been correct in suggest that many of the dykes were constructed in the early to mid 1st century AD, some it seems may have been remodelling earlier linear features.

Rampart sequence and arrangement

The form of the Iron Age earthworks, although varying somewhat between the sections that have been excavated, is relatively consistent, indicating a simple structure of dump-style (glacis) rampart with a relatively v-shaped ditch in most areas. Clifford (1961: 8) suggested the presence of an 'outer stone cresting', based on the presence of significant amounts of stone in the ditch. There is, however, no evidence of stone facing on her section or on the rampart from Perrott's Brook Dyke. Stone revetments were noted by Clifford (1937: 295) in The Bulwarks at Minchinhampton, and are seen at the near contemporary complex at Stanwick (Haselgrove 2016: 152). It is, however, difficult to confirm the presence of such stone revetments just from the presence of rubble in the ditches, although the nature of the stone collapse in some of the ditches from Cutham and Scrubditch also hinted at the potential for some form of stone walling or revetment (see Chapter 3). At The Ditches too, it was suggested that the rampart between the enclosures ditches was of dry-stone construction (Trow 1988a: 39). Slight stone revetments at the base of ramparts are noted elsewhere in the region, at Salmonsbury (Dunning 1976) and at Uley Bury (Savile 1983: 10), presumably to prevent the loose rubble cores from slipping back into the ditches. It would be surprising not to use the stone in this way, given the suitability of the limestone bedrock to construct such features, but the possibility of a stone crest will have to remain speculative. That none have been identified at Bagendon is surprising (although this may just reflect the small part of the earthworks examined), and the form of the ramparts at Bagendon generally seems of the glacis style seen at other Late Iron Age complexes, such as *Verlamion*. From the sections revealed, it appears that many of earthworks were constructed in one phase, although evidence from dyke 'e' supports the notion that they were remodelling or re-using existing linear boundaries.

Developing a coherent picture of the structural sequence of the dyke system at Bagendon is hampered by its size and complexity (cf. Haselgrove *et al.* 1990: 37). A clearer picture emerges, however, through combination of the geophysical survey, earthwork surveys, aerial photographs and excavations. In addition to the evidence from dyke 'e', discussed above, there are other indications that some of these earthworks were related to earlier linear features. Geophysical survey, for example, indicated that dyke 'j' appears to relate to additional parallel linear features (Chapter 2). A small-scale excavation at Cutham House (Wright 2005) also revealed a small ditch parallel to Cutham Dyke. The excavators argued this was a 'guide ditch', but a more likely alternative is that it represented an earlier boundary the alignment of which was followed by the more monumental earthwork. The hints on the geophysics of the area of the excavation in dyke 'e' that there was also a small linear feature here, although undetected upon excavation, might support the notion that Middle Iron Age features were later reused in the Late Iron Age. The radiocarbon dates from dyke 'e' now confirm the presence of such earlier features. Other long linear boundaries, dating from as early as the Late Bronze Age (and remaining open into the Middle Iron Age), exist at Winstone (to the north-east) and reinforce the evidence from the Cutham and Scrubditch enclosures that the earthworks were not constructed in a virgin landscape. Evidence for the reuse or enlargement of earlier boundaries has been proposed for the earthworks around the Stanwick complex (Haselgrove 2016: 166), and suggests that, in some cases, these earthworks were monumentalising existing divisions of the landscapes.

Other evidence further suggests that the complex of earthworks at Bagendon related to an earlier sequence of features. The ditches extending from Cutham Dyke to the east appear to run beneath dyke 'a' and therefore must be earlier. The association of this avenue with the gap in dykes 'b' and 'c' may suggest that they are related, perhaps creating an earlier entrance to the avenue at Cutham. This arrangement of the dykes may indicate that the inner dyke system (Cutham Lane dyke) and outer dyke (dykes 'c' and 'b') are potentially from different phases (see Figure 24.1). The arrangement of Scrubditch dyke might also suggest that it had some relation to earlier elements of the complex, creating a funnel towards the Scrubditch enclosure. The kink in Cutham Dyke and the possibility of an earlier alignment (Chapter 2) could further imply more than one phase to the construction of the earthworks. All this, alongside the dating from dyke 'e', implies that the Cutham and Scrubditch enclosures were situated within a complex of linear boundaries that connected them as part of a highly managed landscape.

It seems likely that these earlier boundaries, on the alignment of the outer earthworks, were elaborated (probably in the early 1st century AD), and augmented with additional earthworks, some of which, such as Cutham Dyke 'a', cut across the now defunct entrance in this area. It should also be noted that some of the smaller gaps in this arrangement of earthworks may not be entrances, but, as argued for other linear monuments (e.g. Giles 2012: 50), might denote the location of stands of woodland that did not necessitate an earthwork. The environmental evidence from the Duntisbourne enclosures (Mudd *et al.* 1999), and to some extent from Cutham and Scrubditch (Chapter 18), could certainly suggest that this also was the case at Bagendon.

A number of the dykes appear to have been focused on directing movement rather than defining a distinct enclosure (see Chapter 24). The placement of dyke 'g' is harder to understand, especially as it reverses the bank and ditch arrangement of nearby dyke 'h'. The discovery, through geophysical survey (Chapter 2), of a segment of ditch between them further complicates the picture. While this may mean that dyke 'g' could be of later date, there is no evidence for this, and it may again just indicate how these earthworks were used to manipulate space, rather than act as simple barriers. Dyke 'h' and the Scrubditch dyke have both been suggested as possible earlier 'cross-ridge' dykes (Stephen Trow pers. comm.). However, neither's location reflects the position of cross-ridge dykes more generally in the region, which are typically shorter (Darvill 2010: 181), although the possibility that earlier features were again incorporated into the Late Iron Age complex should be considered.

In its earliest form, therefore, the arrangement of linear earthworks and enclosures at Bagendon resembled one of the banjo complexes discussed in Chapters 3 and 23. The dating evidence from Bagendon reminds us that many of these banjo complexes and (so-called) territorial *oppida* had longer biographies and developed in relation to earlier features. Connections to earlier monuments and how any of the dykes featured in later land use have yet to be fully understood and require significantly more fieldwork but the evidence from this project is elucidating a far more complex story than was first envisaged. The ways in which the earthworks around Minchinhampton were reused and remodelled in later periods (Parry 1996) also reminds us that these features could have long biographies, the past use of these places often fundamental to how people constructed and inhabited the landscape.

Late Iron Age Bagendon: the combined evidence

In addition to the excavations in the Bagendon valley in the 1950s and between 1979-1981, various other interventions in the wider area provide a greater appreciation of the nature of the Late Iron Age complex. From fieldwalking conducted in the 1980s, Stephen Trow rightly recognised that the occupation extended well beyond the area of the earlier excavations (Trow 1982a: 28). The geophysical survey and test pitting in

2017 confirmed this indicating intense occupation along the eastern end of the valley. The small-scale watching briefs at Bagendon Manor Cottage and Bagendon Old School, both of which have produced ceramics dating to the middle of the 1st century AD (Hood 2011; Mayer 2005), coupled with the geophysical survey, suggest that this area of intense occupation extended at least up to the present-day village and was probably larger than Trow's (1982a: 28) estimate of 40 acres (16 ha), and may be as much as 28 ha. The possible Late Iron Age or early Roman cremation burials, found in the 19th century, close to the rectory (see Chapter 1), may also denote activity in this area. Stray finds of Late Iron Age/early Roman ceramics from the valley area, as well as stray metal-detected coins and other finds made in the 1980s (Figure 24.8), also emphasise a cluster of activity of Later Iron Age date across the valley area. Meanwhile, despite the evidence of the radiocarbon dates, the presence of sherds of Late Iron Age ceramics from the Scrubditch enclosure suggests some form of activity in that area too.

Reassessment of occupation in the valley through the 1979–1981 material re-emphasises Clifford's (1961) suggestion that it had a significant artisanal role. The varied assemblage of material, including relatively significant amounts of imports and brooches, suggests, however, that this location cannot be described simply as an area for artisans. It seems likely that neither Clifford's excavations or Areas A and B revealed the main occupation area, explaining perhaps the absence of obvious structures. It is very possible that these lie farther up the valley slopes, perhaps in the proximity of Black Grove villa. The few indications of Roman occupation after the AD 60s, as seen in Clifford's material (Dannell 1977), are now being added to and appear likely to relate to the Roman building discussed in the next chapter.

Farther afield, Trow's (1982, 1988a, 1990; Trow *et al.* 2009) excavations at The Ditches revealed a multivallate enclosure of approximately 4 ha. Excavations through the ditches indicated a sequence of occupation dating from perhaps the 1st century BC onward. Geophysical survey confirmed the presence of antenna ditches extending from the south-west entrance of the enclosure, which faced towards the adjacent Bagendon valley (Moore 2009a). These appear to indicate that they were designed for corralling stock, somewhat blurring the line between this enclosure and the banjo-like enclosures seen elsewhere in the complex (Chapter 3). Trenches in the interior of the enclosure focused primarily on examining the Roman villa identified by aerial photography (Trow *et al.* 2009). They also revealed a Late Iron Age occupation layer directly beneath the villa building, which probably immediately preceded it, as well as a number of pit features in the vicinity. The ceramic phasing suggests a pre-Roman phase dating to the early 1st century AD (Trow *et al.* 2009). The overall chronology suggests that the enclosure was occupied contemporaneously with valley occupation at Bagendon, and there are strong hints that it also overlapped with the use of Cutham enclosure in the late 1st century BC.

Excavations as part of dualling of the A417 road along the alignment of Roman Ermin Street provided further evidence that Late Iron Age occupation could be found elsewhere in the vicinity. The identification of a large rectilinear enclosure at Duntisbourne Grove, although only partially examined, revealed a relatively short sequence of occupation in the mid 1st century AD, contemporary with the floruit of activity in the Bagendon valley (Mudd *et al.* 1999: 95). The occupation at Middle Duntisbourne, just to the north (Chapter 2), is harder to reconstruct, but appears to consist of overlapping multiple sequences of enclosures, although here too the chronology indicates a relatively short duration of occupation contemporary with that at Duntisbourne Grove. Somewhat intriguing are the additional finds of Late Iron Age ceramics discovered during house building at Duntisbourne Abbots (Clifford 1964), perhaps signifying further contemporaneous occupation nearby.

From the combined evidence, we can build a broader picture of the Bagendon complex in the Late Iron Age, which indicates that occupation in the valley was merely part of a wider polyfocal complex, more akin to centres such as *Verlamion*. The implications of the inter-relationship between the varying elements and how the complex worked as a whole, as well the nature and variation of activity across the entire Late Iron Age complex, are explored in Chapter 24.

Chapter 5

After the *oppidum*: excavations at Black Grove, Bagendon

Tom Moore

Introduction

Discoveries at Bagendon in the 1950s and 1980s indicated that occupation in the valley ended around the AD 60s or 70s, with little to suggest activity in the Roman period (Chapter 4). While the discovery of Roman occupation at The Ditches (see Chapter 4; Trow *et al.* 2009) revealed that some elements of the Late Iron Age complex were occupied later than the late 1st century AD, it appeared that the valley occupation was largely abandoned. Elsie Clifford (1961) and others (Wacher 1974) interpreted this abandonment as being related to the movement of the population to the new Roman town of *Corinium*.

The geophysical survey (Chapter 2) for this project, however, identified several probable stone structures situated overlooking the area of dense Late Iron Age occupation in the valley (Chapter 4) (Figure 5.1a, 5.1b and 5.1c). These structures were situated on a terraced area 100 m to the south of the Middle-Late Iron Age enclosure at Cutham (see Chapter 3), immediately to the south of ditch F1043, which appears to correspond with a second terrace, F1154 (see Chapter 2) and just a few hundred metres to the west of the Late Iron Age activity examined in the 1950s and 1980s. Previously unrecognised, despite the survey work undertaken by the Royal Commission in the 1970s, these raised intriguing possibilities: could they be of Roman date? If so, were they likely to be evidence for a villa in this location or perhaps another structure, such as a Roman temple, that could be associated with the Late Iron Age occupation in the valley? Examination of these structures to establish their date and nature was, therefore, important for addressing one of the key project aims of understanding what happened to activity at Bagendon in the Roman period.

From the geophysics results, it appears that similar, probably contemporary, Iron Age occupation to that examined in Area A and Clifford's trenches, probably extended into the area of these buildings. The main aim of the investigation was, therefore, to assess whether these buildings were of Roman date and their implications for the chronological sequence of occupation at Bagendon. To address these issues, excavations focused on the chronology and nature of these structures to enable comparison with Roman activity elsewhere in the Bagendon area, most notably with the early Roman 'villa' at The Ditches, near Woodmancote (Trow *et al.* 2009; see Chapter 4). Prior to these investigations, there has been very little indication of Roman activity in the immediate vicinity of the Iron Age occupation within the valley, with these buildings not noted on aerial photographs or by any of the surveys undertaken by the Royal Commission (RCHME 1976). There were hints, however, from the excavations of the 1950s and 1980s of the potential for Roman activity in the wider area, as illustrated by the handful of stray coins and ceramics in the topsoil discussed earlier (see Chapter 4).

Combining geophysics and lidar data (Figure 5.1a, 5.2) provides a clearer picture of the nature of activity in this area. The field was identified as 'Black Grove' on the 1832 landownership map. Such field names are argued to be indicative of Roman settlement sites because of their darker soil potentially related to Roman activity (Richardson 1996: 463). Both the 1792 (Figure 1.7) and 1832 maps also show the presence of a quarry within this field. The magnetometer survey of this field identified a number of anomalies that appeared to be walls. These features corresponded with an apparent rectilinear arrangement noticed on the lidar survey (Figure 5.2). Field inspection supported the impression of a number of walls located on the terrace overlooking the valley. Several anomalies on the geophysics also indicated the presence of pits or other negative features that were potentially associated with this activity or represented earlier, Iron Age occupation. Based on the geophysical survey, it appeared that the building comprised a rectangular 'range' about 20 m long and 7 m wide. The survey was, however, insufficiently clear to identify the exact relationship between all the walls, indicating a possible palimpsest of features; neither could it provide a groundplan that definitively identified the building as a villa or rural temple.

Aims of the 2015 excavations

The excavation in 2015 had three key aims: primarily, to provide dating evidence and a chronological sequence for the probable Roman structures in order to establish how they related to Late Iron Age occupation in the adjacent valley; to identify the form and role of the structures, assessing whether they were of a domestic or a ritual nature; and finally, to determine whether

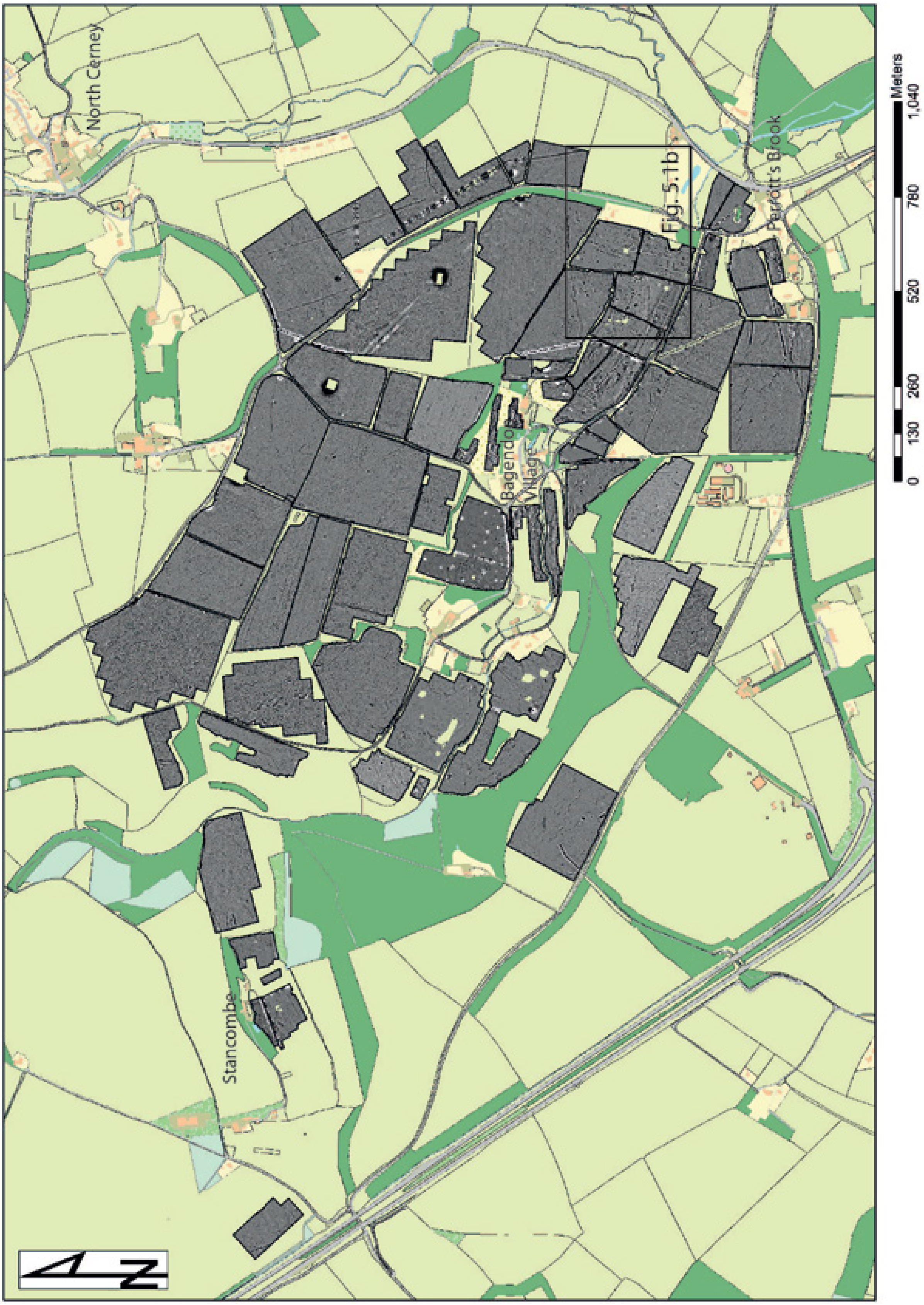

Figure 5.1a. Location of Black Grove in relation to overall geophysical survey.

Figure 5.1b. Geophysics of area around Black Gove structures.

Figure 5.1c. Interpretation of geophysics and location of Trench 5 and Trench 6.

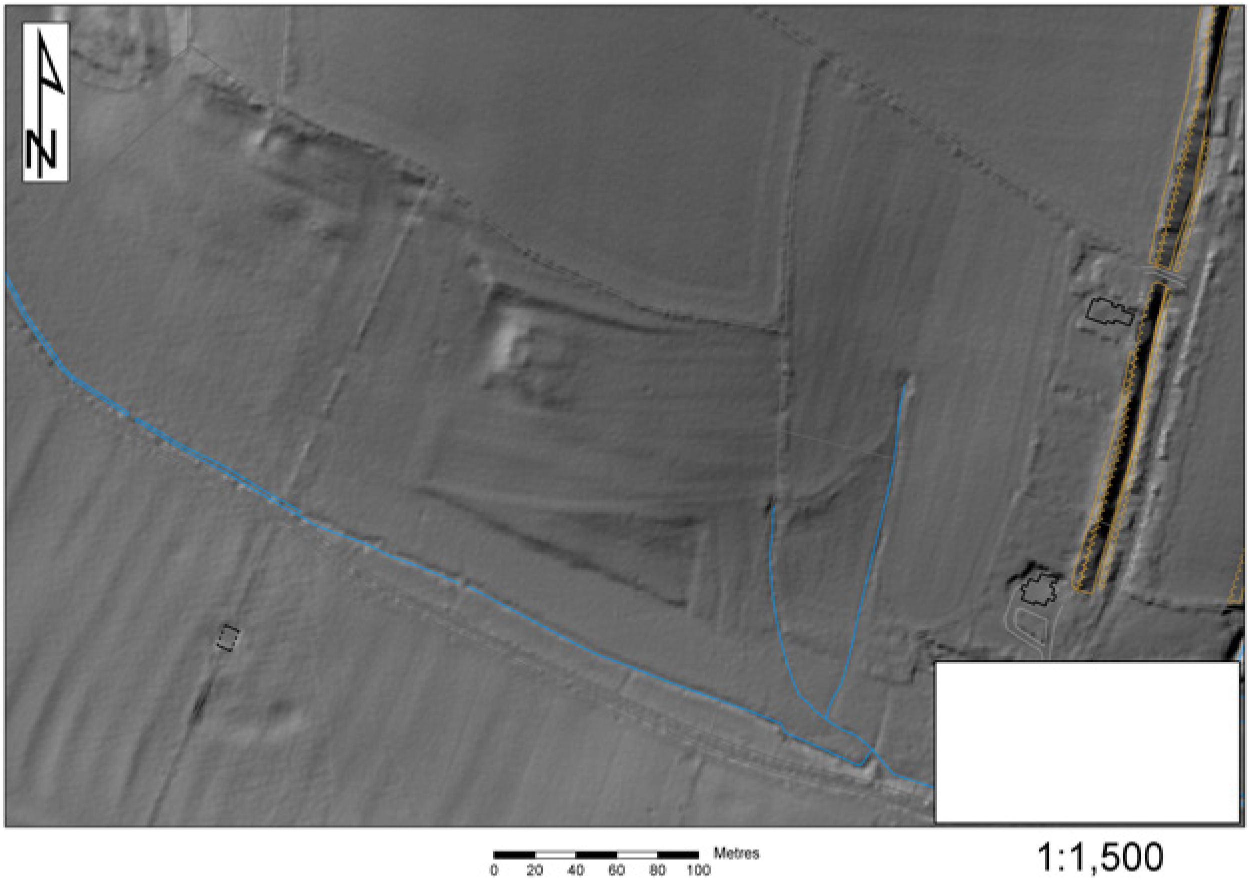

Figure 5.2. Lidar of Bagendon valley revealing probable walls around the Black Grove area (lidar data courtsey of the Environment Agency).

Iron Age activity preceded the Roman structures here. With limited time and resources, the excavations were designed to answer these questions, rather than provide full structural plans.

Two trenches (5 and 6) were opened over the features identified by geophysics and lidar (Figure 5.3, 5.4. and 5.5) (in total, *c.* 130 m^2). Trench 5 was located perpendicular to the main range identified by the geophysics to assess the structural sequence of the buildings while also investigating the area to the south, where various negative anomalies are present. Trench 6 was located to establish the relationship between walls that could clearly be identified on the geophysics, in an attempt to determine the structural sequence of the building or buildings. The trenches were de-turfed by hand, quickly revealing well-preserved walls and abandonment deposits throughout their extent (Figure 5.6). To the southern end of the trenches, a series of subsequent layers appear to be colluvium, reflecting the relatively steep slope that the original building had built into. Unlike the locations of many other Roman sites in the area, the site at Black Grove appears not to have been ploughed, probably since antiquity, resulting in exceptionally well-preserved archaeology. Due to the depth of the overlying rubble, it seemed prudent to section elements of the structure, rather than open up large areas to investigate, retaining the vast majority of the site for future, full-scale excavation. While representing only a small window on what is undoubtedly a complex set of buildings of multiple phases, the excavation provided a provisional sequence. Further work will hopefully clarify the arrangement of the structures and the sequence of activity.

Structural sequence

Despite its limited scale, this evaluation provides a provisional sequence of activity and building development on the site. Such a sequence necessarily simplifies the buildings' development, and may well conflate some episodes of activity, but the present phasing can be summarized thus:

Figure 5.3. Aerial view of 2015 excavations looking northward, with post-medieval quarry to the left of the tree. Cutham enclosure is located in the field to the rear of the excavations (Photo: Mark Woolston-Houshold).

Figure 5.4. Vertical aerial view of Trench 5 and 6 (Photo: Mark Woolston-Houshold).

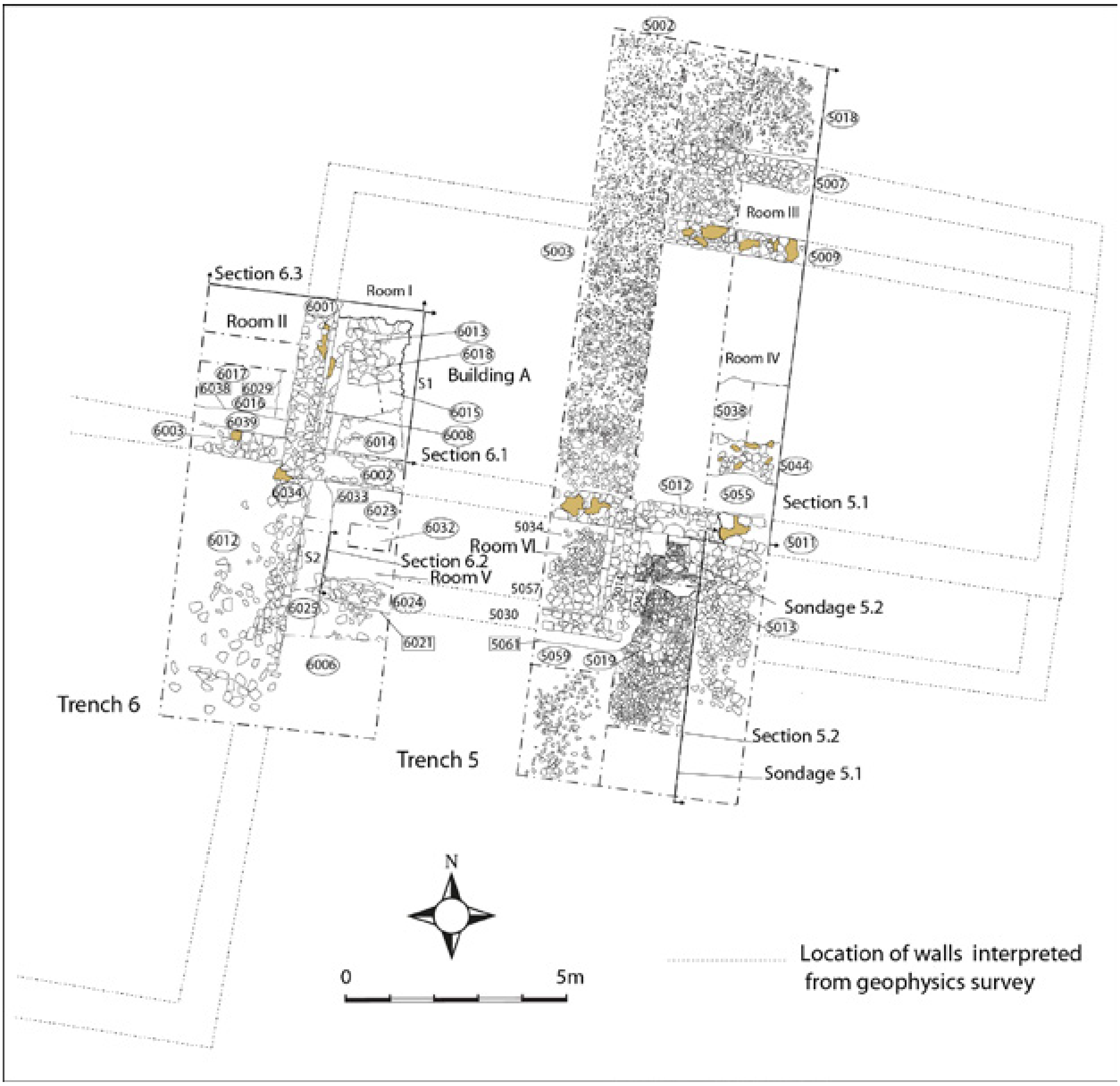

Figure 5.5. Plan of Trench 5 and Trench 6.

Phase 1. Pit beneath Room II (mid–late 1st century AD).

Phase 2. Occupation prior to Building A (late 1st–early 2nd century AD).

Phase 3a. Construction of Building A (early–mid 2nd century AD).

Phase 3b. Portico, corridor and Room II additions to Building A (late 2nd century AD).

Phase 4a. Modification and new entranceway to Building A (late 2nd–3rd century AD).

Phase 4b. Western range of rooms constructed (mid 3rd century AD).

Phase 5. Abandonment (late 3rd–early 4th century AD).

Phase 6. Quarry pit (post-medieval).

Phase 1. Pre-villa occupation (mid–late 1st century AD)

Although no structures definitively earlier than the beginning of the 2nd century AD could be identified, occupation pre-dating the stone buildings can be inferred from an array of residual material found in a number of features across the site (Chapter 6). It seems probable that layers (6020) and (6026) in Trench 6 represent the upper levels of a large pit-like feature, perhaps a quarry pit (see Figure 5.7). This pit extends into the eastern part of Trench 6 and contained a number of ceramic finds in its upper fill. Full excavation of this pit was not possible because it was overlain by *in situ* architectural features from later phases.

The nature of this pit is uncertain, but its size and contents are similar to those revealed in Area A.

Figure 5.6. Photo of Trench 6, looking south, revealing rubble and well preserved nature of walls just below the turf line (Photo: Tom Moore).

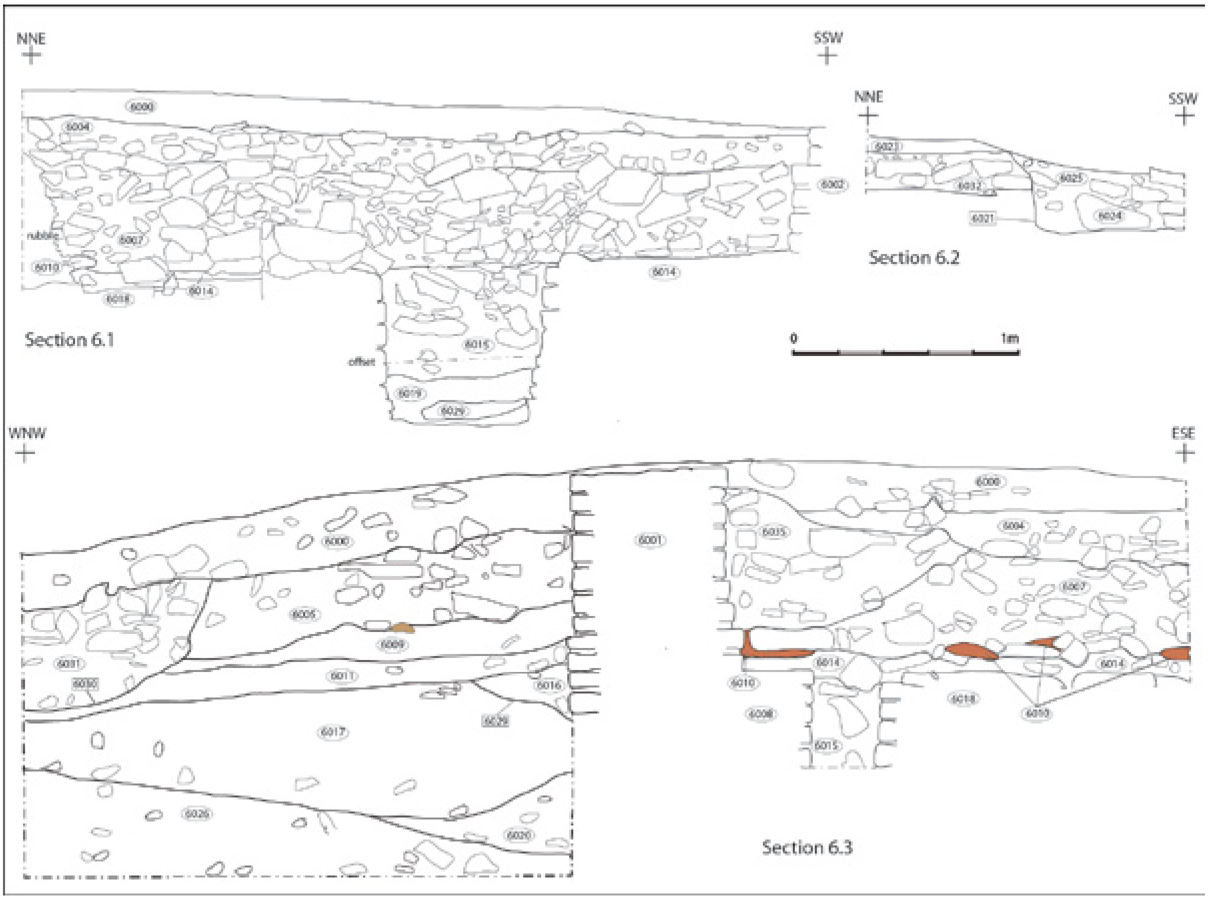

Figure 5.7. Sections in Trench 6.

Alternatively, it may have been a quarry pit, similar to that found at The Ditches (Trow *et al.* 2009: 13). Material from the pit suggests that it was levelled in the 2nd century AD, but a mix of Late Iron Age material, including a *Dobunnic* coin (see Chapter 11) and ceramics (Chapter 6), suggests much of this was residual from earlier features. This material and the pit itself, probably represent occupation similar to that revealed in the 1950s and 1980s (Chapter 4). The presence of Late Iron Age material, including *terra nigra* and *terra rubra*, goes someway to confirming the suggestion (see Chapter 4) that much of the activity along the valley identified by the geophysics is of mid–late 1st century AD date.

Phase 2. Occupation prior to Building A (late 1st century AD–early 2nd century AD)

An apparent dump of material (6017), in Trench 6 perhaps a levelling deposit, appears to relate to an early phase of occupation, prior to the construction of Building A. Sondage 5.1 provides the best window on the earliest occupation of the site (Figure 5.5, 5.8 and 5.9), revealing a sequence of deposits that appear to chart the focus of occupation. The first phase is represented by a clean orange clay (5040), apparently some form of deposit laid out before occupation. Similar layers of clean orange clay were identified under later wall (6002), suggesting such sterile layers may have represented a broader process of levelling the rocky natural before construction. Overlying the clay layer was a thin layer of silt (5041), representing the initial occupation level. Above this was a thin layer of mortar and pebbles (5048) representing the earliest floor level, only a small area of which was uncovered, so its full extent cannot be understood. Its nature indicates that it was possibly the interior of a building, presumably one that existed prior to the construction of the main range of Building A. On the basis of ceramic finds, all these layers appear to date to the late 1st century AD (see Chapter 6). Above the mortar and pebbles (5048) was a thin layer of occupation material (5035), which contained significant amounts of material, including the majority of the early (late 1st century AD) *terra sigillata* from the site as well as 2nd century AD coarse wares. Overlying this was a thick layer of burnt and ashy material (5029). This appears to correspond with an area of strong magnetic response on the geophysics, originally thought to be a pit. It now seems likely that this anomaly represents the extent of this area of burnt material.

Although offering only a limited glimpse of earlier deposits, this sequence emphasises the possibility of a considerable time-depth in occupation at the site, and that further excavation in this area could reveal a clearer picture of the structures associated with this

Figure 5.8. Photo of sondage 5.1, looking north, showing occupation and burning layers beneath surfaces to the south of the main building (Photo: Tom Moore).

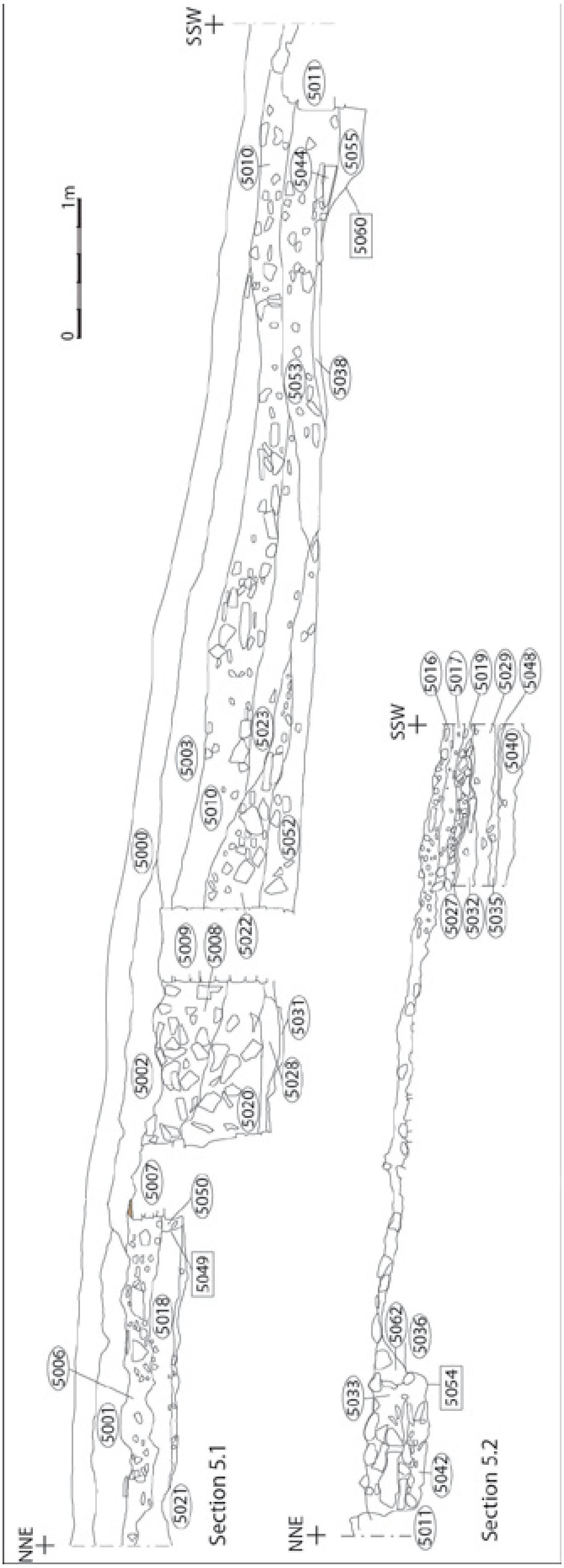

Figure 5.9. Sections in Trench 5.

sequence. It is only possible at present to speculate on what this sequence represents. The thin nature of layer (5048) suggests it could have been an internal floor surface, making it likely that an earlier building was situated in this area, although its extent and form are impossible to determine. Layer (5035) appears to represent occupation related to this floor surface. The earliest cobbled surface (5042), adjacent to Building A, also overlay a thick deposit of clean orange clay (5045), similar to (5040), suggesting that this surface may be contemporaneous with (5048), or more likely with the mortar surface (5032) that preceded the cobbled surfaces to the south of the main stone building.

Other evidence also points to the possibility of an earlier building, prior to the main range (Building A), which may date to the late 1st or early 2nd century AD, the layout of which was not revealed. The evidence of burning on the stones in (6032), the makeup for the floor of the corridor in Room V (6023), may indicate that it was contemporary with the thick ashy deposit (5029) in Trench 5. The small scoop [5060], filled by layer (5055), was only partly revealed within the main range but is also clearly earlier than the building's floor surface (5044) and was cut by wall (5001). This suggests it too relates to this earlier activity. Combined, these suggest this burnt material seems to have derived from an earlier structure that burnt down at some point in the early–mid 2nd century AD. From the dating evidence, this would appear to correspond with the subsequent construction of Building A. Any earlier buildings might have been of timber construction, as attested at other villas in the region (such as Frocester: Price 2000).

Phase 3a. Construction of Building A (early–mid 2nd century AD)

The main stone building (A) comprised a western gable wall (6001) and southern wall, numbered (6002) in Trench 6 and (5011) in Trench 5. Its northern, rear wall is represented by (5009). These walls contained significant amounts of yellow mortar in their core, evidence of a consistent construction method. These walls contrasted with the dry stone technique used for other walls in the vicinity, such as (5014). The wall-trench for wall (5011) was filled with orange clay and cut through the earliest cobbled surface in this area (5042). The wall-trench [6029] for wall (6001) cuts the 'dump' of material (6017). The ceramics from this area indicate that Building A was probably constructed sometime in the mid 2nd century AD.

The extent to which the Building A was terraced into the natural slope, with rear walls (5007 and 5009) standing almost 1 m higher than the southern wall (5011) (Figure 5.9), was revealed in Trench 5. Within Building A, little evidence of the original floor surfaces survived. As with the rooms in Trench 6, it seems likely that the majority were removed on abandonment or robbed at a later stage. A small area of cobbles and clay (5038) may represent one of the original floor surfaces, overlain by a small area of flagged floor (5044). A yellow clay surface (5039) is probably the same floor level as (5038) and overlies the earlier layer (5055), a probable foundation deposit.

To the south of the main range, a layer of silt (5027) in sondage 5.1 appears to represent occupation overlying the mortared layer (5032), which cannot be any earlier than the mid 2nd century AD, suggesting that either it, or the overlying cobbled surface (5019), were associated with the earliest stone building (A), although no direct relationships can be established. Building A appears to have been associated with a number of other cobbled surfaces, beginning with (5019), subsequently overlain by (5017), (5016) and (5013), which reflect successive periods of resurfacing. Ceramic evidence indicates that surface (5017) cannot have been laid earlier than the late 2nd century AD. The nature of these surfaces and their gently sloping nature towards the south suggest that this was a courtyard in front of the building, although parts of the surfaces may have formed pathways to the villa, as their full extents were not revealed.

In the south wall, large blocks (5012) that appear well worn imply the presence of an entranceway. The height of these blocks suggests that this entrance was contemporaneous with the latest flagged surface (5013), although some of the block-work here is significantly different and coarser than that elsewhere in the wall. It may be that these blocks (5012) replaced an earlier entrance, which was contemporaneous with surface (5019).

Phase 3b. Addition of western room II, corridor and portico (late 2nd century AD)

Three developments to Building A are later additions, although it is difficult to determine whether they were contemporary or took place over a longer period. The ceramics from these alterations suggest that they occurred within the 2nd century AD.

Room II

Wall (6003), with its wall-trench [6038] clearly cutting the fill (6016) of the wall-trench [6029] of wall (6001), but also abutting wall (6001), created room II to the west of the main range, as seen in Trench 6. Evidence of a floor surface (6009) associated with Room II appears to be a mortar bedding for sandstone paving; thicker sections of mortar were identified in some areas along with some broken sandstone floor tiles. This floor corresponds with the offset of wall (6001). Floor (6009) overlay a charcoal-flecked deposit (6011) which was seemingly some form of bedding deposit for the floor surface. The nature of this deposit may indicate that it represented material from earlier structures and notably overlay the cut of the wall trench [6029] for wall (6001). It is hard to determine when this addition was made in relation to the completion of the main range, but as wall (6003) is not directly aligned with the corner of walls (6001) and (6002) it suggests it was not integral to the original design. The correspondence between (6009) and the offset of wall (6001) may suggest, however, that an earlier external wall did exist.

Rear corridor or additional structure?

The north wall (5009) is paralleled by a second (5007) that can also be seen on the geophysics. Combined, the two could represent a later corridor (Room III). At its base, a mortar-clay surface (5028) may represent a floor, overlying a thin silty layer above a rough layer of cobbling (5031). Yet the space between these walls, just over 1 m, seems rather narrow compared to most corridors in Roman buildings. There are also indications that this wall (5007) is on a slightly different alignment to the north wall (5009), raising the possibility that wall (5007) represents part of an additional structure to the north. Alternatively, wall (5007) acted as a revetment against the natural ground surface, with a significant difference in ground level on its northern side, for either a yard area or an additional building. There seems little to suggest that these walls were not contemporary, however. To the rear of wall (5007), layer (5018) apparently represents occupation overlying a clay surface (5021). Layer (5018) may relate to phase 3a; it included a Late Iron Age coin (Chapter 11) but ceramics indicate that the surface cannot be earlier than the mid 2nd century AD. The wall-trench [5049] for wall (5007) cuts both of these deposits, indicating that they pre-dated this building.

Portico/remodelling of portico

Wall (5030) appears to be a continuation of wall (6024) in Trench 6, and is possibly contemporaneous with the addition of wall (5007) and possible corridor (Room III). This wall created a portico or veranda along the front of the building. Wall (6024), and to some extent wall

Figure 5.10. Photo, looking north, of *in-situ* plaster on south face of wall (6002) and the floor (6023) of portico room V (Photo: Tom Moore).

(5030), are more ephemeral than walls (6001), (6002), (6003) and (6034), suggesting that they may only have supported a half-height wall or one that was single storey. In Trench 6, the southern face of wall (6002) of Building A retained red-painted plaster, which was preserved at the lowest level where it met a well-preserved mortared floor (6023) in room V (Figure 5.10). Floor (6023) had a stone foundation (6032), many stones of which displayed significant traces of burning. Below this was a layer of gravel (6036), although whether it was an earlier floor surface or some form of foundation deposit is hard to determine. Its position overlying a relatively clean layer of clay (6037), could suggest that it too represented an earlier floor, possibly related to the structure from phase 2. Only a small area to the south of wall (5030) was revealed, with a degraded mortar layer (5026) above a cobbled surface (5059) in this area. The latter appears to be contemporary with surface (5042).

There is evidence that the sequence is more complex, however. Wall-trench [6021], for wall (6024), cuts mortared floor (6023) suggesting that the wall represents a remodelling of the portico structure. It is notable too that a similar mortared floor surface was not revealed in Trench 5, where the portico floor is of flag construction. This surface was not removed, so it is possible that a mortared surface could have lain beneath it, but no such flagged surface existed in Trench 6. There are two possibilities: that the correspondence of walls (6024) and (5030) as part of a portico is misleading, and they in fact represent different structures, perhaps even of different phases. Such an interpretation is supported by the apparently different nature of the two walls, although this more likely just reflects that wall (5030) is better preserved. The alternative, followed here, is that an earlier portico with a mortared floor was replaced at later date with a new wall and flagged stone flooring. It is even possible that the first phase of the portico was a timber structure, as seen at some other villas, although this would be unusual in the 2nd century AD and it seems unlikely that this would have been plastered.

It was initially assumed that wall (5014) was integral to the design of the portico yet even though the corner where both walls met had been slightly truncated, the difference in the breadths of both walls, coupled with an indication that wall (5014) abuts wall (5030), suggests that one is later than the other. It seems most likely that wall (5014) was created to form a more elaborate entrance way and change this portico area into a separate room (thereby creating Room VI). Wall-trench [5056] for wall (5014) clearly cuts the cobbled surface (5019) and is thus later and part of a remodelling of the entrance. Such a sequence has been recognised at Barnsley Park, where a wall across an existing corridor/veranda appears to have been added later (Webster and Smith 1982).

Insertion of hypocaust into Room I

A hypocaust was inserted in Room I at some point, at the western end of the range (Figure 5.11). The walls of the hypocaust (6008 and 6013) were constructed abutting walls (6001) and (6002), indicating that it was a later addition rather than an original feature. Wall (6008) also continues below the level of wall (6002), seemingly cutting the latter's foundation deposit of clean, orange clay. The chronology of this is hard to determine with no material dating its construction and nothing from the overlying floor surfaces. The presence of 2nd century AD material in the ashy deposit within the flue (6019), which presumably accumulated when it was in use or constructed, does, however, provide a *terminus post quem* for its insertion.

Within Room I, wall (6013) survives as a number of courses above the floor level, possibly suggesting that as well as a division in the hypocaust it could have formed the base of an internal wall. It is notable that the flagged floor surface is slightly better preserved to the northern side of this wall, possibly indicating different rooms. The continuation of the flue on the northern side suggests that the hypocaust continued and might have been part of a larger system, perhaps suggesting that the internal division here is illusory.

The hypocaust is of the 'channelled' type (Black 1985: 84), consisting of bonded stone platforms and walls with a large curving flue and small side flues. The arcing main flue implies that a mirrored arrangement existed in the unexcavated northern part of Room I. It seems probable that the stoke hole was on the northern or western side of the external wall. It also appears that a flagstone floor (6018) was bedded on a yellow clay foundation (6014), with many of the flags having tumbled into the flue on abandonment. These flags, some large enough to span the flues, appeared to form the base of the floor. There was no evidence of a mosaic floor above this, either *in situ* or in the form of disturbed tesserae.

The flues of the hypocaust contained deep levels of destruction material (6015), including large fragments of the limestone flags from the floor. Below the destruction levels was a layer of ashy, burnt material (6019) up to 0.3 m thick. Environmental analysis (O'Brien and Elliott, Chapter 18) indicates that the fuel probably included significant quantities of barley straw. In places, this deposit contained fragments of burnt clay (6027)/(6029). Evidence of burning was also notable along some of the lower portions of the walls. It seems likely that this material accumulated through use

Figure 5.11. Photo, looking west, of hypocaust flues in Room II (Photo: Tom Moore).

and is unrelated to the abandonment of the structures, which suggests that the flues were seldom cleaned and were in use for a substantial length of time.

Comparable forms of hypocaust are known from nearby, such as the late 3rd–4th century AD villa at Chedworth (Esmonde-Cleary 2013), which has similarly large flues. This type of hypocaust has been claimed to date predominantly to the late 2nd and 3rd century AD (Black 1985: 85), reflecting the likely date of the Black Grove example. Similar hypocausts were found at Gorhambury, dating to the late 2nd-early 3rd century AD, although there they are associated with a bath-suite (Neal *et al.* 1990: 57), and at North Leigh, Oxfordshire, where they are built into the western rooms of a central range and date to the 2nd or 3rd century AD (Ellis 1999: 207). A hypocaust at Kingscote also had limestone walls creating the flues but made use of pillars within the rooms (Timby 1998: 55), which do not appear to have been used at Black Grove. Such forms of hypocaust vary widely in date however and are merely a cheaper, less efficient form of hypocaust (Neil Holbrook pers. comm.). One at Barnsley Park, inserted in the small western wing in the late 4th century AD, further indicates their varied date (Webster and Smith 1982: Figure 18).

In contrast to Kingscote and Chedworth, Black Grove had no evidence of a mosaic floor, although some remnants of mortar (6010) may indicate that a floor lay above the limestone flagging (6018). It seems probable that, as in Room II, a stone-tiled floor existed, the majority of which was destroyed or robbed in antiquity. A fragment of box-tile in the topsoil suggests that the heating system was probably also built into the walls, but none were found *in situ*, again indicating that these rooms might have been robbed to provide building materials on abandonment of the villa.

Phase 4a. Modification and new entranceway to Building A (late 2nd or 3rd century AD)

Sometime after the construction of wall (5030), wall (5014) appears to have been inserted to create Room VI as a separate space, possibly blocking a portico or corridor that ran across the front of Building A. To the east of wall (5014) is the latest exterior cobbled surface (5013), which appears to be contemporary with it and relates to the possible entranceway into Building A. Within Room VI and aligned with the pronounced offset of wall (5014), a flagged floor (5057) partly remained in a corner, implying that, as elsewhere, this had been removed on abandonment of the building or later. Overlying this was a silty layer beneath the rubble (5034) which probably marks the final use of this floor surface. Although this appeared contemporaneous with wall (5014), the surface seemed to overlay a rubble foundation (5058) that was not removed, and this may mask an earlier surface. It is notable that no such flagged surface was evident in Trench 6, above floor (6023), but the piecemeal survival of floor (5057) may mean that it had been robbed. The cobbled surfaces associated with the construction of wall (5014) must be context (5016), and the later (5013). Whether (5017) really represented much more than a bedding for (5013), the latter of which much has been lost, is not entirely clear; it may be that (5014), (5012) and (5013) were all roughly contemporary. In any case, they appear to be the latest additions to the building in this area. All the ceramics from these layers date to the 2nd century AD, suggesting that much of this took place in relatively quick succession to the developments in phase 3b, and that, aside from the western wing, there were few additions to the structure after this time.

The final flagstone surface (5013) outside Building A is the most robust and the least worn, extending up to the level of the entrance stones (5012). Surface (5019) was cut away at some point by a shallow pit [5054] that only extended for 1 m to the south of wall (5012), in front of the main building, perhaps as part of some redesign of the entrance area or to remove earlier flagging for reuse elsewhere. This pit [5054] was then refilled with rubble (5033) to support the later flagging (5013). Pit [5054] appears to cut the foundation trench for wall 5014 (5037), and therefore must be later than wall (5014) and one of the latest features on the site.

Phase 4b. Western range of rooms constructed (3rd century AD)

At some point wall (6034) was constructed abutting walls (6001)/(6002), thereby creating a room, or set of rooms, to the west, with a return wall to the south, identifiable on the geophysics and lidar data (Figure 5.1b; Chapter 2: geophysics feature 1163). Some of the opposing wall on the western side appears to have been truncated by the quarry, although possible wall footings can be seen on the ground beneath the existing sycamore tree. Only a few courses of wall (6034) survived, the majority having collapsed to the west. The fill (6025) of wall trench [6033] for this wall cut portico wall (6024) suggesting that wall (6024) was no longer in use at this time; it is therefore difficult to determine how this relates to the remodelling in Trench 5. Wall trench [6033] also contained a fragment of human skull (discussed in Chapter 15). It is difficult to know how much later this range was constructed, but ceramics from the wall trench date to after the mid 3rd century AD.

Phase 5. Abandonment (early–mid 4th century AD)

The material assemblage, which, although small, includes 4th century AD ceramic and some mid–late 4th century AD coins (Reece, Chapter 11), indicates the building's date of abandonment. There is, however, a lack of distinctive very late Roman ceramics (Timby, Chapter 6) suggesting that occupation ceased relatively early in the 4th century AD. The lack of floor surfaces in Rooms I and II is notable, despite some probable sandstone paving stones recovered from the rubble therein. This may suggest that floors were removed before or soon after the buildings had been abandoned, leaving only the mortar bedding, as seen in Room II. The survival of walls (6002), (6003) and especially (6001) to substantial heights above contemporary floor level suggests that these walls were not robbed, despite their evidently good quality masonry. It is hard to interpret this as the deliberate levelling of the site to create a platform, as suggested at Barnsley Park (Webster and Smith 1982: 97), with little evidence for activity on this rubble or indication that it formed deliberately made surfaces. It seems more probable that, at some point, the buildings collapsed, with the walls tending to fall downslope: (5007) into the corridor, creating thick layers of rubble (5008), and (5020); in Room IV, areas of silt (5052 and 5053) may represent some accumulation of material before wall (5009) collapsed inwards, resulting in dumps (5022), (5010) and (5024) in Room VI. Above these collapsed walls were further layers of rubble (5006) and (5008), overlying the entirety of Trench 5. It seems probable that this took place in the 4th century AD, but, given that the later Roman ceramics are all in the abandonment rubble, it could have occurred earlier, even within the 3rd century AD, as seems to have been the case nearby at The Ditches (Trow *et al.* 2009: 33).

Phase 6. Quarrying (post-medieval)

In Room II, pit [6030] cut floor (6009) and the lower levelling deposit (6011) although it was insufficiently deep to truncate the earlier deposits. This seems likely to relate to quarrying activity to the west that was still evident on the surface. The fill of this quarry pit did not contain any non-Roman material, but it seems probable that it is of post-medieval date, with the area apparently marked as a quarry on the 1792 'inclosure' map (Figure 1.7); it was perhaps located here because of the notably good building stone present on the surface.

Interpreting the Black Grove building

The relatively small area excavated at Black Grove means that any reconstruction of the plan of these buildings remains provisional, but some general observations can be made. From excavation, it is clear that the strength of the response on the geophysics does not correspond with the height or preservation of the walls, but is largely related to their proximity to the surface and the extent of rubble overlying them. Thus, wall (5014) shows up as a strong anomaly, despite being only a few courses deep, while wall (6001) is not such a strong anomaly, even though it survives to a height of over 0.5 m above the Roman ground surface.

A clearer picture of the building(s) can be constructed through the geophysics and excavation evidence. The size of walls (6001), (6002), (5009) and (5011) suggest they are thick enough to have been load-bearing and indicate a second storey to the structure. Most of the walls, apart from wall (6001), were of similar construction, with large irregular limestone boulders at their base, although a number had finely dressed stone in their upper courses. Unlike many of the earliest buildings at other sites in the area, the walls for Building A at Black Grove were well mortared. The building was relatively well appointed, with most of the walls apparently plastered. Wall plaster, much of it with red and yellow paint, was evident in a variety of contexts, although most of the plaster derived from Room II and (5017), the latter perhaps associated with the remodelling of the outer portico. A red panel was also found still adhering to the south side of wall (6002) (Figure 5.10). Significantly more wall plaster was uncovered on these excavations than from at The Ditches (Moore 2009c: 177), despite the smaller excavation area at Black Grove (see Chapter 12).

A significant amount of hexagonal limestone roof tiles, many with nails still present in their attachment holes, indicate that the final phase of the building had a roof comprised of this material, similar to those seen elsewhere in the region (e.g. Corney 2012: 67; Shaffrey 2018: 99; see Chapter 12; Figure 12.8). Occasional finds of tegula and imbrex amongst the rubble, including from Phase 3 contexts, suggest that the main building, and perhaps an earlier building, had a ceramic tiled roof. This is in contrast to the supposed high-status villa nearby at The Ditches, where there was surprisingly little evidence for roofing material (Trow *et al.* 2009: 63). At The Ditches, this absence was argued to be the result of it having been stripped before abandonment, but it is also possible that the roof was made of other material, such as thatch. The more widespread evidence for tegula at Black Grove may signify that the building was only partly demolished before abandonment and that the tiles were not removed. Cynthia Poole (2018) has noted, however, that even relatively large assemblages of tegula do not often represent sufficient material to have covered the roofs of such buildings. Other villa-type buildings display evidence that disparate elements of the structure, such as the porticos, were roofed with different materials (Shaffrey 2018: 99; Trow *et al.* 2009: 63), thereby potentially explaining the combination of stone and ceramic tiles here.

In terms of overall layout, although unexcavated, there is no evidence from the geophysics that the west range had a partner on the eastern side. The southern wall, identified on the geophysics and lidar, appears to mark the limits of a courtyard, and runs along the top of the relatively steep terrace. A gap in this feature appears to correspond with that in the proposed portico wall, suggesting an entrance into the compound. These courtyards, although typically larger, are known locally at villas such as Barnsley Park (Webster and Smith 1982) and Frocester (Price 2000).

There are some indications that further buildings, located to the west of Trench 6, were destroyed by quarrying. It remains a possibility, therefore, that the buildings examined here were not the main villa structure, but ancillary buildings connected to a larger building located elsewhere. Examples of large villa complexes are well known in the Cotswolds and do contain similar buildings to that at Black Grove; for example, at Kingscote, Turkdean and Great Witcombe. This scenario seems somewhat unlikely however, as evidence from field C1 represents more 'dispersed' activity with no evidence for a major structure. Activity appears to dissipate towards the modern village, suggesting the limited possibility of an additional villa in this area, under Bagendon Manor for example. If another significant major building existed, some evidence would probably have been recognised by now. However, discovery of the Black Grove buildings through this project, with no previous records or stray finds from this area, despite the buildings' excellent preservation, emphasises that major Roman structures may still await detection.

Comparisons

Despite revealing only a relatively small part of the building at Black Grove, its nature can be compared with others in the region. In phase 3, Building A at approximately 20 × 7 m corresponds with what have been described as small 'cottage' or 'row-style villas' in southern England (Hingley 1989; Smith 1997: 51). The addition of a possible corridor or portico also suggests similarities to so-called 'corridor-house-type villas' (Hingley 1989: 46). Comparisons can also be made locally, with the villa at The Ditches (Figure 5.12), for example, which appears to have developed through a relatively similar structural sequence.

The usefulness of describing all structures of this type as 'villas' has been questioned (Hingley 1989; Smith *et al.* 2016: 71). Many might not have been of particularly high status and may instead be better termed stone-built farmhouses, while the distinction from many other 'multi-room buildings' is somewhat arbitrary (Smith *et al.* 2016: 71). Similarly sized structures with corridors (also dating to the 2nd century AD) exist in the region, such as building 1 at Kingshill South (Simmonds *et al.* 2018), and other buildings are of similar form (e.g. building VIII at Kingscote: Timby 1998; and Nesley Farm, Tetbury: Roberts 2014b). Other similar buildings, not normally defined as villas, exist at building I at Uley West Hill, which comprised a range of rooms that accreted over time (Woodward and Leach 1993). Some aspects of Black Grove, such as the hypocaust in Room I, may distinguish its occupants as of some status, but there is no evidence that the structure had other embellishments such as mosaics. In any case, these are often late additions and even the relatively early villa at The Ditches was a simple affair in its earliest form. For purposes of the discussion here, the term 'villa' is retained while acknowledging its relatively arbitrary nature. It may, however, be useful to emphasise that at least some of the buildings in the Bagendon area, most notably at The Ditches, were sufficiently precocious to denote important social and architectural changes in the Roman province (Trow *et al.* 2009).

Rather than a domestic residence, a more remote possibility is that the structures at Black Grove represent buildings associated with a temple complex, with the main temple having been in the now quarried away area. Temple complexes associated with Iron Age sites are known in the region at Lydney Park and Uley West Hill, and are also known to have been located within pre-existing *oppida*. The former temple complexes, both had outer buildings not dissimilar to Black Grove. There is, however, little in the topographic location of Black Grove, or finds such as votives, to imply the existence of a (now destroyed) temple.

A date in the early–mid 2nd century AD for the construction of the main range at Black Grove compares well with the first phase of similar villas in the region, such as North Leigh (Oxfordshire). The addition of corridors and porticos to 2nd century AD villas is well attested, both locally and farther afield (Trow *et al.* 2009: 57), sometimes marking the replacement of a timber portico. A seemingly similar sequence is observed at Frocester (Price 2000), developing from a simple 'row house' with the later addition of corridors and small wings or tower structures, although here the first range was not constructed until late in the 3rd century AD.

At Black Grove, a possible portico or corridor ran the length of the building but was later transformed into small wings, with wall (5014) creating these separate rooms. A similar situation has been postulated at Barnsley Park, where an original 4th century corridor was changed into two small wings (Figure 5.12; Webster and Smith 1982). As with Black Grove, a stone-channelled hypocaust was inserted into the smaller western rooms (Webster and Smith 1982).

At other 2nd century AD villas, wings were either added to existing row buildings or were integral to the design. Such wings were usually more substantial than the relatively shallow ones at Black Grove, although those at The Ditches were also comparatively small. It

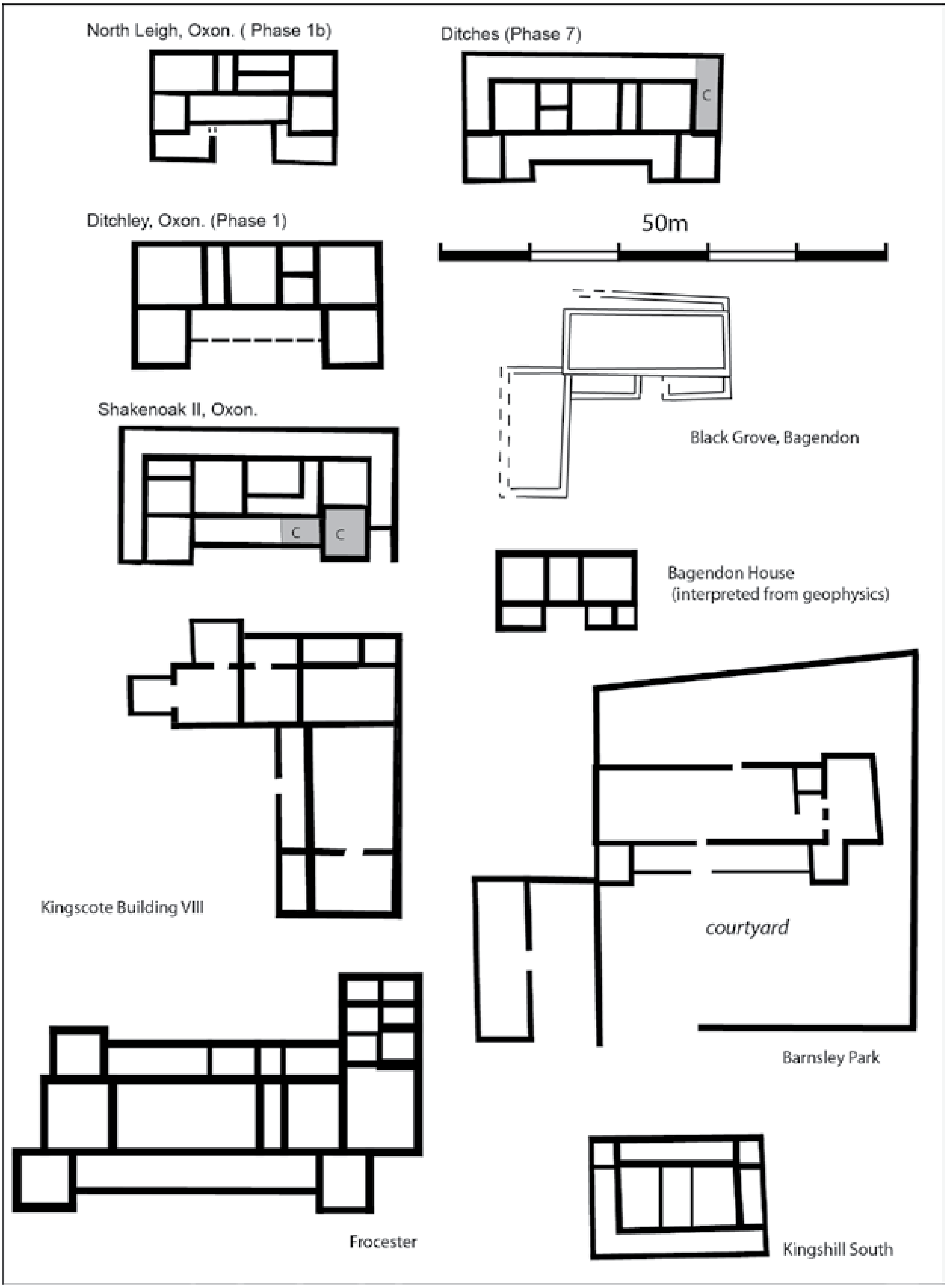

Figure 5.12. Comparison of Black Grove with villas and other Roman buildings.

is interesting to note that the entrance to the building at The Ditches appears to have originally been offset on the front range and then shifted to the centre after the addition of the portico (Trow *et al.* 2009: 57). It is not clear if we are seeing something similar at Black Grove, where it certainly appears that the entrance was remodelled, perhaps at the time when the wings were constructed.

The addition of a second range, or wing, is also common, although this was usually matched by a parallel wing, for which, at Black Grove, the geophysics shows no evidence. This is unusual when compared with most contemporary villas in the region (Black 1987), and one may exist but is less well preserved. Some buildings, such as Kingscote VIII (Timby 1998: 48), do, however, have a similar L-shaped structural form. There too it was constructed sequentially from an initial rectangular range, with the later wing added in the 3rd–4th century AD.

Unlike at The Ditches, evidence that the villa at Black Grove was particularly early in its origins cannot be confirmed. At The Ditches, the first-phase stone building was probably constructed in the late 1st century AD (possibly in the AD 70s or 80s), making it exceptionally early for western England (Trow *et al.* 2009). Whereas at Black Grove, it seems that the main stone range was constructed in the 2nd century AD. There does, however, appear to have been a potentially earlier building, prior to Building A, which probably dates to the late 1st century AD or early 2nd century AD. The presence of earlier timber buildings that have left little archaeological trace has been noted at other villas in the region, including Barnsley Park and Frocester. At the latter, these ranged in date from the 2nd–4th century AD, and were only replaced by stone villas much later. The presence of rubble and tegula in early layers, if correctly related to the destruction of the first phase building, may imply that a stone building pre-dated Building A. Thus, the implication appears to be of the construction of a building here at some point in the late 1st or early 2nd century AD, which was then rebuilt later in the 2nd century AD. How that related to earlier, mid 1st century AD, structures or activities in this area is impossible to determine, but raises questions as to whether a particularly important Late Iron Age/ early Roman structure existed here which was directly replaced.

Conclusions: the Bagendon landscape in the Roman period

Despite the relatively small-scale investigations at Black Grove, when placed alongside the excavation evidence from The Ditches and discoveries through geophysical survey, a better picture of the nature of the Bagendon landscape in the Roman period emerges. The implications are highly significant for understanding later developments at the complex.

The presence of mid 1st century AD material beneath the Roman occupation at Black Grove confirms evidence from watching briefs and stray finds (Chapter 4) that most of the pits and ditches identified on the geophysics along the valley floor are probably of Late Iron Age date, and that occupation extended well beyond the areas investigated in the 1950s and 1980s. Whatever the exact structural sequence of the buildings at Black Grove, its existence contradicts suggestions (e.g. Clifford 1961) that this part of Bagendon was entirely abandoned relatively soon after the Roman conquest, as implied by the evidence from earlier excavations (Chapter 4). There is enough evidence to suggest that Black Grove was probably a small villa, somewhat similar to The Ditches. Tantalising evidence of an earlier building preceding the main stone villa, combined with a ceramic assemblage providing little evidence for a hiatus in occupation, also suggests a relationship between the villa and preceding activity. Occupation appears to have continued at least after the abandonment of the majority of activity in the valley.

Black Grove and The Ditches were not alone in the Bagendon landscape. Geophysics in field D6 (Chapter 2), close to Bagendon House, revealed what appears to be an additional villa that, morphologically, is similar to 2nd century AD villas, if rather smaller (Figure 5.12). An additional villa at Stancombe can also be surmised from a combination of geophysics and earlier finds (see Chapter 2), although little can be said about its form or date. There appears to have been a cluster of villas in the Bagendon area. Of these four villas, those at The Ditches, Black Grove and possibly Bagendon House (on the basis of morphology) seem to have been occupied or constructed in the early 2nd century AD, while Stancombe remains undated. From the geophysical evidence at Bagendon House and from excavations at Black Grove and The Ditches, it also seems probable that these were related to existing Late Iron Age occupation.

Combined, this evidence challenges some of the previous perceptions of the Bagendon complex (e.g. Trow *et al.* 2009) that have tended to conceive of the villa at The Ditches as the only area of Roman occupation within the Late Iron Age complex. Rather than regarding activity in the Bagendon valley as related solely to artisanal occupation, recognition of three other villasmay also point to multiple areas of high-status occupation, both after and perhaps before the Roman conquest. The possibility that there were multiple high-status aspects to the Bagendon complex in the Late Iron Age and immediate post-conquest period raises further questions. Previously, we might have considered The Ditches as the elite centre, perhaps even the residence for a chief or king. The presence of multiple locales that may have contained families striving to villa-status after the conquest would suggest a more oligarchic or clan-like social structure, with multiple 'elite' families located across the complex (see Chapter 24).

Location of the villas

Although one of the reasons for the villas within the Bagendon complex may relate to the presence of existing Late Iron Age occupation, the choices determining villa location were likely to have been more complex (Taylor 2012: 184). The orientation of the villas for example, at Black Grove and Bagendon House facing south-south west, The Ditches facing south, and Stancombe probably facing south-east, reflects that of Roman villas as suggested by classical authors. Similarly, all the villas were located with access to varied landscape types (Taylor 2012: 184), with the drier plateau above them and the meadows of the Bagendon brook and Churn Valley below. The Ditches villa has a somewhat unusual topographic location, situated on the plateau facing the Roman road of Ermin Street, potentially reflecting a particular desire to emphasise continuity from the Iron Age settlement and be visible to passing traffic (Trow *et al.* 2009: 64). The placement of these villas appears to represent a combination of maintaining a connection to existing settlements while also displaying an appreciation of new forms of architecture and display.

The implication therefore seems to be that high-status elements of the Bagendon complex developed into Roman establishments after the conquest. Whether The Ditches was alone in precociously creating an early stone building cannot be determined until Black Grove and Bagendon House undergo fuller exploration. If the latter also mark a continuity of high-status occupation, it is perhaps surprising that there is no evidence of a villa structure at Duntisbourne. This also appears to have been an enclosure within the Late Iron Age complex that had some form of high-status role, as suggested by the fineware imports present in the early 1st century AD (see Chapter 4). Yet the discovery of the Black Grove villa cautions against assuming that one does not exist. An alternative is that occupation at Duntisbourne moved to the probable villa at nearby Stancombe, and it too had early origins.

The apparent relationship between some banjo clusters and Roman villas in the region has also been recognised (Moore 2006). Such an association can be seen with examples close to Barnsley Park villa (Figure 23.7d); at Withington, where geophysical survey revealed an apparently opposing set of banjo-like enclosures that contained two possible Roman villas (Thompson and Chelu 2009); and at Worms Farm, where a Roman settlement appears to be related to a banjo enclosure complex. Neil Holbrook (2008a) has rightly pointed out that such relationships may be coincidental, with some villas like that at Barnsley Park clearly constructed far later than the banjo enclosures were occupied. Even evidence of Late Iron Age and early Roman stray finds from around Barnsley Park (see Chapter 23: brooches and coins, catalogue sites BE221-223) cannot confirm continuity in community status. The location of the Cutham funnel enclosure (discussed in Chapter 3) within the Late Iron Age Bagendon complex, in close proximity to the Roman villa at Black Grove, does once again highlight this association however, even if the Cutham enclosure was no longer in use or even visible by the late 1st century AD. It thus raises the possibility that a connection exists between banjo enclosures and villas, perhaps implying some form of special status for the Middle and Late Iron Age communities that resided at these locations.

The clustering of relatively early Roman villas around Late Iron Age centres is also not unique to Bagendon, and their association with pre-existing Iron Age centres has been recognised as significant (Smith *et al.* 2016: 158). The earthwork complex at North Oxfordshire Grim's Ditch, often suspected of being some form of Late Iron Age dyke complex (Copeland 1988; Moore 2012), includes villas at Ditchley, North Leigh, Callow Hill, Bury Close and Shakenoak (Booth 1999: 48). All of these villas are relatively early, emerging in the late 1st or early 2nd century AD, in contrast to a more widespread development of villas in the late 2nd century AD or later in the Cotswolds (Smith *et al.* 2016: 158). While not all of these villas necessarily developed from pre-existing Late Iron Age settlements (Booth 1999: 44), the clustering of early villas in this area may be significant, reflecting perhaps the importance of this landscape in communicating status, before and after the Roman conquest. Around the Late Iron Age centre of *Verlamion*, near St Albans, there is also a cluster of early Roman villas, such as those at Gorhambury and Gadebridge Park. It has been argued that the Late Iron Age farmsteads here quickly developed into Roman villas because they were already wealthy, grain-surplus-producing farmsteads (Neal *et al.* 1990: 93). This may well be true, but social factors seem also likely to have been important.

In all three cases (Bagendon, North Oxfordshire Grim's Ditch and *Verlamion*), the earthworks of the Late Iron Age remained visible in the Roman period and would have been significantly impressive monuments. It seems unlikely that local people in the late 1st and early 2nd centuries AD would have been unaware of their earlier significance. Indeed, there seems good evidence that the importance of these complexes meant that early villas were constructed to reflect and emphasise their connection to these pre-existing places. At Bagendon, it may illustrate how elites of the Roman province wished to communicate their 'ancestry', constructing buildings in locations that already had social significance while also displaying wealth in the increasingly important forms of agriculture and architecture familiar across northern France and southern Britain (Trow *et al.* 2009: 69; Taylor 2012: 181). As far afield as the *oppidum* of Bibracte, Burgundy (although the 'urban' functions of the *oppidum* were replaced by the Roman town of *Augustodunum* (Autun)), the high-status courtyard houses continued to be occupied for some decades (Paunier and Luginbühl 2004), emphasising the importance of ensuring a connection between pre-existing locales of power and those constructed in the post-conquest period. The use of temples to undertake this act of connection, creating *lieu-de-memoire*, has been discussed (Golosetti 2017), but villas may have had a similar function, ensuring that while the artisanal and exchange roles of these places transferred to Roman towns, their function as signifiers of the social status of their inhabitants remained. Despite these links back to Iron Age forbears, the subsequent developments at these villas reflected a more general transformation occurring across the Cotswolds and Romano-British landscape in the 2nd century AD, with the establishment of a range of rural settlement types and presumed agricultural intensification (Smith *et al.* 2016: 206; see Chapter 6).

The presence of four probable villas along the Bagendon valley represents a relatively high density of establishments, even considering the high density of Roman villas on the Cotswolds (Smith *et al.* 2016: 159). Close to another *civitas* centre, *Verulamium*, there is also a density of villas along the nearby river valleys, representing approximately one villa every 2 km (Neal *et al.* 1990: 89). At Bagendon, the distance between The Ditches and Bagendon House is approximately 2 km, but it is only approximately 500 m between Bagendon House and Black Grove, while the distance from Bagendon House to Stancombe is approximately 1 km (see Figure 1.3). Around 2 km to the north-west of The Ditches another villa complex is known from Combend, Colesbourne (RCHME 1976: 35; catalogue site BE 331), in a similar situation to that at Black Grove, with evidence for mosaics and occupation in the 3rd and 4th century AD. *Corinium* also had rural establishments that can be described as 'villas' in relatively close proximity; Barton House, for example, might have been a villa immediately beyond the walls (RCHME 1976: 30). Similarly, the corridor building at Kingshill South seems substantial enough (Simmonds *et al.* 2018: 211) to be comparable to the 'villas' at Bagendon. The recent discoveries at Kingshill South and Bagendon emphasise that the density of rural settlements with relatively impressive buildings almost certainly remains an under-estimate; those around Bagendon appear, however, to represent a distinct cluster.

The close proximity of the Bagendon villas raises questions as to what extent they might have had separate 'estates'. The size and nature of the estates related to Roman villas has been widely debated with varying forms of reconstruction (e.g. Hingley 1989: 22; Neal *et al.* 1990: 99). Taylor (2012) and others have cautioned against seeing villas as simply agricultural production units, and we need not assume that each of the Bagendon villas, even if contemporary, required large agricultural areas to support themselves. Individual villa buildings as representative of more than one family or a wider family group, perhaps a continuation of a more clan-based society, has been explored (Hingley 1989; Mattingly 2006: 377). The possibility that separate examples, as at Bagendon, represented part of a connected social or family group, related perhaps to previous occupants of a wider complex, has not previously been suggested, however. This proximity between the Bagendon villas and their relatively similar chronological sequence may suggest they represented a relatively close social unit that could even have worked in partnership; the wider Bagendon area an estate connected to all these villas, rather than discreet entities.

The decline of the Bagendon villas

The Cotswolds is famed for substantial Late Roman villas (e.g. Esmonde-Cleary 2013), but the examples at Bagendon are notable in that their heyday appears to have been in the 2nd century AD. The villa at The Ditches, for example, follows a sequence of embellishment from the late 1st and through the 2nd century AD, but did not receive the expansion and addition of hypocausts or mosaics expected of later villas. Both it and Black Grove, as far as we can establish, were in decline by the late 3rd century AD, with The Ditches perhaps even abandoned by this time (Trow *et al.* 2009: 34). The morphology of the Bagendon House villa, based on the geophysics, is also reminiscent of early villas, suggesting that, even if it remained occupied, it did not develop architecturally. While this pattern generally mirrors the chronology of settlements in the central belt (Smith *et al.* 2016: 405), it does not match the burst of villa emergence in the late Roman period in the Cotswolds. The reasons for this decline in the fortunes of the Bagendon villas are not entirely clear, but it could indicate that these families' positions had declined after a surge of social and economic vitality in the 100 years following the Roman conquest (Trow *et al.* 2009: 75). It could also represent a move of the villa classes to the increasingly urbanised centre at *Corinium*, as suggested by Sheppard Frere (1967: 258).

An alternative is that the undated, probable villa at Stancombe represented a new establishment to which the occupants moved. This could be the case if these villas represented part of an extended clan, rather than separate families. At both The Ditches and Black Grove, there is significant evidence that elements of these buildings (roof tiles and flagged stone floors) were robbed, probably in antiquity, and moved to buildings elsewhere, perhaps such as at Stancombe. Establishing the chronological sequence of this collection of villas as a coherent group therefore remains an important challenge for future work that has the potential to provide a better understanding of how elite families developed in the succeeding centuries.

Part III

The Material evidence

Chapter 6

Iron Age and Roman ceramics

Ed McSloy, Jane Timby, D.F. Williams and Steven Willis

Coarsewares and Gallo-Belgic finewares (Excavations 1979-1981)

Ed McSloy

Introduction

Pottery amounting to 11476 sherds (173.5 kg) was recorded from 122 separate deposits. The material from the 1979-81 excavations derives from two areas, one (Area A) immediately north of the 1954 excavations by Clifford (1961) and another to the west (Area B) (see Chapter 4). The large bulk of the recovered material was derived from a series of large pits, most in Area A (80.2% by sherd count), with most of the remainder (15.6%) coming from layer type deposits.

The pottery assemblage was recorded directly to an Ms Access database. The assemblage was examined by context, sorted by fabric macroscopically or with the aid of a binocular microscope (x 20) and quantified according to sherd count; weight and rim EVEs (Estimated Vessel Equivalents). The assemblage totals includes the Gallo-Belgic imported types and non-sigilatta finewares, but does not include Gaulish samian which is dealt with below (Willis this volume).

Some limited previous work on the assemblage would seem to have been undertaken soon after its excavation and a reference is made to the dating of the group by Trow in relation to The Ditches material (Trow 1988b: 76). The two stamped Gallo-Belgic vessels (below) were at some point extracted and identified by Val Rigby, the details published as part of the Gallo-Belgic potters' stamps database http://gallobelgic.thehumanjourney.net/. Other work undertaken has included the separation of the *terra sigillata* assemblage and some reconstruction of fineware vessels (mainly undone in the intervening decades). The condition of the pottery was mixed with softer types such as Severn Valley type wares suffering surface loss. The surface preservation is likely to be a factor in the very limited survival of carbonised and other residues which were recorded on less than 1% of the assemblage by count. A factor which proved an impediment to the identification of fabric types was the variability of washing; this being particularly poor for some large groups (particularly for the 1979 season). Selective re-washing was undertaken for some sherds, particularly for the fineware types. Larger-scale re-washing was impractical and identification of coarsewares was commonly reliant on clipped sherds.

There were some large and well-preserved context groups containing fully reconstructable vessels. However, for the majority of context groups, fragmentation appears to be high. An overall mean sherd weight of 15g; is moderately high for a Roman group, although it is considered that this is elevated significantly by the abundance of Savernake type wares occurring as thick-walled storage jar sherds.

Methodology

A numeric fabric coding system was developed to record the assemblage; the fabrics defined according to primary inclusion, inclusion coarseness or sorting, secondary inclusions and firing characteristics. Where similarities across fabrics are minor or where the defined types share consistencies in vessel form and equate to such well-known traditions, such types are grouped for discussion (below). In this way the Savernake ware grouping, which makes up a large proportion of the assemblage, consists of six variations (see below). Wherever possible, concordances across national or regional pottery type series are given. Of greatest relevance are the broadly contemporary, though military-biased Early Roman Cirencester assemblage (Rigby 1982a) and groups from sites associated with the Bagendon 'complex', including The Ditches (Trow 1988b; Trow *et al.* 2009).

Recording of vessel form has been by means of alpha-numeric codings which are adapted from the system used by Trow for the recording of The Ditches assemblage and which in its turn builds from the work of Fell on the 1950s Bagendon assemblage. Recording of forms for the Gallo-Belgic vessels uses Hawkes' *Camulodunum* series codes (Hawkes and Hull 1947). In its fullest form the record codes for coarse pottery forms describe details of vessel profile and require a substantial portion of the vessel to be present. Where, as is predominantly the case, vessels are insufficiently complete for full description, only an abbreviated description of vessel class is possible. The broader descriptions are however useful as a means of summary and in the appreciation of overall functionality (Table 6.1 and 6.2).

Table 6.1. non-*sigillata* finewares. Incidence by feature shown as rim EVEs and min. vessel

Fabric	Form		Misc.		pit AA		pit AB		pit AD		pit ADa		pit AE		pit AF		pit AH		pit AK		pit AL		pit AO		AD/AN/AO		pit BG		Total	
group	Class	specific	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.	EVE	No.
CAM PR1	platter	-													0	1													0	1
Lyons	cup	-			0	1																							0	1
NGW	beaker	-	0	1	0	1																					.17	1	.17	3
	beaker	cam113	.60	4					.90	4	.50	2	.27	1	.58	3					.33	4							3.18	18
	flagon	-			0	1																							0	1
	flagon	cam140/141																	1.0	1									1.0	1
TN	bowl	cam120	.17	1																									.17	1
	cup	cam56			0	1			.03	1																	.06	1	.09	3
	cup	cam56c			.33	1																							.33	1
	platter	-	0	5											0	1									0	1	0	1	0	8
	platter	cam12/13																			.11	1							.11	1
	platter	cam13							.46	4	1.03	2			.30	3													1.79	9
	platter	cam14			.17	2															.20	1							.37	3
	platter	cam16	.09	1	.07	1			.05	1					.18	2							.07	1					.46	6
	platter	cam3	.15	1	.52	3																							.67	4
	platter	cam3/5																			.07	1							.07	1
	platter	cam5																			.07	1							.07	1
	platter	cam8	.07	1							.15	1			.18	1					.11	2			0	1			.51	6
TR	beaker	-	.02	1	0	1					.08	1																	.10	3
	beaker	cam112a					0	1	.57	3	.07	2									.50	3							1.14	9
	cup	-																			.03	1							.03	1
	cup	cam56															.05	1											.05	1
	cup	cam56c	0	1																									0	1
	cup	cam58a									.10	1																	.10	1
	platter	-			0	1									.05	2	0	1											.05	4
	platter	cam8			0	1									.05	2					.08	2							.13	5
Totals			**1.10**	**16**	**1.09**	**14**	**0**	**1**	**2.01**	**13**	**1.93**	**9**	**.27**	**1**	**1.34**	**15**	**.05**	**2**	**1.0**	**1**	**1.50**	**16**	**.07**	**1**	**0**	**2**	**.23**	**3**	**10.59**	**94**

Table 6.2. Reduced wares forms summary. Quantities as EVEs

Form generic	Form specific	bb1	BS	lgw	SVWr	sav gt	Total
flagon	F1			.35			*0.35*
Sub-total		-	-	**.35/5.2%**	-	-	***0.35 (0.9%)***
beaker	KB1		.35	.55	.05	.60	1.55
	KB2			1.12		1.06	2.18
	KB3			.69		.10	0.79
Sub-total/%total		-	***.35/14%***	***2.36/34.9%***	***.05/2.1%***	***1.76/6.2%***	***4.52 (11.3%)***
jar	ev	.05	.13	.10		.21	*0.49*
	JB2					.47	*0.47*
	JB3			.02		.28	*0.30*
	JB4		.40	.08			*0.48*
	JC1					.17	*0.17*
	JC2		.07	.68			*0.75*
	JC3		.09	.68	.65	3.50	*4.92*
	JC4					.63	*0.63*
	JG					.31	*0.31*
	JG1			.21	.23	8.79	*9.23*
	JG2			.05	.71	9.22	*9.98*
	JG3				.15	.22	*0.37*
	ls			.08	0		*0.08*
	nmm		.12	0.63	0.25	1.65	*2.65*
	ov/ph			.27			*0.27*
	ph/ov			.20			*0.20*
Sub-total/%total		***.05/100%***	***0.81/32.2%***	***3.0/44.4%***	***1.99/85%***	***25.45/89.2%***	***31.3 (78%)***
bowl	BC		.46		.20	.11	*0.77*
	BC3			.12			*0.12*
	BC4				.10		*0.10*
	BE		.21			.05	*0.26*
	BE4		.11				*0.11*
	BE5		.10			.10	*0.20*
	BE6					.10	*0.10*
	Carin.		.14				*0.14*
	Flat rim		.04	.05		.05	*0.14*
Sub-total/%total		-	***1.06/42.2%***	***0.17/2.5%***	***0.30/12.8%***	***0.41/1.4***	***1.94 (4.8%)***
dish	ss;br		.08				*0.08*
	ss;pr		.05				*0.05*
Sub-total/%total		-	***0.13/5.2%***	-	-	-	***0.13 (0.3%)***
platter	D3					.13	*0.13*
	DA1					.05	*0.05*
	DA2		.05	.10		.20	*0.35*
	DA3		.10	1.13		.54	*1.77*
Sub-total/%total		-	***0.15/6%***	***1.23/18.2%***	-	***0.92/3.2%***	***2.3 (5.7%)***
Total		**.05 (.12%)**	**2.5 (6.2%)**	**6.76 (16.8%)**	**2.34 (5.8%)**	**28.54 (71.1%)**	**40.14**

Forms

In common with the majority of Romano-British assemblages jar forms are dominant - 57.15 EVEs or 48.2% of the total. For the most part jars are confined to coarser fabrics, particularly Savernake type wares (below). Bowls are the next most common, amounting to 11.52 EVEs (26.9%). Almost all consist of smaller, cup-like carinated (BE) or shouldered forms (BC), which occur primarily in grogged (14.82 EVEs), fine sandy (7.54 EVEs) or Severn Valley type wares (4.48 EVEs).

Beakers (15.10 EVEs or 12.7%) are a mix of Gallo-Belgic butt-beaker/ovoid beakers (CAM 113, CAM 112a: 4.44 EVEs) or 'derived' British forms (KB1-3). There are few cups (1.01 EVEs); either Gallo-Belgic types (CAM 56/58:

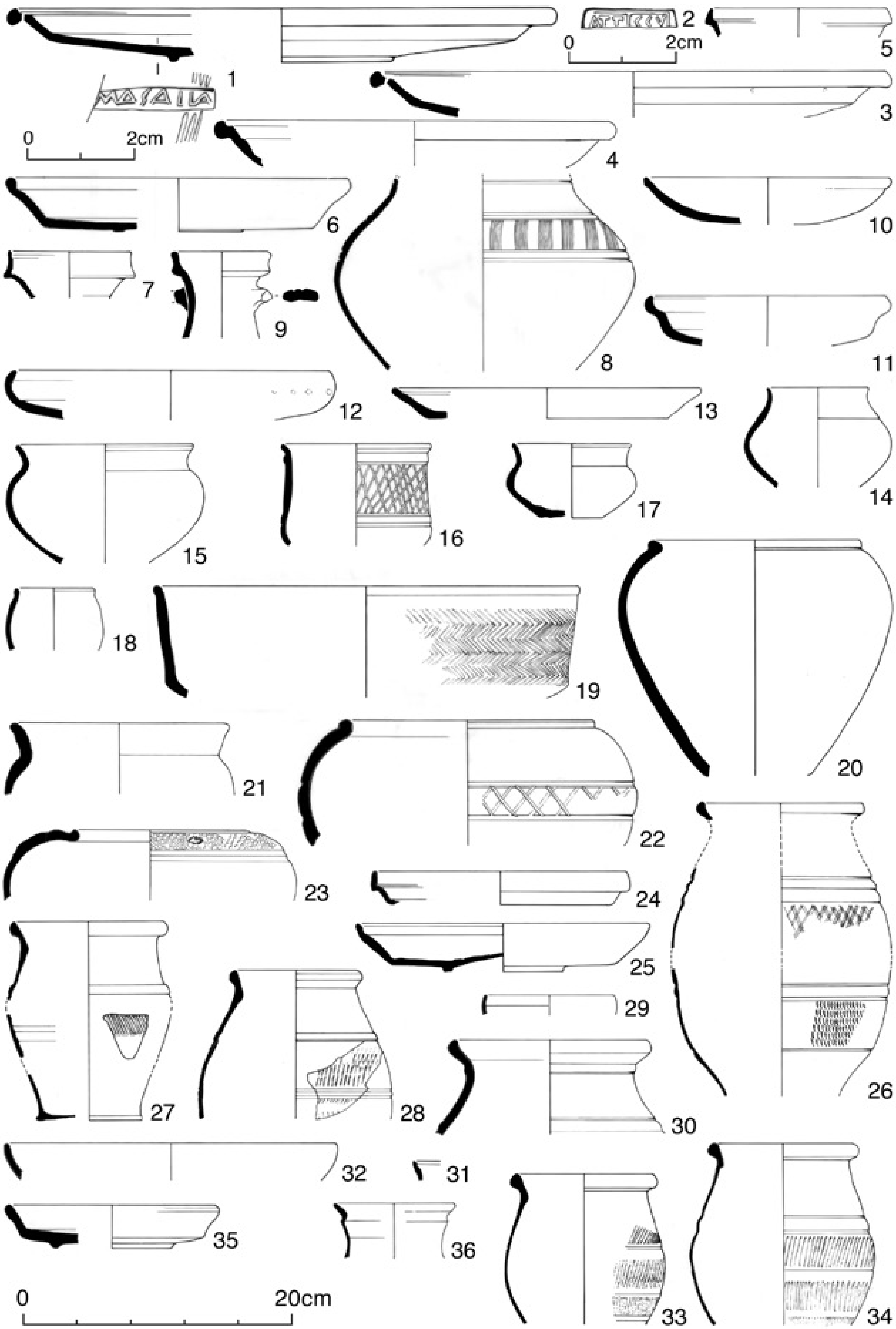

Figure 6.1. Coarseware ceramics from 1979-81 excavations (scale 1:4, drawn by Yvonne Beadnell).

0.54) or undefined/pedestalled forms in local wares. Dishes/platters amount to 9.82 EVEs or 8.3% of the total. With the exception of large, possibly tri-footed, deep dishes (Figure 6.1: no. 19), all are Gallo-Belgic platters (4.32 EVEs) or native copies/devolved forms (4.83 EVEs).

Flagons are poorly represented (2.44 EVEs or 2%) overall, and more so when considering that representation expressed as EVEs can be exaggerated as the result of complete rim circumferences. Most, including the single North Gaulish example (Figure 6.2: no. 57), and vessels in oxidised, white-slipped fabrics (Figure 6.2: no 53 and 65) are of collared/Hofheim type common to the mid 1st century AD. There is some variation among the remainder, which unusually include examples in Savernake ware and greywares.

Lids are the least-well represented category, among the vessel classes (0.72 EVEs or 0.60%), all of which occur as Savernake or local grog-tempered vessels.

Fabrics

Fabric Group MALREB: Malvernian Palaeozoic limestone-tempered wares (fabric 9): 1033 sh; 7221g; 9.94 EVEs

Fabric 9 makes up 9% of the assemblage total by count (8.4% by EVEs total). Petrological studies suggest a probable source in the Malvern Hills of Worcestershire or May Hill in Gloucestershire (Peacock 1968). Its importance can be judged from its abundance across the Cotswolds and occurrence well beyond. The reasons for this type's occurrence at such distance from source may have less to do with its ceramic qualities and more as the result of a well-established southwards trade in heavy goods including salt (in briquetage containers) and, probably, quern stones. The ware type is common at The Ditches, Frocester and Duntisbourne. It occurs, though seemingly uncommonly, in the Leaholm fort deposits (Rigby 1982: nos. 62 and 66). Continuance into the 60s or 70s AD would seem probable (Timby 2000).

In the assemblage described here represented vessels are exclusively jars of handmade 'native' type which are barrel-shaped or globular in profile. The majority feature high, upright or slightly everted rims (JB4: 5.55 EVEs) or shorter, everted rims (JB5: 2.72 EVEs).

Fabric 9: Malvernian limestone-tempered wares. As Peacock B ware (1968).

Fabric Group NAT: 'Native type' shell or limestone-tempered (fabrics 45, 58): 59 sherds; 528g; 1.04 EVEs

Fabric 58: Shelly. Patchy grey/brown with dark grey core. Soft with smooth feel and laminated fracture. Common. Moderately-sorted (1–4mm) fossil shell and common/sparse limestone fragments (1-2mm).

Fabric 45: Limestone. Grey-brown surfaces with dark grey core. Soft with smooth feel and regular fracture. Common, moderately-sorted, sub-angular yellow/buff limestone (1–2.5mm), and sparse fossil shell 0.5–1mm.

Fabric Group BAGBL: Black/dark-grey firing silty wares (Fabrics 2, 3): 633 sherds; 6556 g; 13.63 EVEs

Fine-textured dark-firing wares were sufficiently abundant from previous excavations at the site to be termed 'Bagendon black' and it seems probable that most or all are local in origin. Comparable material has been noted from early deposits at Cirencester and at The Ditches (Moore 2009b: 98). In the assemblage described here these types make up 5.5% of the total sherd count (11.5% by EVEs total).

Over half of identifiable vessel forms are necked bowls: class BC (6.90 EVEs), with further vessels attributable to the carinated 'BE' class (0.64 EVEs). Jars are also well-represented (3.10 EVEs); though most consist of smaller, high-shouldered (JC) or ovoid-profile vessels which might reasonably be described as beakers. Platters (1.46 EVEs) are mainly 'stepped' forms with fewer curved or straight-walled vessels (Figure 6.1: nos. 11–13). The large, straight-sided dishes (Figure 6.1: no. 19) consistently feature burnished chevron/herringbone decoration.

Fabric 2: Dark grey throughout or with paler grey margins. Soft with smooth feel and dense, fine fracture. Common to sparse fine (<0.3mm) quartz inclusions. Trow fabric 8; Cirencester fabric 8; Moore GROGBAG.

Fabric 3: Dark grey throughout or with paler grey margins. Soft with smooth feel, finely irregular fracture. Common to sparse fine (<0.3mm) quartz inclusions. Common or sparse voids (1-2mm) from organic inclusions. Common to sparse, self-coloured grog (<0.5mm).

Fabric Group BS: Local, burnished, black sandy wares (fabrics 10, 33, 43): 274 sherds; 1793g; 2.65 EVEs

Such types are almost certainly equivalent to Cirencester fabric 5; a type current from the earliest occupation until the mid 2nd century (Rigby 1982: 153). No kilns producing the type are known, though its abundance at Cirencester suggests a source local to the town, probably in North Wiltshire. The type's significance at Bagendon would appear limited (2.4% of the total by sherd count).

In common with the Cirencester equivalent fabric, the most common forms (1.06 EVEs) are necked/shouldered

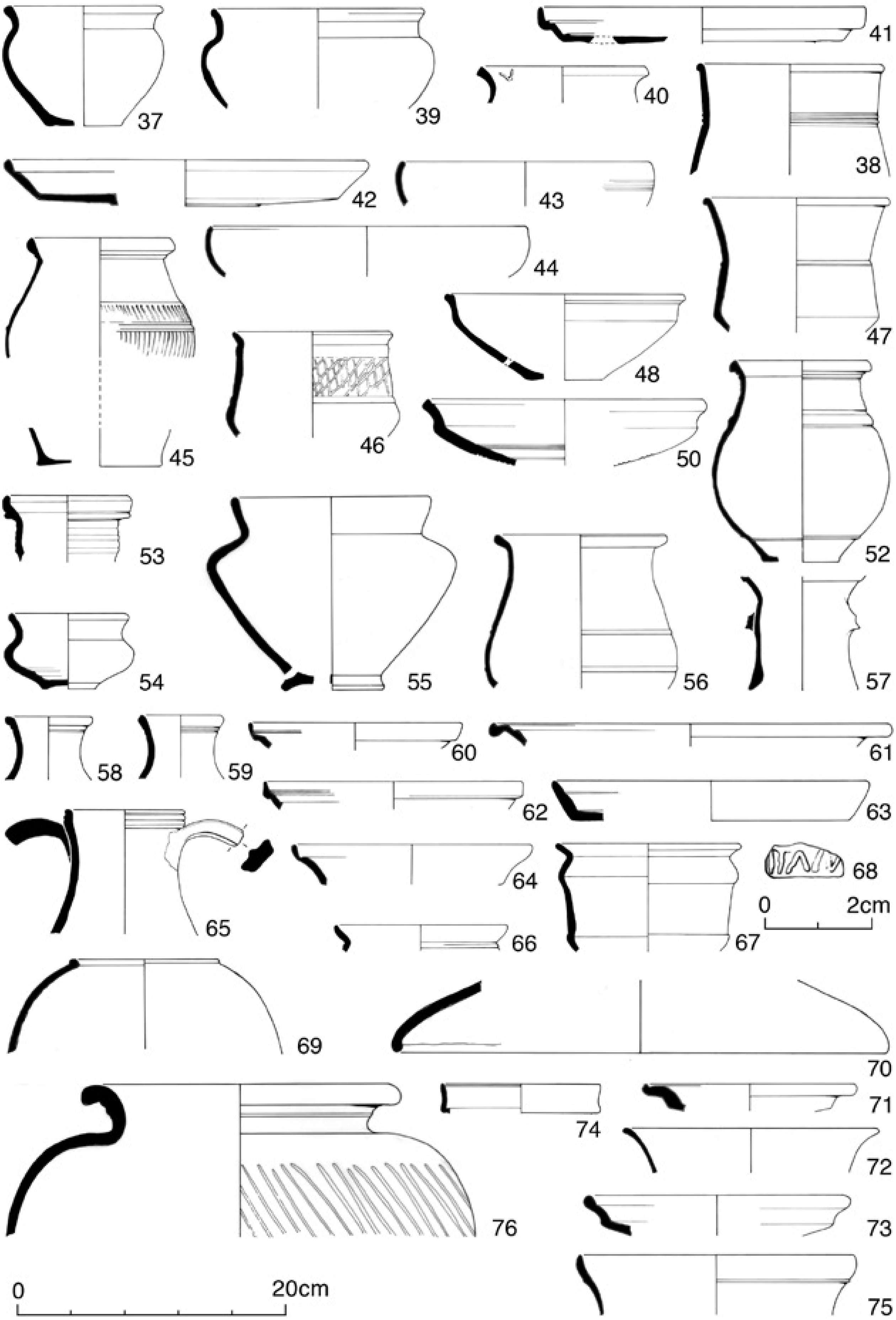

Figure 6.2 .Coarseware ceramics from 1979-81 excavations (scale 1:4, drawn by Yvonne Beadnell).

bowls (Grouped as form class BC; Figure 6.1: no. 15, 17). Jars, butt-beaker and platter copies also occur. The Black-burnished ware (BB1) imitations which characterise 2nd century groups from Cirencester are absent.

Fabric 10: Dark grey throughout or with paler grey or red-brown core. Hard with slightly sandy feel, finely irregular fracture. Common medium/fine (0.2-0.3mm) quartz inclusions.

Fabric 33: Dark grey throughout or with paler grey or red-brown core. Hard with sandy feel and irregular fracture. Abundant coarser medium/fine (0.3-0.5mm) quartz inclusions. Cirencester fabric 5; Trow fabric 10; Moore fabric MICBB.

Fabric Group LGW: Local/North Wiltshire reduced wares (fabrics 30; 42; 48; 49): 367 sh; 4487 g; 6.89 EVEs)

North Wiltshire sources are a major supplier of coarsewares to Cirencester and the fine, paler-firing greywares described by Rigby from Early Roman deposits were thought to come from such sources (Rigby 1982b: C14). Kilns groups from Whitehill Farm (Anderson 1979) date no earlier than the 2nd century although are broadly alike in fabric to the earlier material. Greywares (principally fabric 30) are relatively uncommon in this assemblage (3.2% by count). There is some correspondence among vessel forms with early groups from Cirencester (Rigby 1982a) and Wanborough (Seager-Smith 2001). Jars are commonest (2.95 EVEs); a mix of neck-less/high-shouldered forms (JC3) and the necked forms most characteristic of later greyware production. Butt-beaker and platter copies are well-represented (2.19 EVEs and 1.23 EVEs), demonstrating the early character of the group.

Fabric 30: Mid-grey surfaces/margins with paler grey or brown core. Hard with sandy feel and irregular fracture. Common sub-angular quartz (0.3-0.5mm); sparse organic inclusions.

Fabric 42: Mid-grey surfaces/margins with paler grey or brown core. Hard with sandy feel and irregular fracture. Common sub-angular quartz (0.3-0.5mm); sparse organic inclusions.

Fabric Group GROG: 'Native' grog-tempered (fabrics 8, 22, 23): 1473 sherds; 11648g; 17.70 EVEs

In contrast to the Savernake type wares the 'native' grogged fabrics grouped here are typically soft-fired and exhibit patchy firing characteristics possibly indicative of bonfire firing. The grouping shares characteristics with the 'Belgic' wares of southeastern counties of England and are current from the mid-1st century BC (Thompson 1982). The grog-tempered wares are abundant in this assemblage (12% by count) and there is a likelihood that most material was made locally.

The range of vessel forms among the grogged wares is far more conservative compared to the 'Belgic' wares. Necked bowls grouped as 'BE' forms make up by far the largest element (14.29 EVEs or 80%). Butt-beaker (1.54 EVEs) and platter copies (0.91 EVEs) occur mainly in the fine, slightly sandy fabric variant, type 22. A relatively small number of jars (0.91 EVEs) and lids (0.32 EVEs) were recorded. Flagons are also present in fine fabric 22, though only as handle fragments.

Fabric 8: Red brown or patchy grey/brown surfaces with grey core. Soft with smooth feel and irregular fracture. Common self-coloured angular grog (1-2mm); common or sparse voids from organic content (1-3mm); sparse fine quartz. Cirencester fabrics 3/24; Trow 6; Moore GROG2.

Fabric 22: Red brown surfaces with grey core. Soft with slightly sandy feel and finely-irregular fracture. Common or sparse self-coloured angular grog (0.5-1mm); sparse fine quartz. Cirencester fabrics 3/24; Trow 7; Moore GROG1.

Fabric 23: Dark grey-brown throughout or with lighter margin. Soft with smooth feel and regular fracture. Dense fabric with common, dark grey fine grog (0.5-1mm); common, moderately-sorted buff clay pellet/argillaceous (1.5–2.5mm).

Fabric Group SAV GT: Savernake type ***wares*** (fabrics 4, 6, 11, 24): 4447 sh; 105040g; 30.97 EVEs

The grouped Savernake wares makes up 39% of the total assemblage by count (26% by EVEs). The fabrics are unified by the common presence of grog which typically presents as angular, darker-coloured inclusions. Quartz typically is present to variable degrees and flint may or may not be present. The variability of the Savernake series is commented on by Tomber and Dore (1998: 191; SAV GT). At Cirencester, this was also noted and thought to be an indication of multiple origins, which might include a source closer to the town than the known kiln sites close to Marlborough (Rigby 1982a: 153-4).

Swan believed the Savernake series to be a wholly post-conquest innovation, perhaps resulting from the westward progress of potters used to working in the 'Belgic' potting traditions of the southeast. Based on its incidence in early (Claudian/Neronian) military deposits at Cirencester, Rigby concluded a date for its introduction before *c.* 55 AD, and Timby (2001: 82) has postulated earlier, possibly just pre-conquest origins.

The range of vessel forms from this sample corresponds with the material previously described from Bagendon, from Cirencester and also from the kiln groups from Oare (Swan 1975; Timby 2001: fig. 4.3). The ware's utilitarian character is clear and most common by far are the larger necked globular-profiled jars (JG1/2); which amount to 19.09 EVEs (62%). Neck-less/bead-rimmed jars (JC3) are next most common (3.43 EVEs). Butt beaker copies are relatively well represented (2.03 EVEs); most are relatively loose interpretations of the CAM 112 form with no attempt at roller-stamped decoration. The majority, including illustrated vessel no. 8, occurs in 'fine' variant fabric 24 and may be burnished. Similarly, platter copies are to be found in fabric 24 (.29 EVEs). Examples with 'simple' (DA1/2) and 'stepped' profiles (DA3) are represented. The illustrated vessel no. 50 is close to an example from Oare (Swan 1975: fig. 2, no. 16).

Fabric 4: 'Standard' type; grey throughout, commonly with paler core. Soft with 'lumpy' surfaces and irregular fracture. Common, moderately-sorted (1.5–3mm) sub-angular, grey grog; sparse quartz (<0.3mm) and may contain sparse angular flint 1–4mm.

Fabric 6: Pinkish-buff variant; description as fabric 4, but fired to pinkish buff throughout or with lighter core.

Fabric 11: Dark grey with reddish brown core. Hard with smooth surfaces and irregular fracture. Common, moderately-sorted dark grey angular grog; common to sparse sub-rounded clear or milky quartz, 0.3–0.5mm; sparse charcoal.

Fabric 24: Fine, sandy variant. Dark grey surfaces with lighter grey-brown core. Hard with sandy feel and finely irregular fracture. Common, moderately-sorted (1–2mm) angular grey grog; common, sub-rounded clear quartz; sparse, sub-rounded limestone (0.5–1mm) and sparse charcoal.

Fabric Group SVW: Severn Valley ware (fabrics 7, 13, 21): 2282 sh; 26508g; 20.53 EVEs

The grouped Severn Valley wares make up 19.9% of the total by count (17.3% according to EVEs). The most common fabric, type 13 (1454 sherds), corresponds to the standard oxidised fabric which is encountered widely across the region and defined by Tomber and Dore (1998: SVW OX2). Fabric 61 is a reduced fabric, alike in other respects to fabric 13. Reduced fabric 7 and oxidised fabric 21 are variants distinguished by organic (charcoal) inclusions and are equivalent to earlier-occurring types discussed by Timby (1990, 249). No kiln sites dateable to the earliest phases of production are known, though Timby considered that these were probably located in the lower Severn valley.

With some notable omissions the vessel forms among the Severn Valley ware are consistent with the earlier Roman repertoire, as summarised by Webster (1976). Jars predominate (9.98 EVEs); these comprising mainly globular-bodied vessels close to Webster's form 19/20 (6.02 EVEs). There are also a few (0.94 EVEs) necked, narrow-mouthed vessels (Webster forms 1, 2, 9 and 10). Large globular-bodied jars (here classified JG1/JG2/JG3) are relatively uncommon (0.96 EVEs) and occur primarily in charcoal-tempered variant Fabric 7. The wide-mouthed jars/deep bowls familiar from the majority of 2nd-century and later assemblages are entirely absent. Forms next most common after jars are the carinated bowls Webster described as Iron Age C-derived. Such vessels, classified here as forms BE1-3, amount to 2.11 EVEs. It should be noted that, although defined as bowls, vessels of this type are typically small and may have functioned as cups.

A perhaps surprising omission among the Severn Valley ware are tankards; forms certainly among the earliest produced in this ware type (Timby 1990). It is tempting to see the absence of tankards as relating to status and the concomitant abundance of butt-beaker/ovoid beakers and their copies.

Fabric 7: Reduced Severn Valley ware with organic/charcoal inclusions. Gloucester fabric TF17 (Webster 1976; Timby 1990: 249).

Fabric 13: 'Standard' oxidised Severn Valley ware. As Tomber and Dore 1998, 43: SVW OX1.

Fabric 21: Oxidised Severn Valley ware with organic/charcoal inclusions (Webster 1976; Timby 1990).

Fabric Group OXID: Unsourced sandy oxidised (fabrics 20, 31, 36): 142 sh; 823 g; 1.56 EVEs

Fabric 20: Red-orange throughout. Hard, with sandy feel and regular fracture. Common sub-rounded clear or brown-stained quartz (0.3–0.5mm); sparse sub-angular iron-rich grains (0.5mm).

Fabric 31: Buff orange surfaces with red-brown core. Hard, with slightly sandy feel and regular fracture. Common sub-angular clear quartz (0.3–0.5mm); sparse sub-rounded iron-rich grains (0.5mm) and sparse buff clay pellet.

Fabric 36: Red-brown surfaces and margins, grey-brown core; red slip. Soft with smooth feel and fine fracture. Common fine quartz 0.1-0.3mm.

Fabric Group WH Unsourced whitewares (fabrics 1, 14, 32): 212 sh; 1190 g; 1.49 EVEs

Fabric 32: Yellow-buff flagons. Hard, with smooth feel and regular fracture. Sparse, sub-rounded clear quartz (<0.3mm); sparse buff, rounded clay pellet 1–2mm; sparse sub-angular iron-rich grains (0.5mm).

Fabric Group WSF: White-slipped fabrics (fabrics 51, 60, 66): 23 sh; 320 g; 0.53 EVEs

The poor surface preservation in the assemblage means that the totals for white-slipped fabrics is probably an underestimate. Where identifiable, forms are flagons of the typically Pre-Flavian collared/'Hofheim' type. A rouletted butt-beaker from deposit 7 is unusual and presumably copies North Gaulish whitewares. Fabric 60 is tentatively suggested as Kingsholm flagon fabric (Darling 1985: 80). Grogged types fabrics 51 and 66 are probably local copies.

Fabric 51: orange-brown surface with grey core and interior surface. Thin white slip to exterior surface only. Soft, with slightly sandy feel and irregular fracture. Common moderately-sorted (0.5–1.5mm) dark grey, angular grog; sparse clear, sub-rounded quartz; sparse sub-angular limestone 0.5-1mm.

Fabric 60: ?Kingsholm fabric. Pale orange; blue-grey core. Some sherds have a buff/cream-coloured exterior slip. Soft with smooth, powdery feel and regular fracture. Common fine quartz (<0.3mm) and sparse, sub-angular limestone.

Fabric 66: Pale orange surfaces under thin cream-coloured slip; grey core. Hard with smooth feel and finely-irregular fracture. Common well-sorted fine dark grey angular grog (0.4-0.6mm).

Fabric Group BB1: Black-burnished ware (fabric 70): 3 sherds, 13 g; 0.05 EVEs Fabric 70: Dorset Black-burnished ware. NRFRC DOR BB1 (Tomber and Dore 1998: 127).

Fabric Group LYON: Lyon ware (fabric 37): 1 sherd. 2 g

There is a single vessel incidence of this type from season '81, deposit 2 (fill of pit AA). The form is a beaker with sand roughcasting. It is clear that the type was present among the Bagendon assemblage studied by Fell (1961: fig.49, no. 13), and cited by Swan as evidence for a post-conquest emphasis to the occupation (Swan 1975: 60). Lyons ware beakers and cups appear to be quite common in the early groups at Cirencester (Rigby 1982a: fig. 57), a factor consistent with the type's military associations.

Fabric 37: as Tomber and Dore 1998, 59: LYO CC.

Fabric Group CAM PR1: Pompeian Redware (fabric 69): 1 sh; 13g

There is a single incidence of this type; probably a platter from Area A, pit fill 31 (fill of feature AF).

Fabric 69: as Tomber and Dore 1998, 43: CAM PR1.

Gallo-Belgic and North Gaulish wares

This grouping amounts to some 3.7% of the assemblage total by count and 8.9% by EVEs total (the discrepancy probably the result of the inherent robustness of the beaker and flagon rimsherds, common among the group). The dating of individual forms in British contexts is largely the result of studies of assemblages from the southeast of the country (Stead and Rigby 1986;1989). Date ranges given are based on the assimilated site data provided in summary by Paul Tyers (1999: 164).

Fabric Group TN: Terra nigra (fabrics 28 and 35): 162 sherds/2395g 4.70 EVEs.

TN makes up the majority of the imported (non-*sigillata*) finewares. Full incidence is shown in Table 6.1. In summary the majority of identifiable vessels are platters (4.14 EVEs;); with a smaller number of cups (0.39 EVEs).

The accepted dating for most of the form classes represented extends across *c.* AD 10–65, with some (CAM 14, CAM16) late in this range and almost certainly post-conquest in circulation. The dating of individual form classes is discussed below in relation to individual features. There is a single stamped vessel, a platter from season '81 deposit 2 (Figure 6.1: no. 1). This vessel, a CAM 3 platter has been examined by Val Rigby and the details recorded on the Gallo-Belgic database http://gallobelgic.thehumanjourney.net/. The potter, Masalla, is known only rarely and dating is unclear. Based on the platter form in this instance, dating in the range 15 BC – AD 50 is supportable.

Fabric 28/35: both as Tomber and Dore 1998, 15: GAB TN1.

Fabric Group TR: Terra rubra (fabrics 27a/b/c; 31): 129 sh; 438g; 1.60 EVEs

TR is the least well-represented of the Gallo-Belgic types. Beakers of ovoid form (CAM 112) are most common (1.14 EVEs), with a few sherds identifiable as CAM 8 platters and cups CAM 56 and CAM 58 (Table 6.1). Rigby has identified a single stamped platter, the details recorded on the Gallo-Belgic database http://gallobelgic.thehumanjourney.net/. The form is not identifiable, although the potter Attisu(s) is relatively widely attested on British and continental sites.

Almost all material occurs in fabric divisions (27a/b) characteristic of 1st century AD production (importation ceasing *c.* 65/70 AD) with the most commonly represented form, ovoid beaker CAM 112 made across this period. The few CAM 8 platters and

CAM 56c cups date after *c.* AD 20, and a CAM 58a cup (Figure 6.1; no. 18) after *c.* AD 35.

Fabric 27a: as Tomber and Dore 1998: 19: GAB TR1C (equivalent to Hawkes and Hull's (1947) type TR1C). This type, characterised by polished dark red surfaces, accounts for the bulk of material at Bagendon. *109 sh; 369 g; 1.37 EVEs*, the majority ovoid beakers (CAM 112).

Fabric 27b: as Tomber and Dore 1998: 20: GAB TR2 (equivalent to Hawkes and Hull's (1947) type TR2). *17 sh; 60 g; 0.18 EVEs*, including CAM 8 platters and CAM 56c cups.

Fabric 27c: as Tomber and Dore 1998: 20: GAB TR1 (equivalent to Hawkes and Hull's (1947) type TR1B). *3 sh; 9 g; 0.05 EVEs.*

Fabric Group NGW: North Gaulish whitewares (fabrics 26, 34): 124 sh; 1332g; 4.20 EVEs

The north Gaulish wares includes two collared flagons (Figure 6.2; no. 57) occurring in a 'pipeclay' fabric comparable to type NOG WH1, as described by Tomber and Dore (1998: 22). The remainder (3.20 EVEs) all comprise butt-beakers of the familiar Cam 113 form (Figure 6.1; nos. 27, 28, 33, 34, 45) and occur in the sandy fabric closer to NOG WH3 Tomber and Dore 1998: 24). The date for importation across the Tiberio-Claudian period has long been favoured (Rigby 1989), though continuance into the Neronian is supportable (Rigby 1999: 185) largely on the basis of funerary finds from sites in eastern England.

Fabric 26 and 34: as Tomber and Dore 1998: 24: NOG WH3.

Fabric Group MOR: Gloucester type? mortaria (fabric 56): 1 sherd; 77g

This, the only mortarium type from the assemblage was recovered from pit AA, fill 79–13, the context suggesting a pre-Flavian origin. The trituration grit is entirely worn away; the fabric is close to North Gaulish types (Tomber and Dore 1998: 75), though identification remains uncertain.

Fabric 56: Cream with pinkish core. Hard, with slightly sandy feel and regular fracture. Common, sub-rounded clear or brown-stained quartz (0.3–0.5mm); sparse sub-angular iron-rich grains (0.5mm).

Fabric Group AMPH: Amphora imports (fabrics 47, 53, 59, 64, 65): 49 sherds; 2347 g

The amphorae, which comprise bodysherds only, are described and their origins discussed below (Williams below).

Stratigraphy and dating: Area A pits (Figure 6.3 and 6.4)

Summary by Feature

Pit AA: 1957 sh; 31581g; 24.48 EVEs

This feature, initially sampled in 1979 and completed in 1981, produced the largest pottery group from any single feature. Significant in terms of dating is a sherd from a Lyon ware roughcasted cup, the sole incidence of this type from the assemblage. This sherd came from the basal deposit 81-02 and suggest a Claudian or Neronian date for the initial filling of the feature. Also certainly post-conquest is a mortarium of probable Gloucester type (fabric 56) - the sole mortarium from the entire assemblage. The non-*sigillata* imports (Lyon/NGMOR/TN/TR/NGW) together amount to 97 sherds or 4.9% of the group. Gallo-Belgic vessels, including the stamped platter of the potter Masalla (Figure 6.1: no. 1), belong to forms (CAM 3, CAM 3/5; CAM 8, CAM 56/56c, CAM 113), classes which span the pre-conquest and conquest period (Figure 6.1: nos . 3, 7). TN platters of CAM 14 (Figure 6.1: no. 6) and CAM 16 (not drawn) are however certainly post-conquest in origin.

Beaker representation is less than some of the larger pit groups (Figure 6.3) and North Gaulish whiteware butt-beakers are conspicuously absent. Similarly, given the size of the group it is surprising that no amphora sherds are present. In terms of composition of coarsewares, the group reflects the assemblage overall, with 90% made up of fabric groups MAL; SAV; GROG; LGW; BS and BAGBL. Other than in the scarcer representation of beakers the spread of forms appears typical.

Pit ADa: 571 sh; 11089g; 8.26 EVEs

Imports make up an untypically high proportion of this group, 92 sherds or 16% of the total. A single amphora sherd (Williams, below no. 1) is of Catalan origin associated with wine carrying forms Pascual 1 or Dressel 2-4, and known from pre-conquest and conquest-period sites in Britain. *Terra nigra* (CAM 13) platter no. 25 is substantially complete and is one of two vessels of this form present which is usually dated *c.* AD 10–65. Two CAM 8 platters in TN (Figure 6.1: no. 24), can be similarly dated. *Terra rubra* (a minimum four vessels) occurs as drinking forms, among them the substantial portion of an ovoid beaker of form CAM 112a (Figure 6.1: no. 26). The ovoid beaker form is long-lived (Augustan-Neronian), however dating of the feature is narrowed by TR cup no. 29 (CAM 58a) from secondary fill 81-53, which at its earliest dates to just before the conquest (*c.* AD 35). North Gaulish whitewares are present as a minimum two butt beakers (CAM 113: Figure 6.1: nos. 27–28). Figure 6.3 demonstrates coarsewares comprising the familiar mix of Malverns limestone-tempered, Severn Valley wares and grogged types.

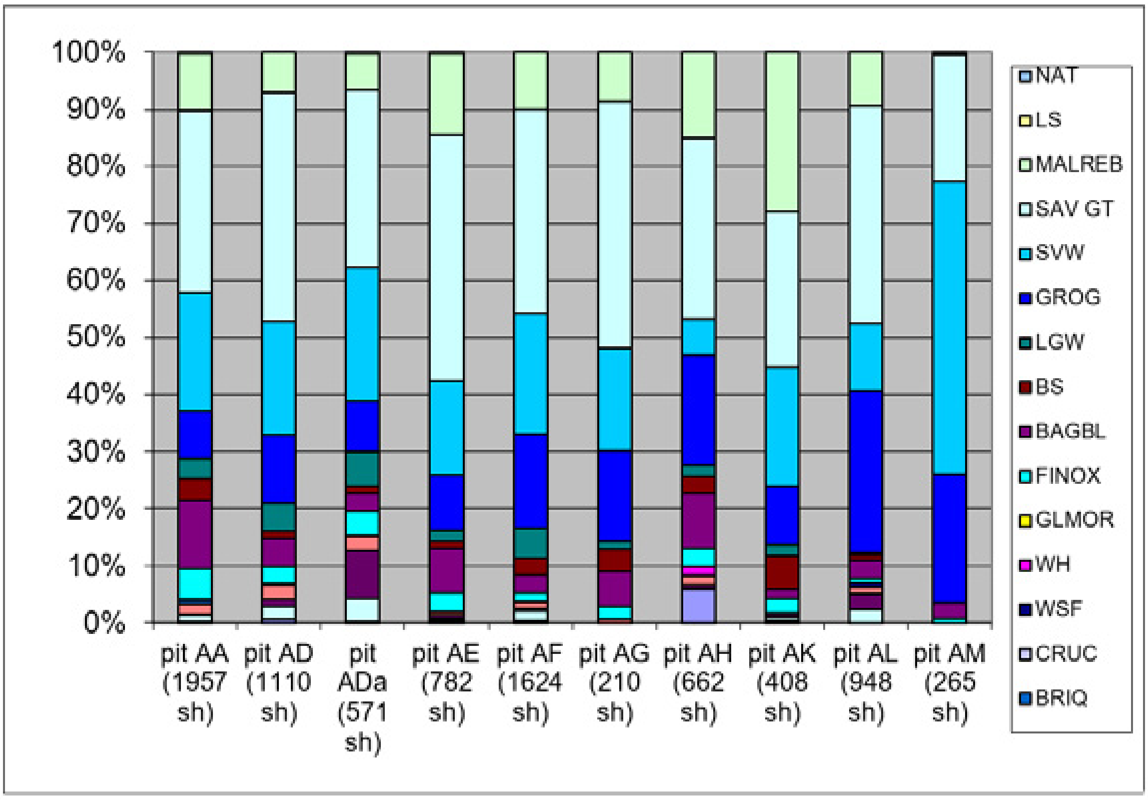

Figure 6.3. Fabric types from 1979-1981 excavations.

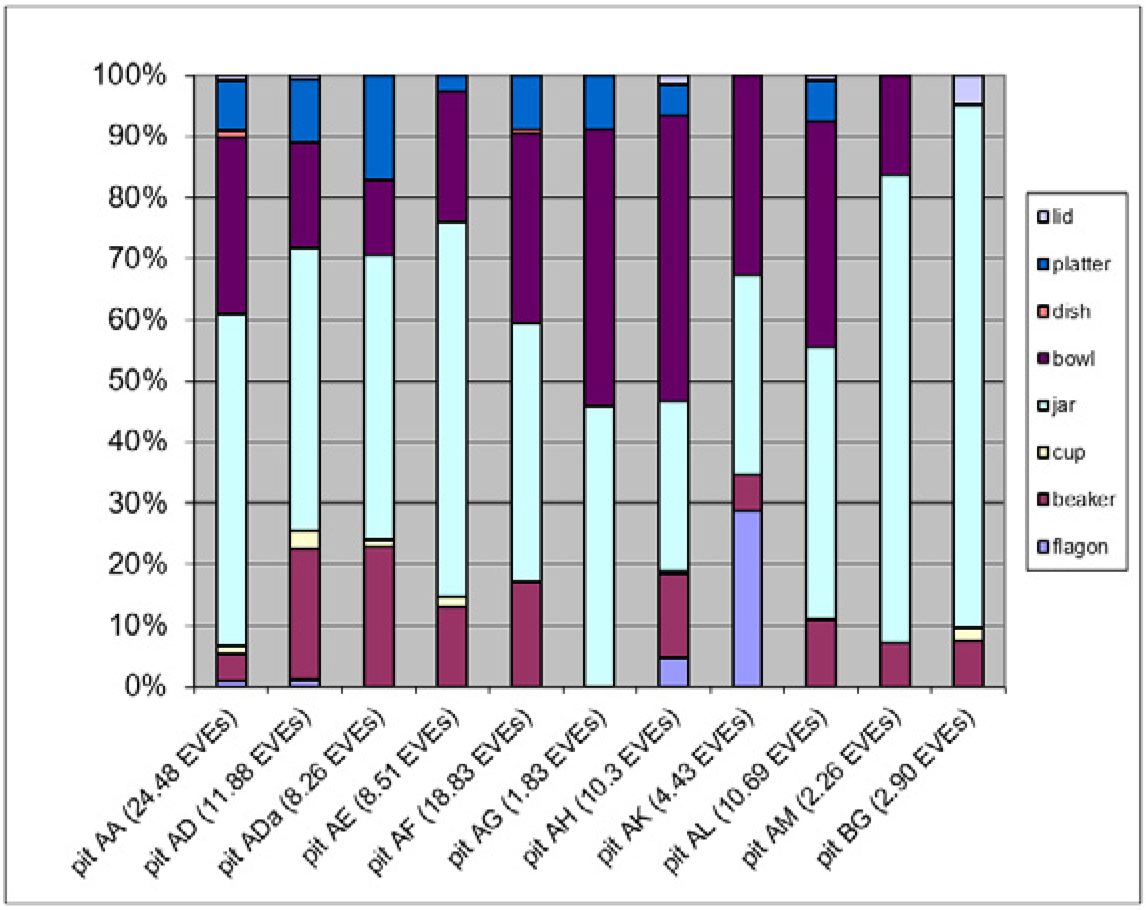

Figure 6.4. Form types from 1979-1981 excavations.

Pit AD: 1110 sh; 21947g; 11.88 EVEs

Excavation of feature AD which seemingly cuts pit ADa (described above), was begun in the 1979 season and completed in 1981. It includes a moderately large group of (non-*sigillata*) imports, some 76 sherds (11%) comprising TN, TR, NGW and AMPH fabric groups. Sherds from three amphorae were identified (Williams, see below: nos. 1, 5 and 12), from Catalan, Italian and southern Spanish origins. Williams' no. 12 from the penultimate filling 81-29, has been suggested as coming from a Haltern 70 form amphora (Williams, below) and as such should post-date the conquest. Gallo-Belgic wares were present in several fills including the primary deposit 81-67. *Terra nigra* occurs consistently as platters, most abundantly (five vessels) forms CAM 12/13 or 13 (Figure 6.1: no. 31), with a single CAM 16 (Figure 6.1: no. 32). The latter vessel, from an upper filling, is conventionally dated after AD 40 and suggests that the feature was open into the Claudian/Neronian decades. *Terra rubra* occurs as beakers (three vessels), all of ovoid form CAM 112; similarly, the north Gaulish whitewares (four vessels) are present as drinking vessels, butt beakers CAM 113. Beaker and platter copies are present also in coarseware types, a factor significant in the high representation of these forms in the group (Figure 6.4; 32% of EVEs total). The majority of drinking forms are inexact butt beaker copies (form KB1); though of note is a probable girth beaker copying TR forms CAM 82/84 (Figure 6.1: no. 36).

Pit AE: 782 sh; 13438g; 8.51 EVEs

The pit AE group is by comparison with the other large pit groups more heavily dominated by coarseware types, with (non-*sigillata*) imports amounting to only 20 sherds or 2.5%. An Italian Dr 2-4 amphora sherd (Williams, see below no. 10) may be pre-conquest in origin. A north Gaulish whiteware beaker (CAM 113) is broadly Tiberio-Claudian/Neronian. An unusual incidence is a TN sherd from a pedestalled cup (Figure 6.2: no. 75), a form probably no later than the 40s AD. The coarsewares conform to the pattern of wares already outlined; in terms of represented forms, jars and bowls dominate, with platters particularly scarce.

Pit AF: 1624 sh; 24862g; 18.83 EVEs

Pit AF was in plan the largest single feature, although one quadrant was left unexcavated. Non-*sigillata* imports make up 59 sherds (3.6% by count). Included are three amphora sherds (Williams, see below no. 2, 6 and 13) belonging to south Spanish, Catalan and Italian sources; each potentially pre-conquest in origin. The Catalan sherd (see Williams, below no. 2) has been trimmed to form a spindlewhorl, a secondary use potentially long after vessels first arrival. Dating *c.* AD 40–80 for the filling of this feature is suggested by a Pompeian redware sherd from lower fill 81-31, the only occurrence of this type from the site. Comparable, post-conquest, dating is supported by *terra nigra* CAM 16 platters (Figure 6.2: nos. 43–44) from secondary fills 81-18. CAM 8 platters in TR (two vessels; Figure 6.2: no. 41), a further example in TN and two TN CAM13 vessels are expected to date in a range *c.* 10/20–65 AD. North Gaulish whitewares are present as butt beakers (Figure 6.2: no. 45), of corresponding dating.

Coarsewares from pit AF are typical of the assemblage overall and the forms are for the most part made up of jars and bowls. A deep dish similar in form to the illustrated no. 19 is one of a small number of such vessels in the assemblage. Beaker and platter copies are well-represented, and together with the imports raise the representation of these forms to 26%.

Pit AG: 210 sh; 3099g; 1.83 EVEs

Feature AG lay in part outside of the excavated area and the sample is relatively small. A single North Gaulish whiteware bodysherd was the sole continental type present. This and the overall composition of the group are suggestive of pre-Flavian dating. Platter copy no. 50 features unusual burnished decoration; its fabric, a grey-firing fine grogged type 24 suggests it is a Savernake product.

Pit AH: 662 sh; 15036g; 10.30 EVEs

Imported wares excluding *sigillata* types amount to 52 sherds or 7.9% of the group total. Unusually 37 sherds belong to amphorae (Williams, see below no. 4, 6 and 9) and probably representing just two Italian Dressel 2-4 vessels. Amphorae of this type are known from pre-Roman contexts from Britain though importation continues into the conquest period and beyond. Gallo-Belgic and North Gaulish wares are relatively poorly represented (15 sherds or 2.3%) and identifiable forms are limited to a CAM 56 cup in *terra rubra* for which dating is in the range *c.* 15 BC to 65 AD.

Coarseware composition is for the most part comparable with the other groups though the Severn Valley ware element is untypically small (41 sherds or 6.2%). Also noteworthy are examples of collared flagons, occurring in (white-slipped?) fabric 30 (Figure 6.2: no. 53). Flagons are rare in the assemblage described here, though further examples occur in North Gaulish whiteware and as grey-firing 'copies' in the group associated with pit AK, immediately to the south (below).

Pit AK: 408 sh; 6903g; 4.73 EVEs

Non-*sigillata* imports number in this comparatively modestly-sized group only 7 sherds or 1.8%. A single amphora sherd, from upper fill 14, is of Italian Dressel 2-4 type and may be the same vessel as that from the later pit AH. None of the small sherds in Gallo-Belgic wares could be identified to form. A North Gaulish whiteware flagon (Figure 6.2: no. 57), the rim circumference of which is intact, is of single-handled, collared form matching CAM 140/141 and is likely Tiberian-Claudian in date. The completeness of North Gaulish vessel no 57, in a moderately small group has the effect of exaggerating the abundance of flagons in the group (Figure 6.4), though further flagons in white slipped fabric and grey-firing fabric 44 (Figure 6.2: no 58) and Severn Valley ware variant fabric 7 are also present. Vessel no. 58 may be related to split-collar forms (CAM 144-6), possibly ancestral to ring-necked classes, and known from Oare (Swan 1975: fig. 2, no. 2). Coarseware representation (Figure 6.3) is comparable to the other groups. Platters, including copies, are absent from the group, beaker copies occur in coarse greyware fabric 49 (Figure 6.2: no. 59).

Pit AL: 948 sh; 12950g; 10.69 EVEs

Pit feature AL was the largest excavated to the west of ditch AJ. Non-*sigillata* imports amount to 58 sherds (6.1%); with Gallo-Belgic types most abundant and amphorae absent. Beakers occur as two ovoid/CAM 112a vessels in *terra rubra* (Figure 6.2: no. 66) and three North Gaulish whiteware CAM 113 butt beakers. Platters are more abundant and include two CAM 8 vessels in *terra rubra* (Figure 6.2: no. 62) and two of the equivalent form in *terra nigra* (Figure 6.2: no. 60). The remaining examples comprise single examples in *terra nigra* of forms CAM 5 (Figure 6.2: no. 61), CAM 12 (Figure 6.2: no. 63) and CAM 14 (Figure 6.2: 64). Significantly the CAM 12 platter sherd no. 63, a vessel for which pre-conquest dating is usually ascribed, is abraded. The majority of the Gallo-Belgic vessel forms span the conquest period, although dating after *c.* AD 40 is probable for CAM 14 vessel 64.

The range of coarsewares in pit AL is unremarkable, although the Savernake and Malvernian components are among the smallest from among the larger groups and this is reflected in the relatively low presence of jar forms. Platter copies are absent and beakers to butt beaker copies in Severn Valley ware and grog-tempered fabric 8.

Pit AM: 265 sh; 2495g; 2.26 EVEs

This feature group is comparatively small and is entirely devoid of imported wares. Compositionally it is unusual in containing only a single small sherd of Malverns type fabric 9. This absence seemingly compensated for by the higher incidence of Savernake type wares. This dominance of Savernake wares is reflected in the range of forms (Figure 6.4) which is jar dominated. Platter copies are absent; though butt beaker copies occur in grogged fabric 8 and Severn Valley ware type.

Pit BG: 261 sh; 4978g; 3.01 EVEs

This is the only large pit group from Area B. Imports occur as Gallo Belgic and North Gaulish whitewares to a total of 4 sherds (1.5%). A terra nigra CAM 56 cup is dateable to the range 15 BC – 65 AD; a CAM 113 North Gaulish butt beaker should be Tiberian to Neronian. Savernake type wares are most abundant among the coarsewares (61.3% by count), this type being primarily responsible for the dominance of jar forms (Figure 6.4; Figure 6.2: no. 69); and the presence of lids (Figure 6.2: no. 70). Beaker and platter copies occur in grog-tempered fabric 22 and 'local' greyware (fabric 42). Malverns fabric 9 is a notably very small presence, two sherds.

Among the larger groups, fabric groups SAV and MAL typically accounts for 40–60% (by sherd count) and is highest in the one Area B group, pit BG. Pits AM and BG each contained only small quantities of Malverns type (fabric 9), and imported types; this perhaps reflecting later chronology.

Discussion

The publication of Clifford's Bagendon excavations made it clear that the special character of the 'Bagendon complex', apparent from the scale and complexity of the monument, was also reflected in its material culture and particularly from the abundance of imported pottery. The wine-carrying amphorae and quantities of high-quality tablewares are reasoned to be reflective of the demands of a native elite adopting the culinary habits and trappings associated with the 'Romanised' southeast and the near continent. Clifford dated the main phases of activity at Bagendon to *c.* AD 25–60, based in part on absences of Gallo-Belgic ware forms of Augustan date. Rigby has reaffirmed such dating, noting only two vessels of late Augustan type (Rigby 1982a: 181). Comparing the material from Clifford's excavations and the early military groups from Cirencester, Rigby (1982a: 181) identified significant differences which she concluded were related to contrasting chronologies, and suggested that at its core, the Bagendon group was earlier than the primarily Claudian/Neronian or wholly Neronian Leaholme fort ditch groups.

Since the publication of Clifford's excavations consideration has been given to how much, if any, of the recovered pottery accumulated at the site prior to the conquest (Swan 1975: 60–1). Swan considered that 'almost the entire assemblage' probably reached the site after AD 43, with the main influx coincident with the arrival of the Roman army in the area. Swan's contention rests on the presence of certain post-conquest forms and also from the abundance of the hard, grey-firing grogged wares in the Savernake tradition, which she saw as an entirely post-conquest

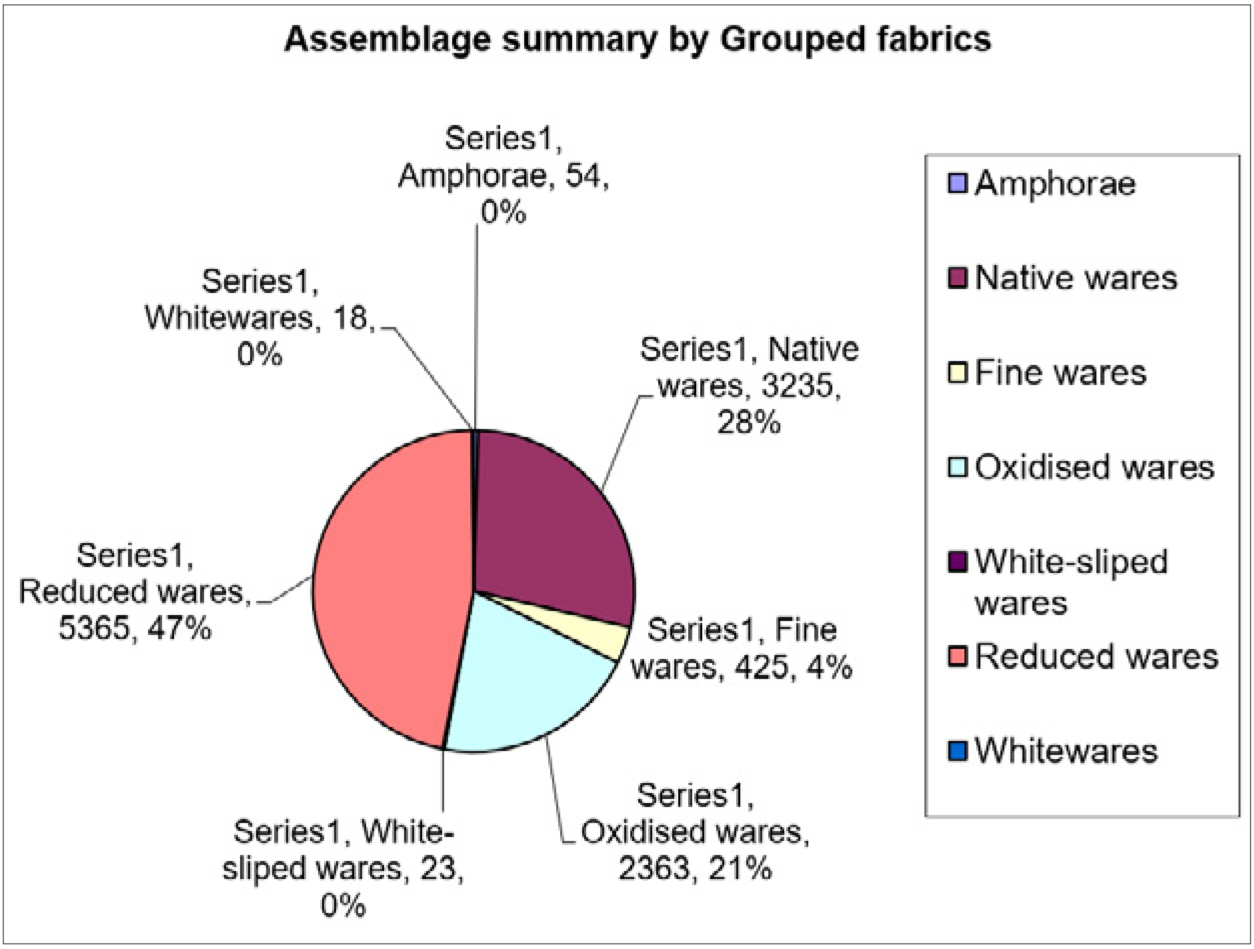

Figure 6.5. Assemblage summary by group fabrics from 1979-1981.

development. As far as can be adjudged from the comparisons possible from Clifford's publication, the groups from the 1950s and the 1979–81 excavations, are of consistent character. Williams (see below) also notes similarities in content across the 1950s and 1979–81 amphorae groups and draws comparisons with pre-Roman assemblages from south central England.

The large majority of forms in Gallo-Belgic wares, which are predominant among the non-*sigillata* finewares, share ranges spanning the middle decades of the 1st century AD. With the exception of a CAM 12 platter from pit AA (Figure 6.1: no. 12) there are no vessels present which need pre-date the 40s AD. Vessels which with some certainty date after AD 43 (Lyons ware, Pompeian redware, the Gloucester(?) mortarium and *terra nigra* CAM 14 and CAM16 platters) occur across several features - from pits AA, AF, AD and AO. Further indications of a mainly or wholly early post-conquest date consistent with Swan's hypothesis come from the ubiquitous presence of reduced coarsewares (Groups BS and LGW) and oxidised types (FIN OX), classes for which pre-conquest origins have not been claimed. Notwithstanding the pre-Roman origins argued compellingly by Timby (1990; 2001), the abundance of Savernake ware and Severn Valley wares (by count 38% and 17% respectively) suggests that both fledgling industries were by this time sufficiently well-developed to organise supply across significant distances.

Consistent with the degree of conformity in plan and profile exhibited by the Area A pits, there is significant overlap compositionally among the pottery from these features (Figure 6.3). The evidence combines to indicate broad contemporaneity of these features within a range concentrated in the AD 40s to 60s, although the *terra sigillata* might imply an earlier date (see Willis below). Notable in most features is the moderately abundant presence of Malvernian type wares, a native tradition not considered to outlast the AD 60s or 70s. The limited presence of this coarseware type and the scarcity of Gallo Belgic types in Area B feature BG are possible hints for this feature being of differing, probably slightly later (Flavian?) dating. Evidence for activity into the 2nd century or later is limited to the few scraps of Black-burnished ware from topsoil deposit (79-2).

Status and regional context

There are growing number of quantified assemblages from the region relating to the transitional/Early Roman period which can be used for comparison purposes and to assess 'special' character of sites within the Bagendon complex. Biddulph (2011: 56) has compared material from six sites, including those from sites close to Bagendon; groups A and B2, from The Ditches site (Moore 2009b); Middle Duntisbourne (Timby 1999: 329–32) and Duntisbourne Grove (Timby 1999: 332–4). Comparison using broadly-defined ware groups reveals similar supply profiles across the 'Bagendon complex' sites. The main differences discernible between these and assemblages from sites further south - Kingshill North (Biddulph 2011); Claydon Pike (Booth 2007) and Cotswold Community (Biddulph 2010) - relate to a greater abundance of oxidised wares (mostly Severn Valley ware) and lesser quantities of 'native wares' (Malvernian and local grogged types). Increased presence of continental wares at the Bagendon-related sites was noted and Biddulph concluded generally that 'much of the site's ceramic needs were being fulfilled by non-local suppliers'. When the 79–81 Bagendon excavations assemblage is considered, a seemingly even higher dependence on non-local wares is suggested (Figure 6.5); the pattern of 'native' and 'reduced' wares being effectively reversed compared to the other Bagendon-related sites. What this says about the inhabitants of Bagendon is difficult to qualify; the reduced wares are by and large utilitarian and by their nature not a luxury product. It may be that 'local' pottery production was of insufficient scale to supply the need of a potentially large population and supplies were augmented from outside sources. The nature of vessel classes being supplied may also be pertinent; it is clear from the breakdown of forms among the most abundant group, the Savernake type wares (Table 6.2), that large storage jars (classes JG1/JG2 and JC3) make up the majority of forms represented. One possible inference is that there was a need for storage jars, of greater capacity than could be supplied locally, possibly for large-scale storage of dried foodstuffs.

Non-*sigillata* finewares and amphora fabrics combined make up 4.2% of the 1979–81 assemblage overall. Levels are similar or a little higher compared to the considerably smaller groups from Middle Duntisbourne (Timby 1999: 329–32) and Duntisbourne Grove (Timby 1999: 332–4). Similar representation (2.6% by count) can be determined for the contemporary Ceramic group B2 from The Ditches site (Moore 2009b: 115, table B2), 3 km north-west of Bagendon. In this context a single feature group of pre-Flavian date from Stratton watermeadows (McSloy 2008: 135) merits mention, containing 14 sherds from a Catalan amphora.

The ready access to continental finewares apparent at these sites contrasts strongly with contemporaneous groups at Kingshill North, Cirencester (Biddulph 2011: 54–59), Cotswold Community (Biddulph 2010: table 2.5) and Blunsdon St Andrew (Brett and McSloy 2011: 106–9). At each of these sites, such wares are absent or virtually so. Booth has described the levels of Gallo-Belgic and other early Roman finewares from the region as 'remarkably low' (Booth 2007: 321), suggesting the deliberate funnelling of these goods to the Bagendon area. The levels of imported wares at sites within the Bagendon complex compared to the region beyond are a good indication as to the 'elite' status of (some of) its inhabitants and the adoption of Romanised modes of dining. The differences in supply and vessel form composition apparent to Rigby between the Bagendon and Leaholme fort groups (1982a: 181) are, if it is accepted that the groups are essentially contemporary, likely to be partly cultural and due to locational factors – relating to the bulk supply of coarsewares. The assemblage described here serves to underline these differences, in particular the scarcity of types such as Lyon ware or Pompeian redware and of such forms as flagons (2% by EVEs), mortaria (<1% by count) and honey pots (absent altogether). For whatever reason, it appears that vessels popular among the army, were largely eschewed by or denied to the Bagendon inhabitants.

Catalogue

Area A

Pit AA

1 BAG 81-2. Fabric 28 (terra nigra). Platter (CAM 3). Stamped MASALLA
2 BAG 81-2. Fabric 27 (terra rubra). Platter. Stamped ATTISSU.
3 BAG 79-18. Fabric 28 (terra nigra). Platter (CAM 3).
4 BAG 81-1. Fabric 28. (terra nigra). Platter (CAM 5).
5 BAG 81: Fill 2. Fabric 27b (terra rubra). Platter (CAM 8).
6 BAG 81-2. Fabric 28 (terra nigra). Platter (CAM 14).
7 BAG 79-18. Fabric 35 (terra nigra). Cup (CAM 56c).
8 BAG 79-18. Fabric 24. Butt beaker copy (KB2).
9 BAG 81-2. Fabric 66. Collared flagon (F1).
10 BAG 79-18. Fabric 23. Platter copy (DA2).
11 BAG 79: Fill 18. Fabric 2. Platter copy (DA3).
12 BAG 79-18. Fabric 2. Platter copy (DA2).
13 BAG 79-18. Fabric 2. Platter copy (DA1).
14 BAG 79: Fill 18. Fabric 30 (Savernake). Necked bowl or cup (BC3).
15 BAG 79: Fill 18. Fabric 2. Bowl (BC3).
16 BAG 79-18a. Fabric 2. Carinated bowl (BE3).
17 BAG 79-18a. Fabric 2. Miniature necked bowl/cup (BC2).
18 BAG 79-18. Fabric 2. Jar/beaker (JC2).

19 BAG 79-18. Fabric 2. Deep dish (cf Timby 2001, fig. 4.3, no. 5).
20 BAG 79-18. Fabric 4. Jar (JC3)
21 BAG 79-18. Fabric 9. Jar (JB3)
22 BAG81-1 Fabric 7. Jar (JC2) with zoned lattice decoration at shoulder
23 BAG 79-18. Fabric 12. Enclosed jar (JC4)

Pit ADa

24 BAG 79-53. Fabric 28 (terra nigra). Platter (CAM 8).
25 BAG 81: Fill 37. Fabric 28 (terra nigra). Platter (CAM 13).
26 BAG 81-37. Fabric 27 (terra rubra). Ovoid beaker (CAM112a).
27 BAG 81-37. Fabric 34 (North Gaulish whiteware). Butt beaker (CAM 113).
28 BAG 81-37. Fabric 34 (North Gaulish whiteware). Butt beaker (CAM 113).
29 BAG 81-53. Fabric 27 (terra rubra). Cup (CAM 58a).
30 BAG 81-37. Fabric 30. Butt beaker copy (KB2).

Pit AD

31 BAG 81-29. Fabric 28 (terra nigra). Platter (CAM 12/13).
32 BAG 81-29. Fabric 28 (terra nigra). Platter (CAM 16).
33 BAG 79-29. Fabric 34 (North Gaulish whiteware). Butt beaker (CAM 113).
34 BAG 81: Fill 4. Fabric 34 (North Gaulish whiteware). Butt beaker (CAM 113).
35 BAG 81-51. Fabric 24. Platter copy (DA3).
36 BAG 81-51. Fabric 31. Girth beaker copy (CAM 82/84?).
37 BAG 79-29. Fabric 13 (Severn Valley ware). Necked bowl (BC).
38 BAG 81-51. Fabric 13 (Severn Valley ware). Bowl/cup BE4.
39 BAG 81-4. Fabric 13. Shouldered bowl (BC).
40 BAG 81: Fill 6. Fabric 21 (Severn Valley ware). Jar; scratched graffito 'VI' to rim inner.

Pit AF

41 BAG 81-31. Fabric 28 (terra nigra). Platter (CAM 8).
42 BAG 81-18. Fabric 28 (terra nigra). Platter (CAM 13).
43 BAG 81: Fill 18. Fabric 28 (terra nigra). Platter (CAM 16).
44 BAG 81-18. Fabric 28 (terra nigra). Platter (CAM 16).
45 BAG 81-18. Fabric 34 (North Gaulish whiteware). Butt beaker (CAM 113).
46 BAG 81-31. Fabric 2. Carinated bowl (BE3).
47 BAG 81-31. Fabric 13 (Severn Valley ware). Webster 'H' carinated bowl (DA3).
48 BAG 81: Fill 18. Fabric 22. Carinated bowl (BE6).
49 BAG 81: Fill 7. Fabric 65. Catalan amphora sherd trimmed to spindlewhorl (not illustrated).

Pit AG

50 BAG 81-74. Fabric 24. Platter copy. Concentric groove decoration (DA3).

Pit AH

51 BAG 81: Fill 20. Fabric 42. Platter copy (DA3) (not illustrated).
52 BAG 81-20. Fabric 24. Butt beaker copy (KB2).
53 BAG 81-10. Fabric 30. Collared flagon (F1).
54 BAG 81-20. Fabric 8. Miniature shouldered bowl (BC2).
55 BAG 81-20. Fabric 8. Shouldered bowl (BC1).

Pit AM

56 BAG 81: Fill 16. Fabric 13 (Severn Valley ware). Butt beaker copy (KB1).

Pit AK

57 BAG 81: Fill 39. Fabric 26 (North Gaulish whiteware). Collared flagon (CAM 140/141).
58 BAG 81-14. Fabric 44. Flagon or butt beaker copy.
59 BAG 81-36. Fabric 49. Butt beaker copy (KB1).

Pit AL

60 BAG 81-78. Fabric 28 (terra nigra). Platter (CAM 8).
61 BAG 81-33. Fabric 28 (terra nigra). Platter (CAM 5).
62 BAG 81: Fill 78. Fabric 27b (terra rubra). Platter (CAM 8).
63 BAG 81-78. Fabric 28 (terra nigra). Platter (CAM 12).
64 BAG 81-78. Fabric 28 (terra nigra). Platter (CAM 14).
65 BAG 81; Fill 33. Fabric 60 (white-slipped flagon fabric). Flagon, collared (form F3).
66 BAG 81-33. Fabric 27 (terra rubra). Ovoid beaker (CAM 112a).

Pit AD/AN/AO

67 BAG 79-3. Fabric 10. Carinated bowl (BE) or girth beaker.

Other

68 BAG 79-4. Fabric 33. Platter copy. ?Illiterate stamp.

Area B

Pit BG

69 BAG 80-99. Fabric 7 (Severn Valley ware). Neck-less jar (JC3).
70 BAG 80-99. Fabric 24 (Savernake ware). Lid.

Other

71 BAG80-24. Fabric 30. Platter copy (DA3).

72 BAG 80-24. Fabric 35 (terra nigra). Cup/bowl (CAM 120?).
73 BAG 80-24. Fabric 30. Platter copy (DA3).
74 BAG 80-40. Fabric 27b (terra rubra). Cup (Cam 56c).

Pit AE

75 BAG 81-35. Fabric 36 pedestalled cup? (CAM 74?).
76 BAG 79-30. Fabric 4 (Savernake). Globular, necked jar (JG1).

Coarsewares and Gallo-Belgic finewares (Excavations 2012-2017)

Jane Timby

Cutham and Scrubditch enclosures: introduction and methodology

The archaeological work carried out at the two enclosures at Scrubditch and Cutham, Bagendon between 2012 and 2014 resulted in the recovery of 1656 sherds of pottery, weighing 7.75 kg largely dating to the Middle-Late Iron Age, accompanied by small quantities of Roman, Saxon and post-medieval sherds. In broad terms, just over 95% of the assemblage dates to the Later Prehistoric period. Further work at Black Grove in 2015 resulted in an additional 2872 sherds of pottery weighing 20.2 kg of which 98.5% dates to the Roman period.

The prehistoric assemblage was sorted into fabrics following the PCRG (1997) guidelines where letters denote the main inclusions present, for example, LI for limestone; SH for shell; GR for grog etc. Further sub-divisions were made based on the general size, shape and frequency of the inclusions. Roman sherds were coded using the National Roman reference fabric codes (Tomber and Dore 1998), or, where not classified, with codes based on these. A description of all the fabrics defined and their associated forms can be found below. The assemblage was quantified by sherd count, weight and estimated vessel equivalents (rim) (EVE) (Orton *et al.* 1993) and the data entered onto an MS Excel spread-sheet, a copy of which is deposited with the site archive. Very small crumbs were counted and weighed but not sorted into fabrics. These are excluded from any fabric / quantified discussion. The material is very poorly preserved with an overall average sherd size of 4.7 g and with few examples of multiple sherds from single vessels. The long timespan of the assemblages and the diverse nature of the fabrics have resulted in a moderately long list of wares many of which are represented by very few, often unfeatured, sherds and thus not chronologically very diagnostic.

Evidence of use in the form of sooting, residues, leaching or calcareous deposits were noted along with any evidence of vessel modification. Many of the rims were too fragmentary to determine overall form or size but a small selection of the larger fragments have been illustrated.

Scrubditch Enclosure (2012-2013)

The work at Scrubditch enclosure (Table 6.3) recovered a total 963 sherds of identifiable pottery weighing 3954.8 g and with 1.9 eves. Whilst most of this, 99% by sherd count, dates to the Later Prehistoric period, a few sherds demonstrate continued activity at the location into the early Roman period. Six very small sherds show an early Saxon presence whilst some post-medieval material was recovered from the topsoil.

Pottery was recovered from 72 individual contexts, most of which belong to 13 groups comprising three pits (F7, F10, F16); six ditches (F1-F4, F8 and F21); postholes F15/18, F32 and two structures F12 and F11/15. The individual groups are generally quite small.

In Trench 1, the four-post arrangement at the entrance to enclosure A, F11/15 yielded a small assemblage of 18 small sherds, all with calcareous fabrics and weighing just 40 g. The pair of postholes beyond these, F15/18, produced one very small crumb of calcareous pot. The ditch to Enclosure B (F1 and F2) was slightly more productive (Table 6.4), with 276 sherds from the two sections weighing 1323.5 g. Calcareous wares of Jurassic origin dominate although there is a significant presence of Palaeozoic limestone-tempered wares, particularly from F2. These include a countersunk handle from a jar from F2 [1009]. Four sherds were also recovered from the primary fill of F1. Eight sherds of Malvernian rock-tempered ware (MAL RE A) are present along with four sandy wares from F1. The upper levels of F1 produced two sherds of Severn Valley ware and a sherd of Wiltshire grey grog-tempered ware dating to at least the second half of the 1st century AD. Overall Jurassic source calcareous wares account for 78.9% by sherd count and Palaeozoic limestone wares for 13.8%. The associated radiocarbon dates from the ditches suggest a fairly early appearance for the Palaeozoic limestone-tempered ware (see further discussion below).

The ditch for Enclosure A (F4/21) yielded 208 sherds of pottery weighing 293 g with some addition post-medieval pottery and clay pipe from the upper levels. Jurassic limestone and fossil wares account for 59.7% by count of the Later Prehistoric assemblage and Palaeozoic limestone-tempered wares for just 2.5%. Malvernian rock-tempered ware is well represented at 35.3% (count) and there are single sherds of sandy

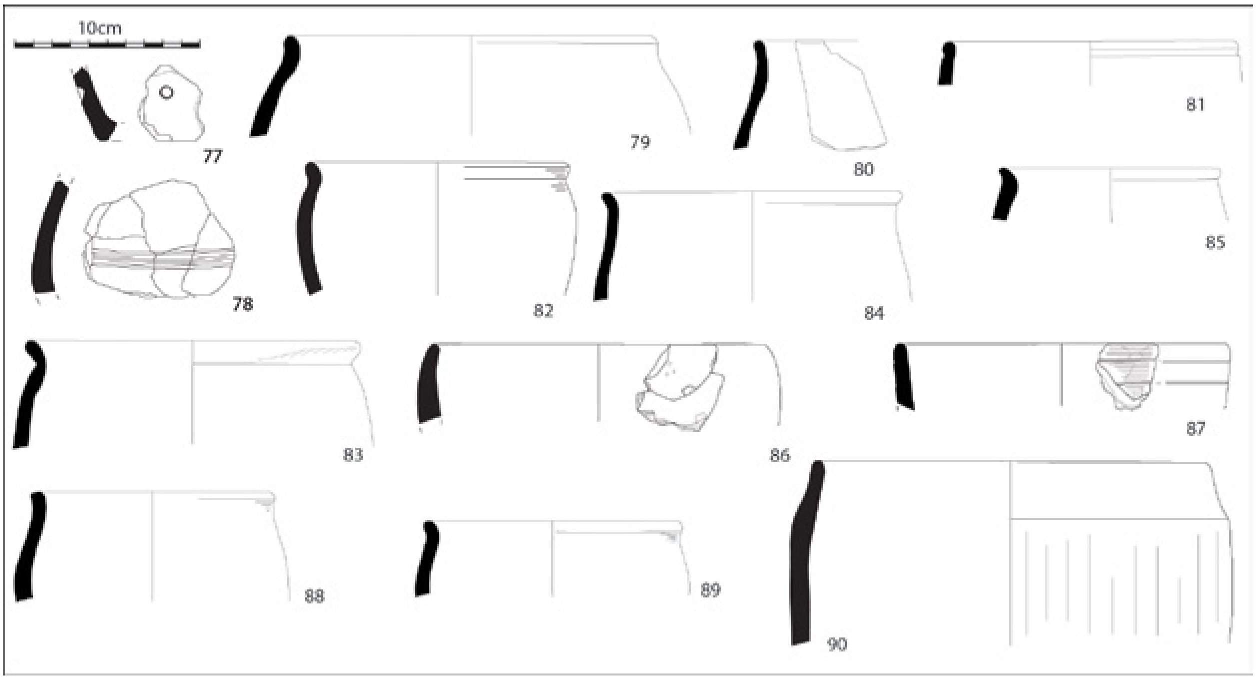

Figure 6.6. Coarseware ceramics from 2012-2015 excavations (scale 1:4, drawn by Jane Timby/Mai Walker)

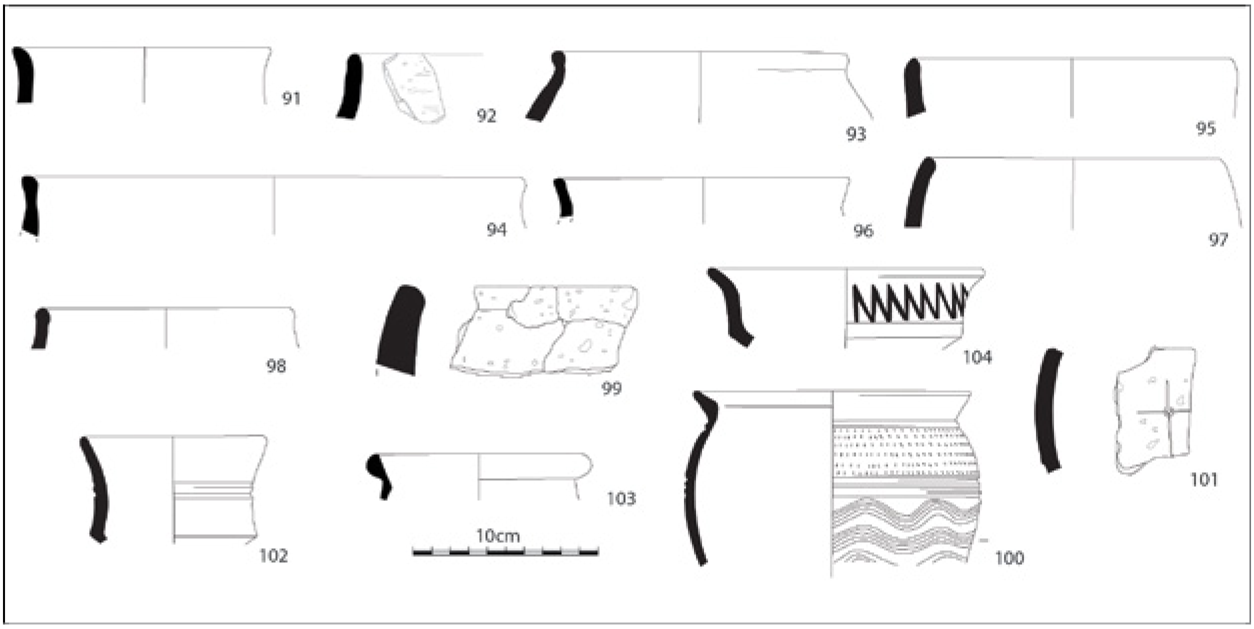

Figure 6.7. Coarseware ceramics from 2012-2015 excavations (scale 1:4, drawn by Jane Timby/Mai Walker)

ware, mixed grit and Malvernian type C. Sixty-one sherds from a broken MAL RE A jar were recovered from (1036) [1032] F4 which may represent part of a deliberately structured deposit. The radiocarbon dates intimate a similar date range to the enclosure B ditches. Layer (1022) produced five very small Saxon organic-tempered sherds, a small Wiltshire oxidised sherd of Roman date and post-medieval pieces.

The roundhouse structure within enclosure A, produced a total assemblage of 91 sherds weighing 291.5 g from eight postholes. The group is dominated by Jurassic limestone wares with 15 sherds of MAL REB and a single sherd of MAL REA. Posthole [1111] (1112) in the centre of the structure produced the substantial part of a slack-sided jar with a vertically finger-smeared surface (Figure 6.6: no. 90) which suggests a Middle Iron Age

Table 6.3. Quantified summary of pottery from Scrubditch enclosure (BAG12-13)

Malvernian	MAL RE A *	Malvernian rock-tempered	81	8.5	437	11.2	0	0.0
	MAL RE B	palaeozoic limestone-tempered	86	9.1	224	5.7	0	0.0
	MAL RE C	sandstone-tempered	1	0.1	9	0.2	0	0.0
Calcareous	SH1	very coarse sparse fossil shell	24	2.5	118	3.0	0	0.0
	SH2	medium-fine fossil shell	32	3.4	154.25	4.0	0.2	11.1
	LI1	limestone with occasional shell	50	5.3	207	5.3	0.48	26.7
	LI2	oolitic limestone (discrete ooliths)	31	3.3	164.5	4.2	0	0.0
	LI2F	very fine dense oolitic limestone	6	0.6	59	1.5	0.11	6.1
	LI4	oolitic limestone and fossil shell	60	6.3	647	16.6	0.15	8.3
	LISH	limestone and shell	461	48.6	1389.75	35.6	0.63	35.0
	LISHC	limestone and shell (coarse)	43	4.5	265	6.8	0.02	1.1
	LISHF	limestone and shell (fine)	33	3.5	118	3.0	0.1	5.6
	CALC	calcite-tempered	7	0.7	18	0.5	0	0.0
Sandy	SA1	medium-fine sandy	1	0.1	10	0.3	0	0.0
	SA2	medium-fine sandy black ware	24	2.5	50.25	1.3	0.03	1.7
	SA3	ill-sorted sand	1	0.1	0.5	0.0	0	0.0
Mixed grit	MG1	mixed grits	7	0.7	33	0.8	0.08	4.4
Sub-total			***948***	100.0	***3904.25***	100.0	***1.8***	100.0
Roman	LGF SA *	South Gaulish samian	1		1		0	
	LEZ SA *	Central Gaulish samian	2		4		0	
	SVW OX *	Severn Valley ware	2		23		0	
	WILGYGR	Wilts grog-tempered grey ware	1		11		0	
	WIL OX	Wilts oxidised sandy ware	2		3		0.1	
	WIL RE	Wilts grey sandy ware	1		3		0	
sub-total			***9***	***0.0***	***45***	***0.0***	***0***	
Saxon	SXOR	dense organic-tempered	6		5		0	
Sub-total			***6***		***5***		***0***	
TOTAL			**963**		**3954.8**		**1.9**	
	* = National Roman fabric reference codes							

date. In broad terms the pottery appears contemporary with that from the enclosure ditches.

Small assemblages were recovered from pits F7, F10 and F16. Pit F7 produced 91 sherds weighing 286 g. Aside from two sandy sherds and 19 MAL RE B sherds the group is composed of Jurassic wares and the associated radiocarbon date suggests a Middle Iron Age date of use. There are no featured pieces. A similar sized assemblage came from F16 with 118 sherds weighing 253 g. This includes 15 sherds from a saucepan-style pot (Figure 6.6: no. 81) in sandy ware (SA2) and one sherd of MAL REB alongside unfeatured Jurassic wares. Pit F16 and the associated postholes produced 70 sherds, 487 g of pottery which, with the exception of two sandy wares, are all of Jurassic origin. The group includes a globular-bodied jar (Figure 6.6: no 79) but no other featured sherds. A radiocarbon date falling into the Middle Iron Age was obtained from a cattle skull.

In Trench 2 a continuation of the northern ditch for Enclosure B, F5, did not produce any pottery. Excavation of the inner antenna ditches (F8 and F22) produced 48 and 55 sherds respectively weighing 1732 g (Table 6.4). No pottery was recovered from the outer ditch F9. Ditch F8 again yielded mainly Jurassic limestone and shelly wares with six sherds of MAL REB and one mixed grit ware. Vessels include a base with an incompletely drilled hole made after firing (Figure 6.6: no. 77) and joining bodysherds from a round-bodied vessel decorated with three horizontal grooves (Figure 6.6: no. 78). The assemblage from F22 is very similar to those already noted although there are four sherds of fabric MG1 and one of MALRE A but no MAL REB. Featured sherds include a globular bodied jar, sooted from use (Figure 6.6: 80) and the small rim of a jar in fabric MG1. Whether the absence of MAL REB can be used to infer an earlier date is difficult to say as the sample is rather small.

Table 6.4. Scrubditch enclosure: distribution of pottery across selected features

	Fabric code	Description	Ditch F1			Ditch F2			Ditch F4/21			Ditch F8			Ditch F22		
			No	**Wt**	**EVE**	**No**	**Wt**	**EVE**	**No**	**Wt**	**EVE**	**No**	**Wt**	**EVE**	**No**	**Wt**	**Eve**
Malvernian	MAL RE A *	Malvernian rock-tempered	1	5	0	7	123	0	71	301	0.01				1	6	0
	MAL RE B	palaeozoic limestone-tempered	6	25	0	32	105	0	7	19	0	6	10	0			
	MAL RE C	sandstone-tempered							1	9	0						
Calcareous	SH1	very coarse sparse fossil shell	16	48	0										3	19	0
	SH2	medium-fine fossil shell	6	18	0	13	64.25	0.2	2	4	0	1	2	0			
	LI1	limestone with occasional shell	4	37	0.1	12	42	0.19	5	43	0.17	11	19	0			
	LI2	oolitic limestone (discrete ooliths)				4	32	0.08				10	100	0	2	27	0.03
	LI4	oolitic limestone and fossil shell	6	35	0	15	80	0.1	19	143	0.12	1	16	0	1	8	0
	LISH/F/C	limestone and shell	68	264	0.05	73	390	0.25	94	459	0.32	18	126.5	0.05	44	1375	0
	CALC	calcite-tempered				7	18	0									
	SA	misc sandy				1	0.25	0									
Sandy	SA2	medium-fine sandy black ware	4	10	0				1	0.25	0						
Mixed grit	MG1	mixed grits							1	8	0.05	1	4	0	4	19	0.03
Sub-total			**111**	**442**	**0.15**	**164**	**854.5**	**0.82**	**201**	**986.3**	**0.67**	**48**	**277.5**	**0.05**	**55**	**1454**	**0.06**
Roman	SVW OX *	Severn Valley ware	2	23	0												
	WILGYGR	Wilts grog-tempered grey ware	1	11	0												
	WIL OX	Wilts oxidised sandy ware							1	2	0						
Saxon	SXOR	dense organic-tempered							6	5	0						
Sub-total			**3**	**34**	**0**	**0**	**0**	**0**	**7**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL			**112**	**469**	**0.15**	**164**	**854.5**	**0.82**	**208**	**293**	**0.67**	**48**	**278**	**0.05**	**55**	**1454**	**0.06**

Table 6.5. Scrubditch enclosure: main wares by phase

Ware	Phase 1?		Phase 2		Phase 3		Phase 3?		Phase 4		Phase 4A	
	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt
Jurassic limestone	1	2	83	758	192	991.5	183	503.5	139	438.25	3	0.5
Shelly wares	0	0	1	7	29	96	11	76	11	52.25	0	0
Palaeozoic limestone	0	0	26	56	21	94	18	57	3	8	0	0
Malvernian rock	0	0	0	0	80	435	0	0	1	1	0	0
Calcitic wares	0	0	0	0	4	7	0	0	3	11	0	0
Sandy wares	0	0	0	0	4	3.5	17	44.5	4	8	0	0
Mixed grit	0	0	1	4	5	27	0	0	0	0	1	2
Roman	0	0	0	0	0	0	0	0	2	3	0	0
Saxon	0	0	0	0	0	0	0	0	6	5	0	0
Pmed	0	0	0	0	0	0	p	p	p	p	0	0
TOTAL	**1**	**2**	**111**	**825**	**335**	**1654**	**229**	**681**	**169**	**526.5**	**4**	**2.5**
p = present												

Site phasing

Very little pottery came from the earlier use of the site with a single small fragment of Jurassic limestone-tempered ware from posthole [1012] which may date to Phase 1 (Table 6.5). Considerably more pottery came from the Phase 2 deposits amounting to some 111 sherds of pottery weighing 825 g. These are predominantly Jurassic limestone and fossil limestone-tempered wares accompanied by 23 (23.4%) sherds of Palaeozoic limestone-tempered ware and a single mixed grit-tempered ware. Phase 3 relating to Enclosure A and the recut antenna ditches yielded the greater amount of pottery, some 335 sherds weighing 1654 g with a further 229 sherds (681 g) from probable Phase 3 deposits. Whilst the Jurassic limestone and shell-tempered wares continue to dominate at 66% count, traded wares from the Woolhope Hills and Malvernian area are more visible at 6.3% and 23.9% respectively. The remaining 3.8% comprises sandy wares, which may also represent traded material, and a single mixed grit-tempered. Radiocarbon dates suggest a Middle-Later Iron Age (late 3rd/ early 2nd century BC and mid 1st century BC) for this phase of occupation.

Deposits belonging to the latest phase, Phase 4, dating to the Later Iron Age and beyond collectively produced 169 sherds weighing 526.5 g. Although the local Jurassic shell and limestone wares continue to dominate (83.4% count) a range of other wares are present including two Roman; six very small Saxon sherds and some post-medieval sherds.

Catalogue of illustrated sherds (Scrubditch)

Vessels are handmade unless otherwise stated.

Phase 2

77. Basesherd from a closed form. Incompletely drilled hole through the wall. Light brown exterior with a slightly sooted interior. Fabric: LI4. Antenna ditch F8, fill (2015). Phase 2.
78. Joining bodysherds from a large closed form. Decorated with three lightly tooled horizontal lines placed around the girth. Dark brown surfaces with a black core. Fabric: LISHC. Antenna ditch F8 fill (2015). Phase 2.
79. Globular-bodied wide-mouthed jar. Smoothed dark brown exterior and a black interior. Fabric: LI4. Pit F16, [1082] (1154). Phase 2.

Phase 3

80. Slightly everted rim fragment from a globular-bodied jar. Smoothed pale brown exterior with a black core. The interior is sooted from use. Fabric: LI2f . Ditch F22, [2021] (2025). Phase 3.
81. Saucepan-style pot with a single grooved below the rim. Black surfaces and core. Fabric: SA2. Pit F10, [1043] (1026). Phase 3?
82. Round-bodied jar with a slightly expanded, rounded rim. Dark brown surfaces with a black core. Fabric: LISH. Ditch F2, [1007] (1042). Phase 3.

83. Barrel-shaped jar with a short, rounded, everted lip. Patchy brown and black exterior with a brown interior. The interior surface is leached through use leaving voids. Fabric: LI4. Ditch F4, [1032] (1036). Phase 3.
84. Globular-bodied jar with a slightly out-turned, rounded, lip. Brown surfaces with black sooting. Fabric: LI1. Ditch F4, [1032] (1036). Phase 3.
85. Narrow-necked jar with a slightly out-turned rounded rim. Smoothed red-brown exterior with black patches; red-brown interior. Fabric: LISH. Ditch F4 [1032] (1036). Phase 3.
86. Curved-wall jar with an undifferentiated rim. Black surfaces with a dark red-brown core. Fabric: LISHf. Ditch F1 [1171] (1173). Phase 3.
87. Saucepan-style vessel with two parallel horizontal incised lines below the rim. Dark grey surfaces with a red-brown core. Extremely friable. Fabric: LI1. Ditch F4 [1011] (1004). Phase 3.

Table 6.6. Quantified summary of pottery from Cutham enclosure

	Fabric code	Description	No	No %	Wt	Wt %	EVE	EVE %
Malvernian	MAL RE A *	Malvernian rock-tempered	1	0.2	5	0.2	0	0.0
	MAL RE B	palaeozoic limestone-tempered	27	5.7	33	1.0	0	0.0
	MAL RE C	sandstone-tempered	5	1.1	43	1.4	0	0.0
Calcareous	SH1	very coarse sparse fossil shell	11	2.3	193	6.1	0.17	14.7
	SH2	medium-fine fossil shell	52	10.9	159	5.0	0.22	19.0
	LI2	oolitic limestone (discrete ooliths)	1	0.2	2	0.1	0	0.0
	LI3	oolitic limestone	3	0.6	4	0.1	0	0.0
	LI4	oolitic limestone and fossil shell	58	12.2	459	14.5	0	0.0
	LISH	limestone and shell	178	37.5	1465.25	46.1	0.41	35.3
	LISHC	limestone and shell (coarse)	1	0.2	7	0.2	0.07	6.0
	LISHF	limestone and shell (fine)	13	2.7	16.25	0.5	0	0.0
	CALC	calcite-tempered	4	0.8	34	1.1	0	0.0
Sandy calcar	SALI	fine sandy with limestone	32	6.7	211	6.6	0.23	19.8
	SASH	sandy with shell	1	0.2	4	0.1	0	0.0
	SA	misc sandy	13	2.7	96	3.0	0.02	1.7
Sandy	SA1	medium-fine sandy	12	2.5	56	1.8	0.03	2.6
	SA2	medium-fine sandy black ware	23	4.8	100.5	3.2	0	0.0
	SA3	ill-sorted sand	1	0.2	51	1.6	0	0.0
	SA4	fine black micaceous sandy	2	0.4	12	0.4	0	0.0
	SAF	fine sandy	1	0.2	0.5	0.0	0	0.0
Mixed grit	MG1	mixed grits	12	2.5	83	2.6	0.01	0.9
	SA4FLCA	sandy with limestone, flint & calcite	10	2.1	47	1.5	0	0.0
Organic	SAOR	sandy with organic matter	12	2.5	17.5	0.6	0	0.0
Flint	FL	flint-tempered	1	0.2	50	1.6	0	0.0
Grog	GR	grog-tempered	1	0.2	26	0.8	0	0.0
Sub-total			***475***	***100.0***	***3175***	***100.0***	***1.16***	***100.0***
Roman	ESVW	early Severn Valley ware	23		48		0.13	
	SAV GT*	Savernake ware	5		65		0.07	
	SVW OX *	Severn Valley ware	1		15		0	
	OXF RS *	Oxon red-slipped ware	3		4		0	
	WILGYGR	Wilts grog-tempered grey ware	1		1		0	
	WIL BB	Wilts wm black sandy ware	1		3		0	
	WIL OX	Wilts oxidised sandy ware	3		2.25		0	
	WIL RE	Wilts grey sandy ware	2		6		0	
sub-total			***39***	***0.0***	***144.25***	***0.0***	***0.2***	0.0
Saxon	SXOR	dense organic-tempered	4		14		0	
	SXSAOR	sandy wth organic	3		10		0	
	SXSAFMIC	fine micaceous sandy	1		25		0	
Sub-total			***8***	***0.0***	***49***	***0.0***	***0***	
	OO	unsorted crumbs	75		36.5		0	
TOTAL			**522**		**3368**		**1.36**	
	* = National Roman fabric reference codes							

Table 6.7. Cutham enclosure: distribution of pottery across selected features

	Fabric code	**Description**	**No**	**Wt**	**EVE**	**No**	**Wt**	**EVE**	**No**	**Wt**	**EVE**
Malvernian	MAL RE A *	Malvernian rock-tempered	0	0	0	1	5	0	0	0	0
	MAL RE B	palaeozoic limestone-tempered	3	9	0	3	7	0	7	6	0
	MAL RE C	sandstone-tempered	0	0	0	4	38	0	1	5	0
Calcareous	SH1	very coarse sparse fossil shell	0	0	0	9	163	17	0	0	0
	SH2	medium-fine fossil shell	15	28	5	29	101	15	5	21	2
	LI2	oolitic limestone (discrete ooliths)	1	2	0	0	0	0	0	0	0
	LI4	oolitic limestone and fossil shell	3	3	0	12	56	0	2	2	0
	LISH/F/C	limestone and shell	42	184	7	68	1053	20	15	46	0
	CALC	calcite-tempered	0	0	0	4	34	0	0	0	0
Sandy	SA	misc sandy	0	0	0	2	27	0	8	28	2
	SA1	sandy	4	57	0	9	34	3	0	0	0
	SA2	medium-fine sandy black ware	0	0	0	22	99.5	0	0	0	0
	SAF	very fine sandy	0	0	0	1	0.5	0	0	0	0
Sand/limestone	SALI	sandy with limestone	6	27	0	25	183	23	0	0	0
	SASH	sandy with sparse shell	0	0	0	1	4	0	0	0	0
Flint	FL	flint-tempered	0	0	0	1	50	0	0	0	0
Mixed grit	MG1	mixed grits	0	0	0	11	83	1	0	0	0
	SAFLCA	sand with flint and limestone	0	0	0	0	0	0	10	47	0
Sub-total			***74***	***310***	***12***	***202***	***1938***	***79***	***48***	***155***	***4***
	GR	grog-tempered	**1**	**26**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Roman	ESVW	early Severn Valley ware	**19**	**23**	**7**	**0**	**0**	**0**	**0**	**0**	**0**
	SAV GT	Savernake ware	**4**	**51**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	SVW OX *	Severn Valley ware	1	15	0	0	0	0	0	0	0
	WIL BB	Wilts wm black burnished	1	3	0	0	0	0	0	0	0
	WIL OX	Wilts oxidised sandy ware	1	1	0	0	0	0	0	0	0
Sub-total			***27***	***119***	***7***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL			**101**	**429**	**19**	**203**	**1938**	**79**	**48**	**155**	**4**

Phase 4

88. Globular bodied jar with a simple slight everted, rounded rim. Smoothed patchy brown-black exterior and red-brown interior. Fabric: LISH; Ditch F2, [1007] (1018). Phase 4.
89. Globular-bodied jar with a slightly out-turned rounded rim. Black in colour. Fabric: LISH. Ditch F4, [1032] upper fill (1024). Phase 4.

Unphased

90. Slack-sided vessel with a slight shoulder carination. The exterior surfaces have been vertically smeared smooth. Brown surfaces with a dark grey core. Fabric: LI4. The interior surface is pitted with voids where inclusions have leached out through use. Roundhouse F12, posthole [1111] (1112).

Cutham Enclosure (2014)

The enclosure at Cutham produced an assemblage of 522 sherds of pottery weighing 3368 g and with 1.36 eves dating to the Later Prehistoric, Roman and Saxon periods (Tables 6.6 and 6.7). The bulk of the pottery, 90.8% by count, 94% by weight, is Later Prehistoric with essentially the same range of fabrics as seen from the Scrubditch enclosure with a small number of minor additional fabrics.

The enclosure ditch, F23/F24, produced an assemblage of 305 sherds weighing 2373 g. Whilst most of this appears to date to the Mid-Later Iron Age there is a small number of early Roman sherds present including early Severn Valley ware, Savernake ware and Wiltshire black burnished and oxidised ware. Specifically, these wares came from ditches 3005, 3020, 3070, 4002 and 4004 and suggest continued activity in the neighbourhood until the later 1st century AD. Nearly twice as much pottery was recovered from the southern ditch (F24) compared to the north with a commensurately more diverse assemblage. Of note is a basesherd from a saucepan-style pot in a flint tempered fabric from [3003] and a basesherd with at least one hole drilled through the base from the same ditch. Featured sherds include simple rim jars (Figure 6.7: no. 92, 96, 97). A few sherds showed sooting or adhered burnt residue from use.

The postholes clustered to form putative roundhouse F32 produced a small assemblage of 41 small sherds, all Mid-Later Iron Age fabrics. The postholes from possible structure F28 produced even less material; just five sherds of which one is early Roman. Truncated fence-line F25 also produced a small assemblage of 21 sherds of which four or five, all from posthole [3009], suggest an early Saxon date. The remainder are Iron Age.

Pottery was recovered from pits F27 and F29. Both produced 48 sherds but the pieces from F27 were far more fragmented with an average sherd eight of 2.2 g compared to 8 g from pit F29. In terms of composition the two appear quite similar. Featured sherds are rare but a simple rim jar came from F27 (Figure 6.7: no. 98). Ditch F26 to the south produced just nine bodysherds, one MAL REB; the rest fabric LI4.

Phasing

A total 18 sherds of pottery came from the initial silting of the enclosure ditches (Phase 1) all of which are in Jurassic limestone/ fossil shell fabrics (Table 6.8). A further 24 similar sherds came from probable Phase 1? Contexts. These are accompanied by a single early Roman sherd from the fill of posthole (3109) which may suggest, either that roundhouse F28 is, in fact, a late element of the site, or that it is intrusive in what are relatively shallow and plough-damaged postholes. The associated radiocarbon dates suggest a probable 3rd century BC date for phase 1. The initial backfilling (Phase 2) yielded slightly less material, 44 sherds. This is an interesting group as whilst it is dominated by Jurassic source wares (57%) they are accompanied by a variety of other wares, for example, mixed grit, sandy, Malvernian sandstone-tempered and Palaeozoic limestone-tempered sherds. A significantly larger assemblage was recovered from Phase 3, amounting to 116 sherds weighing 2032 g, all of which belong to the Mid-Later Iron Age. The assemblage is far more diverse in composition although the Jurassic group of wares continue to dominate by weight accounting for 72%. Sandy wares and sandy wares with sparse limestone make an appearance mirroring to some extent the transition from calcareous wares to sandy with limestone wares seen in the later Middle Age in the Upper Thames Valley (Lambrick 1984). Other fabrics found in Phase 3 embrace most of those defined in the overall assemblage with sherds tempered with Malvernian rock, sandstone, calcite, mixed grit, flint and Palaeozoic limestone. Contexts belonging to Phase 4, potentially dating to the Later Iron Age – early Roman period on the basis of a radiocarbon date from ditch [3070], yielded some 118 sherds. Again Jurassic wares dominate accounting for 38.9% (weight) but there are 24 sherds of Later Iron Age/early Roman wares including some proto-Severn Valley ware with 17 bodysherds from a black surfaced, cordoned, globular jar. The sherds are characterised by grog and organic material in the fabric and their affiliation with the Severn Valley industry is on the basis of shared forms such as carinated cups/ bowls and the use of cordons. It is possible that they originate from a different source to the Severn Valley wares proper. There are also four Savernake ware sherds present. Both types of pottery are typical of early Roman production but both industries, it has been argued, may have their origins in the Later Iron Age (Timby 1990; 2001). Phase 5 shows a broadly similar pattern to Phase 4 featuring a range of wares amongst which are five further sherds of early Severn Valley ware jar of which two are basesherds with slight foot-rings. Also present however, are single sherds of Wiltshire black burnished ware and Wiltshire oxidised ware which probably extend the date of activity at the location into the later 1st century AD. The final phase (Phase 6) is marked by the presence of six sherds from (3010) of Saxon date.

Catalogue of illustrated sherds (Cutham enclosure)

91. Slightly everted rim jar with a squared-off rim. Oxidised with grey patches. Fabric: SH2. Ditch [3003] (3004); F24. Phase 3.
92. Rim fragment from a simple rim vessel. Oxidised surfaces with a grey inner core. Fabric: MG1. Ditch [3003] (3004); F24. Phase 3.
93. Wide diameter jar with a slightly beaded rim and internal bevel. Pale brown exterior, dark grey core and interior. Fabric: SH1. Ditch F24, [3003] (3004). Phase 3.
94. Wide diameter vessel with a slightly beaded rim. Oxidised surfaces with a grey core. Fabric: SH2. Ditch F24, [3003] (3004). Phase 3.
95. Slacked-sided vessel with an undifferentiated rim. Oxidised exterior and grey core and interior. Fabric: SALI. Ditch [3003] (3004); F24. Phase 3.
96. Simple slightly everted rim jar. Oxidised surfaces. Fabric: SALI. Ditch F24 [3003] (3004). Phase 3.
97. Simple curved rim jar with an internal bevel. Black exterior and core with an orange-brown interior. Fabric: SH1. Ditch [3003] (3060); F24. Phase 2.
98. Simple rounded rim jar. Brown exterior with an oxidised interior. Fabric: LISH. Pit [3061] (3062); F27. Phase 4.
99. Large diameter, thick-walled vessel with an undifferentiated rim. Mid-orange-brown in colour with a light grey inner core. Fabric: LISH. Ditch F24, [4004] (4007). Phase 3.

Table 6.8. Cutham enclosure: main wares by phase

Ware	Phase 1		Phase 1?		Phase 2		Phase 3		Phase 4		Phase 5		Phase 5?	
	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt
Jurassic limestone	18	44	24	95	25	320.25	34	1472	69	162	49	156	0	0
Palaeozoic limestone	0	0	0	0	7	6	4	11	3	6	3	6	0	0
Malvernian rock	0	0	0	0	1	5	5	43	0	0	0	0	0	0
Calcite	0	0	0	0	0	0	4	34	0	0	0	0	0	0
Sandy wares	0	0	0	0	3	6	39	192.5	6	58.5	0	0	1	51
Mixed grit	0	0	0	0	8	37	4	46	0	0	0	0	0	0
Sandy with limestone	0	0	0	0	0	0	25	183	6	27	0	0	0	0
Flint	0	0	0	0	0	0	1	50	10	47	0	0	0	0
LIA-early Roman	0	0	1	4	0	0	0	0	24	116	8	28.25	0	0
Saxon	0	0	0	0	0	0	0	0	0	0	0	0	6	40
TOTAL	**18**	**44**	**25**	**99**	**44**	**374.25**	**116**	**2032**	**118**	**416.5**	**60**	190.3	7	91

Black Grove, Bagendon (2015)

The 2015 excavation produced an assemblage of 2872 sherds of pottery weighing 20.2 kg and with 21.16 eves. Most of the pottery dates to the Roman period spanning the later 1st century through to the later 3rd or 4th century. These are accompanied by a small group of 41 sherds of Iron Age character and a few imported finewares which may be pre or post-conquest but certainly pre-Flavian. Details of the individual fabrics and associated forms can be found below. A quantified summary of the pottery can be found in Table 6.9.

The pottery was split between two adjacent trenches, Trench 5 which produced 2179 sherds (13.4 kg) and Trench 6 which produced 677 sherds (7.1 kg). The overall average sherd weight for the former is just 6 g, whilst the latter is slightly higher at 10.5 g. There is clearly a high level of re-deposition which would account for the high rate of fragmentation.

No pottery was specifically recovered from the pre-villa occupation (Phase 1) although a number of pre-Flavian pieces of pottery occurred in later deposits including ten sherds of Gallo-Belgic fine ware (*terra nigra* (TN) and *terra rubra* fabric 3 (TR3)) and 41 sherds of Mid-Later Iron Age coarsewares intimating earlier activity in the immediate area. In Trench 6 small groups of pottery were recovered from the upper levels of a pit-like feature (6020, 6026) (Phase 2) which gives an early-mid 2nd-century *terminus post quem*. Layer (6026) produced nine coarsewares including Wiltshire products which date, at the earliest, to the later 1st century- early 2nd century and one sherd of white slipped South-west ware which may be mid-2nd century or later. Layer (6020) produced 30 sherds including a Central Gaulish samian dish (Dr 18/31) dated AD 120-50 and coarsewares dating to later 1st-early 2nd century.

In total contexts allocated to Phase 2, or probably Phase 2, amounted to some 495 sherds weighing 5443 g (see Table 6.10). This material is moderately well preserved with an overall average sherd weight of 11 g. It all dates to the later 1st or 2nd centuries. The dump of material (6017) produced a large assemblage of 297 sherds of pottery (3246 g). This includes a rim from a *Camulodumum* (Cam) type 112 beaker in the earlier pre-conquest pink variety of TR3, four Iron Age shelly wares, 11 sherds of Palaeozoic limestone-tempered ware and eight sherds of South Gaulish samian. At the other end of the spectrum are a large number of North Wiltshire sandy wares, Savernake ware and two sherds of Central Gaulish samian giving a similar date to the underlying layer (6020). Of note in the North Wiltshire oxidised wares is a devolved copy of a butt beaker. The sondage in Trench 5 produced pottery from eight contexts. The lower-most are dated mid-later 1st although the number of sherds is very low. More material came from 5035, 5029 and 5039 at the top of the sequence which are more clearly 2nd century. Vessels include a ring-necked flagon; a decorated beaker (Figure 6.6: no. 100); Central Gaulish samian; a sherd of Dorset black burnished ware from (5035), a tiny chip of Central black–slipped ware and a Wiltshire mica-slipped jar sherd from (5029) which suggest a 2nd century date at the earliest.

Contexts associated with the construction of the stone building (Phase 3a) yielded an assemblage of 223 sherds, 1315 g in weight. As a group this material was much more fragmented. Residual material includes South Gaulish samian and a TN platter Cam. type 13 probably dating to the early post-conquest period. Of note are a sherd from a Savernake ware jar with a post-firing graffiti (Figure 6.6: no. 101) and one sherd from a rusticated grey ware jar. The later wares include Central Gaulish samian and sherds from a DOR BB1 jar decorated with an acute lattice and with sooting on the interior from (6016).

Table 6.9. Quantified summary of pottery from Black Grove, Bagendon (BAG 15)

IRON AGE	Fabric code	Description	No	No %	Wt	Wt %	EVE	EVE %
Malvernian	MAL RE A*	Malvernian rock-tempered	3		15		0	
	MAL RE B	Palaeozoic limestone-tempered	18		95.5		6	
Calcareous	LISH	limestone and shell	18		82		0	
	LI	black limestone-tempered	1		2		0	
Sandy	SAF	fine sandy	1		11		0	
Sub-total			*41*		*205.5*		*6*	
ROMAN								
Imports	LGF SA*	South Gaulish samian	17	0.6	29.25	0.1	90	4.3
	LEZ SA*	Central Gaulish samian	57	2.1	461.5	2.3	91	4.3
	MON SA*	Montans samian	1	0.0	3	0.0	0	0.0
	CNG BS*	Central Gaulish black slip	3	0.1	10	0.1	0	0.0
	GAB TN*	Gallo-Belgic terra nigra	4	0.1	20	0.1	9	0.4
	GAB TR3*	Gallo-Belgic terra rubra 3	6	0.2	9.5	0.0	7	0.3
amphorae	BAT AM*	Baetican amphorae	4	0.1	325	1.6	0	0.0
	GAL AM*	Gallic amphorae	1	0.0	37	0.2	0	0.0
Regional	DOR BB1*	black burnished ware	562	20.5	2989	15.0	283	13.4
	OXF RS*	Oxon colour-coated ware	12	0.4	115	0.6	19	0.9
	OXF RS(M)*	Oxon colour-coated mortaria	4	0.1	27	0.1	3	0.1
	OXF WH(M)*	Oxon whiteware mortaria	1	0.0	15	0.1	0	0.0
	OXF WS(M)*	Oxon white-slipped mortaria	15	0.5	27	0.1	287	13.6
	NFO RS*	New Forest colour-coat	3	0.1	18	0.1	3	0.1
Wiltshire: grog	BWGR	black grog-tempered	7	0.3	52	0.3	7	0.3
	BWGRSA	black sandy grog-tempered	4	0.1	18	0.1	0	0.0
	GR	misc grog-tempered	5	0.2	69.5	0.3	0	0.0
	OXGR	oxidised grog-tempered	1	0.0	6	0.0	7	0.3
	SAV GT*	Savernake ware	247	9.0	5084	25.5	97	4.6
	WILGYGR	Wilts grog-tempered grey ware	79	2.9	565	2.8	46	2.2
Wiltshire wares	SOW OX	SW oxidised ware	3	0.1	16.25	0.1	0	0.0
	SOW RE	SW reduced ware	4	0.1	62	0.3	0	0.0
	SOW WS*	SW white-slipped ware	55	2.0	350	1.8	2	0.1
	WIL BB	Wilts wm black sandy ware	115	4.2	599	3.0	122	5.8
	WIL CC	Wilts colour-coated ware	12	0.4	41.5	0.2	0	0.0
	WIL MI	Wilts mica-slipped oxidised	3	0.1	10.5	0.1	7	0.3
	WIL OX	Wilts oxidised sandy ware	101	3.7	498	2.5	83	3.9
	WIL OXF	Wilts fine oxidised ware	67	2.4	226	1.1	65	3.1
	WIL RE	Wilts grey sandy ware	348	12.7	1967.5	9.9	149	7.1
	WIL RE2	Wilts grey sandy ware	6	0.2	47	0.2	0	0.0
	WIL REF1	Wilts fine grey ware	624	22.7	3946.5	19.8	497	23.6
	WIL REF2	Wilts fine grey ware	7	0.3	67	0.3	0	0.0
	WSOXID	white-slipped oxidised ware	2	0.1	15	0.1	6	0.3
Local:SVW	ESVW	early Severn Valley ware	72	2.6	535	2.7	41	1.9
	SVW OX*	Severn Valley ware	153	5.6	1105	5.5	94	4.5
Local: Sandy	BSGY	black-surfaced grey ware	1	0.0	2	0.0	0	0.0
	BSOX	black surfaced oxidised ware	3	0.1	7	0.0	0	0.0
	BSWW	black surfaced whiteware	1	0.0	19	0.1	0	0.0
	BUFF/PALE	buff/pale sandy ware	7	0.3	27.5	0.1	0	0.0
	BWFMIC	fine black micaceous ware	15	0.5	127	0.6	19	0.9
	BWFSY	fine sandy black ware	23	0.8	54	0.3	26	1.2
	BWSY	black sandy	30	1.1	210	1.1	5	0.2
	GY	grey sandy	3	0.1	28	0.1	31	1.5
	GYLI	grey with limestone	8	0.3	51	0.3	7	0.3
	OXFMIC	fine oxidised micaceous	30	1.1	13	0.1	7	0.3
	OXIDF	fine oxidised	2	0.1	5.25	0.0	0	0.0
	OXID	misc oxidised	16	0.6	12	0.1	0	0.0
Sub-total			*2744*	100.0	*19922.75*	100.0	*2110*	100.0
Crumbs		small unsorted crumbs	87		92		0	
TOTAL			**2872**		**20220.25**		**2116**	
	* = National Roman fabric reference codes							

Table 6.10. Black Grove: breakdown of fabrics for Phases 2, 3a, 3b and 4.

	Phase 2						Phase 3a						Phase 3b						Phase 4					
Fabric code	**No**	**No %**	**Wt**	**Wt %**	**EVE**	**EVE %**	**No**	**No %**	**Wt**	**Wt %**	**EVE**	**EVE %**	**No**	**No %**	**Wt**	**Wt %**	**EVE**	**EVE %**	**No**	**No %**	**Wt**	**Wt %**	**EVE**	**EVE %**
MAL RE B	15	3.0	89	1.6	6	1.6	1	0.4	1	0.1	0	0.0	1	0.3	5	0.3	0	0.0	0	0.0	0	0.0	0	0.0
Iron Age	9	1.8	35	0.6	0	0.0	5	2.2	13	1.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.3	24	2.2	0	0.0
LGF SA*	12	2.4	24	0.4	90	23.7	2	0.9	3	0.2	0	0.0	1	0.3	0.5	0.0	0	0.0	1	0.6	0.25	0.0	0	0.0
LEZ SA*	4	0.8	5	0.1	0	0.0	7	3.1	41.5	3.2	6	3.5	6	2.0	53	3.4	22	12.1	2	1.3	39	3.6	10	8.8
MON SA*	1	0.2	3	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CNG BS*	1	0.2	0.25	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	0.25	0.0	0	0.0
GAB TN*	1	0.2	8	0.1	0	0.0	2	0.9	4	0.3	4	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
GAB TR3*	3	0.6	3.5	0.1	7	1.8	0	0.0	0	0.0	0	0.0	2	0.7	4	0.3	0	0.0	1	0.6	2	0.2	0	0.0
BAT AM*	1	0.2	129	2.4	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	27	1.7	0	0.0	0	0.0	0	0.0	0	0.0
GAL AM*	1	0.2	37	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
DOR BB1*	1	0.2	6	0.1	0	0.0	6	2.7	33	2.5	0	0.0	47	15.9	418	26.4	37	20.3	14	9.0	55	5.1	76	67.3
OXF RS(M)*	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	7	0.7	0	0.0
BWGR	3	0.6	38	0.7	0	0.0	4	1.8	14	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
BWGRSA	0	0.0	0	0.0	0	0.0	3	1.3	13	1.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	5	0.5	0	0.0
GR	2	0.4	46	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OXGR	1	0.2	6	0.1	7	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SAV GT*	146	29.5	3471	63.8	59	15.5	39	17.5	529	40.2	12	6.9	28	9.5	45	2.8	15	8.2	4	2.6	98	9.1	2	1.8
WILGYGR	51	10.3	331	6.1	28	7.4	25	11.2	185	14.1	18	10.4	0		0	0.0	0	0.0	1	0.6	28	2.6	0	0.0
SOW OX	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.3	11.25	1.0	0	0.0
SOW WS*	1	0.2	4	0.1	0	0.0	2	0.9	22	1.7	0	0.0	5	1.7	12	0.8	0	0.0	1	0.6	1	0.1	0	0.0
WIL BB	53	10.7	224	4.1	40	10.5	7	3.1	22	1.7	2	1.2	25	8.4	133	8.4	29	15.9	18	11.6	74	6.9	18	15.9
WIL CC	0	0.0	0	0.0	0	0.0	7	3.1	18	1.4	0	0.0	1	0.3	2	0.1	0	0.0	1	0.6	0.5	0.0	1	0.9
WIL MI	3	0.6	10.5	0.2	7	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
WIL OX	24	4.8	46	0.8	10	2.6	1	0.4	1	0.1	8	4.6	23	7.8	94	5.9	10	5.5	16	10.3	170	15.9	4	3.5
WIL OXF	3	0.6	8	0.1	10	2.6	4	1.8	32	2.4	30	17.3	5	1.7	39	2.5	17	9.3	0	0.0	0	0.0	0	0.0
WIL RE	18	3.6	96	1.8	8	2.1	13	5.8	78	5.9	3	1.7	6	2.0	40.5	2.6	0	0.0	11	7.1	33	3.1	0	0.0
WIL REF1/2	40	8.1	292.5	5.4	26	6.8	41	18.4	170	12.9	46	26.6	123	41.6	541.5	34.3	34	18.7	48	31.0	331.5	30.9	2	1.8
WSOXID	2	0.4	15	0.3	6	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ESVW	46	9.3	100	1.8	35	9.2	9	4.0	4	0.3	6	3.5	5	1.7	32	2.0	0	0.0	6	3.9	28	2.6	0	0.0
SVW OX*	24	4.8	218	4.0	25	6.6	20	9.0	67	5.1	9	5.2	12	4.1	105	6.6	18	9.9	7	4.5	67	6.3	0	0.0
MISC SANDY	29	5.9	197.3	3.6	16	4.2	25	11.2	64	4.9	29	16.8	5	1.7	29	1.8	0	0.0	17	11.0	97	9.1	0	0.0
	495	100.0	***5443***	100.0	***380***	100.0	***223***	100.0	***1315***	100.0	***173***	100.0	***296***	100.0	***1581***	***100.0***	***182***	***100.0***	***155***	100.0	***1071.8***	100.0	***113***	100.0

The building alterations carried out in Phase 3b produced a further 296 sherds of pottery weighing 1581 g, again in very fragmented condition suggesting that a considerable amount is likely to be re-deposited. In Trench 6 contexts associated with the creation of Room II produced an assemblage which includes a number of earlier pieces including, a carinated SVW OX cup (Figure 6.6: no. 102); a copy of a butt beaker, (Figure 6.6: no. 103), and a carinated bowl in Wiltshire black burnished ware (Figure 6.6: no. 104), a fabric which generally dates from the Neronian period through to the early 2nd century. A later date in the second half of the 2nd century is indicated by a flat-rim bowl and plain-rimmed dishes in DOR BB1 and further Central Gaulish samian. The rear corridor and contexts associated with the remodelling of the portico in Trench 5 produced 242 sherds which present a similar picture with residual material accompanied by at least four DOR BB1 jars, several sherds from a Central Gaulish samian dish Drag. 31 and a sherd of Baetican amphora, probably from a Haltern type 70. There is nothing present which suggests a date later than the mid-late 2nd century.

Phase 4 relating to the latest remodelling of the villa structure produced a total 155 sherds (1072 g). None of the contexts in Trench 5 produced any pottery later than 2nd century and several sherds are residual from the 1st century AD. The latest pieces include a jar and flat-rim bowl in DOR BB1 and Central Gaulish samian dishes Drag. 31R and 18/31. In Trench 6 pottery was only recovered from two contexts of which two (6019) had residual 2nd-century material. The wall-trench (6025) produced 18 bodysherds which includes 8 sherds of DOR BB1 and a single sherd of Oxfordshire red-slipped mortaria (OXF RS). This last sherd has to date to after the mid-3rd century.

Table 6.11. Black Grove: breakdown of vessel forms by rim EVE

Category	Form	EVE	EVE %
Tableware: fineware	cup	0.44	2.3
	platter	0.09	0.5
	bowl	0.5	2.6
	dish	0.87	4.6
Tableware: coarseware	cup	0.14	0.7
	platter	0.05	0.3
Drinking vessel: coarseware	beaker	0.9	4.8
	jar/beaker	0.14	0.7
	tankard	0.09	0.5
Dispensing liquids	flagon	0.58	3.1
	jug	0.03	0.2
food preparation	mortaria	0.3	1.6
Domestic / storage	jars	13.18	69.6
	bowls	0.82	4.3
	dishes	0.81	4.3
TOTAL		**18.94**	**100.0**

Phase 5 relating to the abandonment of the villa yielded the largest amount of material with some 839 sherds (4.8 kg) from Trench 5 and 184 sherds (1.7 kg) from Trench 6. The assemblage is chronologically very mixed with 1st-2nd century material mixed in with later 3rd-4th century wares. Samian, for example, still accounts for 2.9% by sherd count of the Phase 5 material. The proportion of DOR BB1 is considerably greater than hitherto and it accounts for 33% by sherd count, 27% by weight, with examples of jars decorated with obtuse latticing, plain-walled dishes and single examples of a 3rd-century grooved-rim bowl and a 4th-century conical, flanged-rim bowl. A 4th -century *tpq* is provided by a number of Oxfordshire products including bowls and dishes Young (1977) forms C45, C51, C71; mortaria C97 and WC7. There is a single beaker sherd with white-painted decoration. The bowl C71, recovered from the subsoil (5004), was not in production until the 4th century. Also dating to the 4th century is a New Forest colour-coated jug (Fulford 1975: type F95) from rubble level (6006). Noticeably absent from the assemblage are any late Roman shelly wares which would be a clear indication of a later Roman (last quarter of 4th century) or post-Roman occupation. There are also no stray Saxon sherds as found at Scrubditch. No Roman pottery was recovered from the post-medieval quarrying (Phase 6).

In terms of vessel forms, (Table 6.11), looking at the assemblage as a whole there is quite a range of material present with coarse domestic-related wares alongside fine and specialist wares. Such a group could be regarded typical of a villa-type establishment. Jars very much dominate at 69.6% eve which is entirely typical of Roman assemblages both rural and urban. Bowls and dishes each account for 4.3%. Fine tablewares are moderately well represented with the suite of cups, platters, bowls and dishes accounting for 10% eve of the total assemblage, as are drinking vessels including tankards and beakers at 6%. The presence of flagon, jug and mortaria also increase the status of this assemblage.

Black Grove, Bagendon: catalogue of illustrated sherds

100. Wheelmade large globular beaker. The upper body is rouletted whilst the lower is decorated with combed wavy lines. Fabric: fine grey ware from North Wiltshire. Trench 5 (5035). Phase 2.
101. Bodysherd from a Savernake ware (SAV GT) jar with a post-firing lightly incised cross. Trench 5 (5021). Phase 3a.
102. Wheelmade carinated cup. Fabric: SVW OX. Trench 6 (6011). Phase 3b.
103. Wheelmade butt beaker. Fabric: North Wiltshire oxidised sandy ware. Trench 6 (6011). Phase 3b.
104. Wheelmade, carinated bowl decorated with a single wavy line. Fabric: Wiltshire black sandy ware. Trench 6 (6011). Phase 3b.

Bagendon Valley (Test pits 2017) and Dyke 'e' (2017)

A small assemblage of 177 sherds of pottery weighing 685.5 g and with 2.14 estimated vessel equivalence was recovered from archaeological work undertaken in 2017 at Bagendon. The assemblage largely dates to the early Roman period and few, if any of the sherds, apart from two post-medieval pieces, are likely to date later than the mid-2nd century AD. The pottery is accompanied by seven degraded pieces of potential ceramic building material (CBM).

Roman pottery was recovered from trenches 9, 10 and 11 with the highest density from Trench 10. Trench 7 produced a small fragment of probable CBM and two post-medieval sherds. Trench 9 produced just 14 sherds and these could potentially be the latest material recovered but the sherds are extremely small and un-featured and thus dating cannot be regarded as very reliable. A total of 80 sherds and 4 small fragments of degraded CBM came from five contexts in Trench 10. The earliest sherd, accompanied by a fragment of bone, is a sherd of Palaeozoic limestone-tempered ware (MAL RE B) from the lowest fill of a ditch (SF7). This could be LIA or early Roman in date. The other pottery all suggests a tpq in the 2nd century. There are two sherds of samian present, one South Gaulish (LGF SA) and one Central Gaulish (LEZ SA), and 11 sherds each of Severn Valley ware (SVW OX) and Dorset black burnished ware (DOR BB1). Other named wares include Savernake ware (SAV GT), Malvernian sandstone-tempered (MAL RE C), Oxfordshire white ware (OXF WH) and Oxfordshire grey ware (OXF RE). Trench 11 produced a total 81 sherds weighing 296.5 g from three contexts which all show a tpq in the mid-late 2nd century.

General discussion

The three assemblages from recent work in the Bagendon complex present an interesting collection of pottery which complements that from other work in the area (McSloy this volume; Moore 2009; Trow 1988b; Timby 1999). The array of radiocarbon dates accompanying the pottery is a valuable addition to understanding the pottery of the area. Dating mid-later Iron Age pottery in Gloucestershire has, to date, been rather approximate due to the longevity of some of the ceramic traditions. Jurassic limestone and shelly wares dating back to the Early and Middle Iron Age tend to decrease by the later Iron Age in this area. The Malvernian industry dates back at least into the Middle Iron Age as attested here and by radio-carbon dating at Dean Farm, Bishops Cleeve (Timby 2008), and continued with little evident technological change into the early Roman period. The use of the igneous/metamorphic rock temper goes back into the Bronze Age. Radio-carbon dating from other sites on the Cotswold escarpment, for example, Birdlip (Parry 1998) and Highgate House, Cowley (Mudd *et al.* 1999) have demonstrated that sites with MIA occupation appear to have commensurately more Jurassic rock derived wares and a lower incidence of Palaeozoic limestone wares. Moving from the later 1st century BC into the first half of the 1st century AD these wares start to show an increased presence. At some point in the first half of the 1st century AD a number of vessels start appearing which have provisionally been regarded as proto-Severn Valley ware. They certainly share some of the typical early Severn Valley ware forms with necked cordoned bowls and carinated cups with both handmade and wheel-turned examples. The wares are characterised by a fabric containing variable amounts of grog, clay pellets and organic matter. Their presence at sites in the Bagendon complex alongside various wares considered to originate from the Wiltshire area but in the grog-tempered tradition, for example, Savernake ware and fine grey Wiltshire sandy ware with grog does raise a question as to whether these wares are linked to Severn Valley ware or belong to a separate indigenous tradition in the Wiltshire region or whether one developed into the other. There are other grog-tempered wares from the Bagendon sites, including the black grog-tempered 'Bagendon' ware (Moore 2009b: 98) which is considered likely to be local in origin.

Table 6.12 compares the assemblages from Scrubditch and Cutham with broadly contemporary assemblages from the 1979-81 excavations in the Bagendon complex (McSloy this volume; Kingshill North, immediately north of Cirencester (Timby 2011); Duntisbourne Grove and Middle Duntisbourne (Timby 1999). The much higher percentages of Jurassic limestone-tempered wares from Scrubditch and Cutham are matched only with those from Kingshill along with the various Malvernian and Malvernian related wares. By contrast the two Duntisbourne sites and the Bagendon site have negligible quantities of the Jurassic wares although all show the presence of Palaeozoic limestone-tempered wares. This emphasises the earlier (Middle Iron Age) character of the occupation at the former three sites. Kingshill continued to be occupied into the Later Iron Age –early Roman period when various grog-tempered wares manifest themselves in some quantities (Biddulph 2011: table 7) making it more comparable to the later phase of use evident from the Bagendon 1979-81 assemblage. The assemblage recorded for The Ditches (Trow 1988b) produced 21.6% (wt) Jurassic limestone-tempered wares and 11.6% grog-tempered (Timby 1999: table 7.25) suggesting it falls chronologically after Scrubditch, Cutham and Kingshill but before or overlapping with Bagendon (1979-81) and the Duntisbournes. Savernake wares are less frequent at 18.7% than many of the sites with the exception of Scrubditch and Cutham. This could be reflecting

Table 6.12. Comparison of Scrubditch and Cutham with other middle Iron Age-early Roman sites

	Scrub Ditch		**Cutham**		**1979-81**		**Kingshill (M-LIA only)**		**Duntisbourne Grove**		**Middle Duntisbourne**	
Ware	% No	% Wt	% No	% Wt	No%	Wt%	No%	Wt%	No%	Wt%	No%	Wt%
Jurassic limestone	76.8	79.4	61.5	69.5	0.5	0.3	67.9	76.8	2.2	2.6	0.6	0.4
Palaeozoic limestone	8.9	5.7	5.2	1	9	4.2	14.1	8.8	10.7	23	16.5	7.1
Malvernian rock	8.4	11	0.2	0.15	0	0	0.1	0.6	0	0	0	0
Malvernian sandstone	0.1	0.9	1	1.3	0	0	11.3	5.4	0	0	0	0
sandy wares	2.7	1.5	10	9.4	0	0	0	0	0	0	0	0
sand/limestone	0	0	6.3	6.7	0	0	0.7	0.5	0	0	0	0
Mixed grit	0.7	0.8	6.3	4.1	0	0	0	0	0	0	0	0
Flint	0	0	0.2	1.5	0	0	1.5	6.7	0	0	0	0
Grog	0	0	0.2	0	12.9	6.7	0.9	0.8	3.2	3.2	2.5	1.6
Gallo-Belgic fine ware	0	0	0	0	3.6	2.5	0	0	4.4	2.4	4.4	3.1
other fineware imports	0.3	0	0	0	0	0	0	0	4.4	3.6	0.2	0.05
amphorae	0	0	0	0	0.4	1.4	0	0	0.6	0.3	0.2	0.2
Severn Valley ware	0.2	0.5	4.4	1.9	20	15.3	0	0	47	20.8	47	26.3
North Wiltshire sandy	0.3	0..2	1	0.24	3.2	2.6	0	0	0	0	0	0
Dorset black burnished ware	0	0	0	0	0	0	0	0	0	0	0	0
Wilts black burnished	0	0	0.2	0.08	2.4	1	0	0	1.3	0.3	1.2	0.4
Savernake ware	0	0	1	1.9	39	60.8	0	0	17.6	27.5	17.6	54.9
other	1	0.1	0.8	0.8	9	5.2	3.5	0.4	8.6	16.3	9.8	5.95
Saxon	0.6	0.1	1.7	1.45	0	0	0	0	0	0	0	0
TOTAL	**100**	**100.0**	**100**	**100.0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

different activities being carried out at the different locations from the mid-1st century AD.

Another feature of the Bagendon 1979-81, The Ditches (Trow 1988b) and the Duntisbourne assemblages is the presence of a small number of imported Gallo-Belgic fine wares, also present residually at Black Grove. These have been provisionally dated to the Claudio-Neronian period at the Duntisbournes. Other imports include Dressel 2-4 and Haltern 70 amphorae, and Central Gaulish flagon. Similarly, Gallo-Belgic finewares, arretine and South Gaulish samian feature in the Bagendon assemblages (Clifford 1961; McSloy this volume). Imports are extremely scarce in Gloucestershire at this time and suggest the occupants of the various discrete settlements making up the Bagendon complex enjoyed a certain status or were engaged in trade or exchange with the south-east where such items are more frequent.

Another particularly noticeable feature of the Bagendon assemblage, both from the earlier excavations by Elsie Clifford (1961) and the more recent excavations (McSloy this volume), is the preponderance from around the mid-1st century AD of Savernake ware jars. These account for 60.8% by weight of the 1979-81 assemblage; 27.5% of Duntisbourne Grove; 54.9% at Middle Duntisbourne and 17% at Kingshill (Biddulph 2011: table 7). It has been suggested elsewhere (Timby 2011) that, if our understanding of the dating at Bagendon is correct, the Savernake industry must have been established prior to the conquest in order to have achieved such a market at this point. Recent analysis of a particularly large, beaded rim storage jar from excavations at Highworth, near Swindon, Wiltshire has indicated the presence of milk products (Beth Werret pers.comm). The focus on cattle, probably a symbol of wealth and status at this time, links with the larger territorial *oppida* and their associated dyke systems which can also be seen at Bagendon. If the analysis of this vessel is typical it is possible that the large jars were specifically designed and traded to process milk-based products obtained from cattle which might explain their frequency at Bagendon.

Thus the sequence at present suggests that occupation was established at Scrubditch, Cutham and Kingshill from the Middle Iron Age. Added to these sites is a small assemblage from Highgate House near Birdlip (Timby 1999: 327) which also shows a phase of occupation from the mid to Later Iron Age. Scrubditch was probably abandoned in the early Roman period whilst odd sherds at Cutham, may indicate sporadic use into

Table 6.13. Comparison of Black Grove with Roman sites

	Black Grove				**Ditches**				**Birdlip Quarry**			
Ware	**No**	**No%**	**Wt**	**Wt%**	**No**	**No%**	**Wt**	**Wt %**	No	No%	Wt	Wt%
Iron Age	41	1.5	205.5	1.0	583	14.1	5311	9.3	93	0.6	469	0.3
Grog	96	3.4	711	3.5	493	11.9	4591	8.0	0	0.0	0	0.0
Gallo-Belgic	10	0.4	30	0.1	48	1.2	269	0.5	0	0.0	0	0.0
samian	75	2.7	494	2.5	128	3.1	1770	3.1	397	2.4	2504	1.7
other imported fineware	3	0.1	10	0.0	28	0.7	445	0.8	20	0.1	45	0.0
amphora	5	0.2	362	1.8	9	0.2	679	1.2	227	1.4	16011	10.7
Dorset black burnished ware	562	20.2	2989	14.9	525	12.7	7266	12.7	6541	40.0	43954	29.2
Mancetter-Hartshill	0	0.0	0	0.0	2	0.0	107	0.2	3	0.0	343	0.2
Oxfordshire wares	32	1.1	184	0.9	15	0.4	139	0.2	1311	8.0	10306	6.9
Nene Valley	0	0.0	0	0.0	0	0.0	0	0.0	22	0.1	187	0.1
New Forest cc	3	0.1	18	0.1	0	0.0	0	0.0	16	0.1	107	0.1
Late Roman shelly	0	0.0	0	0.0	0	0.0	0	0.0	62	0.4	332	0.2
Savernake ware	247	8.9	5084	25.4	276	6.7	9778	17.0	110	0.7	5344	3.6
Severn Valley wares	225	8.1	1640	8.2	749	18.1	11240	19.6	4079	24.9	45372	30.2
WIL BB	115	4.1	599	3.0	0	0.0	0	0.0	24	0.1	199	0.1
Other Wiltshire	1232	44.2	7164	35.8	586	14.1	7614	13.3	599	3.7	4010	2.7
Misc other	139	5.0	546	2.7	706	17.0	8195	14.3	2862	17.5	21152	14.1
TOTAL	**2785**	**100.0**	**20036.5**	**100.0**	**4148**	**100.0**	**57404**	**100.0**	16366	100.0	150335	100.0

the early 2nd century. Kingshill similarly seems to have largely abandoned in the second half of the 1st century AD. Middle Duntisbourne had a very short phase of occupation in the mid-1st century AD whilst Duntisbourne Grove may have had a longer timespan dating from the Later Iron Age but finishing around the same time in the pre-Flavian period. Pottery from the Inner enclosure ditch at The Ditches hillfort suggests it was filled in the mid-1st-century AD and completely abandoned before the end of the 1st century AD (Moore 2009b: 107).

Table 6.13 compares the Roman assemblage from Black Grove with that from The Ditches villa (1984-5) and the nucleated Roman settlement at Birdlip Quarry. At The Ditches villa the pottery ranged in date from the early 1st century through to the 3rd century AD (ibid. 124) whilst that from Birdlip Quarry largely dates from the mid-later 2nd to later 4th centuries. At two of the sites North Wiltshire reduced and oxidised sandy wares are well represented accounting for 35.8% wt at Black Grove (BG) compared to 14.1% at The Ditches (D) but only 2.7% Birdlip Quarry (BQ). Instead the bulk of the local coarseware at BQ comprises Severn Valley ware (30.2% wt). This very much suggests that the Cotswolds are forming something of a ceramic watershed for the two regional suppliers with Birdlip being located at the Severn Vale end. At all three sites the dominant regional traded ware is DOR BB1which accounts for 14.9% (BG), 12.7% (D) and 29.2% (BQ). Products of the later Roman colour-coated industries are present at BG and BQ including Oxfordshire, Lower Nene Valley and New Forest colour-coated wares but less well represented at The Ditches where only Oxfordshire wares occur at 0.4% we compared to 0.9% (BG) and 6.9% (BQ). This high figure from Birdlip Quarry is a reflection of the longer sequence of occupation extending in to the later 4th century or beyond and which is also attested by a marked presence of Midlands late Roman shelly ware absent at the other two sites. Another difference, which is clearly chronological, is the lower quantity of Savernake ware at BQ compared to the other two sites. There are also differences in the amount of fine wares present which again a reflection of the chronology and perhaps status. Gallo-Belgic wares are present in small amounts at the Bagendon sites but absent at Birdlip but samian accounts for 2.7% (count) at Black Grove, 3.1% at The Ditches and 2.4% at Birdlip. The higher figure at The Ditches is presumably a reflection of the higher standard of living afforded by the occupants but is fairly exceptional in Gloucestershire where most isolated rural farmsteads / villas with data have figures ranging between 0.1% and 3% with one or two exceptions (Timby 2016). It would seem, therefore, that all three sites had comparable access to the continental and regional traded wares and that differences in the proportions is due in part to chronology. The coarsewares reflect a geographical pattern of supply as well as a slightly different chronological emphasis.

A comparison of vessel forms between Birdlip and Black Grove show a similar trend with jars dominating, 58% eve at BQ compared to 69.6% at BG (NB. The figures for BQ do not include the samian although it was noted that there was a paucity of cups present (Dickinson 1999). It was noted that storage jars were quite rare at

BQ. By contrast, and again a reflection of the later date, bowls and dishes show a relative increase at BQ where they account for 27% compared to 8.6% at BG. Drinking vessels (beaker and tankards) are similar although with a greater emphasis on tankards at BQ probably reflecting the dominance of SVW OX. Mortaria were also slightly more frequent at Birdlip Quarry, perhaps a reflection the larger assemblage and more complex settlement type.

Comparison with Cirencester shows few overlaps in terms of imports in the military period where a different supply system was in operation. Figures for the period *c* . AD75-100 through to the 4th century based on eves (Cooper 1998) show a higher frequency of fine and specialist wares. Samian accounts for *c* 7.7 eve; amphora for 2.8% eve and there is a diverse range of imported and regional mortaria present. Dorset black burnished ware makes up around 17.9% eve and is thus broadly comparable to Black Grove but less than Birdlip. The incidence of regional colour-coated industries seems to be slightly higher in Cirencester presumably a reflection of it urban status.

Description of fabrics and associated forms

Later Prehistoric: imports

Malvernian rock-tempered ware (MAL RE A) (Tomber and Dore 1998: 146; Peacock 1968: fabric A). A distinctive ware containing weathered fragments of metamorphic and igneous rocks which originate from the Malvern Hills. Sherds in this ware account for 5.6% count, 6.2% weight of the enclosure assemblages and less than 1% of the Black Grove assemblage. Form: the only rim-sherd is very fragmentary and from a jar. Date: MIA-1st century AD. Sites: Scrubditch; Cutham; Black Grove.

Palaeozoic limestone-tempered ware (MAL RE B) (Peacock 1968: Group B1). A distinctive limestone-tempered ware originating from May Hill, Malvern Hills, or Woolhope Hills. The latter is suspected as the most likely source at present (Morris 2005: 119). This accounts for 7.7% of the enclosure assemblages less than 1% at Black Grove. Forms: Just one rim from an everted rim jar. A countersunk handle came from (1049) ditch F2. Some vessels show a burnished exterior finish. Date: MIA-late 1st century AD. Sites: Scrubditch; Cutham; Black Grove.

Sandstone (MAL RE C) (Peacock 1968: fabric group C). Generally black or brown in colour; some sherds with a burnished finish. The clay contains a sparse mixed temper with occasional organic matter, sandstone, quartzite, quartz sand and calcareous inclusions, all generally less than 1 mm in size. This ware accounts for 2.7% of the enclosure assemblages. Forms: No featured sherds. Date: M-LIA. Sites: Scrubditch; Cutham.

Mixed grits (MG1): this largely reduced fabric contains a mixture of coarse grits (up to 2 mm) including quartz, shell, iron, mica and fine-grained rock and may be related to Malvernian ware. Form: One small jar rim (Figure 6.7: no. 91). A sherd from (4011) has traces of internal residue. Date: MIA-LIA. Sites: Scrubditch; Cutham.

Later Prehistoric: calcareous

Coarse shelly (SH1): a generally oxidised ware with an orange or pale brown exterior and brown or grey core. The paste contains a sparse frequency of coarse fossil shell up to 4-6 mm in size. In some cases the inclusions have leached out leaving a vesicular fabric with voids. Forms: Jar forms including a beaded form (Figure 6.6: no. 86) and an ovoid example from ditch [3003] (Figure 6.7: no. 97). Date: E-MIA. Sites: Scrubditch; Cutham.

Shelly ware (SH2): as SH1 but with a more crushed temper with fragments of fossil shell 1-2 mm in size. Slightly more common than SH1 accounting for 5.7% by count. Forms: Jars forms (Figure 6.6 and 6.7: no. 82, 94, 96). At least two sherds had internal carbonised residue. Date: E-MIA. Sites: Scrubditch; Cutham.

Limestone-tempered (LI1): mainly oxidised or brown with a sparse frequency of rounded limestone fragments up to 4 mm and occasional fossil shell fragments. Forms: simple round-bodied jars (Figure 6.6: no. 84) and saucepan-style vessels decorated with one or two horizontal grooves (Figure 6.6: no. 87). Date: M-LIA. Sites: Scrubditch; Cutham and ?Black Grove.

Oolitic-limestone-tempered (LI2): an oxidised or brown fabric containing a sparse to common frequency of discrete rounded ooliths. One variant shows a particularly fine speckled appearance (LI2f). Forms: jars including a globular-bodied form (Figure 6.6: 80). Examples of sherds with internal leaching and internal sooting are present. Date: M-LIA. Sites: Scrubditch; Cutham.

Oolitic-limestone-tempered (LI3): as LI2 but with fragments of oolitic conglomerate. Just three small sherds from context (3216) with internal organic residue. Forms: no featured sherds. Date: M-LIA. Site: Cutham.

Oolitic limestone and fossil shell (LI4): a generally black surfaced fabric with a red-brown core containing a moderate frequency of discrete ooliths mixed with fossil shell and other fossiliferous debris, generally less than 1 mm in size. Rare grains of rounded to sub-angular quartzite 1-2 mm in size. Forms: Jars (Figure 6.6: nos. 79, 83, 90). One vessel (Figure 6.6: no. 77) has an incomplete hole drilled into the wall after firing. Date: MIA. Sites: Scrubditch; Cutham.

Limestone and shell (LISH): a grey-black or reddish-orange fabric with a mixture of fossil shell and other debris with ooliths and limestone fragments. The frequency of inclusions varies as does the grade. Two variants are distinguished, one with a particularly coarse (LISHc) fabric; the other with a very fine (LISHf) fabric with inclusions less than 0.5 mm. This is the commonest later prehistoric fabric accounting for just below 50% of the combined Scrubditch and Cutham enclosure assemblages. Most of the sherds are plain with no surface finish but one sherd from F8 is decorated with a triple line (Figure 6.6: no. 78). All featured sherds come from jars, (Figure 6.6and 6.7: 78, 82, 83, 84, 85, 88, 89, 99, 86). A small number of vessels had a leached interior surface or traces of sooting form use. Sites: Scrub ditch, Cutham and Black Grove.

Calcite-tempered (CALC): black, handmade ware with a moderate frequency of crushed angular calcite crystals. No featured sherds but generally used for jars and found in later Iron Age and early Roman contexts. Possible sources for calcite-tempered wares which seem to date from around the 2nd century BC are discussed in Allen (1998). Site: Scrub ditch and Cutham.

Sandy ware with limestone (SALI): a dark brown ware with lighter red-brown core. A fine, sandy clay with a scatter of fine white specks. At x20 magnification the matrix contains a common scatter of fine, rounded, well-sorted quartz (less than 0.5 mm). This is accompanied by a moderate frequency of calcareous matter including fine fossil shell and ooliths of Jurassic source with occasional coarser fragments up to 7 mm. Forms: Jar forms with simple ovoid forms with an undifferentiated rim (Figure 6.7: no. 95) and simple flaring rim (Figure 6.6: no. 91). Date: M-LIA. Site: Cutham.

Sandy with sparse shell (SASH): a single sherd with a sandy textured paste and sparse fragments of fossil shell. Site: Cutham.

Sandy ware (SA1): a sandy handmade ware, black in colour with a common frequency of well-sorted quartz and rare argillaceous fragments of ?mudstone. One sherd from Scrub ditch shows traces of internal residue. Small rim fragment from a jar. Date: M-LIA. Sites: Scrub ditch and Cutham.

Sandy ware (SA2): black ware with a sandy texture and a grey or red-brown core. A moderate frequency of well-sorted fine quartz 0.5 mm and less. The only featured sherd is from a saucepan-style pot from Scrub ditch (Figure 6.6: 81). Date: M-LIA. Sites: Scrub ditch and Cutham.

Sandy ware (SA3): sandy textured ware with ill-sorted quartz marked by occasional large rounded inclusions up to 3mm and rare sub-angular to rounded flint up to 6 mm. No featured sherds. Date: Iron Age. Sites: Scrub ditch and Cutham.

Sandy ware (SA4): black with a finely micaceous fine sandy matrix. No featured sherds. Date: M-LIA. Site: Cutham.

Fine sandy (SAF): a single very small, finely micaceous bodysherd with no visible inclusions. Date: Iron Age. Site: Cutham.

Sandy with limestone, flint and calcite (SALIFLCA): ten sherds from a single vessel from pit 3061 (3062). A sandy textured ware with a sparse scatter of angular flint and calcareous inclusions up to 1-2 mm in size and finer. No featured sherds. Date: M-LIA. Site: Cutham.

Sandy with organic matter (SAOR): a fine-medium textured sandy ware with a sparser to moderate frequency of burnt out organic matter. Eleven sherds from an unphased posthole probably from one vessel but the surfaces are lost. Date: Iron Age? Site: Cutham.

Flint-tempered (FL): A single sherd with a moderate frequency of fine, angular calcined flint up to 1 mm in size and finer. Basesherd, probably from a saucepan-style pot. Date: M-LIA. Site: Cutham.

Grog-tempered ware (GR) (Gloucester type fabrics (TF) 2C): Forms: largely featuring as handmade jars, including storage jars. A more unusual example of a straight-sided dish was recovered from enclosure ditch 310. Date: early 1st century AD continuing into the early Roman period. Site: Cutham; Black Grove.

ROMAN

CONTINENTAL IMPORTS:

Samian (see Willis this report).

Central Gaulish black-slipped ware (CNG BS) (Tomber and Dore 1998: 50). Three bodysherds. Date: late 2nd-3rd centuryAD. Site: Black Grove.

Gallo-Belgic terra nigra (GAB TN) (Tomber and Dore: 15). Four sherds from platters including *Camulodunum* (Cam.) types 5 and 13. Date: Tiberian-Neronian. Site: Black Grove.

Gallo-Belgic terra rubra (GAB TR3) (Tomber and Dore: 21). Six sherds including at least two in the earlier pink fabric. One rim from a Cam. 112 butt beaker. Date: pre-and early conquest. Site: Black Grove.

Baetican amphora (BAT AM) (Tomber and Dore: 84). Four bodysherds. One from cxt. 5008 is burnt. At least one thinner-walled sherd is likely to come from a Haltern form 70. Amphorae in this fabric originate from the Guadalquivir Valley, Baetica, Southern Spain and were generally used to transport olive-oil for cooking, lighting and bathing. Date: 1st-3rd AD. Site: Black Grove.

Gaulish amphora (GAL AM) (Tomber and Dore: 93-5). Form: A single sherd from an amphora used to transport wine. Date: 1st-3rd century. Site: Black Grove.

REGIONAL WARES

Dorset black burnished ware (DOR BB1) (Tomber and Dore: 127). Forms: sherds are predominantly from jars decorated with burnished lattice, plain-sided dishes, flat-rim bowls/ dishes, grooved rim dishes and flanged-rim conical bowls. Date: 2nd-4th century. Site: Black Grove.

Oxfordshire red-slipped ware (OXF RS) (Tomber and Dore: 176). Forms: dishes Young (1977) type C45; bowls (Young type C51 x3) and C71 and mortaria, including (ibid. type C97). Date: AD 240-400. Sites: Cutham; Black Grove.

Oxfordshire white ware (OXF WH) (Tomber and Dore: 174). A single sherd from a mortarium. Date: 2nd-4th century. Site: Black Grove.

Oxfordshire white-slipped mortaria (OXF WS) (Tomber and Dore: 176). Several sherds from a single mortarium, Young (1977) type WC7. Date: mid-3rd-4th century. Site: Black Grove.

New Forest red-slipped ware (NFO RS2) (Tomber and Dore 1998, 142). Two sherds are present including one from a jug, Fulford (1975) type F95. Date: 4th century. Site: Black Grove.

LOCAL WARES: Severn Valley wares

Severn Valley ware (oxidised) (SVW OX) (Tomber and Dore 1998: 148-9). Forms: carinated cups / bowls (Webster 1977 type 59-60) (Figure 6.6: 102); everted, flared rim and expanded rim, necked jars; plain-rimmed dish, beaker and tankards. It is difficult to separate out carinated cups/ bowls from tankards from small rim sherds. Date: 1st-4th century. Sites: Scrub ditch; Cutham; Black Grove.

Early Severn Valley ware. (Gloucester TF 11D). Included in this bracket are 'proto'-Severn Valley wares, handmade with black surfaces and a paste containing grog/ clay pellets and organic material. The early fabrics contain a higher proportion of organic material, clay pellets/ grog and other inclusions. Vessels are occasionally burnished. Forms: everted rim jars; carinated cups/ bowls. Date: *c* AD 30 – 100. Sites: Cutham; Black Grove.

LOCAL WARES: Wiltshire wares

Black grog-tempered (BWGR). One handmade, everted rim, jar. Date: 1st century AD. Site: Black Grove.

Black sandy grog-tempered (BWGRSA). No featured sherds. Date: 1st century AD. Site: Black Grove.

Miscellaneous other grog-tempered (GR). No featured sherds. Date: 1st century AD. Site: Black Grove.

Oxidised grog-tempered (OXGR). A single sherd from a beaded rim jar. Date: 1st century AD. Site: Black Grove.

Savernake ware (SAV GT) (Tomber and Dore 1998: 191). Used exclusively for jars, particularly large storage jars but also included beaded rim, triangular rim and expanded rim jars. One sherd from (5021) has a post-firing graffiti (Figure 6.7: no. 101). Date: mid-1st century AD – 2nd century AD. Sites: Cutham; Black Grove.

Southwest white-slipped ware (SOW WS) (ibid. 192). Although often found as small flagons the only featured sherd here is an everted rim jar. Date: later 2nd-3rd century. Site: Black Grove.

Southwest oxidised/reduced ware (SOW OX/RE). Oxidised and grey reduced versions of SOW WS. No featured sherds. Date: 2nd-3rd century. Site: Black Grove.

Wheelmade black burnished ware (WIL BB). A wheel-made black burnished ware well documented from Cirencester in the Neronian period through to the early 2nd century (Rigby 1982a). Vessels include beaded rim and everted rim jars; a carinated bowl (Figure 6.7: no. 104); dishes and a platter copying imported moulded form Cam. 12. Sites: Cutham; Black Grove.

Wiltshire colour-coated ware (WIL CC) (Anderson 1978). No featured sherds. Date: 2nd century. Site: Black Grove.

Wiltshire mica-slipped ware (WIL MI). Two sherds from an indented beaker and an everted rim jar. Date: 2nd century. Site: Black Grove.

Wiltshire oxidised ware (WIL OX) (Anderson 1979). A range of wares from the North Wiltshire kilns. Vessels include beaker copying butt beakers (Figure 6.7: no. 103); tankards; reeded-rim bowls and everted rim jars. One bodysherd from (5029) has white painted decoration. Date: Flavian - 2nd century. Site: Scrub ditch; Cutham; Black Grove.

Wiltshire fine oxidised ware (WILOXF). Vessels include flagon with at least one ring-necked type, small jars / beakers. Sharply everted rim beakers and two bodysherds from colanders. Date: Flavian -2nd century. Site: Black Grove.

Wiltshire grey sandy ware (WIL RE1) (Anderson 1979). Although one of the common fabrics here accounting for 12.7% by count of the Black Grove assemblage the range of forms is limited to jars only. These include examples with pendant, flared, simple everted and cavetto rims. Date: Flavian-4th century. Site: Scrub ditch; Cutham; Black Grove.

Wiltshire grey sandy ware (WIL RE2). A harder, dark grey version with a red core and slightly sandy texture. No featured sherds. Date: 2nd – 4th century. Site: Black Grove.

Wiltshire fine grey ware (WILREF1). A particularly common ware accounting for 22.7% by sherd count of the Black Grove assemblage. Again a fairly limited range of vessels dominated by jar with just single examples of sharply everted and necked beakers, one with rouletted and wavy line decoration and a bowl with a beaded rim and curved profile. The jars are largely simple everted rim, cavetto rim, flared rim and expanded rim forms. One bodysherd has rusticated decoration. Date: Flavian - 2nd century. Site: Black Grove.

Wiltshire fine grey ware (WIL REF2). Seven bodysherds from a butt beaker with rouletted decoration in an exceptionally fine, pale grey ware with a silky surface. Date: 1st century AD. Site: Black Grove.

Wiltshire grey grog-tempered (WILGYGR). A hard, moderately fine grey fabric with a sparse frequency of grey grog/ clay pellets. Just four rims, three from simple jars, one from a sharply everted rim beaker. Date: mid-later 1st century AD. Site: Black Grove.

UNKNOWN (all Black Grove only)

Black-surfaced grey ware (BSGY). No featured sherds.

Black surfaced oxidised ware (BSOX). No featured sherds.

Black surfaced whiteware (BSWW). No featured sherds.

Buff sandy ware (BUFF). No featured sherds.

Fine black micaceous ware (BWFMIC). Featured sherds limited to a jar, plain-rimmed dish and beaker.

Fine black sandy ware (BWFSY). No featured sherds.

Black sandy ware (BWSY). Beaded rim and everted rim jars

Grey sandy wares (GY). Two rimsherds, a squat, flanged-rim flagon and a flat rim dish.

Grey with limestone (GYLI). A single jar.

Fine oxidised micaceous (OXFMIC). This may include some Oxfordshire sherds which have lost their surface finish but bodysherds also feature a colander sherd.

Fine oxidised ware (OXIDF). No featured sherds.

Miscellaneous oxidised (OXID). No featured sherds.

White-slipped oxidised (WSOXID): Two sherds one a handle from a flagon; the other an everted rim jar.

SAXON

SXOR: fine textured clay with a common frequency of burnt out organic temper. No featured sherds. Site: Cutham.

SXSAOR: sandy textured with black exterior surface and a brown core and interior. The paste contains a sparse temper of organic inclusions along with ill-sorted, rounded to angular grains of quartz sand, ironstone and rare flint up to 3 mm in size. No featured sherds. Site: Cutham.

SXSAFMIC: fine sandy, micaceous clay. No featured sherds. Site: Cutham.

Roman Amphorae (Excavations 1979-81)

D.F. Williams

The amphorae assemblage from Bagendon comprises 49 bodysherds, many of which are fairly small and some of which have been adversely affected by burial conditions. Together, they represent perhaps four different types of amphora and these possibly derive from eight separate vessels. It is interesting to note that this range of late Republican sherds recovered from the 1979-81 excavations closely mirrors those found previously from the site (Clifford 1961; Peacock 1971).

Sherds nos. (1) and (2), quite possibly from the same vessel, are in a Catalan red granitic fabric and are likely to come either from the form Pascual 1 or Dressel 2-4, both of which carried wine and were made along the coastal zone of north-eastern Spain, especially in the area of Barcelona (Peacock and Williams 1986, Classes 6 and 10; Williams and Keay 2006). Sherd no. (12) is slightly ribbed and is perhaps from a Haltern 70 vessel. Like the later commonly found Dressel 20, it was also produced in the upper and middle Guadalquivir Valley, as well as the coastal region of Baetica (Carreras *et al.* 2005). Amphorae of this type from the Port Vendres

Table 6.14. Quantification of amphora sherds by fabric

Type	Count	Weight(g)
Catalan	2	122
?Italian Dr. 2-4	45	2055
?Haltern 70	1	90
Southern Spanish	1	80
Total	**49**	**2347**

Claudian shipwreck bear inscriptions naming the contents as *defrutum*, a sweet syrupy liquid obtained by boiling down the must (Colls *et al.* 1977). However, this amphora form may have carried a variety of contents, as other painted inscriptions describe the contents as olives in *defrutum* or *muria,* while wine may also have been carried according to the results from phytolith analyses (Carreras 2003; Carreras *et al*., 2005). Sherd no. (13) is probably from a southern Spanish amphora. It is not possible to identify the precise form involved but it is quite likely that it is included within Peacock and Williams' Classes 16-19 (Peacock and Williams 1986; Williams and Keay 2006). According to *tituli picti* associated with these forms, they predominantly carried fish-based products such as *muria*, *liquamen* and *garum* and come from around the coastal areas of southern Spain, mainly between Cadiz and Malaga (Martin-Kilcher 1990; Martin-Kilcher 2003). The remaining forty-five bodysherds are all plain and predominantly small but most likely belong to the bifid-handled wine amphora Dressel 2-4. There are at least five vessels represented here and the fabrics suggest an Italian origin.

All of the forms mentioned above, though produced from the late first century BC well into the first century AD, are found in pre-Roman contexts at a number of sites in and around the Wessex region, with a concentration around Poole Harbour and Hengistbury Head (Williams 1981; 2000; Peacock, 1984; Williams and Peacock 1994). However, it is worth noting that to date, all the evidence of Pascual 1 finds in Britain come from pre-Roman contexts (Williams 1981; Williams 2000; Williams and Peacock 1994). Though, of course, it is equally possible that the two small Catalan sherds come from a Dressel 2-4 form, since the same fabric was used for both types.

Catalogue

1) BAG81 (81-37) (Pit ADa) Fabric 65
Red coloured hard, rough, bodysherd with visible inclusions of granite, quartz and feldspar, with some golden mica (108gms). Catalan fabric.
2) BAG81 (81-7) (Pit AF) Fabric 65 Draw 50
Small bodysherd shaped into a circular ?spindle whorl with central hole, roughly half remaining (14gms). Same Catalan fabric as no. (1).
3) BAG81 (81-44) (Pit AE) Fabric 64
Small sandy buff-coloured bodysherd with inclusions of pyroxene (8gms). Probably from an Italian Dressel 2-4.
4) BAG81 (81-20) (Pit AH) Fabric 53
Fifteen bodysherds, all probably from the same vessel (407gms). A somewhat sandy buff-coloured fabric, possibly from an Italian Dressel 2-4.
5) BAG81 (81-51) (Pit AD) Fabric 68
Moderately fine textured, slightly micaceous bodysherd, possibly from an Italian Dressel 2-4 (50gms).
6) BAG81 (81-20) (Pit AH) Fabric 47
Twenty-three bodysherds, probably from the same vessel, in a reddish sandy, argillaceous, fabric with a scatter of small pieces of white limestone and occasional pyroxene (1,412gms). Probably from an Italian Dressel 2-4.
7) BAG81 (81-14) (Pit AK) Fabric 47
Bodysherd (92gms). Fabric as for no. (6).
8) BAG79 (79-17) (Pit AF) Fabric 47
Small bodysherd (10gms) Fabric as for no. (6).
9) BAG81 (81-25) (Pit AF) Fabric 47
Bodysherd (12gms). Fabric as for no. (6).
10) BAG79 (79-30) (Pit AE) Fabric 47
Bodysherd (46gms). Fabric as for no. (6).
11) BAG79 (79-13) (Pit AA) Fabric 47
Small greyish bodysherd with a less sandy fabric to rest of the Fabric 47 group above (18gms). Possibly from an Italian Dressel 2-4.
12) BAG79 (79-29) (Pit AD) Fabric 59
Slightly ribbed buff sandy bodysherd, perhaps from a Haltern 70 vessel (90gms).
13) BAG79 (79-18) (Pit AA) Fabric 59 Bag no. 93
Sandy, light buff-coloured bodysherd, probably from a southern Spanish form (80gms).

The *Terra Sigillata*

Steven Willis

This report catalogues and discusses the previously unpublished *terra sigillata* from the 1979-81 seasons at Bagendon but begins with a review of sherds arising from Clifford's work in the 1950s. Dirk Visser has kindly assisted with the identifications.

***Terra sigillata* from features of the earliest phase (Period IA) examined during Clifford's excavations 1954-6**

Introduction

Dr Moore was able to locate a number of sherds amongst the Clifford archive relating to, or likely to relate to, the earliest deposits encountered during those excavations. The purpose was to verify the sources of the material and the dates for the vessels, given that knowledge of the typology and chronology of early *terra sigillata* has advanced since this assemblage was examined and reported by Rex Hull nearly 60 years ago (Hull 1961a). Since there are some issues with the curation of the material and paper archive from Clifford's work it is not always clear which contexts some sherds were recovered from (Tom Moore pers. comm.). Accordingly, the marking appearing on the sherds is given in the catalogue below; this marking may have happened subsequent to the original post-excavation and recording, and hence may not be entirely reliable across the archive. However, in the present case the sherds correspond with information given in Hull's report. The catalogue here, therefore, documents the selection made on the basis of Dr Moore's identification of the stratigraphically earliest pieces, where they could be isolated. All of the illustrated vessels of Period IA appearing in Clifford's fig. 44 were located and are itemized below. There are four vessels of this category and the original drawings from the 1961 publication are reproduced here for convenient reference (Figure 6.8). It is worth mentioning that all of the sherds examined are in a good state of preservation.

Catalogue

Format of the Catalogue

The catalogue adheres to a consistent format. Contextual details are given with annotation on associated museum bags and cards given within quotation marks. Each entry per context relates to an individual vessel represented in that context. The following data are then given: the number of sherds and their type (i.e. whether a sherd is from a rim, base (footring), or body of a vessel; there are no full profile sherds amongst this group), the source of the item, (South Gaulish is abbreviated to SG), the vessel form (where identifiable), the weight of the sherds in grams, the percentage of any extant rim (i.e. the RE figure, where 1.00 would represent a complete circumference) or base (i.e. the BE figure) and the rim and base diameters where this can be measured, and an estimate of the date of the sherd in terms of calendar years (this being the date range of deposits with which like pieces are normally associated). Details of the nature of the fabric and slip are given in addition, in

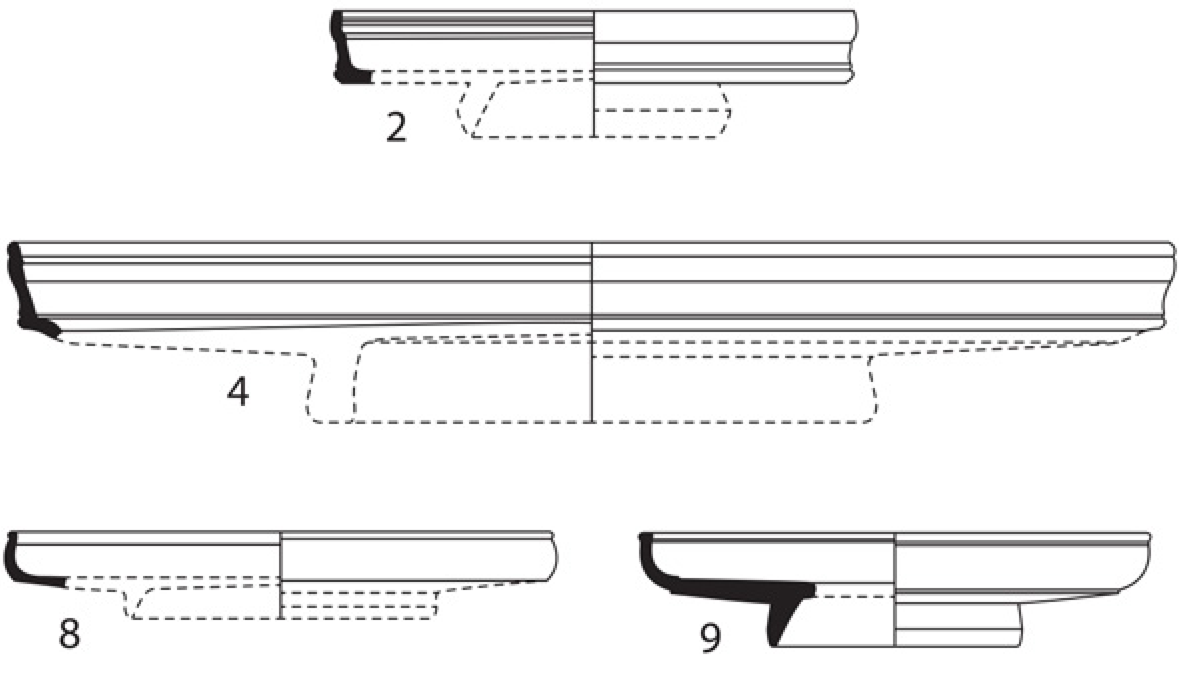

Figure 6.8. The four vessels from Period IA ditch fill contexts at Clifford's trench B, as originally published (Clifford 1961, fig.44 nos 2, 4, 8 and 9).

some cases, where this qualitative information may be helpful. The presence of other features such as abrasion and repair is also noted. These sherds come from fine thin-walled vessels of light weight.

Catalogue (with the assistance of Dirk Visser)

Site A. 'Rampart and Ditch'

'From the bottom of the ditch'. Probably Context 5 (see Clifford 1961: fig. 3), the initial silting (Tom Moore pers. comm.).

Body sherd, SG La Graufesenque, form not identifiable, 0.4g, c. AD 20-40/50. The fabric looks early and is fine; the slip is matt and of good quality. This is essentially a flake with one surface completely missing.

'From three feet, 6 inches deep', marked '3'. Probably Context 2 (see Clifford 1961, fig. 3), upper fills (Tom Moore pers. comm.).

Body sherd, SG La Graufesenque, from a small platter, 3.9g, *c.* AD 20-40/50. The fabric is again of early appearance though the slip is a 'red wine' colour; that being so there is some chance this is Claudian in date. It is possible that this item is from the same vessel as the sherd catalogued above. From the floor of the vessel close to the footring; broken at junction with the footring.

Site B. Illustrated items from Ditch fills of Period IA

Clifford fig. 44 no. 2. From Area 5S, Ditch 4S, level 16, marked as 'V S 14'. This section was not illustrated in Clifford 1961.

Rim sherd, SG La Graufesenque, Drag. 17a, small platter, 6.8g, RE: 0.10, Diam. 150mm, *c.* AD 20-40. The interior below the rim has an unusual moulding variant (as noted by Hull (1961a: 205)). The vessel is not rouletted but is finely finished. On the basis of the fine fabric and matt slip alone an early date is apparent. The rim shows moderate wear or abrasion.

Clifford fig. 44 no. 4. From Area 7S, Ditch 5S, level 16, marked as '7S OUT 16'. (This section was not illustrated in Clifford 1961).

Rim sherd, SG La Graufesenque, Drag. 15/17, large platter, 16.5g, RE: 0.07, Diam. 330mm, *c.* AD 25-50. This vessel has sharp mouldings and a matt slip; the finishing and slip are very fine.

Clifford fig. 44 no. 8. From Area 7S, Ditch 4S, level 16, marked as '7S MID 16'. (This section was not illustrated in Clifford 1961).

Rim sherd, SG La Graufesenque, Ritt. 1, small platter, 6.6g, RE: 0.11, Diam. 150 mm, *c.* AD 25-45. This vessel has a thin wall and is grooved below the rim on the interior, with a 'step' feature at the junction of the floor and rim. As Hull (Hull 1961a: 206, fig. 44 no.8) notes this vessel has a matt gloss slip; the fabric is pale pink. This is a fine quality item, very well finished. This form is rarely found in deposits dated after *c.* AD 40-50. The rim shows moderate wear or abrasion.

Clifford fig. 44 no. 9. From Area 7S, Ditch 5S, level 16, all marked '7S OUT 14' although fig. 44 no. 9 is recorded as from level 16, Period IA (Hull 1961a: 206). (This section was not illustrated in Clifford 1961).

Three rim sherds, one body sherd and one base and floor sherd, all conjoining, SG La Graufesenque, Drag. 18, platter, 65g, RE: 0.26, Diam. 190mm, BE: 0.26, Diam. 70mm, *c.* AD 15-35. There is an unusual groove (channel) around the top (apex) of the rim (noted by Hull). This feature, the lighter patches of slip on the underside of the floor, the off-set at the base of the wall on the exterior and the high footring are all features associated with early examples of this form. Hull (1961a: 206) notes that the fabric almost resembles Arretine ware and that is also true of the slip; the double-groove on the upper side of the floor over the footring and the high footring are also features associated with Arretine ware. There is an inscribed graffito 'M' on the underside of the floor, outside the footring with the head of the M facing the footring. The rim and footring show wear. Two drilled rivet holes occur on the floor of the vessel forming a pair either side of a break between two sherds, one still with a lead plug *in situ*. They are 4.5mm in diameter on the upper side, narrowing slightly by the underside (these are not noted in Hull's report). All five sherds have been previously glued (since excavation) but only two are currently still joined. Fig. 44 no. 9 in the Clifford volume shows this vessel with a miniature spiral handle, as would be expected on a vessel of this form and date, and it is a feature that Hull specifically draws attention to (1961a: 206), curiously, however, there is no trace of this attribute on the present sherds, nor a scar where it has been lost. Hull records four joining fragments rather than five and with no 'fresh breaks' present here it would seem that these five were grouped after Hull's study yet they are all marked in the same hand as coming from the same context. Hull does mention another rim sherd likely to be from this vessel, recovered from Site B 3AS, level 14 in Ditch 1AS of Period IIA but does not say it joins as do these five; possibly this sherd was grouped with the other four before marking and it was marked alongside the rest as coming from the same context: whatever, some explanation is needed. The extant profile represented by the present five sherds is in agreement with the illustration from 1961, bar the absence of the handle (Figure 6.8).

Site B. Other sherds from early contexts

Sherd marked as 'VS 14'. According to the Fell concordance this should be from 5S, Ditch 4S, level 16 (Tom Moore pers. comm.).

Body sherd, SG La Graufesenque, Drag. 17 (either 17a, b or c), from a platter, 1.1g, *c.* AD 20-40/45. This sherd is thin and from the junction of the wall and floor.

Sherd marked as 'VII, N, D, 9'. According to the Fell concordance this should be from Area 7N, Ditch 4N, level 9 (Tom Moore pers. comm.).

Rim sherd, SG La Graufesenque, Drag. 17a, from a large platter, 11.5g, RE: 0.025, Diam. 255mm, *c.* AD 20/25-35/40. The sherd includes the rim and wall and part of the floor; the diameter can be measured from the angle of the junction of the floor and wall. This sherd is from a vessel with a very fine fabric and it has been extremely well-finished with subtle mouldings (expertly fashioned). The form is similar to that of fig. 44. no. 1 (Clifford 1961).

Sherd marked as '7S OUT 16'. According to the Fell concordance this should be from Area 7S, Ditch 5S, level 16; the section is not illustrated in Clifford 1961 (Tom Moore pers. comm.).

Rim sherd, SG La Graufesenque, Drag. 17a, from a platter, 2.2g, RE: 0.06, Diam. 170mm, *c.* AD 15-35. Again this sherd is thin. There is an extra groove on the interior wall which may be unintentional. The fabric is very fine and the slip matt, similar to that of others amongst this selection. A note on the museum card bagged with this sherd says 'Joins 7S Mid 8'.

Two sherds marked as 'VN 15' and one marked 'VN D 15'. According to the Fell concordance these should be from Area 5N, Ditch 5N, level 9 but could be from Ditch 4N, level 9 (Tom Moore pers. comm.).

Rim sherd, SG La Graufesenque, Loeschcke 2A/Drag. 17a, from a platter, 1.4g, RE: 0.05, Diam. *c.* 170mm, *c.* AD 20-40. The exterior of the rim shows no moulding which is a feature hard to parallel. Again this sherd is thin. The rim is worn/abraded. This is the sherd marked 'VN D 15'.

Dirk Visser writes: There are some examples of Drag 17a which also have a very faint rim profile at the outside (for example a vessel stamped by Anextlatus from the Kops Plateau, Nijmegen, find no. 1.1976.1/Ko 44 y). This Bagendon piece indeed shows a beginning of very faint concave moulding below the upper convex moulding, immediately followed by a number of grooves. These grooves seem to point to a mistake during fabrication. There are other known Drag 17a and 15/17 vessels that display a series of grooves on parts of their rims due to an accident during the production process. In this case the 'Schwung' of the rim 'fits' in my opinion rather more probably to a Drag 17a than to a Drag 15/17 rim, the latter often being somewhat more vertical. However, the possibility this is from a Drag 15/17 cannot be excluded.

Base sherd, SG La Graufesenque, small Drag. 24/25, from a small cup, 1.6g, BE: 0.19, Diam. *c.* 40mm, *c.* AD 25-40/45. The footring is bevelled with this early example of the form. This is a fine quality vessel. The base of the footring has extant slip and grit indicating it had been little used prior to breakage/loss. There is no part of a stamp represented.

Body sherd, SG La Graufesenque, from a platter, precise form not identifiable, 1.1g, *c.* AD 25-45. This is from the floor of the vessel and a double ring-groove is present on the upper side of the floor; the floor is flat. This sherd is from a vessel of fine quality, with a very good slip.

Five sherds marked as 'VN IN. 16'. According to the Fell concordance these should be from Area 5N, Ditch 4N, level 9 (Tom Moore pers. comm.).

Rim sherd, SG La Graufesenque, Loeschcke 1A/Drag. 15/17, platter, 1.5g, RE: 0.03, Diam. uncertain, *c.* AD 10-30. This sherd has a pale beige-very light brown fabric and a brown slip, an appearance it shares with some other very early products from La Graufesenque. The rim form is a rare variant probably due to the fact that production was not fully standardized at this early date. There is no exterior rouletting. Matt slip. Similar examples in terms of form and fabric occur at Vechten, founded in the Augustan era and with Tiberian occupation (Polak 2000), and at the Kops Plateau, Nijmegen, seen with the vessels of Uruoedus (Hartley and Dickinson Vol. 9, (T to XIMUS), 128).

Rim sherd, SG La Graufesenque, Drag. 17a, platter, 1.2g, RE: 0.025, Diam. uncertain, *c.* AD 15/20-35. The vessel is thin-walled and of extremely fine quality.

Rim sherd, SG La Graufesenque, perhaps Drag. 11, crater, 1.5g, RE: 0.03, Diam. uncertain, *c.* AD 20-45. This vessel has a vertical rim, which is very low, being a feature of some examples of Drag. 11. This sherd rim though shows features that are not readily associated with Drag. 11 and so its form attribution remains uncertain. The slip is matt to satin and the overall quality is very fine. That the rim form is not typically diagnostic may reflect production prior to close standardization.

Body sherd, SG La Graufesenque, from a large platter, probably Drag. 18, 1.7g, *c.* AD 20-45/50. From the floor of the vessel, totally flat with a 'step' as the floor develops into the wall and a slight groove on the underside. Thin and of very fine quality. Probably Tiberian.

Rim sherd, SG La Graufesenque, Ritt. 1, small platter, 1.3g, RE: *c.* 0.025, Diam. uncertain, *c.* AD 20-50. This is from a different vessel to the one illustrated as fig. 44 no. 8. Again this is thin-walled. The slip is matt and the fabric is fine. This is probably the sherd mentioned by Hull (1961a: 206 under 'Camulodunum S7').

Two sherds marked as '7S MID 16'. According to the Fell concordance these should be from Area 7S, Ditch 5S, level 16 (Tom Moore pers. comm.).

Body sherd, SG La Graufesenque, Drag. 17a or b, small platter, 12.4g, *c.* AD 20-35/40. The sherd is from the floor of the vessel and includes part of the junction with the wall. The floor is flat and absolutely smooth. The outer angle at the junction of the wall and floor gives a diameter measurement of 150mm. This vessel is of exceptionally fine quality.

Rim sherd, SG La Graufesenque, probably Ritt. 8, cup, 1g, RE: *c.* 0.04, Diam. *c.* 100mm, *c.* AD 35-60/65. This small sherd appears to be from a Ritt. 8, with a 'hammer-head' type rim with exterior groove below the rim, a slight groove at the apex of the rim and an internal projection. Some examples of Ritt. 8 have a thickening of the upper wall towards the rim, which is flattened and largely triangular, with, diagnostically, a groove at the inside just below the apex, as here, thereby indicating the form is Ritt, 8 (cf. Monteil and Silvéréano 2011: 125, fig. 12, 3-4, stamped by Rogatus and Albus i (?) occurring amongst the Narbonne-La Nautique deposit).

Discussion

Overall, the number of sherds of *terra sigillata* recovered during the work by Clifford was modest, amounting to 175 fragments, many being tiny 'chips'. Amongst these Hull considered 64 to be sufficiently large, representing a small suite of vessels (Hull 1961a: 209). However, the excavated trenches were of limited size and extent and so it is likely that the actual number of vessels arriving at Bagendon and in use around the general areas examined by Clifford is considerably higher, making this an all the more remarkable assemblage when this consideration is factored in.

There is a striking consistency to this group of *terra sigillata* sherds from Clifford's intervention examined here in terms of date, source and forms. In considerable part this is because they were selected for review by Dr Moore given their association with Period IA deposits. Examination of the fabrics of these vessels shows them to all be from a single source: La Graufesenque in early iterations of the fabric. This pattern contrasts with the somewhat varied sources of the material from the 1979-81 trenches. Dannell, in reporting the early *terra sigillata* from the 1961-9 excavations at Fishbourne noted the variety of sources that characterised the material of early date (Dannell 1971: 266; see also below). However, the date of the material recovered from the early deposits within Clifford's trenches may reflect the beginning of the rise to dominance of the La Graufesenque industry. Returning to the Bagendon material under consideration here, there may of course be items from other production sources amongst that part of the assemblage from Clifford's work not reviewed here and re-examination of those items will be worthwhile at a future date given current knowledge. The conclusion here regarding the single source is consistent with Hull's comments in the original publication (Hull 1961a: 209-10). Considering the date of the pieces, on the basis of the sherds re-examined here, Hull's conclusions remain convincing. He observed that the series forthcoming from Clifford's excavations shows a later start date than at *Camulodunum* (Hawkes and Hull 1947); that may not mean that Bagendon itself had a later start date, simply that the sigillata from Clifford's trenches dates no earlier than *c.* AD 20/25, with Period II being post-conquest (Hull 1961a: 209). Our dates, suggested here, for individual vessels, concur closely with that dating suggested originally by Hull, then echoed in Dannell's review of the material more than forty years ago (Dannell 1977: 231). Taken as a whole, the outer range suggested by the sherds recorded here is AD 10-50 (discounting the rim sherd from 7S MID 16 dated *c.* AD 35-60/65 which is of unusual form) but with the clear emphasis on the period *c.* AD 20-40. If this material relates to a single consignment or several consignments around a particular point in time then a date of around AD 30 immediately suggests itself as the likely time of arrival. Considering this aspect a comparison with the *terra sigillata* from the pit at Carsalade, Nimes, dated to *c.* AD 20-30 is instructive (Barberan 2013: 175). Of course, it may be that there were occasional consignments or groups of sigillata reaching the site in the years prior to the Claudian invasion. If there were not then that may explain the high frequency of repaired vessels amongst this material, implying it was valued and not readily replaced (Table 6.21). Some later pieces of Tiberian/Claudian *terra sigillata* do, however, occur as with the vessel stamped by Licinus recovered in the 1979 season and dated to *c.* AD 35-45 (see below), and with the Ritt. 8 from Clifford's work (from 7S MID 16, see above), though both these vessels could be post-conquest arrivals (the latter even Claudio-Neronian).

An adjunct to this discussion are the findings of Dannell's re-examination of the Clifford material in the mid-1970s (Dannell 1977). He viewed all the available sherds. He concluded that all the items he could locate appearing in fig. 44 were from La Graufesenque, bar no. 19 which he attributed to Lezoux and of second century date (Dannell 1977: 229), Hull himself recognizing its affinity to the Drag. 38, a form that dates from *c.* AD 130; in any case this came from Period IIIB. Dannell recognized one sherd as being Italian, from a footring but it was not diagnostic of specific source. Further, he noted also the presence of 14 pieces of Tiberio-Claudian Lezoux ware amongst the assemblage (Tomber and Dore 1988: LEZ SA1; cf. Dannell 1971: 266-7). These comprise the following forms: Ritt. 5 (2), Drag. 17 (3), Drag. 15/17 (1), Drag. 24/25 (2), Drag. 29 (1), Drag. 33 (1) with other sherds from platters (3) and a lid. These early Lezoux items and the Italian piece are consistent with the dating bracket discussed above. Unfortunately, Dannell did not list the items of fig. 44 that he saw nor the contexts of the Italian sherd and the early Lezoux sherds; nor did he suggest individual dates per item. Clearly, none of these were from the Period IA deposits looked at here; hence it would appear their arrival post-dates Period IA.

Table 6.15. Early *Terra sigillata* types present amongst the assemblage arising from the Clifford excavations and those of Period IA examined in this review; ns – not identified to specific form (see Hull 1961: 203 and 209)

Form Type Present	**Functional Category**	**No. of Sherds recorded by Hull**	**No. of examples identified in this (selected) catalogue**
Loeschcke 1	Platter		
Drag. 17	Platter	19	7
Loeschcke 5	Platter	3	
Drag. 15/17	Platter	11	2
Ritt. 1	Platter	6	2
Drag. 18	Platter	3	2
Platter (ns)	Platter		2
Loeschcke 7	Cup	2	
Ritt. 5	Cup	11	
Drag. 27	Cup	10	
Drag. 24/25	Cup	19	1
Ritt. 8	Cup	1	1
Ritt. 14	Cup	1	
Drag. 33	Cup	1	
Drag. 11	Crater	1	1?
Drag. 11 or 29	Crater/Bowl	1	
Not identified		-	1
Total		*89*	*19*

In terms of forms the representation of platters amongst the selection examined here is unusually strong. There are 15 catalogued here together with only two cups, a possible crater and one item where the form cannot be discerned. That might be related to the selection of the group for re-examination yet Hull's listing includes several cups and fig. 44 in the 1961 volume illustrates seven types and variants of cups. Hull's listing from the 1961 volume is reproduced here in tabular form indicating that amongst the sherds identified to form there is an essentially even balance between platters and cups. The implication therefore is that platters may have arrived at the site (or rather the part of the site examined by Clifford) in greater proportions than cups during Period IA. The overall number of vessels is modest and needs to be borne in mind but this possibility warrants closer attention by any future review. Amongst the platters Drag. 17 is most frequent and that in itself is a telling chronological indicator, indicative of a Tiberian date. Considering the early sigillata forms overall (as per Table 6.15) a range of platters, some with higher sides that might be termed dishes, cups and small bowls, plus occasional decorated larger bowls or craters would constitute a typical well-to-do dining service of the Tiberian era.

There are two manufacturers' stamps from the Clifford excavations dating to the early period of *terra sigillata* consumption at Bagendon. One is a basal stamp reading 'VOTORNI' with retrograde N, recovered from 'Site B, 2S, level 3 Period IIIB)'. It comes from a thin platter probably of Ritterling form 1 or possibly Drag. 18 (Hull 1961a: 204 and 206, fig. 43 no. 7). This is described by Hull as being of pale yellowish fabric with matt red 'glaze' Hull (1961a: 204). This stamp was not examined as part of this review as it was previously catalogued and identified by Hartley and Dickinson. They identified the manufacturer as Votornus and this is an example of die 1a by their corpus; the fabric is that of La Graufesenque and this stamp is dated accordingly, following their date assignment, as *c.* AD 15-35 (Hartley and Dickinson, Vol. 9, (T to XIMUS), 348-9). Examples of the work of this producer are extremely rare. There is a stamp recorded from the Kops Plateau, Nijmegen, in die 1b of this producer (Dirk Visser pers. comm.), this being very similar to die 1a. The second stamp was fragmentary, ending]LI' and described by Hull as occurring on a 'chip' from a 'South Gaulish platter' (Hull 1961a: 204), from Site B, 8N, level 10 (Period IA). Again this item was indexed by Hartley and Dickinson who identify the stamp as (complete) 'OFI. IVLI' being the work of Iulius i, die 5a, from La Graufesenque, with his output dating *c.* AD 20-50 (Hartley and Dickinson Vol. 4, (F to KLUMI), 329-31). They suggest that the vessel form is Drag. 24. Otherwise the assemblage arising from Clifford's work is typologically so early stamps may not have survived, as often at this time they were more lightly impressed and would be vulnerable where the floor of the vessel was raised at the centre (where they normally were placed), as was often the case with platters. In addition, the fabrics were softer and less robust than mid- to late first century (and later) samian when firing temperatures where higher and the vessels more hard-fired.

Hull reports that the Bagendon assemblage was particularly fragmented. In the case of the *terra sigillata* that may be due to the markedly thin-walled character of these fineware vessels, coming from an area of evidently sustained intense activity with trampling likely given Site B included a roadway and roadside ditches. The sherds examined in this review, though small and light, were not noticeably more fragmented than would normally be expected. Amongst the sherds from the 19 vessels re-examined here only one shows evidence of repair, which again suggests a potential contrast with the material from the 1979-81 trenches which have a seemingly higher incidence of repair (see below). Hull does not perhaps invariably record evidence of repair to the *terra sigillata* and the illustrations in figures 43 and 44 show no cases (though illustrations of Gallo-Belgic type finewares indicate a few cases, assuming evident drilled holes represent riveting: fig. 47 no. 13 and possibly no. 20, fig. 49 no. 19). Hull records repair (by riveting) in the case of a Drag. 27 cup from Site B 3S (Hull 1961a: 207, fig. 44 no. 11) and a Drag. 24/25 cup from Site B 5N, level 5 (Period IIB) but does not mention the pair of drilled rivet holes in the case of fig. 44 no. 9 (see Catalogue above). Finally, Hull notes the presence of a minute sherd from a Drag. 29 decorated bowl or crater of Drag. 11 form from 'Site B, 5S, level 14 (Period 1IA)', a 'chip' possibly from a Drag. form 11 from 'Site B, 5N, level 8 (Period IA)' (Hull 1961a: 203) and two decorated fragments which might be from a Drag. 11 crater from 'Period IA. The Primary Ditches' (Hull 1961a: 209) but these pieces were unfortunately not available for re-examination. The same is true in the case of the sherd with the fragmentary stamp ending '] LI' from 'Site B, 8N, level 10 (Period IA)' (Hull 1961a: 204) identified by Hartley and Dickinson as Iulius i (see above).

The appearance of a graffito ('M') on the platter illustrated as fig. 44 no. 9 (see Catalogue above) is noteworthy as it is the type of mark of ownership often associated with the Roman military where there would be a need to identify one's own property from that of others in a communal context. Was this the property of a soldier or veteran? Maybe this, and other vessels, belonged to a pre-Claudian British auxiliary recruit to the Roman army who returned home? The presence of the graffito is intriguing. A graffito also occurs amongst the 'Arretine ware' from Fishbourne, specifically an inscribed 'TV' on the base of a cup form associated with early levels well before the Claudian era (Manley and Rudkin 2003: fig. 190).

Terra Sigillata from the 1979-81 excavations at Bagendon

Catalogue

Format of the Catalogue

The catalogue lists all *terra sigillata* sherds from the excavations submitted for identification and dating. The catalogue adheres to the same format followed with the catalogue of sherds from the Clifford excavations (see above), though here we place weights after any rim or base data. Each entry per context relates to an individual vessel represented in that context. Sherds are ordered by year of excavation and then by context number. With regard to source of the item, South Gaulish is abbreviated to SG and Central Gaulish to CG. Details of any stamps or fragments occurring are then presented, there being three instances amongst this material. Any decoration is then described, although this essentially relates to one vessel. The letter coding such as Sherd 'A', Sherd 'B' etc. follows the discrimination of the pieces as encountered by the lead author on receipt of this assemblage. These labels are understood as designations made when the samian was examined by Geoff Dannell and are retained here as 'archive designations'. The opportunity is also taken to catalogue two samian items from other works in the vicinity: one from 1977 and the other retrieved from a service pipe in 1983.

A somewhat concerning aspect of this material, which has clearly been subject to various episodes of handling and sorting prior to the arrival with the present lead author, is that only a few sherds from the 1980 season and the sherd found in 1977 are marked. The possibility exists that in the four decades since this material was excavated some pieces may have been bagged incorrectly or placed in the wrong bags. Indeed, a few question marks had been written onto several bags so one wonders if this is the reason for these queries. One hopes this is not the case but this is a reminder that direct pottery marking has its place in archives and might be actioned swiftly to ensure the reliable permanent association of a sherd with its context/find-spot.

Catalogue (with the assistance of Dirk Visser)

Finds from the 1979 Season

Context 79-2

Rim, SG Montans, Drag. 17b platter, RE: *c.* 0.04, Diam. *c.* 170mm, 3g, *c.* AD 20-40/45. Double groove on interior below rim (a rare feature), being an indicator of an early example of this form type. This sherd is from the wall interior side of the wall and rim; the exterior has split off. Brown slip. In inner bag labelled 'S.F. 10'.

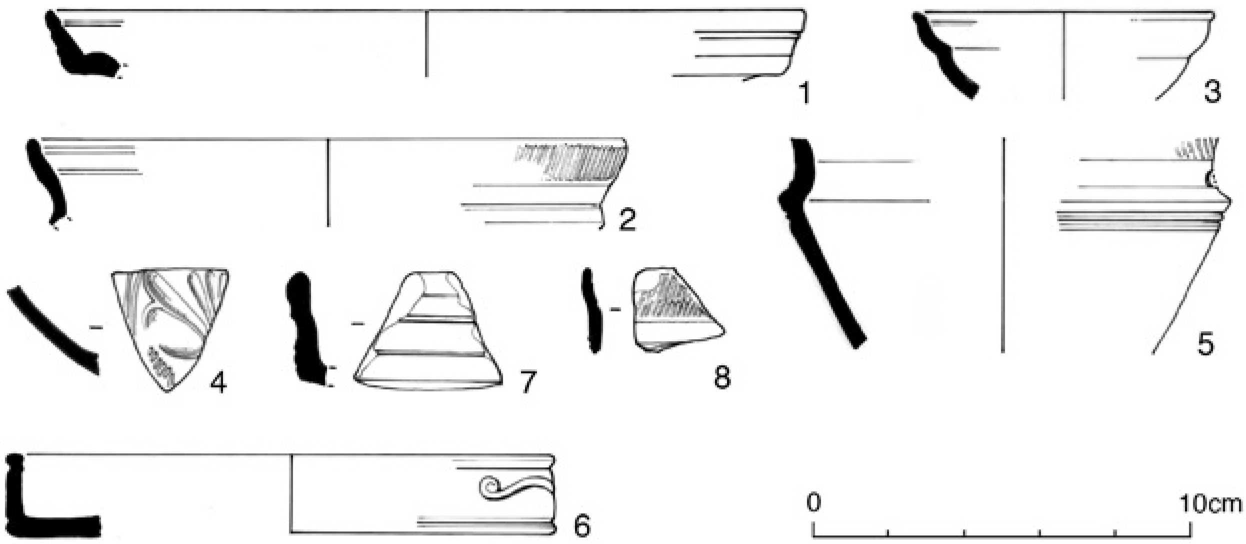

Figure 6.9 Drawn *terra sigillata* items from the 1979-1981 excavations. 1 - 1979 Context 30, Drag. 15/17; 2 - 1979 Context 30, Ritt. 5; 3 - 1980 Unstratified, Drag. 27; 4 - 1981 Context 3 Sherd A and Context 21 Sherd(s) C, Drag. 11 or 29, 5 – 1981 Contexts 4 and 37, Loeschcke 8; 6 - 1981 Context 20, Drag. 17; 7 - 1981 Context 29, Loeschcke 2; 8 - 1981 unstratified, rim.

Figure 6.10: Photograph of *terra sigillata* stamp reading 'PRIM[, on a Ritt. 5 cup, from 1980 context 90 (Photo: Lloyd Bosworth).

Body, SG La Graufesenque, form not identifiable, 1g, *c.* AD 30-60. This is a flake which displays a fine fabric and comparatively high gloss finish.

Context 79-8 [Bag marked 'S.F. 22']

Body, Italian 'Arretine' from Pisa (Quality 5), from a small cup, possibly Ritt. 5 (Loeschcke (Haltern) 8, Conspectus form 22), 1g, *c.* AD 1-30. Pale to white fabric with brownish red gloss slip. Slightly abraded.

Rim. SG La Graufesenque, small Drag. 25 cup, with applied miniature spiral 'handle', RE: *c.*0.03, Diam. not identifiable, 1g, *c.* AD 20-40. Slightly abraded. The non-functional handle resembles one seen also at Fishbourne on a similar cup form (Dannell 1971: 265, fig. 123, no. 46; this likewise is in early South Gaulish fabric).

Context 79-9 [Bag marked 'section TON' and also '49']

Base, SG La Graufesenque, platter, BE: 0.11, Diam. 70mm, 10g, *c.* AD 40-60. High fired with a cherry-red gloss slip.

Context 79-18 [Bag marked 'F.AAA']

Base sherd and conjoining body sherd, SG La Graufesenque, from a large platter, BE: 0.17, Diam. 120mm, 58g, *c.* AD 35-45. The lower fringe of a stamp is present appearing to read 'LI[. Although the die is only very partially represented it can confidently be ascribed to the output of Licinus and is probably his die 41b (Hartley and Dickinson Vol. 5, (L to Masclus 1), 62-78). The latter is a long die, as is 41a, though the lettering and die shape indicate this is 41b. There is a double grooved ring around the stamp which is a feature seldom seen with rouletted dishes or platters though it is very common on Tiberian and Claudian bowls of Drag. 29. Indeed, Licinus mainly produced Drag. 29 vessels. The possibility that this is from a Drag. 29, however, is diminished by the fact that the floor is slightly raised in omphalos fashion, while the footring is very square in profile. The features of this vessel suggest a date at the earlier end of the range for this producer, thus given above. This vessel is therefore certainly on the later side amongst the early *terra sigillata* at Bagendon and is thereby significant. This is a very fine vessel in a good state of preservation. A drilled hole for repair via riveting occurs, 3mm in diam. but no lead rivet or trace is *in situ*. A photograph of the repair hole is shown in Figure 6.12: no. 1.

Body, SG La Graufesenque, from the floor of a platter, 10g, *c.* AD 20-40. The fabric is very pale and the slip is a matt dark brownish-red. This item is in good condition.

Body, SG La Graufesenque, Drag. 27 cup, 2g, *c.* AD 30-55/60. This item is in good condition.

Rim, SG La Graufesenque, Ritt. 8 cup, RE: 0.05, Diam: *c.* 110mm, 2g, *c.* AD 35-55. Thin-walled vessel with interior groove below rim. Around three-quarters of a hole drilled for repair, drilled from both sides, is represented, but the sherd is broken across the hole; no lead is present and the hole has a slight 'waist', doubtless intentional, to assist in holding the rivet; diam. 3mm. The sherd is in good condition. A photograph of the repair hole is shown in Figure 6.12: no. 2.

Rim, SG La Graufesenque, Drag. 15/17 platter, RE: 0.05, Diam: 150mm, 3g, *c.* AD 35-60. Light pink fabric. One complete hole drilled for repair, with lead plug from a rivet *in situ*; diam. 3mm. Different vessel from the 15/17 from 1981 U/S 'S.F. 17'. A photograph of the repair is shown in Figure 6.12: no. 3.

Body, SG La Graufesenque, from the floor of a platter, 3g, *c.* AD 35-60. From a different vessel to the sherd above; the fabric is a strong pink and the slip a matt deep-red. This item is in good condition.

Rim, SG La Graufesenque, small Drag. 27 cup, RE: 0.05, Diam: 70mm, 1g, *c.* AD 40/45-60. Thin walled and with beaded rim, (unpronounced bead).

Context 79-25 [Bag marked '25 F.AAF']

Body, SG La Graufesenque, from a platter probably Drag. 15/17, 5g, *c.* 20-50. The vessel is fine and thin with a thin matt slip. This sherd had once been glued to the rim sherd from Context 30; the join is along the junction of the wall and floor and it is entirely possible these sherds are from the same vessel though it might be borne in mind that this is a common point of fracture and the join is not crisp as the sherds are slightly abraded so it is possible these items are from different examples of the form. (Penned on as an addition to the specification on the bag is the number 70 or 76 in a circle with the 0 or 6 'poorly figured').

Context 79-30 [Outer bag marked 'F.AAE']

Rim, SG La Graufesenque, Drag. 15/17 platter, RE: 0.06, Diam. 190mm, 5g, *c.* AD 20-50. The wall to the rim is quiet steep and the slip is of high quality. Possibly from the same vessel as the Drag. 15/17 from Context 25 (see above). Slightly abraded. Inner bag labelled 'S.F. 86?' (see Figure 6.9: no. 1).

Base, SG La Graufesenque, probably from a Drag. 27g cup, BE: 0.15, Diam. 60mm, 2g, *c.* AD 30-50. The footring has a marked exterior groove at its change of angle. Moderately abraded. Also in bag labelled 'S.F. 86?'

Context 79-30 [Bag labelled 'S.F. 8']

Two non-conjoining rim sherds, SG La Graufesenque, from a large Ritt. 5 (Loeschcke (Haltern) 8) cup, RE: 0.12, Diam. 160mm, 5g, *c.* AD 15-35/40. There is a narrow groove just below the interior of the rim. Very fine rouletting. The fine fabric texture is near to Arretine. (see Figure 6.9: no.2).

No Context but in a Plastic Bag labelled 'S.F. 10; S.F.22; S.F.25(?); S.F. 58'

Body, SG La Graufesenque, probably from a decorated bowl, 1g, *c.* AD 35-60. This very small sherd is little more than a flake but there is sufficient to suggest that it is from a decorated form, perhaps a Drag. 29 or even Drag. 11. In paper bag labelled '25'

Two conjoining body sherds, SG La Graufesenque, from a platter, 2g, *c.* AD 35-60. These are essentially from a flake, very likely from the floor of a platter, probably from the underside (interior) of the footring. The larger fragment was in a paper bag labelled 'S.F. 58' and the smaller sherd was in the paper bag labelled '25' along with the sherd probably from a decorated bowl. Mis-bagging at some stage is possible. The join of these two platter sherds is relatively fresh and breakage upon excavation or in the 40 years since the excavation is possible. The sherds have been bagged as they were when they arrived with the lead author.

Finds from the 1980 Season

Context 80-1

Body, SG La Graufesenque, form not identifiable, 1g, *c.* AD 35-60. Essentially a flake, probably from the floor of a vessel and in particular the underside of the footring interior.

Rim, SG La Graufesenque, small Drag. 27 cup, RE: 0.05, Diam. 60mm, 1g, *c.* AD 40-60. The rim is beaded. This is a thinner, smaller, vessel than the Drag. 27 from 1979 Context 18. Rather abraded.

Context 80-25 [Bag labelled 'S.F. 116']

Body, SG La Graufesenque, Drag. 24/25 cup, 1g, *c.* AD 30-60. The fabric is a pale pink. Abraded.

Context 80-40

Body, CG Lezoux, from a platter, 7g, *c.* AD 15-30. Micaceous fabric with matt slip similar to that seen with the sherd from this source from Context 22 in 1981, and not the best quality for this date. There is no slip on the under-surface, a feature common to platters of this date from this source. Either lightly burnt or stained though deposition or association at some stage with sooty material post-breakage.

Context 80-54

Body, SG La Graufesenque, probably from a small cup, 1g, *c.* AD 20-40. Thin wall. Yellowish pink fabric; thin matt slip. This is a tiny sherd.

Body, SG La Graufesenque, form not identifiable, 1g, *c.* AD 30-60. Pale pink fabric. This is a tiny sherd.

Context 80-62

Body, CG Lezoux, from a cup, probably Ritt. 5 or possibly Drag. 24/25, 1g, *c.* AD 20-45. Micaceous fabric. Small sherd but in good condition. Fabric as that of the sherd from 1981, Context 22.

Context 80-66

Two conjoining body sherds, SG La Graufesenque, from a platter, 3g, *c.* AD 15/20-40. From the floor of the platter above the footring. Pale yellowish-pink fabric with a brownish-red slip closely similar to that appearing on the early La Graufesenque platter sherd from 1979 Context 18 (fabric not as pale as the Lezoux items from this season). The area of the interior of the footring (i.e. the central floor) is very thin.

Context 80-73

Body, SG La Graufesenque, form not identifiable, 1g, *c.* AD 20-50. Yellowish pink fabric.

Context 80-90 [Bag marked 'S.F. 123']

Body, La Graufesenque, Ritt. 5 cup, 1g, *c.* AD 20-40. Fragment of stamp reading 'PRIM[being a stamp of Primus i, die 11b (Hartley and Dickinson, Vol. 7, (P to RXEAD), 218-20). The fabric is fine. Most of the output of this producer is from La Graufesenque and this is a further instance, being an early product from this source. This die type is very rare; so far only three instances are known (from Rodez, the Kops Plateau (Nijmegen) and this example from Bagendon (Dirk Visser pers. comm.)). All three examples of the use of this die are associated with form Ritt. 5 and are of a similar Tiberian date. Figure 6.10.

Unstratified [Bag marked 'Small Find 6'; 'AR.2484']

Body, SG La Graufesenque, Drag. 18 platter, 1g, *c.* AD 35-60. Very small sherd.

Unstratified

Rim, SG Montans or perhaps early La Graufesenque, small Drag. 27 cup, RE: 0.08, Diam. 80mm, 2g, *c.* AD 25-50. The profile is unusual being markedly steep with the upper hemisphere under-pronounced, while a deep groove on the exterior defines the bead at the rim which is almost upstanding. Pale pink fabric with plentiful calcareous inclusions, with matt brownish-red slip. This non-standard profile combined with fabric indicate a potential Montans source. (see Figure 6.9: no. 3).

Finds from the 1981 Season

Context 81-1

Base, 'Provincial Arretine' from Lyon, Loeschcke (Haltern) 1B or 1C platter, BE: 0.33, Diam. 80mm, 43g, *c.* AD 15-30. Pale fabric with brownish slip. Double circular grooving occurs on the upper floor above the position of the footring. This sherd is in good condition with very limited wear/abrasion.

Body, SG La Graufesenque, Drag. 15/17 platter, 4g, *c.* AD 25-40. High quality gloss slip. Two drilled holes are represented for repair. One hole is complete and has been drilled from both sides, though principally from the underside and there is a slight 'waist' to hold the lead rivet in place though no lead is present in this case; diameter of hole on the underside 5mm, and at the upper surface 3mm. The second hole is at an edge of the sherd (with slightly more than half the hole represented) and a part of a plug of lead remains *in situ*; diam. 3mm. This sherd is in good condition with very limited wear/abrasion. A photograph showing the repair holes is included in Figure 6.12: no. 4.

Context 81-2

Archive designation: Sherd E

Rim, SG probably La Graufesenque, but possibly Montans, Drag. 18 platter, RE: 0.06, Diam. 160mm, 3g, *c.* AD 15-40. Good quality item. This is a thin-walled vessel with an unpronounced bead rim, almost flat on top. The fabric is very fine and the slip is very good. Conjoining sherd in 1981 Context 3. The sherd is in good condition.

Archive designation: Sherd D

Rim, SG La Graufesenque, Drag. 24/25 cup, RE: 0.08, Diam. 100mm, 2g, *c.* AD 20-40. This is a fine item with double grooving on the interior below the rim; the exterior rouletting band is extremely fine indicative of fine brush strokes. Slightly abraded.

Archive designation: Sherd B

Rim, SG either early La Graufesenque or perhaps Montans, Drag. 15/17 platter, RE: *c.* 0.03, Diam. uncertain, 1g, *c.* AD 20-50. High fired; matt brownish-red slip. Different vessel from sherd A from this context.

Archive designation: Sherds C

Two conjoining rim sherds, SG La Graufesenque, Drag. 24/25 cup, RE: 0.16, Diam. 70mm, 4g, *c.* AD 25-45. This is an early example of the form and the nature of the red gloss-slip, fine fabric, thin wall and general high quality are consistent with such a date. The sherds are only slightly abraded.

Archive designation: Sherd F

Body, SG La Graufesenque, Drag. 18 platter, 1g, *c.* AD 30-50. From the lower wall and junction with the vessel floor; this is from a comparatively thick walled vessel but the slip gloss is suggestive of a comparatively early example of this form type. Part of a drilled hole is present, presumably for repair, occurring at a sherd break; less than half the hole is represented; no lead is present and the hole cannot be reliably measured to establish the diameter.

Archive designation: Sherd A

Rim, SG probably La Graufesenque (just possibly Montans), Drag. 15/17 platter, RE: *c.* 0.02, Diam. uncertain, 1g, *c.* AD 30-60. This is a particularly small sherd. The vessel was comparatively high-fired compared to other items in this assemblage suggesting the possibility of a Claudian-early Neronian date. Part of a drilled hole is represented for repair; this was drilled from both sides, though principally from the interior side and there is a slight 'waist' to hold the lead rivet in place and a trace of lead/lead oxide is present indicating there was repair; however the hole occurs at what is now the junction of two breaks and so only approximately a quarter of the circumference of the hole is represented.

Four sherds with no Archive designation

Body, SG La Graufesenque, platter, probably Drag. 18, 1g, *c.* AD 25/30-50. Very small sherd with matt slip. Evidently from a different vessel from any others represented in this context.

Body, SG La Graufesenque, probably Drag. 18 platter, 1g, *c.* AD 30-50. Quite possibly from the same vessel as Sherd F.

Body, SG La Graufesenque, Drag. 15/17 platter, 1g, *c.* AD 30-50. Evidently from a different vessel from any others represented in this context.

Body, SG La Graufesenque, platter, 1g, *c.* AD 30-50. From the floor of a vessel; comparatively thick walled with a particularly matt slip. Evidently from a different vessel from any others represented in this context.

Context 81-3

Archive designation: Sherd B

Rim, SG probably La Graufesenque, but possibly Montans, Drag. 18 platter, RE: 0.07, Diam. 160mm, 3g, *c.* AD 15-40. Good quality item. Conjoining sherd in 1981 Context 2, see under that context for further details. The sherd is in good condition.

Archive designation: Sherd D

Body, SG La Graufesenque, Drag. 15/17 platter, 3g, *c.* AD 20-40/45. The high quality of this item resembles that of the earliest *terra sigillata* products seen at Hofheim (*c.* AD 40-41) if not earlier. The sherd is small but in a good state of preservation.

Archive designation: Sherd A

Body, SG La Graufesenque, Drag. 11 or 29 decorated bowl, 4g, *c.* AD 20/25-45. A conjoining sherd and a non-conjoining sherd occur in 1981 Context 21. The decoration of this vessel is detailed here although the only element not present on the sherd from this present context is a tendril division mask itemized below. The decoration is a bold scroll design featuring a large palmate type leaf similar to Hermet (1934) pl. 10 no. 7, though this is larger. The scroll includes double tendril stems, one of which divides to a spiral twist with point terminal on one stem, while the other provides the stem of the leaf; the tendril division is masked by a simple bifid bud with elongated bead (Figure 6.9: no. 4 and 6.12). The style is reminiscent of that of Urbanus and Firmo i (cf. Knorr 1919: taf. 32, 1-4) and this accords with the dating ascribed here (Dirk Visser pers. comm.). This vessel is of high quality with a thin wall, fine fabric and consistent gloss slip. The sherd is moderately abraded. This sherd is marked '3A' (see Figure 6.13).

Archive designation: Sherd E

Body, SG La Graufesenque, probably Drag. 27 cup, 1g, *c.* AD 35/40-60. High quality fabric and slip.

Presumed to be Archive designation Sherd C or F

Body, SG La Graufesenque, Ritt. 1 platter, 3g, *c.* AD 35-55.

Presumed to be Archive designation Sherd C or F

Body, SG La Graufesenque, small cup, 1g, *c.* AD 35-60. From the floor of the vessel from within the footring; this may well have been stamped given the way the sherd has broken, but there is no stamp vestige represented, as that part of the vessel is missing. This is a different vessel from the Drag. 27 represented in this context group.

Context 81-4

Body, either Italian 'Arretine' (perhaps from Pozzuoli) or possibly very early SG La Graufesenque, large Loeschcke (Haltern) 8 cup (Conspectus form 22), 12g, *c.* AD 10-30. A double groove occurs below the carination on the exterior. This is not standard with Conspectus 22 and that could relate to the piece being amongst the earliest products from La Graufesenque (cf. Manley and Rudkin 2003: fig. 190). Part of a drilled hole, initiated from both sides, presumably for repair, is present at the neck; it has a waist, perhaps to hold the rivet tightly in position. This is at an edge of the sherd (with half the hole represented) and the sherd perhaps broke further at the time of drilling as the hole may not have been completed; diam. *c.* 5mm. A conjoining sherd occurs in Context 37, from the wall, just below the carination Figure 6.9: no. 5. A photograph showing the repair hole is included in Figure 6.12: no. 5.

Context 81-6

Body, SG La Graufesenque, probably from the wall of a Drag. 17 platter, 1g, *c.* AD 20-40. This is a small sherd, with, on the apparent interior side, two slight horizontal grooves, while the exterior has a slight bowing banding. The fabric is dense and pink. Approximately two fifths of a drilled hole for repair is represented at what is now a break (with no indication of lead).

Context 81-7

Body, SG La Graufesenque, large plate, 12g, *c.* AD 20-40. This item is from a large heavy plate. Apparent double groove above footring, and no rouletting. The footring has broken/been broken off by the junction with the floor and smoothed. Generally, the sherd is somewhat abraded. Different vessel from the large plate represented in Context 35.

Context 81-16

Body, SG La Graufesenque, from a cup, 1g, *c.* AD 35-60. High gloss slip.

Body, SG La Graufesenque, from a large cup or bowl, 1g, *c.* AD 35/40-60. A flake; high fired with a deep red gloss slip.

Context 81-18

Two non-joining body sherds likely to be from the same vessel, 'Arretine' and may be from Pisa or Lyon, Loeschcke (Haltern) 8 cup (the Conspectus shows this type to normally be smooth but this example is more curved and this is probably an index of the date of this piece), 9g, *c.* AD 1-30. The fabric is very good quality. The larger sherd is from the lower profile of the cup with the footring broken off, while the other, smaller, sherd is from the collar area including some rouletting and an interior groove.

Context 81-20

Two non-conjoining rim sherds, Italian 'Arretine' from Pisa, Drag. 17, RE: 0.11, Diam. 140mm, 13g, *c.* AD 20/25-35. Straight, upright wall. The finish is very smooth. An applied non-functional miniature 'handle' with spiral-terminals occurs on the exterior below the rim, indicative of vessels of this general date (cf. Oswald and Pryce 1920: pl. XLII no. 10). (see Figure 6.9: no. 6).

Context 81-21

Archive designation: Sherd(s) C

Two non-conjoining body sherds, SG La Graufesenque, Drag. 11 or 29 decorated bowl, 12g, *c.* AD 20/25-45. One sherd conjoins the sherd from 1981 Context 3 and the decoration of the vessel as a whole is described under that context (see Figure 6.13).

Archive designation: Sherd A

Base and non-conjoining body sherd probably from the same vessel, SG La Graufesenque, Drag. 15/17 platter (or similar), BE: 0.18, Diam: 110mm, 12g, *c.* AD 30/35-55.

Archive designation: Sherd B

Body, SG La Graufesenque, from a small platter, probably Drag. 18, 2g, *c.* AD 35-50. The item is fairly thin-walled and quite high fired. Certainly from a different vessel to the Drag. 18 platter sherd from Context 3.

Context 81-22

Body, CG Lezoux, possibly Ritt. 5 (Loeschcke (Haltern) 8, Conspectus 22) cup, 3g, *c.* AD 10/15-35. Micaceous fabric with matt slip similar to that seen with the sherd from this source from Context 40 in 1980, and not the best quality for this date. From the lower part of the cup. Fabric as that of sherd from 1980, Context 62.

Context 81-28

Body, SG La Graufesenque, Drag. 17a (Conspectus 18L) large platter, 30g, *c.* AD 15-35. The fabric is of high quality, resembling that used by the workshop of Fidelis i (active *c.* AD 20-50 and who made this form (Hartley and Dickinson Vol. 4, (F to KLUMI), 43)). Triple circular grooving occurs on the upper floor above the position of the footring, though with this sherd no part of the actual footring is represented. Somewhat abraded.

Body, SG La Graufesenque, from a platter, 2g, *c.* AD 15/20-40. Stamped 'PATE[being a stamp of Paterclus i. This stamp from Bagendon had been recorded by Hartley and Dickinson in the past and is listed in *Names on* Terra Sigillata (Hartley and Dickinson, Vol. 7, P to RXEAD, 41-2, die 1a). The date here derives from the presence of dies of this producer in the Fosse de Cirratus, with his work well-attested amongst that kiln group, and in the so-called Fronto pit at La Graufesenque which is dated *c.* AD 15-35 (Schaad 2007: 16; Genin 2007: 43-53, see especially 49, no. 44 Paterclus i 1c). Vessels by this very early La Graufesenque potter are extremely rare outside of the La Graufesenque production area and France generally. However, die 1c of this potter occurs at the Kops Plateau, Nijmegen. This latter die especially, with its monumental character, in combination with the form of the letters, is very close to the Arretine stamp tradition (Dirk Visser pers. comm.)

Archive designation: Sherd B

Body, SG La Graufesenque, probably from a platter, 2g, *c.* AD 20-50. The fabric is light pink. From the wall of the footring.

Archive designation: Sherds A

Two base sherds and three body sherds, with two of the latter conjoining and all likely to be from the same vessel, SG La Graufesenque, large vessel, perhaps Drag. 30 rather than a plate, BE: 0.10, Diam. 100mm, 16g, *c.* AD 35/40-60. The scale of the footring suggests a decorated bowl with a flat floor rather than a plate which the square form of the footring implies; such footrings can occur on earlier examples of Drag. 30. These sherds are somewhat abraded. One of the base sherds, and more particularly the non-conjoining larger body sherd appear to have been systematically scoured at the breaks; this may be the result of some form of polishing etc. where the samian sherds had been employed as rubbers. The three larger sherds are all similar in size and may have been chopped up deliberately for this purpose while the two conjoining sherds look more like flakes from an impact. One possibility is that the sherds have been used as a source of pink powder.

Context 81-29

Rim, Italian from Pisa or Arezzo, large platter of Loeschcke (Haltern) 2 Conspectus 18.2, RE: *c.* 0.03, Diam. uncertain, 6g, *c.* AD 5/10-35. Very good quality gloss slip (see Figure 6.9, no. 7).

Context 81-31

Archive designation: Sherd A

Base, CG Lezoux, platter, BE: 0.11, Diam. 90mm, 22g, *c.* AD 20/25-40/45. Micaceous early Lezoux ware. A double groove is extant on the upper surface of the floor above the position of the footring, this being an early feature copying Arretine prototypes. The thin matt red slip is only (now) partially represented on the upper surface of the angled floor; it is present across the lower (underside) surfaces. Vessel surfaces are ultra-smooth. Damage has occurred to the lower footring but otherwise the sherd is well-preserved.

Archive designation: Sherd B

Rim, SG La Graufesenque, Drag. 15/17 platter, RE: *c.* 0.03, Diam. uncertain, 4g, *c.* AD 20/25-40/45. This is a fine quality item. The fabric is soft and powdery and the slip is a brownish-red and matt.

Archive designation: Sherd C

Base, Late 'Arretine' or early SG La Graufesenque, from a platter, BE: 0.08, Diam. 70mm, 3g, *c.* AD 25-40/45. Part of a footring; the interior angle is very steep which is indicative of a comparatively early date. The base of the footring is worn.

Context 81-35

Base, SG La Graufesenque, large rouletted plate, BE: 0.09, Diam. 100mm, 15g, *c.* AD 30-55. This is a large thick walled vessel with a heavy square footring and thick floor. Fairly hard fired with a matt red slip.

Context 81-37

Body, either Italian 'Arretine' (perhaps from Pozzuoli) or possibly very early SG La Graufesenque, large Loeschcke (Haltern) 8 cup, 2g, *c.* AD 10-30. Conjoins larger sherd from Context 4.

Context 81-38

Body, SG La Graufesenque, large Drag. 24/25 cup, 2g, *c.* AD 40-60. This is a thick-walled vessel with a pronounced bead between the junction of the lower and upper wall. High fired with a good quality slip finish. This small sherd is in good condition.

Context 81-42

Body, either Italian 'Arretine' (perhaps from Pozzuoli) or possibly very early SG La Graufesenque, probably from a large Loeschcke (Haltern) 8 cup, 3g, *c.* AD 10-30. Fabric and slip suggest this is likely to be from the same vessel as that represented in Contexts 4 and 37, with the wall thickness also the same. Surfaces are ultra-smooth. The sherd is in good condition.

Body, SG La Graufesenque, platter, 2g, *c.* AD 25-40/45. From the floor of a thin platter. The slip is a matt cherry red.

Context 81-44

Archive designation: Sherd B

Body, SG La Graufesenque, Ritt. 5 cup, 3g, *c.* AD 15/20-40. Prominent bead at carination. Moderately abraded.

Archive designation: Sherd A

Rim, SG La Graufesenque, small Drag. 27 cup, RE: 0.08, Diam. 80mm, 1g, *c.* AD 30-50. The rim is flat at its apex indicative of early examples of this form type. Thin-walled. Moderately abraded.

Context 81-51

Archive designation: Sherds B

Two non-conjoining body sherds, either Italian 'Arretine' or SG La Graufesenque, large Ritt. 5 (Loeschcke (Haltern) 8 or 10) cup, 9g, *c.* AD 20-40. Almost certainly from the same vessel. The larger sherd has a partially completed drilled hole, initiated from both sides, presumably for repair, but this is at an edge of the sherd (with half the hole represented) suggesting the sherd broke further at the time of drilling as the hole appears not to have been completed; diam. *c.* 5mm. The sherds are in a good state of preservation. The large Loeschcke (Haltern) 8 cup represented in Contexts 4, 37 and 42 has a similar slip and likewise has been drilled for repair. However, that appears to be a different vessel from the one represented here as the fabric differs in detail while the vessel wall is consistently thinner. As with the vessel represented in Contexts 4, 37 and 42 this cup is ultra-smooth and taking the surface finish into consideration, these two vessels are likely to be part of the same production batch.

Archive designation: Sherd A

Rim, SG La Graufesenque, very small Drag. 24/25 cup, RE: 0.06, Diam. 70mm, 1g, *c.* AD 30-50. Good quality fabric and slip. A small sherd with some abrasion.

Context 81-56

Body, SG La Graufesenque, Drag. 17 (cf. Oswald and Pryce 1920: pl. LXII, no. 7), 1g, *c.* AD 15-35. Approximately vertical wall, markedly thin; pale calcareous fabric with thin matt slip. Partly abraded.

Context 81-59

Body, SG La Graufesenque, form not identifiable, 1g, *c.* AD 40-70. Hard, high fired, fabric with a cherry red gloss slip, somewhat dull.

Context 81-78

Rim sherd and three body sherds, none conjoining, probably all from the same vessel, SG La Graufesenque, Drag. 15/17 platter, RE: *c.* 0.04, Diam. uncertain, 14g, *c.* AD 20/25-40. The rim sherd includes part of the upper wall: the rim is rather pointed and while there is an interior groove below the rim the outer wall is not featured but straight and so the sherd is from a variant of (what becomes) the standardized form, with some resemblance to an example from this source recovered at Fishbourne (Dannell 1971: fig. 123 no. 43). There is a faint double groove above the position of the footring. The slip is somewhat matt, red-brown and of good quality. All four sherds are somewhat abraded.

Two non-conjoining body sherds, probably from the same vessel, SG La Graufesenque, probably from a large platter or plate, 9g, *c.* AD 30-50. These items are from the floor of the vessel. Sherd thickness, fabric and slip suggest these two sherds are likely to be from the same vessel. These sherds are similar in scale to those from Context 28 but that vessel was somewhat thicker still. Both sherds are somewhat abraded.

Context 81-81

Seven conjoining rim sherds, SG La Graufesenque, Drag. 15/17 platter, RE: 0.99, Diam. 170mm, 74g, *c.* AD 30-50. The wall is steep. The orange-brown slip is good quality. These sherds essentially represent the complete rim and wall of the vessel, with the floor and base not at all represented; there is no evidence of sawing or chipping/clipping so the vessel may simply have failed at the junction of the floor and the wall (the former may have fallen out on a fracture line, which is a phenomenon occasionally observed with this and other pottery types). Somewhat abraded. (Different vessel from that represented in Context 78).

Unstratified: from Spoil heap

Rim, 'Arretine', may be Italian from Pisa, probably a large cup of Loeschcke (Haltern) type 8 or possibly from a platter Loeschcke (Haltern) 2 (cf. Conspectus 18 or 22), RE: *c.* 0.03, Diam. uncertain, 1g, *c.* AD 5-30. Judging from the fabric and rouletting this is evidently a different vessel from that represented by the sherds from 1981 Context 18. (The fabric is too good to be from Lyon). (Figure 6.9: no. 8).

Unstratified

Body, 'Arretine' probably from Pisa, possibly early SG La Graufesenque, from a decorated bowl, probably Drag. 11 or 29, 1g, *c.* AD 15-35. The sherd is a flake from an exterior surface and is abraded. Two raised arcing ridges appear to be from vegetal tendrils/scroll design. The fabric is pinkish yellow and the slip a glossy brown. (Different vessel from the sherd specified as 'Unstratified: from the Spoil heap').

Rim, SG La Graufesenque, Drag. 15/17 (or similar) platter, RE: *c.* 0.02, Diam. uncertain, 1g, *c.* AD 15-40. This

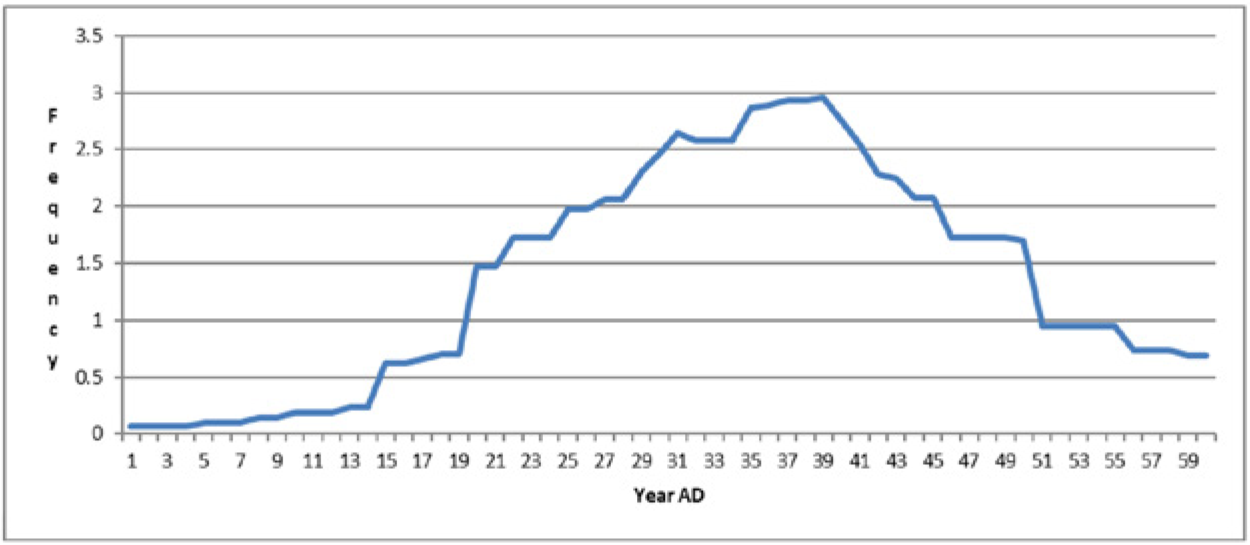

Figure 6.11. Graph plotting the frequency of the *terra sigillata* from 1979-81 by calendar years. (The plot converts the date ranges of the individual items (Table 6.17) into values, with the curve showing the aggregate values per year. A minor smoothing function has been applied to off-set the 'cat's ears' peak effect of data overlap at the years AD 30 and AD 40).

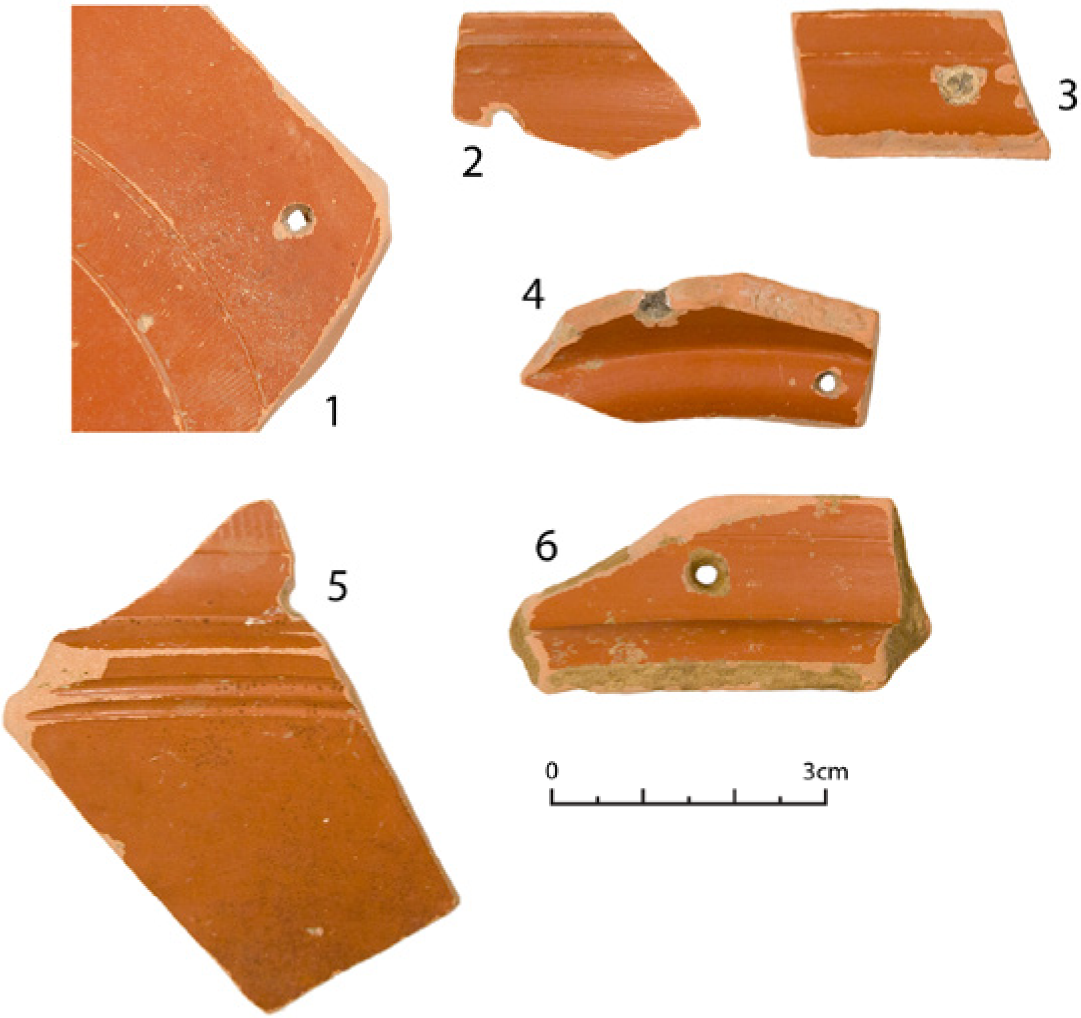

Figure 6.12. Examples of drilled rivet holes, with some *in situ* rivets, amongst the *terra sigillata* assemblage from 1979-81. 1 - 1979 Context 18, large platter; 2 - 1979 Context 18, Ritt. 8; 3 - 1979 Context 18, Drag. 15/17; 4 - 1981 Context 1, Drag. 15/17; 5 - 1981 Context 4 Loeschcke 8; 6 - 1981 Unstratified, Drag. 15/17. See Catalogue for full details. (Photos: Lloyd Bosworth, University of Kent).

Figure 6.13. Decorated sherds from a Drag. 11 or Drag. 29, 1981 Context 3 Sherd A and 1981 Context 21 Sherd(s) C. See Catalogue for full details. (Photos: Lloyd Bosworth, University of Kent).

is a thin-walled item, with apparent steep wall. A high quality gloss slip is distinctive.

Body, SG La Graufesenque, probably from a platter, 1g, *c.* AD 20-40. The sherd comes from the floor of a platter from within the footring; the original underside surface is intact but only a small area of the original upper surface survives here and that includes nothing of the stamp. The platter was comparatively thin. The slip is a matt deep red.

Rim, SG La Graufesenque, Drag. 15/17 platter, RE: 0.04, Diam. *c.* 170mm, 6g, *c.* AD 25/30-45. The wall is very steep and straight indicating an early example of this form type. A complete drilled rivet hole with a diam. of 3mm occurs adjacent to a break; there is no presence of lead. Evidently Small Find 17. A photograph showing the repair hole is included in Figure 6.12: no. 6.

Base, SG La Graufesenque, probably from a platter, BE: 0. 08, Diam. 70mm, 1g, *c.* AD 30-45. Thin cherry red slip, quite high fired.

Body, SG La Graufesenque, probably from a platter of form Drag. 15/17 or 18, 1g, *c.* AD 30-55. Pink fabric with matt dark cherry red slip. From the vessel floor. Part of a drilled hole for repair via riveting occurs; the sherd is broken across the hole with approximately one third extant on this sherd; it is not waisted but narrows to the interior side; it was probably *c.* 3mm in diameter.

Other *terra sigillata* sherds from Bagendon held by Cirencester Museum

The location of discovery of these sherds is unknown but is likely to derive from the pipe trenches inserted in the 1980s without formal archaeological investigation.

Sherd from 'Pipe Trench' at Bagendon in 1983

Body, SG La Graufesenque, Drag. 15/17 platter, 2g, *c.* AD 30-55. Fine quality gloss slip and fabric; comparatively thin-walled. Slight abrasion.

'B1977/[... ? ...] 16. CB. 1974 S2 2' the latter in a triangle

Rim, perhaps SG La Graufesenque, small Drag. 18 platter, RE: 0.16, Diam. *c.* 120mm, 5g, *c.* AD 30-55. Lightly incised groove below exterior of denuded bead rim. Rim very worn down and surfaces largely excoriated with little slip surviving; generally abraded. Either lightly burnt or stained though deposition or association at some stage with sooty material: consistent grey discolouration throughout. Evidently this sherd has been subject to some pronounced processes.

Discussion

The general composition of the 1979-81 assemblage

A total of 112 sherds of *terra sigillata* were forthcoming from the excavation of 1979-81 (Table 6.16); two other sherds from Bagendon from around this time are also catalogued giving a total of 114 sherds from approximately 86 vessels. All the material dates to the early and middle first century AD and the large majority of vessels are of types dating to the pre-Claudian period. Accordingly, this is highly significant material for understanding the chronology of Bagendon, its identity and the connections of its community in the period before *c.* AD 43. Very few locations in Britain have *terra sigillata* of this early date in quantity and so the assemblage reconfirms the conventional narrative that Bagendon be considered alongside *Camulodunum*, Canterbury, Fishbourne, Silchester and *Verulamium* in discussions around the development of major sites of this period in southern Britain. In terms of date, form types and range, this material is similar to that from the earlier excavations of Clifford (see above). However, in this case there are more sources represented and some vessels of notably early date. This could reflect differences in the activities and consumption patterns, and so forth, between the areas examined by Clifford and the 1979-81 trenches, but perhaps not too much should be made of these as differences in sample size may be significant and because only sherds from early deposits relating to the work of Clifford were reviewed (cf. above).

Hull, in assessing the *terra sigillata* from Clifford's trenches, was struck by how fragmented the material was (Hull 1961a: 202). That may be explained, in addition to the fine and thin-walled nature of these items, by the fact they mainly came from roadside ditches at Site B, so could have been shattered by 'traffic' *en route*, as it were, to their resting place in the ditch fillings. The sigillata from 1980 is likewise in an advanced state of fragmentation, comprising mainly of what Hull would have described as 'chips'. The sigillata from 1979 and 1981 is also quite fragmented but less emphatically so. The fragments are widely spread and there are few cases of cross-joins or of the same vessel being represented by sherds in different contexts, so this material is secondary in the contexts from which it was collected and it is therefore likely to be a representative ensemble of the wider assemblage in use at this general location. Despite this taphonomic character the sherds are otherwise in a good state of preservation; slips have survived well in evidently passive soil environments.

Table 6.16. *Terra sigillata* from Bagendon 1979-81

Season	Number of sherds	Weight (grams)	Rim Equivalence	Number of Vessels
1979	21	115	0.40	18
1980	13	20	0.13	12
1981	78	389	1.85	54
Other	2	7	0.16	2
Totals:	114	531	2.54	86

Table 6.17. The date ranges of the individual *Terra sigillata* vessels

Years/Season	1979	1980	1981	Other
1-30	1		1	
5-30			1	
5/10-35			1	
10-30			1	
10/15-35			1	
15-30		1	1	
15-35			3	
15-35/40	1			
15-40			2	
15/20-40		2	1	
20-40	2	2	6	
20-40/45	1		1	
20-50	2	1	2	
20/25-35			1	
20/25-40			1	
20/25-40/45			2	
20/25-45			1	
25-40			1	
25-40/45			1	
25-45			1	
25-50		1	1	
25/30-45			1	
25/30-50			1	
30-45			1	
30-50	1		8	
30-55			2	2
30-55/60	1			
30-60	1	2	1	
30/35-55			1	
35-45	1			
35-50			1	
35-55	1		1	
35-60	4	2	2	
35/40-60			3	
40-60	1	1	1	
40-70			1	
40/45-60	1			

The chronology of the terra sigillata from 1979-81

The nuances of form, detail, fabric and gloss slip enable sherds of this material to be quite closely dated. This is assisted by the fact that the *terra sigillata* phenomenon was developing rapidly through these decades in terms of sources, shapes and in the execution of formal detail. As regards dates for the present material, the sherds from the three trenches show a consistent pattern (Table 6.17). There are several vessels that could be Augustan arrivals but none is necessarily of that period as the date ranges of these pieces all span the early Tiberian period (seventeen vessels (20%) have date ranges starting prior to *c.* AD 20). Some 23 vessels (27%) have date ranges that lie within the period *c.* AD 20-45, and none have start dates after AD 40. In other words the entire assemblage could be pre-conquest, in line with the chronology of the *sigillata* from Clifford's excavations (see above).

Figure 6.11 illustrates the frequency of the sigillata by date. This plot converts the date range of each sherd into a value by dividing the number of cases per date range by the length of the date range period. The cumulative values per calendar year are plotted in this graph. Whilst dating archaeological pottery sherds has an inherently 'fuzzy' aspect, the picture provided by the graph shows the general overall trend, and happens to follow a normal distribution curve. The graph illustrates the strong presence of sigillata dating to the period *c.* AD 20-40, in other words, of Tiberian date. It may have been arriving around the start of that period or slightly later. The greatest frequency is in the AD 30s and thereafter there is a consistent decline; indeed *c.* AD 40-43 sees a marked decline and this becomes emphatic. The early 40s could have witnessed the end of arrivals of sigillata at the site.

With a comparatively high proportion of repaired sigillata, evident from the rivets and rivet holes (Table 6.21 and Figure 6.12) it might be wondered when such repair occurred and the impact this had in prolonging the life-span of the vessels. Were they curated into the Claudian era? An argument against that is the almost complete absence of items dating to after *c.* AD 40 when, indeed, samian would otherwise have become more readily available in Britain following the Claudian invasion. An intriguing question is whether the sigillata arrived repaired. Was it the stock or possession of a person or persons coming to the site who brought an 'in use' assemblage with them? An argument against that is the evident repairing too of approximately contemporary Gallo-Belgic imports (see above) suggesting that repair happened at Bagendon or nearby, undertaken by a person or persons skilled and well-rehearsed in the practice (cf. Willis 2005: Section 11; cf. Wild 2013); they may well have been a local craftsperson. The Catalogue records the diameters of the drilled holes. The drilling was typically from both sides and carefully executed to ensure an 'hour-glass' profile; that is to say the holes had a 'waist' to hold the lead filling in place, whereas a straight cylindrical drill hole could lead to loosening and slipping. Hole diameters might relate closely to thicknesses of the pieces being repaired, though the evidence here suggests there was a normal standard width.

The composition of the assemblage by source and form

The items from 1979 include a Ritt. 5 cup from Pisa and a Drag. 17 from Montans. The former dates to the later Augustan to early Tiberian period and the later is essentially Tiberian. Otherwise the sherds are in early La Graufesenque fabrics. In terms of forms there are seven cups and nine platters present (Table 6.18). The sherds from 1980 include another vessel likely to be from Montans, of Tiberian to early Claudian range. There are two vessels in early Lezoux fabric (LEZ SA1), one of which dates to no later than *c.* AD 30. Again La Graufesenque products form the majority of the vessels represented. Cups out-number platters 6:3 (Table 6.19).

The larger group from 1981 includes eight vessels of Italian or likely Italian manufacture from Arezzo, Pisa and Pozzuoli. Most sherds are firmly attributable to specific source, but in some instances the ascription to source is probable rather than definite, as fabrics and slips of this period, even under x30 magnification, can occasionally resemble other sources and scientific analysis would be needed to attempt further discrimination. It might be borne in mind that these production centres were aiming at close similarity in appearance and were specifically located where clay sources were suitable in terms of characteristics to enable emulation. These expert potters perfected imitation and hence an attribution to source may sometimes be probable rather than exact. Cases in point here include a Loeschcke 8 (Ritt. 5) cup from context 18 that may be from Pisa or Lyon and examples from context 2 where sherds from Drag. 15/17 platters are more likely from La Graufesenque but could possibly be from Montans (see Catalogue). Lyon is certainly represented amongst this group with a Loeschcke 1 platter from context 1 dating to no later than *c.* AD 30. Two vessels of early Lezoux ware in distinctive micaceous fabric are present. Again the majority of the vessels (80%) are likely to be from La Graufesenque. Turning to forms, amongst this group, again the great majority of forms represented are cups and platters and in this case platters are heavily dominant: with the ratio of 14:35 in favour of platters. Two decorated vessels are present and one vessel that may be from a bowl, if not a cup. There are size differences within these classes and so a range of functional possibilities will have been available to users. The sherds from a Drag. 11 crater (or possibly this is an early Drag. 29 bowl) display a leafy scroll characteristic of the Tiberian to very early Claudian period (Figures 6.9. no.4 and 6.13).

Amongst these three groups from 1979-1981 La Graufesenque accounts for 80-90% of the vessels represented. The items from Italy and Lyon are likely to be amongst the earliest vessels represented, and perhaps amongst early arrivals. The mechanisms and arrangement of sigillata distribution, however, were complex, and groups with mixed sources are normal for the late Augustan to Tiberian era (Dannell 1971; Dannell 1977: 229; Bird and Dickinson 2000). The 'mixing' may have occurred at various points in collection, despatch and transit, or represent distinct separate batches over time. What is striking is the absence of high-

Table 6.18. *Terra sigillata* from Bagendon 1979 by source and form type

Source: / Form:	Italian	SG Montans	SG La Grauf.
Decorated Bowls			
Indeterminate			1
Cups			
Ritt. 5	1		1
Ritt. 8			1
Drag. 25			1
Drag. 27			3
Platters			
Drag. 17		1	
Drag. 15/17			3
Indeterminate			5
Form not identifiable			1
Totals	1	1	16

Table 6.19. *Terra sigillata* from Bagendon 1980 by source and form type

Source: / Form:	SG Montans	SG La Grauf.	Early Lezoux
Cups			
Ritt. 5		1	1
Drag. 24/25		1	
Drag. 27	1	1	
Indeterminate		1	
Platters			
Drag. 18		1	
Indeterminate		1	1
Form not identifiable		3	
Totals	1	9	2

fired harder and thicker high gloss finish vessels so characteristic of Claudian and Neronian assemblages (cf. Dannell 1977: 231). Some Claudio-Neronian samian was evidently present amongst the material from Clifford's trenches (Hull 1961a: 202-3) but not from the 1979-81 investigations. By contrast at the forum-basilica site at Silchester there is continuity in supply and consumption through from *c.* AD 30 to AD 55 (Bird and Dickinson 2000: 186), that is, bridging the conquest period.

The significance of the terra sigillata at Bagendon

The *terra sigillata* from the Clifford investigations and from the work at the site some forty years ago is special in providing insight to dates, contacts, and practice; to this extent it is valuable archaeological evidence. Indeed, it stands amongst the most important early sigillata excavated in Britain, just as Bird states of similar finds in her opening line reporting the sigillata from Silchester (cf. Bird and Dickinson 2000: 183). It was evidently considered special material at the time, warranting ownership marking and investment in careful repair.

Groups of pre-conquest *terra sigillata* are known from several sites in Britain, typically at locations with indications of scale and status, such as *Camulodunum*, Silchester, Canterbury, Fishbourne, Old Sleaford, Leicester and Stanwick. It occurs elsewhere, but rarely, as at Foxton near Cambridge, where 24 vessels of pre-conquest or potentially pre-conquest date are recorded at a site that warrants further investigation (Willis 2017). With so little of the Bagendon complex explored by excavation, it is apparent that there is much more to learn about the presence of this fine tableware at the site. That said there is a fairly consistent picture emergent from the samples to hand. As documented above some material may represent Augustan arrivals but the large majority has a date range within or spanning the Tiberian period with no firm reason to see anything much arriving after *c.* AD 40. Whilst decorated vessels are rare in this period of production (e.g. Hull 1961a: 203) their rarity at Bagendon may suggest this material does not represent a top-quality gift or diplomatic nicety supplied by the Roman state, as may be argued for with the extraordinary decorated wares present at Stanwick in pre-conquest levels (Haselgrove 2016). On the face of it this is plain ware for elite fine dining, but possibly not for the highest echelon. One might think that nonetheless the sigillata forms part of a wider suite that included silver vessels and containers as its top 'show-pieces', now long since melted for re-purpose (an explanation perhaps for the surprisingly ordinary samian assemblage from the palace levels of the early Roman era at Fishbourne (Willis 2005: 7.3.9)). This might be termed a 'known unknown'.

Intriguing questions also surround the early sigillata from Fishbourne (Dannell 1971; 2003; 2006). The more recent material from that site shows remarkable Augustan material present in quantity and then a two decade gap through the Tiberian period at least at the location 'facing the palace' (Dannell 2006, 86), exactly when supply to Bagendon was at its height. On current evidence it would appear that *Camulodunum*, Silchester and Canterbury, in addition to Fishbourne, were in receipt to sigillata somewhat earlier than Bagendon on the basis of typology and closed groups (Bird 1995: 772-3; Bird and Dickinson 2000: 185; Hull 1961a: 209), though one notes that further exploration at Bagendon could qualify this picture. Certainly this material travelled a long way to Bagendon, much of that journey overland. Was this via Fishbourne, Silchester or *Camulodunum*? Hull, suitably, implied it was too soon to tell given the partial picture to hand (Hull 1961a: 211). What we do know is that, firstly, sites that by various indicators appear to be significant centres in the Late Iron Age, and the people who resided there, in a range of cases exerted a gravitational pull: commodities moved great distance to these centres; explaining the push-pull factors involved is the interpretation of the factual record. Secondly, on the basis of the samples available it is apparent that no simple model of redistribution from an import node can be convincingly forwarded: sites had their own configuration of such imports, not sub-sets of material forwarded from other centres in Britain. More work is needed on these aspects but presently one might suggest that given these centres had their own ceramic configurations arrivals of imports were not standardized whether they were direct with a continental source, or more piecemeal. On the evidence of the *sigillata* there may be some grounds for speculating a Roman military connection at Bagendon given that at this time this fineware had the Roman military (on the Continent) as one of its main consumers. This may explain the graffito from Clifford's excavations (discussed above) and the repaired pieces, yet there seems little other indication of a pre-conquest Roman military presence at Bagendon. Elsewhere I have drawn attention to the almost mutually exclusive consumption patterns of major sites in eastern England in the decades immediately following the conquest: those with Iron Age origins, that continue, have a strong Gallo-Belgic ceramic component, those with a Roman military presence have sigillata fineware and little Gallo-Belgic material (Willis 1997). This points to different traditions, consumption patterns and supply systems existing at the same time. The pre-conquest finewares at Bagendon include both sigillata and Gallo-Belgic ware in fair quantities. Could the explanation be that some individuals at the site had closer connections with the Roman empire and its customs and material culture than others, such as, as mentioned above, people returning from spells of time spent within the empire?

Table 6.20. *Terra sigillata* from Bagendon 1981 by source and form type

Source: **Form:**	**Italian**	**Lyon**	**SG Montans**	**SG La Grauf.**	**Early Lezoux**
Decorated Bowls					
Drag. 11 or 29	1			1	
Drag. 30				1	
Cups					
Ritt. 5 / Loes. 8	4			1	1
Drag. 24/25				4	
Drag. 27				2	
Indeterminate				2	
Cup or Bowl					
Indeterminate				1	
Platters					
Loeschcke 1		1			
Loeschcke 2	1				
Ritterling 1				1	
Drag. 17	1			3	
Drag. 15/17				11	
Drag. 15/17 or 18				1	
Drag. 18				5	
Indeterminate	1			9	1
Form not identifiable				1	
Totals	8	1	0	43	2

Table 6.21. Incidence of repaired *terra sigillata* vessels (via lead riveting) amongst the Clifford 1954-56 and the 1979-81 assemblages

Excavation / Context	**Vessel form repaired**	**Date of vessel**	**Rivet hole diameter and details**
Clifford Site B Period IA	Platter, Drag. 18	*c.* AD 15-35	2 x 4.5mm, narrowing slightly by the underside; one with a lead plug *in situ*.
Clifford Site B Period IIB	Cup, Drag. 24/25	*Not Specified; South Gaulish*	"Rivet hole" (Hull 1961, 207)
Clifford Site B Period uncertain	Cup, Drag. 27	*Not Specified*	"Repaired with rivets" (Hull 1961, 207)
1979 Context 18	Large platter	*c.* AD 35-45	1 x 3mm
1979 Context 18	Cup, Ritt. 8	*c.* AD 35-55	1 x waisted *c.* 3mm
1979 Context 18	Platter, Drag. 15/17	*c.* AD 35-60	1 x 3mm; lead plug *in situ*
1981 Context 1	Platter, Drag. 15/17	*c.* AD 25-40	1 waisted 3 x 5mm; another with lead plug 3mm
1981 Context 2	Platter, Drag. 18	*c.* AD 30-50	1 x not measurable
1981 Context 2	Platter, Drag. 15/17	*c.* AD 30-60	1 x waisted with lead traces
1981 Context 4	Cup, Loeschcke 8 (Ritt.5)	*c.* AD 10-30	1 x waisted *c.* 5mm
1981 Context 6	Platter, Drag. 17	*c.* AD 20-40	1 x not measurable
1981 Context 51	Cup, Loeschcke 8, Ritt. 5	*c.* AD 20-40	1 x drilling not completed? *c.* 5mm
1981 Unstratified	Platter, Drag. 15/17 or 18	*c.* AD 30-55	1 x 3mm, narrowing

Terra sigillata from the 2014 and 2015 excavations

Introduction

A total of 78 sherds of samian ware pottery (*terra sigillata*) weighing 495grams and with an EVE total (by rim equivalent) of 1.49 were recovered during the 2014-15 excavations (see catalogue). Approximately 59 vessels are represented. The sherds were from three sources: La Graufesenque and Montans in southern Gaul and Lezoux in central Gaul (there is no East Gaulish samian ware and so nothing in terms of samian was arriving after *c.* AD 200). The supply spans the period *c.* AD 20-200 by date range though it is likely that the samian arrived and was in use at this site only following the Roman conquest, with the bulk of the early samian dating to after *c.* AD 40. The sherds came mainly from Trenches 5 and 6. Trench 3 yielded three sherds from three contexts, Trench 5 49 sherds from thirteen contexts and Trench 6 some 26 sherds from five contexts. A characteristic of this assemblage is its advanced state of fragmentation, with a particularly low average sherd weight; that many sherds are tiny imposes some limits upon identification. It is possible that some of the entries below listed separately could be from a vessel otherwise listed although care was taken to check and ensure the entries relate to separate vessels, as far as this can be discerned from sherd characteristics. Whilst sherds are small this is an index of the care taken in excavation and recovery; there was evidently diligent collection during the excavation as many of the pieces are very small and of a size that would lead to their being missed if the method of context excavation had occurred with less care.

Date range and sources

Full details of the sources and dates etc. are provided in the catalogue where each item is listed; a summary of the dates of the vessels represented is given in Table 6.22. The dates ascribed to the vessels are the dates for stratified deposits wherein like items are most frequently found (cf. Willis 2008). It is well known that samian vessels were particularly curated by their owners and therefore often had a longer life that other ceramics, hence some losses through the third century of items most typically seen in second century contexts is often to be anticipated.

Of the three sherds from Trench 3 (at Cutham) one was potentially the earliest sherd of the 2014-5 samian assemblage, coming from a Drag. 17 platter or Drag. 22 dish, that could possibly be a pre-Claudian arrival. The other two items from Trench 3 are from Lezoux and date to the second century AD (*c.* 120-200). Unfortunately, closer dating was not possible given these three vessels were represented by very small sherds.

Table 6.22: The samian ware from the 2014-15 excavations by date

Date (AD)	Number of vessels	Era
Trench 3		
20-100	1	Tiberian – Flavian
120-200	2	Hadrianic – Antonine
Trench 5		
40-80	1	Claudian – early Flavian
40-100	4	Claudian – Flavian
45-100	1	Claudian – Flavian
70-100	1	Flavian
120-140	1	Hadrianic
120-145	1	Hadrianic – early Antonine
120-150	3	Hadrianic – early Antonine
120-160	1	Hadrianic – early Antonine
120-200	15	Hadrianic – Antonine
130-200	3	Later Hadrianic – Antonine
140-200	1	Antonine
150-200	4	Antonine
160-200	2	Mid-Late Antonine
Trench 6		
40-75	1	Claudian – early Flavian
40-100	2	Claudian – Flavian
65-100	1	Late Neronian – Flavian
110-150	1	Later Trajanic – early Antonine
120-150	2	Hadrianic – early Antonine
120-200	9	Hadrianic – Antonine
150-200	1	Antonine
160-200	1	Mid-late Antonine

The samian from Trench 5 includes both South and Central Gaulish wares. The South Gaulish material is post-conquest with seven vessels dating to the period *c.* AD 40-100, with the ware notably, though not exclusively, present in context 5035. Of the 31 vessels from Lezoux dating to the second century there are both earlier products and later products showing a period of steady supply and consumption in the second century.

The samian items from Trench 6 include four vessels of first century South Gaulish ware from La Graufesenque spanning the period *c.* AD 40-100, as was the case with Trench 5. All five south Gaulish items come from context 6017 although this also produced two second century pieces. There is a further South Gaulish item but this is from Montans and of second century date. The remaining items are second century and amongst these the five most chronologically distinct items comprise three dating to the first half of the second century and two to the latter half, so there is no apparent chronological emphasis. In the round the chronological picture with the samian from Trench 6 is closely consistent with that from Trench 5.

That there is no early sigillata present amongst the assemblage is significant given that other sites in the Bagendon complex have yielded amounts of Arretine and other north Italian and early South Gaulish products of Claudian and particularly pre-Claudian date. Overall, the evidence from these trenches points to a supply and consumption of samian in the second half of the first century at a modest level. This may have begun in the Neronian period but certainly by the early Flavian period on the basis of the typological information. There is no samian from the Central Gaulish Les Martres-de-Veyre industry but these early second century products are generally rarer than those from La Graufesenque and Lezoux so this is not entirely surprising. A strong showing by Lezoux products amongst the assemblage is typical for a rural site in Roman Britain and those items that can be dated most precisely suggest a steady supply to the site through the Hadrianic to Antonine period (*c.* AD 120-200). The ratio of first century to second century items at both Trenches 5 and 6 is around 1:4. There is no East Gaulish ware of later second or third century date and whilst this source is more rarely represented at sites in Roman Britain its complete absence could be taken as indicating an end of supply or occupation around the end of the second century at least from the viewpoint of the samian evidence. There may be evidence too within

Table 6.23: The samian ware from the 2014-15 excavations by source and form

Source: **Form:**	**SG La Graufesenque**	**SG Montans**	**CG Lezoux**
Trench 3			
Platter or Dish			
Drag 17 or Drag 22	1		
Sub-totals	1		
Not identifiable			2
Totals Trench 3	1		2
Trench 5			
Cups			
Drag 27	1		2
Drag 33			3
Undiagnostic			2
Plain Bowls			
Drag 31R			2
Drag 38			3
Curle 23			1
Decorated Bowls			
Drag 29 or 37	1		
Drag 30 or 37			1
Drag 37			2
Bowl or Dish			
Undiagnostic			1
Dishes			
Drag 18/31			3
Drag 18/31 or 31			1
Drag 31			3
Dish or Platter			
Undiagnostic	1		
Platters			
Drag 15/17	3		
Sub-totals	6		24
Not Identifiable	1		7
Totals Trench 5	**7**		**31**
Trench 6			
Cups			
Drag 27	1	1	
Drag 33	1		2
Undiagnostic			1
Plain Bowls			
Drag 31R			1
Dec Bowls			
Drag 29	1		
Dishes			
Drag 18/31			1
Drag 18/31 or 31			1
Drag 31			1
Sub-totals	3	1	7
Not Identifiable	1		6
Totals Trench 6	**4**	**1**	**13**
All Trenches	12	1	46

the Central Gaulish Lezoux component of a significant tail-off of occupation (or more directly, supply, that may reflect site occupation trends). This is hinted at by the fact that whilst most rural sites occupied through the second century in Roman Britain tend to have more samian of Antonine than earlier date by some margin this is not the case here. Whilst numbers are small (and given that a range of items ascribed only a date of AD. 120-200 may mask chorological actualities), of the most date-diagnostic pieces there occurs at Trenches 5 and 6 an almost even ratio of earlier to later Lezoux vessels of 9:8, in slight favour of the material that pre-dates the mid-Antonine period (cf. Table 6.22).

The composition by form type

The samian recovered from Trenches 3, 5 and 6 includes a range of plain forms together with some decorated bowls (Table 6.23). Previous studies have shown that the proportion of decorated vessels within a site samian assemblage can be an index of the status of a site (Willis 2005: Section 7.3). Of the thirty vessels diagnostic of form from Trench 5 only four are from decorated types resulting in a low percentage tally for decorated items of 13%. This is a fairly low figure by any comparison and might suggest a basic level rural settlement, although the percentage is not unparalleled amongst Romano-British villas and other rural sites of some standing (cf. Willis 2005: table 35). Eight of the diagnostic vessels from Trench 5 are cups accounting for *c.* 27% of the identifiable forms from the Trench which is a comparatively high frequency (cf. Willis 2005). Only eleven vessels from Trench 6 are diagnostic of form. With such a small total it is not possible to draw any conclusions though it is of note that only one decorated bowl is present showing therefore a similar infrequency to that seen with the sample from Trench 5. More than half of the vessels represented are cups, also reflecting a trend seen amongst the Trench 5 group. Otherwise the overall form range from the three trenches is not especially remarkable and no unusual forms occur unless the platter or dish from Trench 3 is indeed from a Drag 22. In some cases, where rims survive in reasonable condition, wear is evident, suggesting that vessels were heavily used, or used over a long period.

Taphonomy

The condition of the samian is apparent from some details listed in the catalogue and in particular by the weights of the sherds. The three samian sherds from Trench 3 are small abraded fragments collectively weighing 5 grams. The 49 sherds from Trench 5 have a combined weight of 369g with an average weight of 7.5g. Attention to the weights of individual sherds from this Trench shows that the majority are very small items with several of moderate weight, bolstering the aggregate and thereby the average; nonetheless, the figure of 7.5g is low by most comparisons (Willis 2012: table 15; 2013: 96). The 26 sherds from Trench 6 weigh 121 grams with an average of 4.6g (though these figures include four sherds from a Drag. 33 cup that account for a half of the weight figure for this trench. Clearly the samian from the 2014-15 excavations is very broken and a number of sherds show abrasion and flaking. Such machination may be the result of contemporary breakage perhaps via trampling prior to deposition and/or reworking if sherds were disturbed in the ground, such as via constructional activities or contemporary feature excavation; disturbance may also have occurred subsequently though this seems less likely. The possibility that there was wilful breakage during the life of the site might be borne in mind.

Summary

The small assemblage of samian recovered via these excavations shows levels of consistency across the three Trenches yielding the material. The date of the items suggests supply from the later part of the third quarter of the first century AD continuing through till the late second century. The main floruit of supply and consumption is in the second century with the number of first century examples being low and there being no examples of the early second century source of Les Martres-de-Veyre. The higher frequency of second century Lezoux items is typical for rural sites in Britain and amongst this material the small number of mid to late Antonine items hints at a decline in supply, and by inference that could mean a decline in use/habitation at the site, before the end of the second century. The absence of samian from eastern Gaul is noteworthy, although there has been debate as to how commonly this ware, which is, in Britain, less frequent generally than samian from Southern and Central Gaul, was conveyed to western Britian and then reached rural sites when demand amongst military and urban consumers may have taken precedence. The chronology of the material certainly contrasts with the early date of the sigillata from elsewhere in the area, and equally is of a different emphasis when compared to the samian assemblage from The Ditches (Willis 2008). The composition by form shows cups were a prominent component, somewhat more so than generally with samian groups. The low proportion of decorated forms is noticeable and may be an indicator of a basic level community. The advanced fragmentation of the material is likewise distinctive. In sum therefore although the assemblage is small it shows coherence, continuity through time and several distinctive characteristics.

Terra sigillata from 2014 excavations at Cutham, Bagendon

Trench 3

Context 3000 sf 14-12

Body sherd, SG La Graufesenque, Drag. 17 platter or Drag. 22 dish, 1 g, *c.* AD 20-100. Insufficient of the vessel is represented to be more certain as to the specific form. From the wall/floor junction; fairly soft and abraded, with the underside of the floor flaked off.

Context 3080

Body sherd, CG Lezoux, form not identifiable,1g, *c.* AD 120-200. Soft and abraded.

Context U/S over 3070

Body sherd, CG Lezoux, form not identifiable, but possibly from a Drag. 37 bowl, 3g, *c.* AD 120-200. Abraded.

Terra sigillata from 2015 excavations at Black Grove, Bagendon

Trench 5

Context 5001

Rim sherd, CG Lezoux, probably Drag. 18/31 dish, or 31 dish, 1g, Diam. *c.* 140mm, RE: 0.05, *c.* AD 120-200. The exterior face of the sherd is missing.
Base sherd, CG Lezoux, from a bowl or dish, 2g, Diam. 100m, BE: 0.07, *c.* AD 120-200.

Context 5003
Body sherd, CG Lezoux, probably Drag. 38 bowl, 3g, *c.* AD 130-200. From the flange of the vessel.
Rim sherd, CG Lezoux, Drag. 31R bowl, 4g, Diam. *c.* 210mm, RE: *c.* 0.04, *c.* AD 160-200.

Context 5004

Body sherd, CG Lezoux, probably Drag. 37 bowl, 9g, *c.* AD 120-200. Burnt. Thick sherd from the vessel floor.
Rim sherd, CG Lezoux, Curle 23 bowl, 8g, Diam. *c.* 200mm, RE: 0.05, *c.* AD 120-200.
Two non-conjoining body sherds, CG Lezoux, form not identifiable, 2g (1g and 1g), *c.* AD 120-200. Possibly from the Drag. 38 bowl represented in this context. Abraded.
Body sherd, CG Lezoux, form not identifiable,1g, *c.* AD 120-200. Soft and abraded. From the underside of a vessel floor.
Body sherd, CG Lezoux, form not identifiable,1g, *c.* AD 120-200. Soft and abraded.
Body sherd, CG Lezoux, probably Drag. 38 bowl, 3g, *c.* AD 130-200. From the flange of the vessel. Abraded.
Base sherd, CG Lezoux, Drag. 30 or 37 bowl, 29g, Diam. 84 mm, BE: 0.31, *c.* AD 140-200. Very thick vessel.
Two conjoining base sherds, CG Lezoux, Drag. 31 dish, 23 g (15g and 8g), Diam. 90mm, BE: 0.24, *c.* AD 150-200. The interior of the footring is slipped only up to the floor, which was never covered in slip. Two partial fingerprints occur on the exterior of the footring.
Rim sherd and body sherd not certainly from the same vessel but probably so, CG. Lezoux, Drag. 31R bowl, 13g (7g and 6g), Diam. 190 mm, RE: 0.06, *c.* AD 160-200.

Context 5014

Rim sherd, CG Lezoux, Drag. 31 dish, 33g, Diam. 210mm, RE: 0.05, *c.* AD 150-200. Same vessel as that represented in context 5017. Worn rim. A rather large Drag. 31.

Context 5017

Base sherd, CG Lezoux, form not identifiable,1g, Diam. *c.* 110 mm, BE: *c.* 0.04, *c.* AD 120-200. A flake from the outer wall of a footring.
Two rim sherds and two body sherds all conjoining, plus a body sherd probably from the same vessel, CG Lezoux, Drag. 31 dish, 52g, (20g, 16g, 12g, 3g and 1g), Diam. 210 mm, RE: 0.11, *c.* AD 150-200. Same vessel as that represented in context 5014. Worn rim.

Context 5018

Body sherd, CG Lezoux, probably from a cup, 1g, *c.* AD 120-140.
Rim sherd, base sherd and body sherd probably from the same vessel, CG Lezoux, Drag. 27 cup, 4 g (2g, 1g and 1g), rim Diam. 100 mm, RE: 0.06, base Diam. 70 mm, BE: 0.16, *c.* AD 120-160.

Context 5024

Rim sherd, CG Lezoux, large Drag. 33 cup, 68g, Diam. 140 mm, RE: 0.27, *c.* AD 120-200 (probably 150-200).
Base sherd, CG Lezoux, small cup, precise form not identifiable, 1g, Diam. 35 mm, BE: 0.20, *c.* AD 120-200.
Body sherd, CG Lezoux, form not identifiable, 1g, *c.* AD 120-200. This is largely a core fragment with surfaces missing.
Body sherd, CG Lezoux, probably Drag. 38 bowl, 3g, *c.* AD. 130-200. From the flange of the vessel.
Base sherd, CG Lezoux, Drag. 31 dish, 37g, Diam. 80mm, BE: 0.24, *c.*AD 150-200. A part of a stamp is present but this had not been clearly impressed; it may read ']IVISI' or similar. The sherd has possibly been split to be a quarter.
Body sherd, CG Lezoux, Drag. 37 bowl, 17g. *c.* AD 150-200. The decoration, on the basis of this fragment, is arranged in small panels with bead borders; the fringe of a small plain double ring medallion is present, defined below by a faint fine bead border; below this, the lower panel has two near identical mirrored spirals, similar to Rogers S8 and S38, horizontal, with a small indistinct rosette as a distal terminal mask; below these the scheme ends with two large rosettes, Rogers C21,

placed neatly below the spirals, with a groove as a lower border. This sherd is near to being sub-circular and there is some probability it was roughly clipped round to make an approximate circular shaped item. Worn exterior.

Context 5026

Base sherd, CG Lezoux, small Drag. 33 cup, 2g, Diam. 50 mm, BE: 0.08, *c.* AD 120-200.
Body sherd, CG Lezoux, form not identifiable (perhaps from a dish), 1g, *c.* AD 120-200.
Body sherd, CG Lezoux, form not identifiable, 1g, *c.* AD 120-200. Essentially a flake.

Context 5027

Two conjoining body sherds, SG La Graufesenque, form not identifiable, though the sherds are probably from the floor of a thick floored form, 3 g (2g and 1g), *c.* AD 40-100. Old break.
Body sherd, CG Lezoux, small Drag. 27 cup, 1g, *c.* AD 120-145.
Base sherd, CG Lezoux, Drag. 18/31 dish, 21g, Diam. 80 mm, BE: *c.* 0.01, *c.* AD 120-150. Burnt.
Body sherd, CG Lezoux, small Drag. 33 cup, 6g, *c.* AD 120-200.

Context 5029

Rim sherd, SG La Graufesenque, Drag. 15/17 platter, 1 g, Diam. ? *c.* 170 mm, RE: *c.* 0.035, *c.* AD 40-100. High gloss finish on interior, but body finishing on exterior is smeared. Burnt.

Context 5033

Body sherd, SG La Graufesenque, Drag. 15/17 platter,1 g, *c.* AD 45-100.

Context 5034

Rim sherd, CG Lezoux, Drag. 18/31 dish, 6g, Diam. 180mm, RE: 0.05, *c.* AD 120-150.

Context 5035

Rim sherd, SG La Graufesenque, small Drag. 27 cup, 1g, Diam. 80mm, RE: 0.07, *c.* AD 40-80.
Rim sherd, SG La Graufesenque, Drag. 15/17 platter, 1g, Diam. uncertain, RE: *c.* 0.03, *c.* AD 40-100. This is a very small sherd from the top of the rim. Different vessel from the 15/17 in context 5029.
Base sherd, SG La Graufesenque, from a platter or dish, form not identifiable, 1g, Diam. 80 mm, BE: *c.* 0.02, *c.* AD 40-100.
Body sherd, SG La Graufesenque, Drag. 29 or Drag. 37 bowl, 5g, *c.* AD 70-100. A small area of decoration is represented from the lower part of the bowl; this comprises a basal wreath with trifid small thistle type motifs (approximating to Hermet's Pl. 13 no. 38 but here with the stem, if there was one, concealed and with the buds appearing more thistle-like), to the left, below a thin bead border; above, a vestige of a scroll is just discernible. A slight line defines the lower margin of the wreath.
Rim sherd, CG Lezoux, Drag. 18/31 dish, 1g, Diam. uncertain, RE: *c.* 0.03, *c.* AD 120-150.

Trench 6

Context 6004

Body sherd, CG Lezoux, form not identifiable, 1 g, *c.* AD 120-200.

Context 6006

Rim sherd, CG Lezoux, probably from a Drag. 18/31 or 31 dish, 1g, Diam. possibly 170 mm, RE: 0.03, *c.* AD 120-200.
Three rim sherds (two conjoining) and a body sherd, all from the same vessel, CG Lezoux, Drag. 33 cup, 61g, (28 g, 18 g, 10 g, and 5g), Diam. 150 mm, RE: 0.40, *c.* AD 120-200. Three sherds are burnt.
Body sherd, CG Lezoux, probably Drag. 33 cup, 2g, *c.* AD 120-200. A different vessel from the other Drag. 33 represented in this context.
Body sherd, CG Lezoux, form not identifiable, 1g, *c.* AD 120-200.
Body sherd, CG Lezoux, form not identifiable, 4g, *c.* AD 120-200.
Three non-conjoining body sherds, probably from the same vessel, CG Lezoux, form not identifiable, 7g (4 g, 2 g and 1g), *c.* AD 120-200.
Rim sherd, CG Lezoux, Drag. 31 dish, 8g, Diam. 190 mm, RE: *c.* 0.03, *c.* AD 150-200. Burnt.
Body sherd, CG Lezoux, Drag. 31R bowl, 10g, *c.* AD 160-200.

Context 6009

Body sherd, CG Lezoux, form not identifiable, 1g, *c.* AD 120-200. Essentially a flake. The slip and fabric are particularly red but this appears to be a Lezoux fabric rather than Rheinzabern.

Context 6017

One rim sherd and three body sherds all from the same vessel, (two body sherds are conjoining and the other body sherd conjoins with the rim sherd), SG La Graufesenque, Drag. 29 bowl, 12g (4g, 3g, 3g and 2g), Diam. *c.* 186 mm, RE: 0.045, *c.* AD 40-75. This is a fine, thin-walled, example of form 29. Part of the upper scheme is represented, being a fine scroll featuring a leaf similar to Hermet Pl. 11, upper panel, no. 8, only here it is much sharper. All four sherds are burnt.
Body sherd, SG La Graufesenque, probably Drag. 33, 2g, *c.* AD 40-100.
Body sherd, SG La Graufesenque, form not identifiable but perhaps from a platter, 1g, *c.* AD 40-100. Essentially a flake.

Body sherd, SG La Graufesenque, probably Drag. 27 cup, 3g, *c.* AD 65-100. Essentially a flake as the inner surface is missing.
Body sherd, SG Montans, Drag. 27cup, 3g, *c.* AD 110-150. Pale fabric with a thin orange brown slip.
Body sherd, CG Lezoux, from a cup, 2g, *c.* AD 120-150.

Body sherd, CG Lezoux, form not identifiable, 1g, *c.* AD 120-200. Essentially a flake.

Context 6020

Rim sherd, CG Lezoux, Drag. 18/31 dish, 1g, Diam. *c.* 160mm, RE: *c.* 0.07, *c.* AD 120-150.

Chapter 7

The Brooches

Sophia Adams

Overview

In total 115 definite brooches have been found in the excavations within the Bagendon valley and nearby, including those from the 1950s and 1979-81 excavations, from Black Grove and Cutham enclosure as well as some discovered through metal detecting (see Table 7.1). Of these, 43 separate brooches, plus 2 uncertain fragments, were recovered from excavations within Bagendon valley in 1979, 1980 and 1981 (Chapter 4), as well as excavations at nearby Black Grove in 2015 (Chapter 5). This also includes finds made through metal detecting survey in the 1980s and a more recent stray find in 2018. To these can be added the 70 brooches already published from Elsie Clifford's excavations in the valley (Hull 1961b); a single find from a water pipeline at the site (Mackreth 2011), probably from close to Clifford's site, and a late 2nd to early 1st century BC brooch from the Cutham enclosure found in 2014 (see Chapter 3). This report focusses on the 44 previously unpublished excavated and metal detected brooch finds and fragments. These consist of 34 bow brooches, six penannulars and four plate brooches. The bow brooches are subdivided thus: one early Late Iron Age Type 3B; one Birdlip brooch; eight or nine from the Rosette and Langton Down group of which five are Léontomorphes, one is a Nertomarus, one a simple decorated bow and one a plain bow; nine are Colchester Types and two more are fragments of either Colchester Types or Colchester Derivatives; eleven brooches are of Aucissa form, several of which are missing the diagnostic feature that separates these from Hod Hill brooches but the remainder of the shape indicates they are probably Aucissas. Two further fragments may derive from decorated brooches but are too small for identification. The four copper alloy pennanular brooches are all Type D. Two iron penannulars are in too poor condition to assign to a specific type. One of the plate brooches is the earliest type from the area, this belongs to Hull and Hawkes Group 2B (decorated brooches) and Adams subtype 2Bb2. It dates potentially two centuries earlier than the others. At least two of the remaining four plate brooches are potentially of continental origin but the typology of this brooch type is not conclusive, particularly for the incomplete examples found here.

All the types recorded here were also represented in the assemblage from the earlier excavations. This is the largest and most varied collection from contemporary sites in the area (Table 7.1). The excavations at neighbouring Ditches produced only 49 brooches; although all are types found at Bagendon this only covers 7 main typological groups compared to Bagendon's 13. At both sites the Aucissa and Hod Hills dominate. Although it has been possible to separate Aucissa's and Hod Hills at Bagendon it has not been possible to to do so for the other sites owing to the close connections between the two types and the limitations of past records. The two Duntisbourne sites: Duntisbourne Grove and Middle Duntisbourne produced 12 brooches between them, again all of types known at Bagendon. Only at Middle Duntisbourne are Aucissa/Hod Hills not found.

It is noticeable that several of the earlier published Bagendon brooches are exactly paralleled in the assemblage described in this report, which could have both social and production implications. The possibility that Iron Age brooches functioned as badges has been commented on before (e.g. Adams 2017) and the proposed military association of specific types would fortify this hypothesis, although such associations remain open to debate. Nina Crummy has suggested in her discussion of the Elms Farm, Heybridge, Essex brooches (Crummy 2015) that where the brooch assemblage from a specific site is biased towards a certain form this could represent a desire for indicating allegiance through brooch wearing, whereas an even spread of brooch types suggests the opposite and may be more connected with local people.

In an examination of the Braughing/Puckeridge assemblage in Hertfordshire, Adrian Olivier interpreted the Nauheim Derivatives and Hod Hill's as being associated with the military (Olivier 1988). Taking these interpretations into consideration the absence of Nauheim Derivatives at Bagendon and the rarity of Hod Hills combined with the lack of bias towards one type would suggest this assemblage does not have any explicit military connection. This is contra Mackreth's attempts to link the assemblage directly to the XX VALERIA VICTRIX (Mackreth 2011: 236-7) on the basis of the presence of the specific Bagendon Type of Hod Hill brooch with side protrusion; nine of which were found in the earliest excavations at the site but none subsequently. Nor does the assemblage include any of Mackreth's La Tène II military types

Table 7.1. Complete listing of brooches from Bagendon and neighbouring sites.

Mackreth Type	**Ditches 82-83 (all mid-1st century AD and earlier types)**	**Ditches 84-85 (all Mid-1st c AD contexts)**	**Ditches - total**	**Bagendon 79-81 (and Blackgrove stray early brooches)**	**Water Pipeline Bagendon (Mackreth)**	**Clifford compared with Mackreth**	**Bagendon Total**	**Duntisbourne Grove**	**Middle Duntisbourne**	**Duntis Total**	**All Total**
Drahtfibel Derivatives	4	4	8	2	0	5	7	0	2	2	17
Birdlip	0	0	0	1	0	0	1	0	0	0	1
Nauheim Derivative	0	0	0	0	0	2	2	0	0	0	2
Rosette	1	0	1	5	0	10	15	1	0	1	17
Langton Down	0	0	0	4	0	8	12	1	0	1	13
Colchester	4	3	7	7	0	13	20	1	2	3	30
Colchester Derivatives	4	2	6	2	0	5	7	1	0	1	14
Aucissa/Hod Hills	16	2	18	11	0	18	29	2	0	2	49
Durotriges	0	0	0	0	0	1	1	0	0	0	1
Plate	1	1	2	4	1	1	6	0	0	0	8
Penannular	3	4	7	6	0	6	12	0	2	2	21
Unspecific	0	0	0	2	0	1	3	0	0	0	3
Total	33	16	49	44	1	70	115	6	6	12	176

which he even admitted: 'I cannot prove that these brooches must represent soldiers, but I can say that they arrive with the army and belong exclusively to the earliest period of Roman occupation' (Mackreth 2011: 49). Like Olivier, Mackreth believed the Hod Hill's to have arrived as a fully developed type in Britain from the continent at the time of the conquest in such large quantities that they must be connected with the military. Yet Mackreth (1981: 134-5) himself thought some of the related Aucissa brooches may have arrived in Britain before the conquest and he noted that 'a single merchant shipload would easily have been enough to contain all the brooches ever made and used in Britain throughout the Iron Age and Roman periods' (Macrketh 2011: 133-4). This further instils some doubt in a specific military connection in all contexts in which they were used or found. Hull (1961b: 176-9) also proposed that a selection of the Aucissa/Hod Hill brooches were made at Bagendon owing to their similarities and quantity at this site. Direct evidence for brooch production on the site is nigh on impossible when so many were worked into their specific shape through a combination of cold working and annealing. This is currently not readily identifiable in the archaeological record. However, the presence of crucible fragments, tuyère fragment (Clifford 1961: pl. XLIID), metalworking tools (anvil, possible iron file), coin pellet moulds, droplet of copper alloy casting waste, lead ingot fragment and the presence of high density ironworking slag shows that non-ferrous metal casting and iron forging did take place at the site (Clifford 1961: 144-149 and 186-195; see also Chapter 9).

Since the 1950s excavations were published, Don Mackreth has undertaken extensive research into the brooches of Late Iron Age and Roman period Britain (Mackreth 2011). This provides a wider comparative assemblage for the finds but has not eliminated all the dating issues owing to the nature of the archaeological evidence and the tendency to use brooches as a dating tool rather than finding a way to date the brooches. The initial estimates for the dates of the Bagendon assemblage have also been employed to date some of the types represented here, so we are at risk of circularity. Most of the brooches appear to fall within the 1st century AD from the second to third quarters of that century but at least three examples may be pre-conquest brooches (SF80-76; SF81-76, SF80-111), representing potentially earlier items incorporated into post-conquest deposits. As Mackreth has noted, one of the greatest difficulties is defining when a type is no longer in use as opposed to when it comes into use. Current research examining the dating of Iron Age brooches through a programme of radiocarbon remains found with the brooches may be able to narrow down the dating of each type in the future (Hamilton and Adams 2018).

The majority of the brooch types recovered from Bagendon are also represented in the assemblage from the cemetery at King Harry Lane just outside the Roman town of *Verulamium*, St Albans, Hertfordshire. Through careful comparison with brooches from roughly contemporary settlements and cemeteries, Mackreth refined the dating of the main phases at King Harry Lane and hence the associated brooches (Mackreth 2011: 243-252):

- Phase I: 15 BC – AD 30
- Phase 2: AD 20 – 40
- Phase 3: AD 25 – 55 (although Mackreth wanted to refine this to a date range of AD 35-43/4)
- Phase 4: AD 45 and beyond

Following this system, at King Harry Lane brooches of Colchester, Langton Down and Rosette type had 'largely passed out of use by [AD]60.' (Mackreth 2011: 245). Colchester Derivatives mostly fall within the period AD 40 to 90; The Aucissa and Hod Hill brooches all entered the archaeological record before AD 75. The few others from later contexts are thought to be residual finds. It is estimated that the majority of Aucissa and Hod Hill brooches date to pre AD 60. Although it should be noted that the division of the graves into different phases is open to debate and hence creates limitations in the application of the dating system for other sites especially given the presence of brooches of the same type in different phases. The King Harry Lane chronology can only be used as an indication of potential dates at present. By comparison the Bagendon assemblage largely falls before AD 60 although pre AD 75 and even pre AD 90 dates cannot be ruled out for one or two examples.

The brooches are described below in typological order. Copper alloy brooches are described first, followed by iron brooches within each typological group. Two further fragments, potentially from brooches are recorded at the end of the catalogue.

Catalogue

Mid to Late Iron Age plate and bow brooches

Metal Detected find recorded by PAS: WAW-DD1642. Type 2Bb2 (2Bc1) [not illustrated]

Location recorded by PAS as from: SP015065[1]

Wt. 37.8g; L. 46.53mm; W. 45.71mm; Th. 14.7mm.

A small copper alloy brooch consisting of a solid bulbous cruciform plate, simple hooked catchplate on the reverse and a double lug hinge and small bar on which the missing pin would have pivoted. The remnants of iron around the pivot suggest the pin itself may have been iron. The top of the brooch has a central circular domed boss with four integral narrow arms protruding from the sides of the central boss. Each arm terminates in a domed boss slightly smaller and slightly less perfectly round than the central one. The central and three of the side bosses are hollow on the reverse, the fourth is solid to accommodate the hinge lugs. The hook for the catchplate emanates from the edge of the opposite hollow boss. This is a subtype of Hull and Hawkes group of decorative brooches (Type 2B brooches) identified by Sophia Adams: Type 2Bb2. It is dated by its technical and stylistic features to the Middle Iron Age and has affinities with Iron Age pins found at Fairfield Park and Ludford (Adams 2013: 65-68, 88 fig. 3.15, 91-95, 112-13, 279, 299 [10306]; Allen and Webley 2007: 94 fig.3.17-18). Other examples have been found through metal detecting activity, often with missing pins. Each example features the bulbous cruciform shape, lugged hinge and hooked catchplate but all are subtly different. On this brooch the arms are longer and finer than on other known versions. Enough examples are now known that it is proposed these could be classified separately from the other 2Bb decorated plate forms and instead be classified as moulded and decorated cruciform plate brooches 2Bc with subdivisions: 2Bc1 being these bulbous forms and 2Bc2 being those with a flattened profile. Brooches of this type are focussed in, and west of, Berkshire with the most westerly find occurring in the Batheaston hoard held at the British Museum.

- Batheaston, Avon. British Museum 1989.6-1.200 (Adams 2013: 63 fig.3.6, 195-6, [10033]), with thick arms decorated with a simple collar around each.
- Two PAS finds from Welford Berkshire 10609 BERK-4EFFC6 (Adams 2013: 91 [10609], Fig.3.17) and BERK-8CF4F34. The former is complete with copper alloy pin; the latter is a variation on the form where the central boss is an elongated dome and the arm bosses are grouped in two pairs at either end of the dome.
- West Hanney, Oxfordshire 10834 BERK-F5AF04.
- Boxford, West Berkshire BERK-4451E9 with a ropework collar around each arm between the central and arm boss.
- Soulbury, Buckinghamshire BUC-ED2437.

7.1 Cutham Enclosure: Trench 3 (3126) (SF2014-16)[2]

Wt: 3.0g; L: 32.39mm; W of bow: 2.29mm; W of spring: 13.31mm; Ht: 15.03mm.

A small copper alloy, one-piece brooch with a bilateral 6 coil spring and external chord. The spring forms the head of the brooch with 3 coils sitting either side of the bow. The short, straight bow is squared in profile with a rounded corner at the shoulder (towards the head end of the brooch) and a slightly wider angled corner at the hip (towards the foot end of the brooch). The catchplate and most of the foot of are now missing. The

[1] This grid references is from the centre of the Bagendon parish and may not reflect the true exact location of this find, although it is coincidentally within the Cutham enclosure

[2] Illustrated in Figures 7.1 and 7.2, identified by catalogue number.

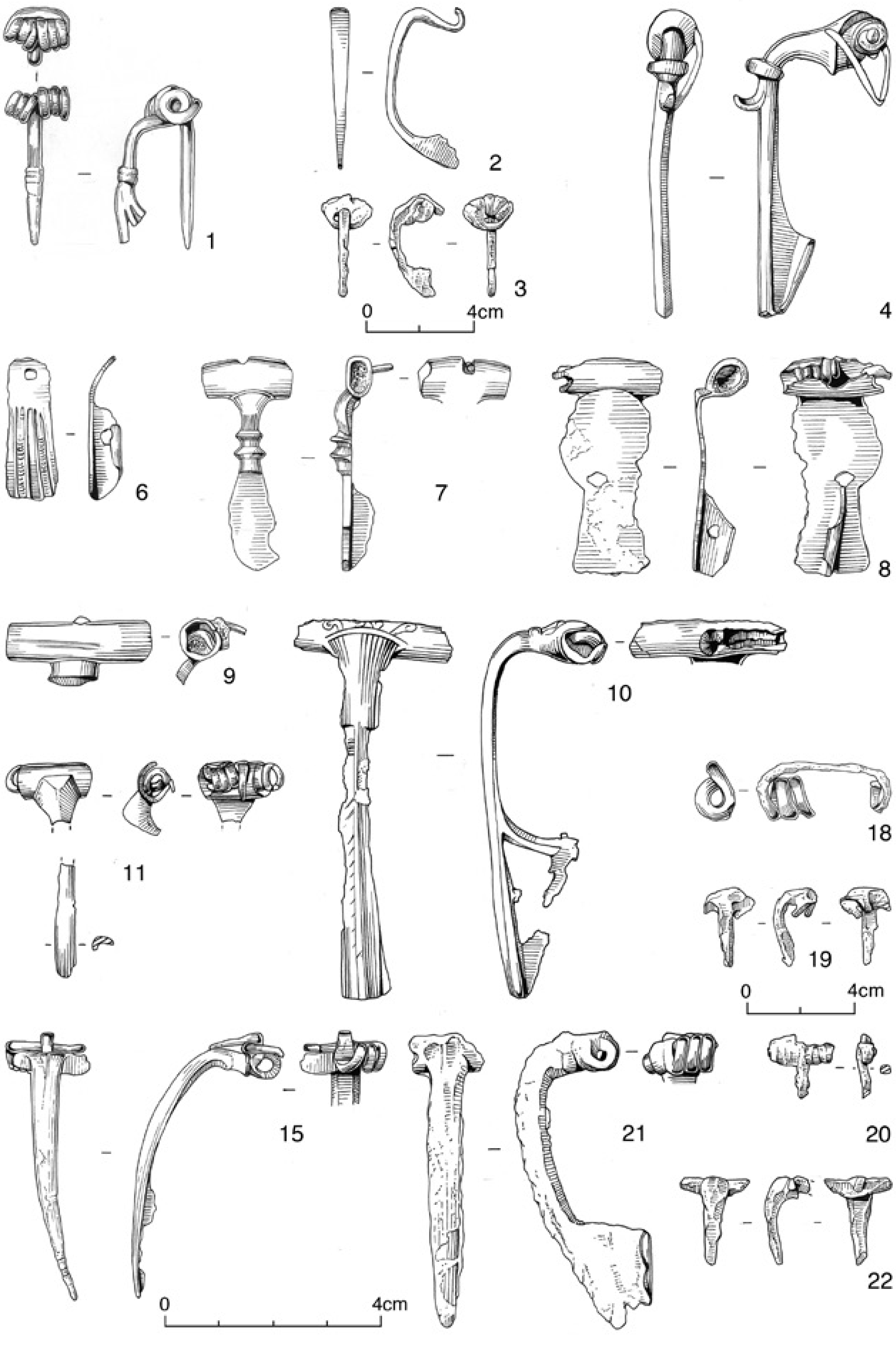

Figure 7.1. Brooches from Bagendon (drawn by Yvonne Beadnell).

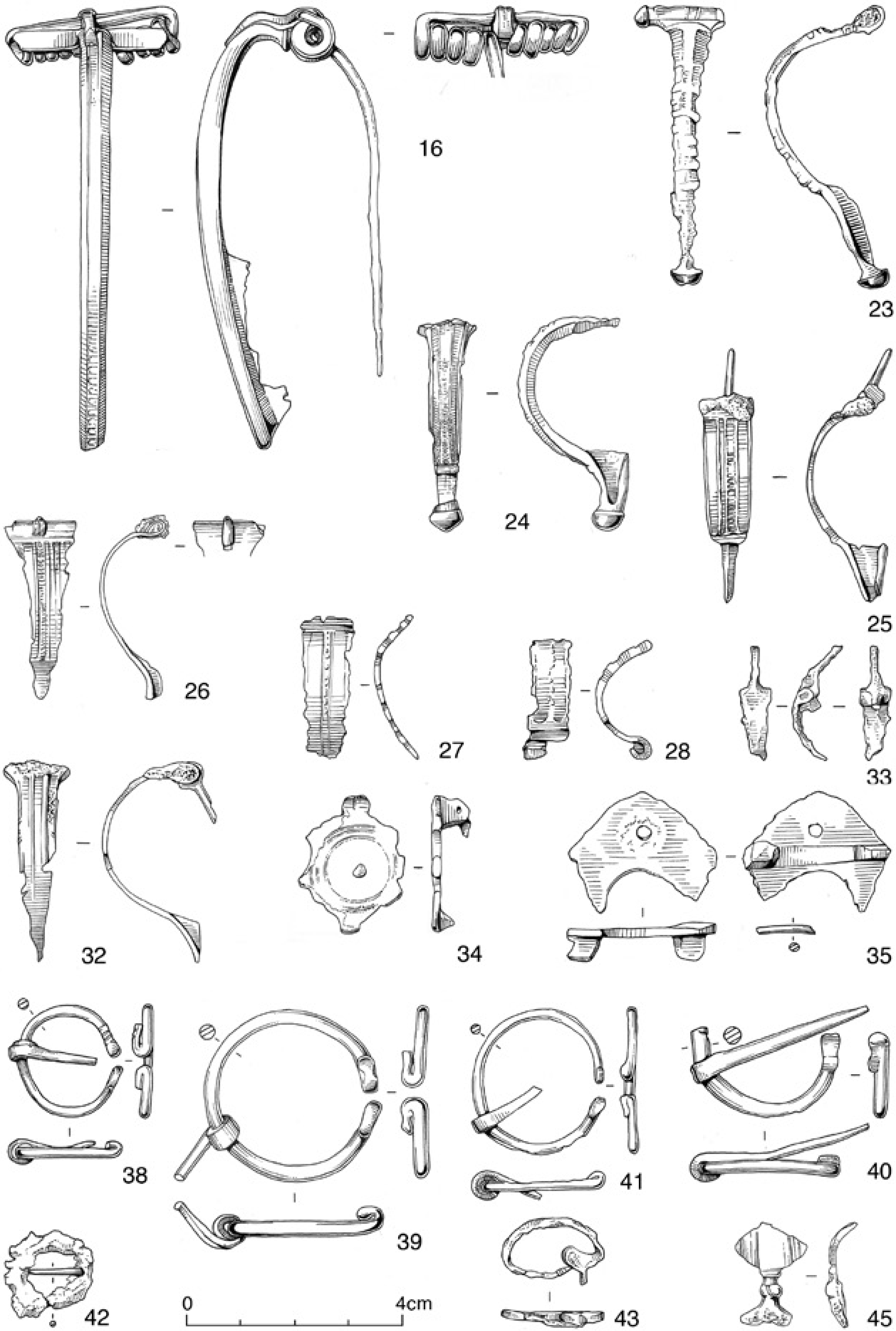

Figure 7.2. Brooches from Bagendon (drawn by Yvonne Beadnell).

catchplate would have secured the end of the surviving pin, beyond which the foot would have been bent up and back (reverted) towards the bow as may be seen from the remains of the foot resting on the hip of the brooch. The end of the foot (the toe) is attached halfway along the length of the bow. It appears to be attached by means of bending and wrapping either side around the bow. The pin and spring have a roughly circular cross-section but this alters to a rectangular wire where the bow rises up from the spring. At the hip of the brooch the bow broadens towards the, now missing, catchplate.

The brooch shares characteristics with Hull and Hawkes' Type 3B brooches (Hull and Hawkes 1987: 173-178, pl. S1) all of which have a short, wire-like bow and reverted foot attached to the bow by means of a split toe that is wrapped around either side of the bow creating a collar-like effect. They differ from the Bagendon brooch by having longer springs (both real and mock forms), with eight or more coils, and tend to be a finer and sharper style than the Bagendon brooch. Type 3B examples cited by Hull and Hawkes include two 19th century copper alloy brooch finds: one from 'The Mount' at Maidstone, Kent (Maidstone Museum; Hull and Hawkes 1987: 175, pl.S1, 2251; Adams 2013: 75, Fig.3.9) and the other found during antiquarian excavations at Spettisbury hillfort in Dorset (British Museum 1892,0901.1466; Hull and Hawkes 1987: 175, pl.S1, 3506; Adams 2013: 87, fig.3.14 [10262]). A more recent example was recovered during excavation of a first century AD salt winning site on the Medway Marshes in Kent (British Museum 1981,1002.1; Adams 2013: 87 fig.3.14 [10594]); it has a similar widening of the bow towards the catchplate as the Bagendon brooch.

The short spring of the Bagendon brooch, shape of the bow and style of the toe attachment is better compared to two brooches excavated after the publication of Hull and Hawkes' *Corpus:*

- Trethellan Farm, Newquay, Cornwall: a bronze brooch with a six coil spring and squared arched bow. This was found close to the neck of an adult male inhumation, burial 2184, in the Iron Age cemetery (Nowakowski 1991: 222, Fig.83.118. Brooch 266). (Alloy identified by X-Ray Fluorescence, AMLab No.: SW88057).
- Mill Hill, Deal, Kent: a copper alloy brooch with a four coil spring and a rounded arched bow that widens towards the catchplate found in Grave 47 in the Iron Age southwestern cemetery (Parfitt 1995: 97, Fig.40.4).

It is possible these finds represent a slightly earlier form that became the Type 3B with the introduction of the long spring. The Trethellan Farm brooch appears to be the closest comparable example. There are subtle differences but these are to be expected on brooches produced by hand on an individual basis (Adams 2013: 161-2). It is of note that both cemeteries contain brooches of types that span the same transitional phase from the Middle to Late Iron Age. Both contained later Middle Iron Age Hull and Hawkes Type 2C brooches and brooches from the earliest part of the Late Iron Age: Type 6 and continental La Tène III style brooches (Hull and Hawkes 1987; Nowakowski 1991: 222-226, Figs.83 and 84; Parfitt 1995: 97, Fig.40). Hull and Hawkes both saw their Type 3 brooches as a departure from the British Middle Iron Age types 2A to 2C, marking the return to continental influence close to the start of the first century BC (Hull and Hawkes 1987: 171-3) yet they still described them as La Tène II brooches which would place the 3B before the end of the second century. On the basis of the finds and radiocarbon dates for graves without brooches the southwestern cemetery at Mill Hill was dated to the second to first century BC. The burial sequence commences with Grave 112, the so-called 'Warrior Grave' containing a Middle Iron Age Type 2Bb brooch, plus shield bindings, a sword and 'crown'. Radiocarbon dating of this grave carried out as part of a scheme for dating 'Celtic Art' (Garrow *et al.* 2009: 87; 103) places it in one of two time brackets, either *c.* 360–280 BC or *c.* 260-100 BC (OXA–17506: 2158 ± 28 BP). The grave and its contents is likely to date to the third century BC but an earlier or later date is possible. This potentially pushes forward the start of the cemetery and has implications for the dating of the other graves. The possible 3B brooch from Grave 47 Mill Hill can best be placed somewhere in the second century BC and (by extension the Bagendon brooch) but we cannot wholly rule out its use towards the start of the second century or even a later date within the century BC.

The Bagendon brooch also exhibits features found on Early and Middle Iron Age brooches in England and Wales (i.e. *c.* 450 – 300 BC and *c.* 300 – 150 BC). The chord is external to the bow consistent with all pre-Late Iron Age brooches and cannot be seen when viewed from above, in contrast to the more visible chords on Early Iron Age brooches. Internal chords passing under the bow only come into use in Britain in the Late Iron Age. Bows with a squared profile come into being at the end of the Early Iron Age and find their most exaggerated version on the straight bowed 2Ab brooches of the Middle Iron Age: *c.* 275-250 BC (Adams 2013: 111). The reverted foot attached to the bow is also a feature that appears on post 300 BC brooches (Adams 2013: 84-87, Fig. 3.14). Initially the attachment is at the top of the curved hip of the bow (e.g. Hull and Hawkes 1987: Pl.40, 4377, Type 2Ab from Rudston, East Riding of Yorkshire; Adams 2013: 56, Fig.3.3. [10175]) but subsequently it moves further up towards the shoulder of the brooch before eventually being cast complete with the bow as on Hull and Hawkes Type 6 and other Late Iron Age brooches (Hull and Hawkes 1987: 193-196, S5; Mackreth 2011: 8-50, pl.6; pl.7-10; pl.22-26; Adams 2013: 74-5, Fig. 3.9).

The combination of features on this brooch and dating of comparative examples place it at the cusp of the transition from the Middle to Late Iron Age *c.* 150-100BC. At present precise dates are difficult for Iron Age brooches owing to the lack of associated radiocarbon dates and overreliance on the brooches as a dating tool rather than treating them as an object that needs to be dated. This often leads to circularity in any proposed dating scheme (Adams 2014: 173). The presence of an associated radiocarbon date (192-41 cal. BC: SUERC-64211) for this brooch, albeit from an overlying layer (3092), is of great benefit to our understanding of the chronology of these artefacts and comfortably corresponds with the estimated date range for the use and deposition of this form of brooch. The location of the find in a pit in a settlement in Gloucester sets it comfortably within the known distribution of Middle Iron Age brooches (Adams 2013: Maps 6.14-6.20) and at the periphery of the spread of Type 3B brooches which have been found in Cornwall, Somerset, Dorset, Wiltshire, Hampshire and Kent with possible variants of the form found further north in Hereford and Worcester, East Lothian and Argyll and Bute in Scotland.

First Century BC to First Century AD bow brooches

Drahtfibel Derivatives

Drahtfibel Derivatives are filiform (wire-like) brooches that span the last century BC and first century AD. Five were found in the 1950s excavations at Bagendon and two in the 1979-1981 season. Two examples, one copper alloy, the other iron, were found during the 1979-1981 excavations. The brooch type continues in use from the late first century BC into the first century AD, potentially as late as AD 75 but this date range is not certain (Mackreth 2011: 21-3).

Copper alloy – Drahtfibel Derivatives

7.2 Area B 1980 SF80-76 Context 80-1

Wt: 1.4g; Total L: 30.8mm; W of bow: 3.0mm; W of head: 5.0mm; Th: 2.6mm

An incomplete copper alloy Drahtfibel derivative brooch, Mackreth's Type 1.b1. This is a filiform or wire-like brooch with a plain, arched bow and a solid catchplate. Although the wire is rounded it is slightly flatter and wider on the top and bottom than its thickness. This wire narrows sharply at the head end to form the thin coils of the spring, although only part of the first coil is present. The catchplate is also broken so it remains possible that the original was pierced. The bow has a rounded, squared profile, more angular than most contemporary examples. The solid rather than framed catchplate makes this a derivative rather than a pure Drahtfibel or Filiform type. If it was pierced this would be a 1.a and if not it is a 1.b1 copper alloy subtype. However, the 1.a tend to have longer bows with a more tapered profile. The 1.b brooches are distinguished from the 1.c by having a slightly thinner bow but as Mackreth notes, the distinction 'may be a little fine' (Mackreth 2011: 23).

Comparable examples:

- Barnsley Villa, Gloucestershire with a more sloped bow profile but otherwise similar (Corinium Museum; Webster and Smith 1982: 143; Mackreth 2011: 22, pl.12 4686)

Iron - Drahtfibel Derivatives

7.3 Area A, 1981. SF81-76 Context 81-62 [Pit AG]

Wt: 4.7g; Total L: 38.0mm; W of bow: 4.0mm; W of head: 1.8mm; Th: 3.8mm

Almost complete small, thick, iron Drahtfibel derivative brooch Mackreth's Type 1.c2, missing the pin and part of the catchplate. These are a relatively frequent type to be found in Gloucestershire. The pin on this corroded brooch appears to have broken from the end of the spring during or after excavation. It has a sloped arched bow and a bilateral spring with internal chord. The broken catchplate appears to have been solid.

Comparable examples:

- Baldock, Hertfordshire (Letchworth Museum; Stead and Rigby 1986: 109, Fig.41,41; Mackreth 2011: 23, pl.12 No. 4545).
- Causeway Lane, Leicester (Leicester Museum A1 1991.2337; Mackreth 2011: 22, pl.12 No.12277).

Birdlip

Only one Birdlip brooch has been found at Bagendon (Mackreth 2011, 12-13). Variations on the type date from the first century BC into the early second century AD. The example found here equates with the subtype that includes the original Birdlip brooch found at Birdlip in Gloucestershire. That and an example from Dragonby have been dated to the mid first century AD, potentially pre-conquest (Mackreth 2011).

7.4 Area B 1980, SF80-111 Context 80-24

Wt: 9.5g; Total L: 59.9mm; W of bow: 7.4mm; W of head: 14.2mm; Th: 4.2mm

Copper alloy Birdlip brooch, Mackreth's Type 4.1b (2011: 12), in two pieces: head and corroded spring with clean, post-excavation break from the rest of the bow, foot and catchplate. This thin wire bilateral four-coil spring with internal chord appears to have been made separate from the bow and wrapped around an iron pivot bar. It has been bent and slightly twisted out of alignment prior to excavation. The top of the bow is expanded to form a smooth, rounded trapezoidal head that once hid the spring, the so-called trumpet head seen on brooches of that type (Mackreth 2011: 10-12). The head has a sharp bend to the straight bow.

At this point the bow is decorated with a simple, high relief rounded collar and curved pointed beak. Below this the bow has a triangular profile with the apex forming the central longitudinal rib of the bow. The bow is otherwise absent of decoration and is quite plain for the type. On the underside of the bow is a straight ridge that gradually expands to form the solid plain catchplate with U-shaped catch on the right side of the bow. The foot is undecorated.
Comparable examples:

- Barnsley Park, Gloucestershire, excavation find SF 2829, Context 158, 33 Mackreth Birdlip Type 4.1c (Corinium Museum; Webster 1981; Mackreth 2011: 12, No.3804). Similar bow and catchplate but a hinged rather than spring form.
- Thistleton, Rutland. Mackreth Birdlip Type 4.1b (Oakham Museum No.376; Mackreth 2011: 12, pl.5 No. 3813).
- Market Rasen, Lincolnshire, Mackreth Type 4.1b (BM 1996,0601.1; Mackreth 2011: 12, pl.5, No.10537).

Rosette

Rosette brooches, also known as Thistle brooches, have a form reminiscent of award ribbon rosettes, consisting of a plate-like part (the rose) and a narrow projection below (the hanging ribbons). The shape of the plate varies from round to lozenge-shaped to a cornered form. Following Mackreth's dissection of the Rosette type in graves at King Harry Lane, those with the foot formed as a separate piece attached to the rest of the bow by a rivet, are earlier than those where the entire bow is a single piece (Mackreth 2011: 26-36). Rosette brooches that do not have a 'proper bow' between the disc and the spring-case are latest in the series. The Bagendon Rosette brooches all belong to this post 'proper bow' stage, the majority being Mackreth's Léontomorphe types 'The Lion itself' (Mackreth 2011: 29-30, Rosette Type 5-6). These had decoration and form devolved from a leaping lion motif. The decoration is absent from or heavily corroded on the examples found here but other diagnostic features are present enabling categorisation to subtypes dated around the time of the Claudian invasion or early post-conquest. Mackreth believed the Léontomorphe brooch to originate in Gaul but he does not specifically state that the examples found in Britain are actual imports. A similar brooch to Sf81-28 (see below) but without the conical bow features, was found at Bagendon in the 1950s excavation (Hull 1961b: 173, Brooch 28, Fig.32.16N Level 5 (IIb)). The Bagendon example has previously been dated to c.AD 30-45 (Mackreth 2011: 30). Examples from Colchester have been dated to before AD 43-60 and AD 61-65. The Type bears similarities with other examples grouped under Léontomorphe 5b including one from Blue Boar Lane, Leicester (Leicester Museum, Mackreth 2011: 30, pl.17 No. 5909). These may also continue into the post- conquest period, potentially AD 40-61. Schuster, after Riha, notes the Léontomorphe form dates from the late Augustan to Claudian period and possibily into the second century AD in Augst Switzerland (Schuster 2011: 201).

Copper alloy - Rosette

7.5 Area A 1981, SF81-28 Context 81-38 [Pit AL] [not illustrated]

Wt: 10.3g; Total L: 50.8mm; W of bow: 20.9mm; W of head: 15.2mm; Th: 6.7 and 10.2mm

Copper alloy Léontomorphe Type 5c brooch in three pieces, missing the pin and most of the catchplate (Mackreth 2011: 30, pl.17). This heavily corroded and degraded brooch has broken across the fragile middle part of the composite bow and a small fragment has become separated from the side. The original form consisted of three joined parts. Part on was a straight, flat bow with a reed decorated foot and catchplate. On top of this was attached a rhomboid plate made from a folded over piece of copper alloy (as visible in the broken cross-section). This folded piece was flat on the back and the surface undulated to create a low-relief cushion effect emphasised by shallows indented lines on the surface. The centre of this piece was pressed flat against the back. The final piece consisted of the spring-case and a moulded bow with two almost conical protrusions and double transverse ribs. The end of this final piece rested on the flat centre of the rhomboid piece and all three were joined at this point with the aid of a single rivet.
Comparable examples:

- Sheepen, Colchester (Colchester Castle Museum, Mackreth 2011: 30, pl.17 No. 5917).

7.6. Black Grove 2015 U/S Metal Detected Find 2 Lab # 1772

Wt: 2.0g; Total L: 27.7mm; W of bow: 9.8mm; Th: 1.2mm

Fragment of a copper alloy Léontomorphe Type 5c brooch (Mackreth 2011: 30, pl.17). This consists only of the foot end of the bow with clear squared rivet hole for attaching this plate to the end of the upper part of the bow at approximately the midway point. The upper surface of the fragment is plain where it was once covered by the rest of the bow but below this is an unflared fan-shaped reed decorated foot. On the upper surface of the foot a series of five longitudinal grooves are interspersed with four ridges. The central and outer grooves are undecorated, a beaded longitudinal ridge decorates the centre of the other two grooves. The catchplate on the back of this thin bow plate has a single rounded piercing and U-shaped catch. The fragment has a pale green and brown patina. The type is dated to the second quarter of the first century AD.
Comparable examples:

- Grandford, Cambridgeshire (Wisbech museum, Mackreth 2011: 30, pl.17 No.13771).

7.7 Area B 1980, SF80-120 Context 80-8

Wt: 3.8g; Total L: 39.7mm; W of bow: 8.8mm; W of head: 16.6mm; Th: 1.4mm

Almost complete copper alloy Léontomorphe Type 5d brooch 'Crude Reduction to a bow tie' (Mackreth 2011: 30). The catchplate is slightly damaged at the end and most of the pin is missing. The brooch has a flattened cylindrical spring-case completely covering the spring, the start of the pin protrudes from the centre of the case at the back. The bow is plano-convex with a shallow step down to the spring-case. It is decorated with two parallel transverse raised sharp mouldings just before it is stepped down to the flat, fantailed foot. The plain foot has a faint indented shallow groove around the edge that may relate to the border decoration on a repoussé sheet that may have been applied to the foot similar to brooch 5941 from Chichester, Sussex (Chichester Museum; Mackreth 2011: 30, pl.17) and the Type 8a fragment from Bagendon (see SF79-15 below). It has a thin, unpierced catchplate on the back of the foot. A very similar example, albeit with a slightly wider bow, was found during the 1950s excavations at Bagendon: Fig.32.9 brooch 42 from 3AS, Level 3 (IIIB) (Hull 1961b: 176). Léonotomorphe Type 5d brooches have been found at a number of sites King Harry Lane Cemetery, Kelvedon and Fison Way, Thetford. Mackreth dates these to a similar period to the 5c Type but possibly continuing in use just beyond AD 50/60 (Mackreth 2011: 30).

Comparable examples:

- Haslingfield, Cambridgeshire (MAA Cambridge; Mackreth 2011: 30 Pl.17 No.5947)

7.8 Area A 1979, SF79-15 Context 79-18 [Pit AA]

Wt: 4.3g; Total L: 40.7mm; W of bow: 16.4mm; W of head: 20.7mm; Th: 1.0mm

Almost complete copper alloy Rosette Type 8a brooch 'Single plate attached to spring-case' (Mackreth 2011: 29 pl.18) missing the upper surface of the bow, pin and part of the spring. The bow is formed of a single thin flat sheet with a disc forming the upper half (now much damaged around the edges) and fan-shaped foot. The bow is formed complete with the catchplate on the back of the foot and the wide head plate. The latter is lozenge shaped in section and encases the tightly coiled multiple coil spring. There is a sharp step down from the disc to the spring-case placing this brooch. The Catchplate has a single, roughly rounded piercing and, now broken, U-shaped catch on the right side. The bow consists of a thin flat plate. A small off-centre hole through the bow appears to be the result of damage rather than a rivet hole for attaching decoration. The corroded upper surface of the bow retains some vestiges of the solder which was used to attach the repoussé decorated sheet. The application of a separate decorated disc and the single plate attached to the spring-case places this late in the Rosette sequence but these are known from sites and contexts with dates ranging from *c.* AD 40 to 3rd- 4th century AD. A fragment of the foot and catchplate of a Rosette brooch was found at Bagendon in the 1950s excavations still retaining a small fragment of the attached decorative sheet: brooch 33, Fig.32.4 found in 3N Level 2A (IVB) (Hull 1961b: 175).

Comparable examples:

- Ancaster Quarry, Lincolnshire (Nottingham University; Mackreth 2011: pl. 18, 5971).
- Ashton, Northamptonshire (Peterborough Museum; Mackreth 2011: pl. 18, No. 5992).

7.9 Area A 1981, SF81-2 Context 81-1 [Pit AA]

Wt: 4.7g; Total L: 14.9mm; W of bow: 8.8mm; W of head: 27.1mm; Th: 2.2mm

Fragment consisting of only the spring-case of a copper alloy Rosette brooch possibly of Léontomorphe type. This is a relatively large spring-case with a faint shallow transverse groove across the topside. The remnants of the pin protrude from the gap in the back of this folded sheet of metal. The start of the bow is just visible on the opposite side of the case where is appear to have been cut or broken from the rest of the brooch with a very neat break. The surviving bow fragment is plain, flat and broad with a small bend on one edge that may be the start of the bow disc. This could be part of an 8a Type similar to but larger than SF79-15 Context 79-18.

Comparable examples:

- Ashton, Northamptonshire (Peterborough Museum; Mackreth 2011: pl. 18, No. 5992)

Langton Down

Langton Down brooches are named after the first identifiable comparison found by Mortimer Wheeler in the British Museum (Mackreth 2011: 32-6). They have broad bows often decorated with a reeded moulding and the spring is covered by a spring-case similar to the standard Rosette brooches. Two identifiable subtypes were recovered in the 1979-81 excavations: a Nertomarus and a Plain Bow type. Both types were also found in the earlier excavations. Although the Bagendon excavations have been employed in the dating of the type both appear to be pre AD 60 forms and potentially pre AD 55.

Copper alloy - Langton Down

7.10 Area A 1981, SF81-49 Context 81-31 [Pit AF]

Wt: 12.7g; Total L: 69.3mm; W of bow: 6.7mm; W of head: 29.4mm; Th: 2.7mm

A copper alloy Type Nertomarus (Mackreth 2011: 35-6, pl.21), almost complete but with some damage. The pin and half of the spring is missing, part of the centre of the catchplate is missing and the side of the bow have been nibbled away by corrosion. This type is recognisable by the distinct decoration on the spring-case. This example consists of three beaded elements in relief on the spring-case extending from a transverse ridge across the top of the bow head. This is somewhat obscured by corrosion but appears to consist of a two outer long strips curling away from the centre and finishing in a single curl with central hole. Located between these is a raised triangle encasing three holes. An exact rendition of this decoration can be found on a brooch from Upper Walls Close, Baldock (Mackreth 2011: pl.21 No.6545). The long straight bow rises up from the spring-case in an arch of 90 degrees. It is very simply decorated with a single, plain longitudinal central ridge and a ridge along either edge. The framed catchplate, now damaged, once had either a single dog-leg or fretted opening. There is no evidence for the use of the Nertomarus name stamp on this example. This is not the first example found at Bagendon, the other (Hull 1961b: 176, No.38, Fig.32.5) was much smaller was decorated with three triangles on the spring-case like the central feature on this example. The earlier find was recovered from area 6N, Level 3 (IIIB). Along with an example from Fishbourne, the Bagendon brooch No.38 appears to be in one of the contexts for this type (*c.* AD 43 – 75). Others were derived from late first to second century and mid fourth to fifth century AD contexts. Drawing on all the known finds of the type Mackreth suggests a date for use no later than *c.* AD 55/60 (Mackreth 2011: 35).

Comparable examples:

- Upper Walls Close, Baldock, Hertfordshire (Letchworth Museum; Mackreth 2011: pl.21 No.6545).

7.11 Area A 1979, SF79-45 Context 79-6

Wt: 3.1g; Total L: 33.6mm; W of bow: 3.3mm; W of head: 14.4mm; Th: 2.6mm

Copper alloy Langton Down plain bow brooch, Mackreth's LD Type 8 (Mackreth 2011: 36 pl.21) in two pieces, with pin and catchplate missing. This brooch has a plain spring-case that is now partially damaged revealing the tightly coiled, long bilateral spring within and the start of the pin. The brooch has a prominent hump at the top of the bow after which it narrows to a plain straight form. The brooch is broken just below the hump. Only the start of the catchplate is visible on the back of the foot piece. Two more complete examples of the type were found in the earlier excavations at Bagendon (Hull 1961b: 176 No.39 and 40, Fig.32.6 and 32.7). The former found in 7AN, Level 5 (IIB), the latter from 3AS Level 3 (IIIB). Plus a head fragment also from 3AS Level 2 (IVB) (*Ibid* No.42 Fig. 32.8). Other dated examples have been found at Silchester (AD 40-50/60), Colchester (AD 49–65) and Bancroft (mid first century AD), plus a much later find from Verulamium c.AD 200 to 250. The refined dating places these sometime between AD 40–60 and possibly towards the earlier part of this period.

Comparable examples:

- Bancroft Mausoleum, Buckinghamshire (Milton Keynes Museum, Mackreth 2011: 36, pl.21 No.6570).

7.12 Area A 1981, SF81-78 Context 81-31 [not illustrated]

Wt:4.3g; Total L: 57.4mm; W of bow: 7.8mm; W of head: 9.3mm; Th: 4.2mm

Fragmented and heavily corroded strip copper alloy strip that may be the bow of a Langton Down type brooch but the condition restricts further identification. It is in three joining pieces starting that taper from one end to the other. The wider end is also the thicker end and has laminated into at least three layers.

7.13 MD 5000. Black Grove Villa (2015) (found in topsoil above Trench 5) [not illustrated]

Wt: 3.36g; L: 47.5mm; W of bow:10.6mm; Th. of bow: 1.3mm; W of head: 19.3mm; Th: 6.1mm.

Incomplete copper alloy Langton Down brooch missing the spring, pin and part of the catchplate. The bow is simply decorated with slightly raised edges and a single, low, longitudinal central ridge (1.3mm wide). The bow tapers very slightly towards the foot end. Part of the spring cover survives at the head of the bow, this is undecorated. The incomplete catchplate appears to have had a single trapezoidal opening. It conforms to Mackreth's Type 3.b. Square-topped, not beaded brooches which have been found at King Harry Lane, Colchester, Silchester, Skeleton Green, Baldock and Orton Longueville, Cambridgeshire (Mackreth 2011: 34). The latter being most similar given the slightly tapered bow and form of the catchplate, dated to AD 50-70/80.

Comparable example:

- Monument 97, Orton Longueville, Cambridgeshire (Peterborough Museum; Mackreth 2001; Mackreth 2011: 34, Pl. 20, No.6453).

Colchester

Colchester brooches are a simple bow form with an arch that is high at the head end and slopes down to a point at the foot/catchplate end. They are distinguished from other bow forms by a hook that holds the external chord of the bilateral spring and bends up towards the bow (a so-called forward facing hook). The spring is also hidden below wings and the triangular catchplate is pierced or fretted. The bow itself is often plain or minimally decorated with repeated simple geometric motifs. They are a form with a long period of use and work is needed on clarifying the chronology of the variations within the type. Five copper alloy brooches and possibly two iron examples in this assemblage may be placed within the Colchester type. (Mackreth 2011: 36-45). Nine Colchester brooches were also found in the earlier excavations (Clifford 1961) and include types represented here, for example the Standard British forms and the Decorated bow. The iron brooches are more difficult to categorise owing in part to their corroded condition which obscures diagnostic details. The earliest possible date for a Colchester brooch is from Skeleton Green 10 BC – AD 20 (Partridge 1981: 141) but the type is found in contexts throughout the first century AD and on into the second and third centuries. The examples found here are thought to fall within the mid first century AD group potentially closely pre or post conquest in date.

Copper alloy - Colchester

7.14 Area A 1979, SF79-51 Context 79-18 [Pit AA] [not illustrated]

Wt: 7.9g; Total L: 54.9mm; W of bow: 5.3mm; W of head: 15.6mm; Th: 4.6mm

Almost complete copper alloy Standard British Colchester brooch, Mackreth Type 2.b, (2011: 37) with a plain bow, short flat wings above the spring, short hook clasping the external chord of the spring to the head of the brooch. Much of the surface of the bow is corroded and has been shed from the brooch. The now damaged catchplate retains the remnants of fretting with key pattern openings. The bow has the typical sharp angled arch as it rises up from the spring before gradually tapering and curving down to the end of the catchplate. The Standard Colchesters derive from a range of contexts but there is a bias towards those dated around the time of the Claudian invasion from c.AD 40–60.
Comparable examples:

- Croydon, Cambridgeshire, Mackreth Colchester Type 2.b (MAA Cambridge 1916.5; Mackreth 2011: 23, pl.22 No. 211)
- Chichester, West Sussex, Mackreth Colchester Type 2.b (Chichester Museum; Down 1978: 277, Fig.10.26,1; Mackreth 2011: 23, pl.22 No.626)

7.15 Area A 1981, SF81-40 Context 81-38 [Pit AL]

Wt: 5.2g; Total L: 52.8mm; W of bow: 4.8mm; W of head: 15.2mm; Th: 5.2mm

Slender copper alloy Standard British Colchester brooch, Mackreth Type 2.b. The bow is plain, tapers towards the end of the catchplate and has arounded plano-convex cross-seciton. The angle of the arch at the ehad end of the brooch is less sharp than some Colchester brooches and the forward facing hook reaches halfway up the arch at this point. Only three coils survive of the bilateral spring and the external shord. The pin is missing and the catchplate so it is not clear whether the catchplate was framed, fretted or pierced.
Comparable examples:

- see SF79-51 1979

7.16 Area A 1979, SF79-91 Context 79-29 [Pit AD]

Wt: 20.2g; Total L: 81.9mm; W of bow: 5.9mm; W of head: 31.4mm; Th: 3.7 mm

Large and long, Colchester Decorated bow type brooch, Mackreth's Type 4.b or 4.c (2011: 40 pl.23), complete except for the catchplate. Remnants of what appears to be copper alloy plating is visible over parts of the bow, spring. The much degraded decoration consists of a low relief pattern, possibly a wavy line or beading, running the length of the bow set within a groove. The end of the long forward facing hook rests on the top of the bow in line with this decoration. The wings over the spring are long and thin over the nine coil spring with external chord held in the hook. The now damaged catchplate appears to have more than one opening but the form of these openings is not known. The bow rises straight up from the wings then bends at a sharp angle and has a very shallow curve down to the end of the catchplate that only tapers slightly towards the foot. The Type 4.b brooches are dated within the early to mid-first century AD but the Type 4.c are possibly later versions.
Comparable examples:

- Silchester, Hampshire, Mackreth Type 4.bc (Reading Duke of Wellington Museum 03143a; Mackreth 2011: 40 pl.23 No.92)

7.17 Area B 1980, SF80-2 Context U/S [not illustrated]

Wt: 1.9g; Total L: 20.7mm; W of bow: 4.5mm; W of head: 9.8mm; Th: 4.3mm

Small fragment of a copper alloy Colchester Late-Small Type brooch consisting of part of the bow and head of the brooch. The spring, pin and catchplate are missing as is the forward facing hook that would have held the external chord of the spring in place. The broken end of the hook is visible and the indentation where it would have rested against the bow. The humped head end of the bow is decorated with a narrow longitudinal ridge that appears to flatten towards the foot end of the bow. It is not possible to assign this brooch to any of Mackreth's Late-Small subtypes owing to the absence of the catchplate (2011: 43-45). Dated examples are again derived from Colchester and Hod Hill placing these potentially within the c.AD 50-65 bracket given to a number of the brooches in the Bagendon collection.
Comparable examples:

- St Radegund, Canterbury, Kent (Canterbury Museum; Mackreth 2011: 44, pl.26 No.712)
- Great Chesterford, Essex (MAA Cambridge 40.929; Mackreth 2011: 44 pl.26 No.727)

7.18 1980 MD Springfield (field C3)

Wt: 2.0g; Total L: 1 0.9mm; W of spring: 25.9mm; Ht of Spring: 7.3mm

Fragment of a copper alloy spring: bilateral with external chord. Four coils survive, originally probably eight coils. The size of the coils suggests this is probably from a brooch with an open spring like a Colchester brooch, rather than one covered with a spring-case. It compares best to brooch SF91 from the Bagendon 1979 excavation.

Iron - Colchester

7.19 Area A 1981, SF81-53 Context 81-33

Wt: 5.2g; Total L: 30.1mm; W of bow: 4.9mm; W of head: 18.7mm; Th: 4.9mm

Part of a short iron brooch. With abrupt arched bow tapering and sloping down towards the potentially solid catchplate. Most of the catchplate is missing as is the pin and the detail of the spring is obscured by corrosion. It is not entirely clear whether this had a spring with internal chord and no head plate or a winged headplate hiding the spring below. The tapering shaped and angle of the bow suggest the latter is more feasible and would place this brooch within the Colchester types. If the spring is an exposed version with internal chord, however, this brooch would be better compared to the Drahtfibel Derivatives.
Comparable examples:

- Fison Way, Thetford, Norfolk Enclosure 14 Phase II ditch (Mackreth 1991: 120, SF213 Fig.112.5)
- Greenhouse Farm, Fen Ditton, Cambridgeshire, Mackreth Colchester Type 5c (Cambridge University Archaeology Unit; Mackreth 2011: pl.25 No.9718)

7.20 Area A 1981, SF81-9 Context 81-US

Wt: 4.4g; Total L: 22.4mm; W of head: 24.8mm; W of pin: 3.6mm

Iron pin and long spring (approximately ten coils) with external chord probably from a Colchester brooch.

Colchester Derivatives

This assemblage includes two brooches both probably Colchester Derivatives belonging to Mackreth's West of England Group, although the corroded nature of the copper alloy one and the incomplete condition of the iron example limit certain identification. The date range of contexts containing these brooches is very variable even within subtypes. There does appear to be a focus on the mid first century AD but a number are also derived from later contexts, some up to two centuries or more.

Copper alloy – Colchester Derivative

7.21 Area A 1981, SF81-82 Context 81-20

Wt: 7.7g; Total L: 55.2mm; W of bow: 6.1mm; W of head: 14.5mm; Th: 6.4mm

Copper alloy heavily corroded brooch in two pieces (excavation or post-excavation damage). It has a solid, unpierced catchplate. The thick bow tapers towards the foot end of the brooch and appears to have a ridge towards the head end. The detail of the head is obscured by corrosion so it is not entirely clear whether the forward facing hook is real or a skeuomorphic decoration. The end of where it would rest appears to be crossed by two parallel, similar to those visible on one of the brooch moulds from Old Buckenham, Norfolk (Mackreth 2011: 59, pl.36 No.13311) raised transverse moulded ridges. The tight curve at the top of the bow and gradual slope down towards the catchplate is very similar to the Colchester Derivative Harlow Spring West of England Group, Mackreth's type 3.a (2011: 57-8). The impression of fibres are visible preserved in the corrosion products around and particularly underneath this brooch.
Comparable examples:

- Wilsford Down, Wiltshire (Devizes Museum 327; Mackreth 2011: 57, pl.34 No.1359)
- Roundway, Wiltshire (Devizes Museum; Mackreth 2011: 57, pl.34 No.1420)

Iron – Colchester Derivative

7.22 Area B 1980 MD Springfield, Probably Field C3

Wt: 8.4g; Total L: 32.2mm; W of bow: 8.2mm; W of head: 24.8mm; Th: 6.3mm

Iron brooch missing the pin, spring and catchplate. This was probably a Colchester Derivative of the type found at Fison Way, Thetford (Mackreth 1991: Fig.112.7) with thick humped and tapered bow and wide head plate wings with faint vestiges of ridges forming a spring-like effect on the top of the wings on the left side. Below the head plate is a corroded lump that may have been a lug through which a pivot bar may have been passed to support a false spring (where the head of the pin is coiled like a spring but the spring does not provide any torsion for the pin mechanism). This is similar to the Harlow Spring System described by Mackreth (2011: 50). This potentially a Mackreth Colchester Derivative Type 3 owing to the possible decorated wings. This is the West of England Group in which Bagendon would not be out of place.
Comparable examples:

- Fison Way, Thetford (Mackreth 1991: Fig.112.7)

Alésia-Aucissa

Eleven Aucissa brooches have been recovered from the 1979-81 and 2015 excavations with two examples being of transitional Alésia-Aucissa or early Aucissa form. None are of Hull's Bagendon type (Hull 1961b). The differences between Alésia and Aucissa are subtle, with the Aucissa's tending to have thinner bows that are a more consistent width along the length than the Alésia's which tend to narrow towards the foot. The main distinguishing feature between the Aucissa and the closely related Hod Hill brooches is in the treatment of the foot. On Aucissa brooches the bead or knob at the end of the catchplate is added as a separate piece, whereas on the Hod Hill brooches they are the same piece of metal as the rest of the catchplate and bow. Although this diagnostic feature is does not survive on all examples found here, consistencies in the rest of the design suggest these are all the same type. Six of these brooches are exceptionally similar in terms of size, shape and decoration: SF81-43, SF81-85, SF81-90, SF79-93 and SF2015-006. Three Aucissa's and nine Hod Hill brooches were found in the earlier excavations. The latter group all had small beads or knobs at either end of the iron axial bar that formed the pivot for the pin and small projections down either side of the bow referencing those at the end of the axial bar. They precise way in which these protrusions were rendered or constructed varied but their consistency as a feature led Hull to describe these as the Bagendon Type. Mackreth maintained this as a subtype but he is sceptical over the separation from Aucissas in a number of instances, especially considering the foot knob is a separately applied piece on all (Mackreth 2011: 142). None of the brooches described below have projections down the side of the bow and, therefore, none belong to the Bagendon type. They do, where this survives, have a rolled head that wraps around the axial bar the latter being either iron or copper alloy. Although Aucissas are found on the continent from c.20/10 BC they are thought to appear in Britain in any quantity after the conquest as supported by evidence from a number of sites including Springhead, Kent (Schuster 2011: 204). Mackreth (2011: 132) suspected the type went out of use *c.* AD 60/65 owing to their replacement with the Hod Hill which he perceived to pass out of us by AD 70/75.

Copper Alloy – Alésia/Aucissa

7.23 Area B 1980, SF80-1 Context 80-1

Wt: 3.8g; Bow L: 46.9mm; Total L: 54.1mm; W of bow: 6.5mm; W of head: 16.2mm; Th: 2.5mm

Copper alloy Alésia-Aucissa cross-over brooch with a high but slanted arched bow. It has a wide rolled head over an iron axial bar with copper alloy pin and a single copper alloy knob surviving on one end of the bar. The bow, which is much narrowed that the head is heavily corroded and decayed but has a thicker cross-section like SF81-26 rather than the sheet form of the other Aucissa brooches in this collection. The brooch has a long catchplate, but the bottom edge is missing. Although now separated from the rest of the brooch the applied footknob has been retained and is of hemispherical form with no visible collar. The decoration on the bow appears to consist of a thick moulded transverse band across the head end a similar band across the narrower foot end and some form of raised longitudinal ribs along the length of the bow, now heavily degraded by corrosion. The narrow bow and position of the raised band across the foot end of the bow places this in Mackreth's Alésia-Aucissa Type 1.d (2011: 131). Dating for this specific type is focussed on, but not before, the conquest period.

Comparable examples:

- Stockton, Wiltshire. Mackreth Alésia-Aucissa Type 1.d3. (Salisbury Museum, 46; Mackreth 2011: 131, Pl.89 No.8522)

7.24 Area A 1981, SF81-26 Context 81-20 [Pit AH]

Wt: 3.6g; Total L: 39.7mm; W of bow: 7mm; W of head: 11.5mm; Th: 3.7mm

High arched copper alloy early Aucissa brooch with a thicker humped cross-section however the decoration on the upper side is of the same form albeit in higher relief than SF2015-6, SF81-43 and SF81-90. The humped-cross-section is created by the raised central ridges. This corresponds with Riha Type 5.2.1 where the middle rib is higher than the side ribs (Schuster 2011: 202). The broken head of the brooch retains no evidence for the form of the hinge mechanism. The hemispherical foot knob is still present and retains a moulded collar around the end where it is attached to the rest of the brooch. Mackreth proposed that the sturdier brooches like this example may in fact belong to the preceding Alésia series and therefore predate the Aucissa although there is no difference in the dating of contexts from which these are derived (Mackreth 2011: 131).

Comparable examples:

- Ditches Villa, North Cerney Gloucestershire. Alésia/Aucissa type. (Corinium Museum; Trow *et al.* 2009: 138, Fig.45,4; Mackreth 2011: 131, Pl.89 No.8572)
- Springhead SF15968 (brass), Ctxt 16825, mid-Roman deposit. (Schuster 2011: 202, Fig.89,41).

Copper Alloy – Aucissa Transitional Types

7.25 Black Grove 2015 SF2015-6, MD Find, Lab #1774, Context 5004

Wt: 2.6g; Total L: 38.2mm; W of bow: 8.8mm; W of head: 10.8mm; Th: 1.3mm

Well preserved, almost complete copper alloy Aucissa brooch with minimal corrosion missing only the applied foot knob and part of the pin. The brooch has a thin, sheet-like bow rolled head containing a copper alloy bar on which the copper alloy pin is hinged. The low arched bow is decorated with longitudinal fluting creating a raised ridge on either side of the bow and two central raised ridges between which is a longitudinal segmented ridge. Down the right side of this ridge is a series of indentations that may be the effect of wear to the decoration. The bow retains a consistent width along the length narrowing abruptly to form the catchplate at the foot end. The thin, sharp catchplate

has a catch formed from bending over and the lower edge and flattening this towards the plate. The broad thin bow and low relief of the central decoration places this brooch in Mackreth's Aucissa Transitional type 3.a2 with a central ridge bead-row. Other examples have previously been found at Bagendon as well as Orton Hall Farm and Longthorpe, Peterborough, Fishbourne and Hod Hill. Dating relies in part on the Bagendon examples but setting these aside a pre AD 60/65 date is feasible but not rigid.
Comparable examples:

- Ashton, Northamptonshire (Peterborough Museum; Mackreth 2011, 133, pl.90 No.8714)

7.26 Area A 1981, SF81-90 Context 81–U/S

Wt: 1.0g; Total L: 33.9mm; W of bow: 8.5mm; W of head: 14.7mm; Th: 1.2mm

Incomplete thin copper alloy Aucissa Transitional brooch in two pieces, with the same form and bow decoration as SF2015-6; two outer longitudinal ridges, two inner and one central segmented ridge. Only the bow, head and part of the catchplate are present. This appears to have an iron axial bar owing to the patch of corrosion emanating from the rolled head at the central gap point where the copper alloy pin head rotates.

7.27 Area A 1979, SF79-93 Context 79-27

Wt: 0.8g; Total L: 25.8mm; W of bow: 8.2mm; W of head: 9.9mm; Th: 1.2mm

Corroded fragment of the bow and top of the head of a copper alloy Aucissa Transitional brooch of the same form as SF2015-6 although the sides and surface are much damaged by corrosion.

7.28 Area A 1981, SF81-85 Context 81-U/S

Wt: 1.6g; Total L: 22.5mm; W of bow: 7.2mm; W of head: 4.9mm; Th: 2.3mm

Fragment of the bow and part of the head of a copper alloy Aucissa Transitional brooch with a similar form and decoration as SF2015-6 but this example is in a far more corroded and worn state obscuring some of the finer details.

7.29 Area A 1981, SF81-43 Context 81-18 [Pit AF][not illustrated]

Wt: 3g; Total L: 39.3mm; W of bow: 10.9mm; W of head: 39.3mm; Th: 1.6mm

Almost complete Aucissa Transitional brooch missing the pin and part of the catchplate. Part of the applied foot knob survives as well as the corroded remnants of knobs on the ends of the axial bar. The brooch has a very similar low arched profile to SF2015-6 and the same decoration but the bow is slightly wider and appears to taper towards the foot end although this may be the effect of damage to the sides caused by corrosion. There are distinct and visible traces of an applied coating of metal with a different composition, over most the brooch. This coating has a bright green patina but where it is best preserved at the head of the brooch it has a silver colour and indicates the brooch was once coated in a white metal. On the basis of this evidence and the rough texture and brown patina of the underlying metal this appears to be a tin plated iron brooch.

7.30 Area B 1980, SF80-16 Context 80-1[not illustrated]

Wt: 5.6g; Bow L: 40.8mm; Total L: 55.3mm; W of bow: 9.4mm; W of head: 13.6mm; Th: 1.9mm

Almost complete copper alloy Aucissa Transitional brooch still coated in sediment. This once had an applied foot knob that has been lost post-excavation as indicated by the small bare rod protruding from the foot end. Half of the pin is intact. Although most of the hinge mechanism is obscured by sediment the end of the iron axial bar is just visible on one side. The thin bow has a slightly more slanted profile than SF2015-6 and SF81-43 and clearly tapers towards the foot end. Any decoration on the bow is obscured by dirt. The catchplate is similar to SF2015-6.

7.31 Area A 1981, SF81-59 Context 81-6

Wt: 0.9g; Total L: 11.1mm; W of bow: 9.3mm; W of head: 17.5mm; Th: 2.9mm

Head only fragment of a copper alloy Aucissa Transitional brooch heavily obscured by iron corrosion deposits. This is similar to SF81-43 but with a slightly shorted iron axial bar. A relatively fresh break across the start of the bow indicates the brooch was in a more complete condition when found so this is not a deliberate fragmented object.

7.32 Area A 1981, SF81-81 Context 81-62

Wt: 1.6g; Total L: 40.8mm; W of bow: 7.1mm; W of head: 12.1mm; Th: 1.3mm

Copper alloy Aucissa brooch, Mackreth's Type 3.b. with a high rounded arch bow with central flute and side decoration. This example in two pieces is of sheet form like the main group in the collection but may have had an iron axial bar owing to the large patch of corrosion on the head. The bow has a central longitudinal flute flanked by two low ridges on either side of which and reaching to the edge of the bow is a raised zifzag decoration running the length of the bow. This is more visible/less worn on the right side. The bow retains no evidence for a transverse moulding across the foot end. Most of the catchplate, the foot, and part of the pin are missing.
Comparable examples:

- North Ferriby, Redcliff, Welton this example has similar decoration but is of the thicker earlier Aucissa Type 2.c rather than the thinner transitional form of this Bagendon brooch (Hull City Museums; Mackreth Pl.90 No.14016)

Iron - Aucissa

7.33 Area A 1981, SF81-21 Context 81-6

Wt: 6.1g; Bow L: 44.6mm; Total L: 53.8mm; W of bow: 8.2mm; W of head: 12.8mm; Th: 3.9mm

Corroded and laminated iron Aucissa brooch in two large pieces and several smaller fragments. It appears to have a thin wide but tapering bow with a low arched profile, knobbed foot and pin hinged on an iron axial bar.

Plate Brooches

Four copper alloy plate brooches were found in the 1980-1981 excavations. These include disc and fantail forms, the latter comparable to the Rosette bow brooches found on the site (Hull 1961, 174, Fig.32). One lunular brooch is best paralleled in the published finds from Bagendon. Dating is even less precise than for the bow brooches but where excavated comparisons exist these are derived from first century AD contexts.

Copper alloy – plate brooches

7.34 Area A 1979, SF79-94 Context 79-30

Wt: 2.9 g; Total L: 25.6mm; W of bow: 19.5mm; Th: 2.1mm

Copper alloy round plate brooch with broken edges and the remnants of a hinged pin on the back, Mackreth's Type 20.6x. A small rivet still survives passed through the centre of the plate around which is a flat circular area on the upper surface. This area would have been covered by the additional feature once held in place by the rivet. Around this circle the brooch face is decorated with narrow concentric rings. Only part of the outer edge survives intact but the remnants of tiny protrusions are just visible suggesting an original circular shape punctuated at intervals with small bifurcated protrusions like those still surviving at the head and foot end of the plate behind which are the hinge and catchplate. A similarly decorated brooch was found at Ashton in Northamptonshire (Mackreth 2011: 177, pl.120, No.11413) also missing the central applied decoration. The small surviving remnant of the pin head sits within a double lugged hinge on the back of the brooch. Most of the catchplate is missing.
Comparable examples:

- Ashton, Northamptonshire (Peterborough Museum; Mackreth 2011: 177, pl.120, No.11413)
- Harlow, Essex with simpler edge protrusions (Hattatt Collection 1819; Mackreth 2011: 177, Pl.120, No.11428)
- Colchester, Essex with a crimped edge (Colchester Castle Museum, Crummy; Mackreth 2011: 177, Pl.120, No.11413).

7.35 Area B 1980, SF80-80 Context 80-35

Wt: 3.0g; Total L: 27.9mm; W of bow: 22.9mm; Th: 1.6mm

Lunular copper alloy plate brooch with separate pin fragment, Mackreth's Type 20.3a. The plate is broken at either end but the solid inner edge confirms the crescent shape is original. The thin plate has a single round pierced hole in a central position. It also appears to be missing small nodules from the outer edge of the curved plate and possibly the broken corners. The pin was original attached by means of a double lugged hinge on the back of the plate. The pin head pivoted on a rod between the lugs and the end of the pin would have rested in the now damaged straight, solid catchplate. This appears to be part of a brooch similar to a more complete lunular plate brooch previously found at Bagendon with three small nodules protruding from the outer edge (Hull 1961b: 183-4, Fig.36.6). The crescent on the more complete example narrows on each side with the ends curving inwards towards one another and finishing in shallow bifurcated terminals. Both Bagendon examples are missing the decorative stud that would have been riveted through the hole in the plate. A complete example is held in Nottingham Castle Museum from Broxtowe, Nottingham (Mackreth 2011: 14729).
Comparable examples:

- Bagendon Brooch 61 Fig.36.6 from 7N Level 5 (IIB) (Hull 1961b: 183-4; Mackreth 2011: 176, Pl.118, No.11388)
- Broxtowe, Nottingham (Nottingham Castle Museum; Mackreth 2011: 176, No.14729).

7.36 Area A 1981, SF81-27 Context 81-16 [not illustrated]

Wt: 1.7g; Total L: 29mm; W of bow: 16.3mm; Th: 5.8mm

Small, long copper alloy plate brooch in a very corroded condition, Mackreth's Type 20.7b. The brooch has a double lugged hinge on the back of the head end of the plate and the vestiges of the catchplate on the back of the foot head. The plate is currently lozenge shaped, wider on one side than the other where it is severely broken. The head end protrudes beyond the central lozenge which may once have been a circular or rhomboid shape. This head end has a bifurcated terminal like a whale's fluke. The foot end is a small narrow protrusion beyond the main body of the plate. This also appears to have been partially bifurcated. The example in Richard Hattatt's collection found near Colchester has a very similar head and foot but it appears to have had a flatter plate than the Bagendon brooch that may once have had a central rise or rivet on the plate.
Comparable examples:

- Near Colchester, Essex (Richard Hattatt's collection 1917; Mackreth 2011: pl.120, No.11410)
- Bicester, Oxfordshire (Richard Hattatt's Collection; Mackreth 2011: pl.120, No.11409)

- Kingscote, Gloucestershire (Corinium Museum; Timby 1998, 143, Fig.72,1/153; Mackreth 2011: 177, No.14733).

7.37 Area A 1981, SF81-67 Context 81-18

Wt: 5.9g; Total L: 38mm; W of bow: 19.3mm; Th: 7.5mm

A corroded and fragmentary copper alloy brooch of elongated plate form of a type that has parallels in the Léontomorphe Rosette bow brooches. The brooch has a thick central rhomboid plate from which the head and foot ends protrude. On the back of the head are the remnants of the lugged hinge and the straight catchplate is located below but just short of the foot end of the plate. There appears to be a raised central rivet or protrusion on the plate and the overall form may have the raised cushion effect of the Rosette brooches, particularly the Léontomorphs. No precise plate brooch parallels are known. Although this example is in poor condition the location of the remnants of the lugs are visible on the back of the plate showing this is definitely a plate form rather than a damaged bow brooch with spring.

Penannular brooches

Four copper alloy Type D penannular brooches and two iron penannulars brooch were recovered from the Bagendon 1980s excavations. These are a loosely date group with a long period of use from the first to fourth centuries AD (Booth 2015: 147-160). The Bagendon brooches from the 1950s excavations are thought to be one of the earliest occurences of the type alongside Sheepen, Colchester and Maiden Castle (Booth 2015: 158). The defining characteristics of Type D brooches is the terminal form. These are bent back and over to rest on the ring. The rings tend not to be decorated and the pins are straight. The examples found here all conform to subtype D1 owing to the decoration of the terminals where they rest back on the ring. SF81-64 and SF81-80 are snouted giving a faint animal head form, although the terminals are better preserved on SF81-64 than on the single surviving terminal of SF80. SF50 has three ribs across the top of each terminal placing this in subtype D6. Unfortunately the detail of the terminals of the iron brooch SF81-135 are not visible but the straight pin hints at a probable Type D form. A further possible iron penannular brooch survives in a degraded and much distorted form (SF74) making typological identification too imprecise. The four previously published penannular brooches from Bagendon also belong to Type D although they two subtypes not in the present assemblage are represented in the earlier finds: D2 (Hull 1961b: 183, Fig.36.8) and D7 (Hull 1961b: 183, Fig.36.9-10).

Copper alloy- penannular

7.38 Area A 1981, SF81-50 Context 81-39 [Pit AK]

Wt: 1.6g; Diameter: 21.1mm; Th: 2.1mm; Pin L: 16.2mm

Small, complete copper alloy penannular Type D6 brooch with just part of the end of the pin missing. The fragile pin has a flattened head that is wrapped around the ring. The reverted terminals lie flat against the ring and are decorated with three raised ribs. This smooth brooch has a slightly blueish patina.

Comparable examples:

- Longthorpe, Peterborough. (Peterborough Museum; Dannell and Wild 1987: 87, Fig.21,12; Mackreth 2011: Pl.144, No.3294)
- Prestatyn, Wales (Clwyd Powys Archaeological Trust, Welshpool; Blockley 1989: 98, Fig.40,28; Mackreth 2011: 210, Pl.144 No. 3281)

7.39 Area A 1981, SF81-64 Context 81-20

Wt: 4.4g; Diameter: 32.4mm; Th: 2.8mm; Pin L: 16.1mm;

Almost complete copper alloy penannular Type D brooch (Booth 2015,) with a broken pin. The pin head is flattened and wrapped around the ring of the brooch. The terminals are reverted flat against the ring and appear to have a simple snouted form but they are slightly damaged so it is not clear if the brooch is a D4 or one of the more segmented terminal forms such as D1 or D6 (Booth 2015, 149, Fig.4.20)

Comparable examples:

- Fison Way, Thetford, Norfolk. SF176. 325. (Mackreth 1991: 128, Fig. 115,43)
- Bagendon (Hull 1961b: 184, Fig.36.9)

7.40 Area A 1981, SF81-80 Context 81-31 [Pit AF]

Wt: 2.3g; Diameter: 27.9mm; Th: 3.0mm; Pin L: 35mm;

Half of a copper alloy penannular Type D, with complete pin and half of the ring and one terminal. The pin with flattened head wrapped around the ring is now broken in two at the base of the head. This is a slightly smaller than SF81-64. The degraded terminal is reverted flat against the ring and appears to have a simple snouted form of D4 type but is not clear if this is one of the more segmented forms such as D6 or D7 (Booth 2015: 149, Fig.4.20). The corroded surface of the bow bears the possible impressions of fabric or other organic material.

- Fison Way, Thetford, Norfolk. SF176. 325. (Mackreth 1991: 128, Fig. 115,43)

7.41 Area A 1981, SF81-44 Context 81-33 [Pit AL]

Wt: 1.4g; Pin L: 14.2mm; Diameter: 27.1mm; Th: 2.1mm

Almost complete copper alloy penannular Type D brooch (Booth 2015: 147-160, Fig.4.20). Half of the pin is missing but the flattened head is clearly wrapped around the ring. The ends of the terminals are somewhat decayed restricting designation to any of the Type D subtypes.

Iron - penannular

7.42 Area A 1981, SF81-135 Context 81-11/28

Wt: 6.8g; Diameter: 32.9mm; Th: 6.0mm; Pin L: 32.6mm;

Very corroded iron penannular brooch of possible Type D form with a fairly straight copper alloy pin. The terminals are too corroded to identify the subtype

7.43 Area B 1980, SF80-74 Context 80-1

Wt: 3.0g; Diameter: 38.7mm; Th: 2.8mm; Pin L: 28.6mm;

Iron distorted ring possibly with a thickened terminal at one end, the other end is broken. The pin with bent end is corroded in place close to the surviving terminal. Type unclear owing to poor condition.

Uncertain Fragments

7.44 Area A 1979, SF79-92 Context 79–24[not illustrated]

Wt: 0.8g; Total L: 11.2mm; Max. W: 11.2mm; Th: 3.6mm

A small copper alloy fragment with two small, narrow, curved protrusions, one out of either side of the thickest part of the object. Perpendicular to these is longer curved and ribbed protrusion. The further side consist of a straight broken edge and may be where this fragment has broken from the rest of the bow of a brooch. This piece is too small to confirm the identity.

7.45 Area A 1981, SF81-14 Context US

Wt: 0.7g; Total L: 19.3mm; Max. W: 13.4mm; Th: 1.6mm

Small, thin, curved copper alloy fragment possibly from a brooch. The curvature appears to be too wide for this to be part of a ring. One end forms a quarter section of a circle with two raised ribs radiating out from the centre to the edges. The other is bifurcated and the two are joined by a narrow segment thickened in the centre.

Chapter 8

Metalwork

Elizabeth Foulds

with a contribution by Yvonne Inall

Copper-alloy objects[1]

2012-13 Scrubditch

[8.1] Small copper-alloy finishing/fine nail with flat head. L: 11.2mm, head D: 3.0mm. BAG12; Context 1006. SF 12-2 (Figure 8.1)

[8.2] Small domed copper-alloy stud or rivet, missing most of shank. L: 5.6mm, head D: 9.1mm. BAG13; Context 1083; SF 13-17. (Figure 8.1)

[8.3] Portion of copper-alloy tube with circumferential grooves at one end. L: 29.2mm, D: 4.3mm. BAG13; Context 2022; SF 13-30. (Figure 8.1)

Binding strips with U- or V-shaped cross-sections are not unusual finds from Iron Age sites, but tubes where the long edges meet are more unusual. Other, similar tubes have been found at Micheldever Wood (Fasham 1987), which appeared to be an unfolded copper-alloy tube (no. 12); and at Grately South (Cunliffe and Poole 2008: SF2376), both of which were considered to be Iron Age in date. Other similar examples were found at Frocester Court (Price 2000), where several fragments were found in post-medieval plough soil (no. 419) and a decorated tube from a mid-4th century AD context (no. 475). Similar objects have been recorded on the Portable Antiquities Scheme online database that bare resemblance to the Scrubditch example. This included an item with incised lines, identified as early medieval in date (NMS-3B92C5), a medieval needle holder (NMS-F13C42), and several medieval lace tags (e.g. DENO-D8D800), although these tapered. There were also two potentially similar tubes described as Roman: NMS-6829A0 and BUC-18F143. The former was described as a strap fitting, while the later was described as a ferrule. Both were hollow tubes of similar sizes to the Scrubditch example and had incised lines.

[8.4] Two small fragments of copper-alloy sheet. The largest fragment has a small perforation. L: 17.6mm, W: 8.3mm, Th: 0.7mm, perforation D: 2.3mm. BAG12; Context 1052; SF 12-05.

[8.5] Small strip of copper alloy. L: 14.3mm, W: 3.6mm, Th: 0.5mm. BAG12; Context 1036; SF 12-04.

2014 Cutham

[8.6] Long portion of copper-alloy binding strip, U-sectioned. L: 104.3mm, W: 5.9mm. BAG14; Context 3029; SF 14-04.

These strips of copper-alloy were presumably used for edging wood objects that needed additional reinforcement or a clean finished edge. A similar section of binding was found in the ditch of the banjo enclosure at Nettlebank Copse, Hants (Cunliffe and Poole 2000: 87, no. 1.1).

In addition to the binding strip, there were also some copper-alloy crumbs found in context 14-3037 that have not been catalogued.

1979-81 excavations

In total, an assemblage of 170 objects or fragments of copper-alloy were recovered from the 1979–1981 excavations at Bagendon (excluding the brooches: see Adams this volume). Only the identifiable objects and some 'miscellaneous' artefacts are catalogued here. There were an additional 111 fragments that could not be identified further as anything other than: fragments, sheet, or strips. Thirty-seven of these objects are now missing. Only a small selection of the missing artefacts have been catalogued, as most were only identified in vague terms, such as fragments, sheet, plate, or possible copper-alloy metalworking waste.

Dress and personal adornment

[8.7] Fragment from a finger-ring. The area of the bezel has a small fragment of translucent yellow material (possibly glass) remaining. Highly corroded, so object is slightly distorted. Bezel area: 15.0mm by 16.7mm, external D: approximately 21.7mm. BAG79-81; Context 81-31; SF 81-79. (Figure 8.2a, b)

[8.8] Two fragments of metal strip possibly from a cosmetic implement. Both taper slightly and have incised diagonal decoration on the surface. L: 27.0mm, W: tapering from 3.5 to 2.0mm, Th: 1.1mm; L: 17.5mm, W: tapering from 3.6mm to 1.5mm, Th: 0.8mm. BAG79-81; Context US; SF 81-1.

[1] Catalogue entries are in the following format: [Catalogue number] [Brief description]. [Dimensions]. [Site code]; Context [number]; SF [year]-[small find number]. Fig. [Figure number]. Abbreviations used: L=length, H: height, D=diameter, W=width, Th=thickness

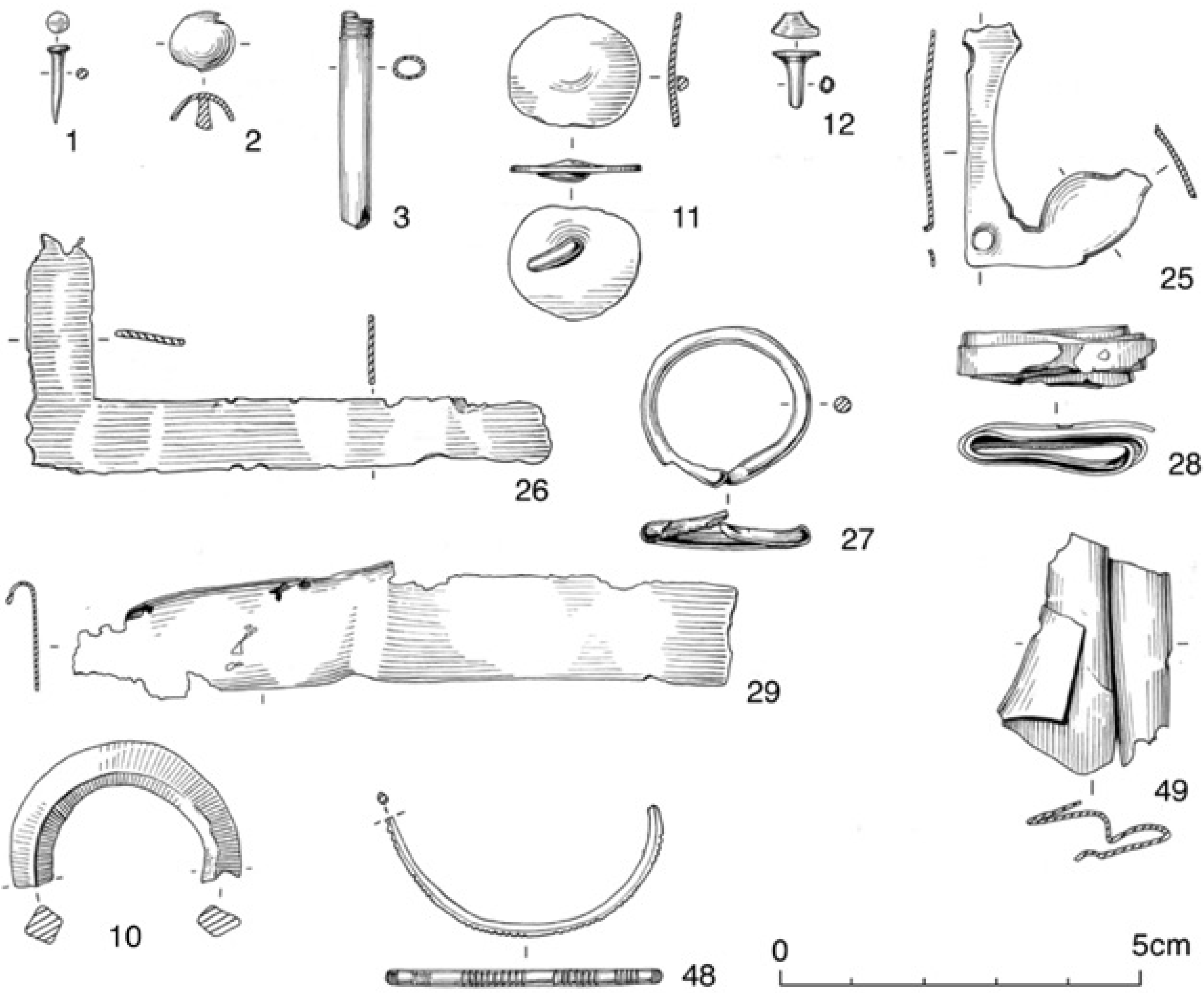

Figure 8.1. Copper-alloy objects (drawn by Yvonne Beadnell).

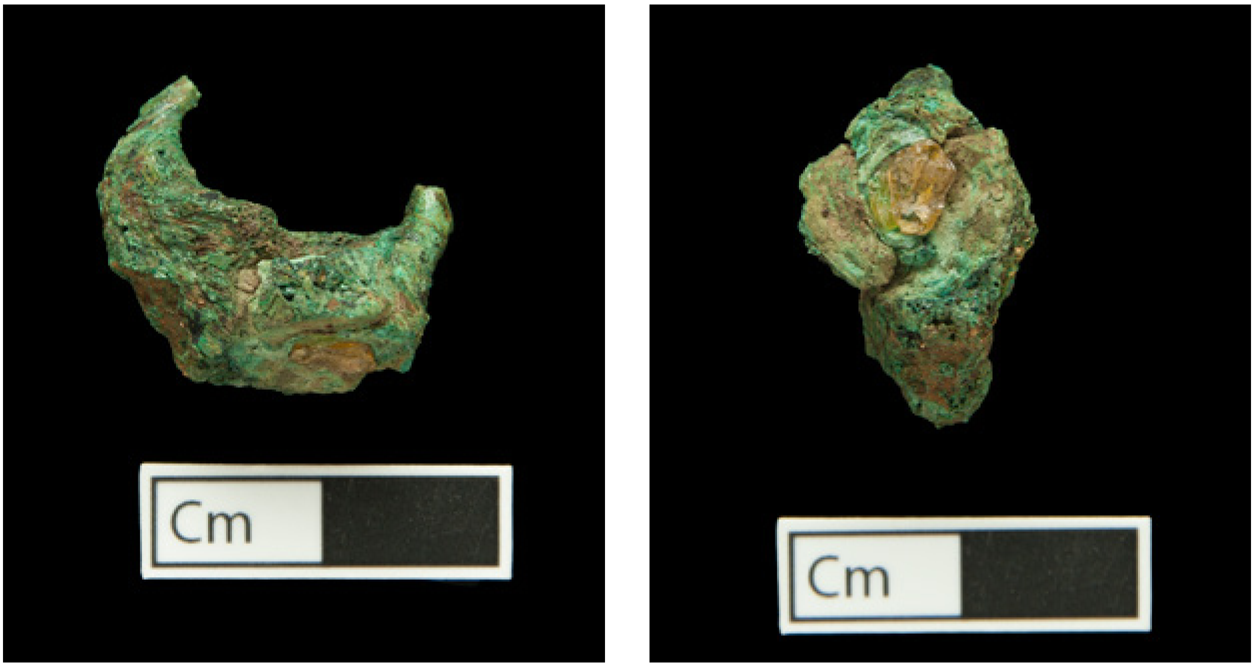

Figure 8.2a/b. Photographs of copper-alloy ring (sf 81-79) (Photos: Jeff Veitch)

[8.9] A copper-alloy pin. Now missing. BAG79-81; Context 80-10; SF 80-102.

[8.10] A fragment from a copper-alloy ring, possibly related to personal adornment.D. 32mm, W. 5mm BAG79-81; Context 81-20; SF 81-68. (Figure 8.1)

Fittings

[8.11] Possible pin or nail with very large head. On one side there is a small portion of bent over shaft. Head D: 18.3mm, shaft D: 2.8mm. BAG79-81; Context 80-1; SF 80-66. (Figure 8.1)

[8.12] Tack or pin fragment with irregular head. L: 8.7mm, head W: 6.6mm, shaft Th: tapering from 3.0mm to 2.2mm. BAG79-81; Context 80-1; SF 80-30. (Figure 8.1)

[8.13] Possible distorted nail. L: 17.1mm, W: 17.0mm, Th: 4.8mm. BAG79-81; Context 80-1; SF 80-52.

[8.14] Probable tack. L: 11.1mm, W: 6.3mm, Th: tapering from 3.3mm to 2.3mm. BAG79-81; Context 80-1; SF 80-8.

[8.15] Tack or pin fragment with irregular circular head. L: 7.6mm, head W: 8.7mm, shaft Th: tapering from 2.9mm to 2.2mm. BAG79-81; Context 80-1; SF 80-17.

[8.16] Tack or pin fragment with irregular circular head. L: 9.3mm, head W: 7.6mm, shaft Th: tapering from 2.5mm to 1.6mm. BAG79-81; Context 80-1; SF 80-29.

[8.17] Tack or pin fragment with irregular head. L: 7.4mm, head W: 7.0mm, shaft Th: tapering from 2.8mm to 1.9mm. BAG79-81; Context 80-1; SF 80-37.

[8.18] Tack or pin fragment with irregular head. L: 5.0mm, head D: 7.2mm, shaft Th: 2.3mm. BAG79-81; Context 80-1; SF 80-43.

[8.19] Tack or pin with irregular circular head. L: 9.1mm, head W: 10.4mm, shaft Th: tapering from 4.2mm to 2.1mm. BAG79-81; Context 80-1; SF 80-11.

[8.20] Tack or pin fragment with irregular head. L: 4.6mm, head W: 9.1mm, shaft Th: 3.2mm. BAG79-81; Context 80-6; SF 80-38.

[8.21] Distorted possible tack or pin fragment with irregular head. L: 16.0mm, W: 7.7mm, Th: 3.6mm. BAG79-81; Context 80-1; SF 80-55.

[8.22] Possible tack with broken head. L: 12.5mm, Th: tapering from 3.0mm to 2.5mm. BAG79-81; Context 80-19; SF 80-87.

[8.23] Three amorphous fragments of metal. One may be a pin/nail head and the other may be a pin/nail shaft. The third is of unknown origin. L: 11.5mm, W: 5.5mm, Th: 4.5mm; L: 19.7mm, D: 2.2mm; D: 9.2mm, Th: 4.0mm. BAG79-81; Context 80-40; SF 80-83.

[8.24] Part of a copper- alloy ring with a quadrilateral cross-section. This is a ring from a fixture or fitting rather than a finger ring. D: 33.1mm; Th: 6mm. BAG79-81; Context 81-20; SF 81-68.

Miscellaneous

[8.25] Possible decorative copper-alloy sheet metal (possibly iron covered with copper-alloy plating). There is a circular perforation in one corner. There is a second associated fragment. L: 34.4mm, W: 26.6mm, Th: 1.3mm, perforation D: 2.5mm. BAG79-81; Context 81-14; SF 81-47. (Figure 8.1)

[8.26] 'L' shaped copper-alloy sheet. L: 72.4mm, W: 32.2mm, Th: 0.8mm. Additional small copper-alloy fragment (not illustrated). L: 19.9mm, W: 7.6mm, Th: 0.5mm. BAG79-81; Context 79-30; SF 79-95. (Figure 8.1)

[8.27] Complete ring with abutting terminals. External D: 24.3mm, internal D: 19.4mm, wire D: 2.4mm. BAG79-81; Context 81-13; SF 81-35. (Figure 8.1)

[8.28] Flattened coil of metal strip. L: 28.8mm(coiled) original length around 100mm, W: tapers from 3.7 to 8.8mm, Th: 0.6mm. BAG79-81; Context 80-1; SF 80-33. (Figure 8.1)

[8.29] Thin strip of metal. One of the long edges is very straight and regular and may be the original edge. The opposing long edge is jagged and folded over for half the length. One short edge is irregular, suggesting it may have been broken off of a larger object. L: 112.9mm, W: 20.3mm, Th: 0.7mm. BAG79-81; Context 80-1; SF 80-9. (Figure 8.1)

[8.30] Seven fragments of metal strip. Highly fragmented, but resembles binding strips used for edging wood objects. Largest fragment measures: L: 42.1mm, W: 8.2mm, Th: 1.1mm. BAG79-81; Context 80-35; SF 80-77.

[8.31] Fragment of sheet metal. One side has a double incised line along the edge. L: 25.2mm, W: 27.8mm, Th: 0.8mm. BAG79-81; Context 0; SF 81-12.

[8.32] Fragment of roughly square cross-section iron bar plated with copper alloy. L: 40.6mm, W: 4.3mm, Th: 4.2mm. BAG79-81; Context 81-3; SF 81-51.

[8.33] Approximately half of a ring. External D: approximately 26.4mm, wire D: 5.2mm. BAG79-81; Context 81-59; SF 81-69.

[8.34] Copper-alloy sheet rivet 'pot mend'. L: 15.0mm, W: 11.1mm, Th: 2.0mm. BAG79-81; Context 80-1; SF 80-44.

[8.35] Copper-alloy sheet 'pot mend'. L: 12.6mm, W: 7.8mm, Th: 1.7mm. BAG79-81; Context 81-22; SF 81-32.

These thin folded rivets, or 'paper-clip' patch, were used in the medieval period to mend small holes in larger sheet metal objects (Egan 1998: fig. 144). They are not common on Iron Age and Roman period sites, but there are examples from a 1st-century AD scrap metal collection at Carlisle (Howard-Davis 2009: fig. 404, nos 10-12) and possibly on the much-repaired copper-alloy vessel from Glastonbury Lake Village (Bulleid and Gray 1911: 179 E19) dating to the Iron Age.

[8.36] Fragment of tubular copper alloy. Now missing. BAG79-81; Context 79-19; SF 81-4.
[8.37] Fragment of tubular copper alloy. Now missing. BAG79-81; Context 79-3.
[8.38] Four fragments of wire. The largest piece has a loop on one end. L: 25 mm; W: 5mm; Th: 4mm. BAG79-81; Context 81-13; SF 81-54.
[8.39] Thin fragment of wire. L: 9.8mm, W: 2.3mm, Th: 1.7mm. BAG79-81; Context 80-1; SF 80-36.
[8.40] Possible wire fragment. L: 17.1mm, D: 4.8mm. BAG79-81; Context 81-31; SF 81-72.
[8.41] Fragment of roughly square-sectioned wire. L: 26.4mm, W: 2.2mm, Th: tapering from 2.3mm to 1.7mm. BAG79-81; Context 81-21; SF 81-36.
[8.42] Fragment of roughly circular cross-section wire. L: 18.3mm, D: 2.1mm. BAG79-81; Context 81-44; SF 81-71.
[8.43] Fragment of copper-alloy wire. Now missing. BAG79-81; Context 79-13; SF 79-55.
[8.44] Tightly wound wire coil. L: 9.5mm, D: 4.4mm, thickness of wire: approximately 1.4mm. BAG79-81; Context 80-1; SF 80-23.
[8.45] Fragment of wire or pin shaft. L: 18.2mm, D: 1.9mm. BAG79-81; Context 80-25; SF 80-92.
[8.46] Fragment of wire or pin shaft. L: 12.5mm, Th: tapering from 3.0mm to 2.5mm. BAG79-81; Context 80-19; SF 80-88.
[8.47] Fragment of wire or pin shaft. One end is bulbous, so may be the original point of attachment to something else. L: 28.3mm, D: 1.4mm. BAG79-81; Context 80-35; SF 80-78.

2015 Black Grove excavations

[8.48] Two delicate fragments from a copper-alloy bracelet. The outer surface was decorated with incised lines. W: 2.2mm, Th: 1.8mm. Original diameter may have been c. 5cm. BAG15; Context 15-5001; SF 15-11. (Figure 8.1)

This example is very delicate and its small size may indicate that it was worn by a child. Swift (2000: 129) describes this particular style of bracelet as a: strip bracelet with notched decoration (a14), which is a style that is found primarily in southern Britain, but there is also an example known from Basel, Switzerland.

[8.49] Large fragment of folded copper-alloy sheet. L: 33mm, W: 22m, Th: 3mm. BAG15; Context 6017; SF 15-29. (Figure 8.1)
[8.50] Small nail with globular head. L: 17.5mm, head D: 4.5mm. BAG15; Context 5017; SF 15-25. BAG15; Context 15-6017; SF 15-27.
[8.51] Small copper-alloy lump. L: 15.9mm, W: 8.2mm, Th: 4.0mm. BAG15; Context 5018; SF 15-26.

2017 Trench 11, Test Pit Bagendon Valley

[8.52] Copper-alloy finger-ring made from a thin strip. One end was tapered and coiled three times with the other end neatly hidden behind it. In good condition, but slightly flattened. Spiral D: 10.2mm, internal W: 18.3mm, internal H: 12.5mm. BAG17; Context 11002; SF 17-15. (Figure 8.3)

This unusual finger-ring has no known Iron Age or Roman parallels, as rings of these dates often spiral around the finger rather than have a spiral at the front of the finger. The context of this find, in the subsoil, indicates that that it could date to the Iron Age or Roman period, but it is also possible that it is of a later date.

Figure 8.3. Photograph of copper- alloy ring from Trench 11 (sf 17-15) (Photo: Jeff Veitch)

Iron objects

Small assemblages of iron artefacts were recovered from Scrubditch, Cutham, and Black Grove, while a substantial assemblage of iron was recovered from the 1979–81 excavations.

2012-13 Scrubditch

[8.53] Single hobnail with pyramidal head. BAG13; Context 1110; SF 13-16. (Figure 8.4)
[8.54] Iron rod. L: 88.8mm, D: 6.0mm. BAG12; Context 1026; SF 12-03.
[8.55] Two fragments of iron rod. L: 44.3mm, D: 4.7mm. BAG12; Context 1004; SF 12-01.
[8.56] Sheet fragment. L: 53.1mm, W: 31.2mm, Th: 7.6mm. BAG13; Context 1083; SF 13-12.
[8.57] Three small fragments of iron. BAG12; Context 1061.

2014 Cutham

[8.58] Crescent shaped sheet fragment. L: 54.7mm, W: 17.2mm, Th: 3.9mm. BAG14; Context 3029; SF 14-07.
[8.59] Strip fragment. L: 53.1mm, W: 11.6mm, Th: 6.8mm. BAG14; Context 4016; SF 14-10.
[8.60] Strip fragment. L: 39.1mm, W: 10.7mm, Th: 3.9mm. BAG14; Context 3037; SF 14-08.
[8.61] Nail with round head and square cross-section shaft. L: 27.1mm. BAG14; Context U/S.
[8.62] Tapering iron strip. L: 165mm, W (max): 11.1mm, Th: 4.9mm. BAG14; Context 3004; SF 14-09.
[8.63] Iron fragment. L: 37.7mm, W (max): 9.4mm, Th (max): 7.4mm. BAG14; Context 3004.

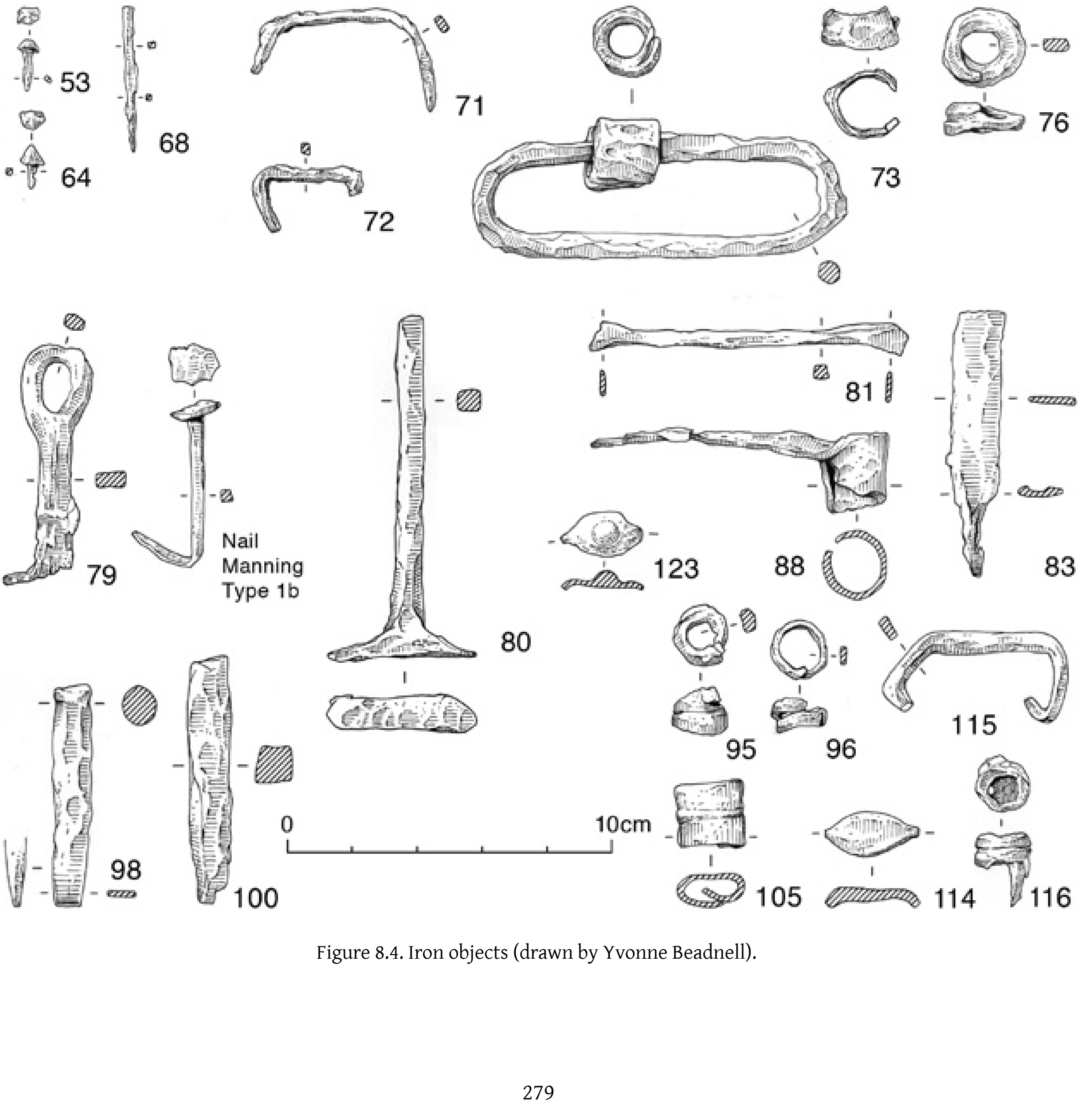

Figure 8.4. Iron objects (drawn by Yvonne Beadnell).

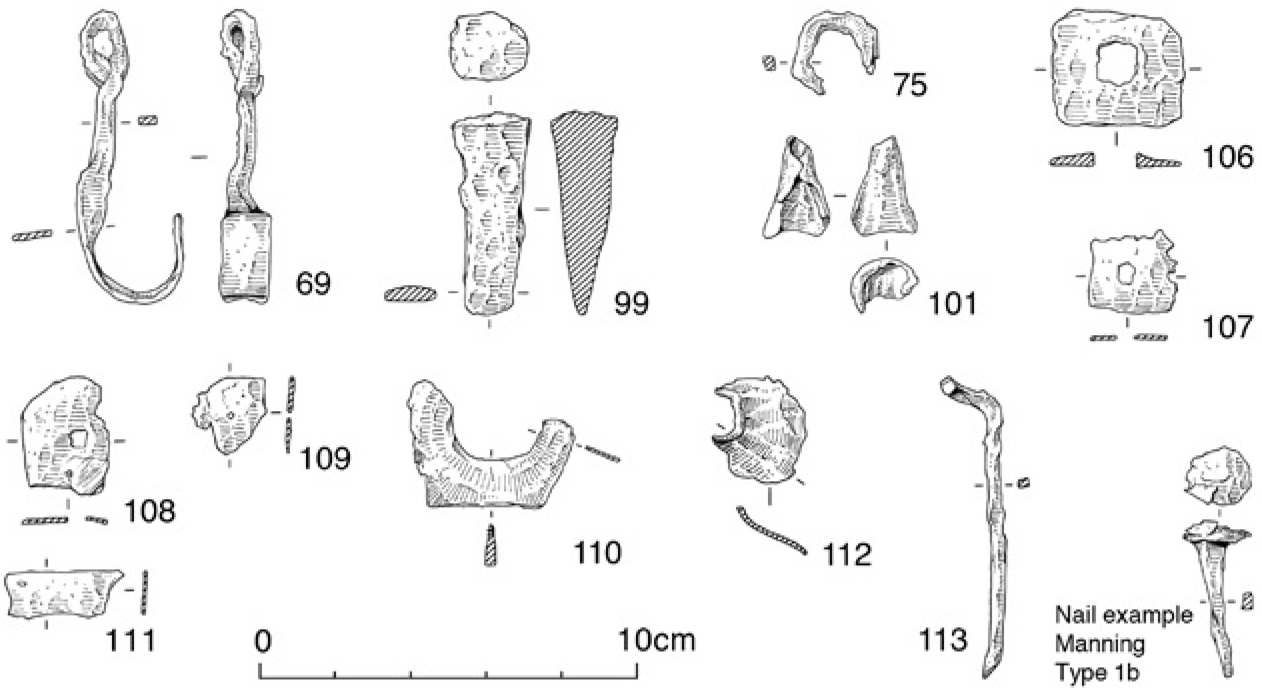

Figure 8.5. Iron objects (drawn by Yvonne Beadnell).

1979-81 excavations

There was a large assemblage of iron artefacts from this excavation consisting of approximately 890 objects and fragments. Overall, the assemblage was generally in very poor condition with a high level of corrosion and fragmentation. From the entire assemblage of iron artefacts, approximately 28 objects (mainly from the 1979 excavations) are now missing. Original site records indicated that the missing objects consisted of possible blades, a section of chain, and a hook, as well as numerous iron 'fragments' that were not identified further. The missing artefacts with identifications have been included in the catalogue where relevant in the following sections. There was also one item described as a linch pin (SF 79-46 from context 79-6 subsoil), but with no further information as to whether this was an Iron Age or Roman type. In the absence of further information, it has not been catalogued, but is mentioned here.

There was also a collection of 61 artefacts from the excavations that had the remains of wood preserved in the iron corrosion. These objects were a mixture of nails, joiner's dog, a knife and other non-identifiable fragments of strip, rod, and sheet iron. They were all recovered during the 1981 excavations of the pits in Trench A. Finds from the Phase 1 pits include: an iron knife blade from pit AK (cat. 8.83) and 24 fragments of iron strip from pit AL context 81-79 (not catalogued), but the majority of these iron objects with wood impressed iron corrosion were from the Phase 2 pits: AD, AE, AF, AG, and AH. Very few of these iron artefacts were structural related objects (1 nail from pit AE, 2 nails from pit AF, 1 joiner's dog and 1 nail from pit AH) and most were fragments of iron sheet, strip, rod, or other unidentifiable fragments.

Dress and personal adornment

[8.64] Hobnail. L: 7.13mm, head D: 8.1mm; head H: 6.0mm. BAG79-81; Context 81-36; SF 81-153. (Figure 8.4)

[8.65] Hobnail. L: 18.2mm. BAG79-81; Context 80-40.

[8.66] Hobnail. L: 15.6mm. BAG79-81; Context 80-5.

[8.67] Hobnail. L: 15.0mm. BAG79-81; Context 80-56.

[8.68] Possible pin or needle shaft fragment with roughly circular cross-section, ends in a point. L: 45.3mm, D: tapers from 4.0mm to 1.5mm. BAG79-81; Context 81-61; SF 81-184. (Figure 8.4)

Fittings and construction

Nails

A minimum of 173 nails were identified in the iron assemblage. Identification was reliant on the presence of a nail head, although there were an additional 38 fragments of tapering rectangular cross-sectioned iron rod that could have been nails. Most of the nails were recovered from the pit features in Trench A (Table 8.1). Measurements were taken from 158 complete and nearly complete nails. Nail lengths ranged from 12.6mm to 74.0mm, although some of the smallest could be incomplete. Only 12 were clenched, which shows that they were likely used. The clenched length ranges

Table 8.1. Summary of nails from the 1979 and 1981 excavated pits.

Feature (pit) in Area A	Nails
AA	11
AB	13
AD*	9
AE	5
AF	13
AG	6
AH	4
AK	1
AL	14
AM	9
AO*	1
Total	**86**

*An additional three nails were attributed to pits AD, AN, and AO.

from 11.5mm to 50.9mm. The majority of nails were identified as Manning (1985) Type 1b nails with flat heads, although some could have been Type 3, Type 4, or Type 7, but the levels of fragmentation and corrosion of the metal hampered further identification (examples illustrated in Figure 8.4 and 8.5).

At least 197 nails were recovered during Clifford's (1961) excavations at Bagendon. Along with the evidence for ferrous metalworking, it was suggested that the nails were made on location and were used for the roof of roundhouses. The quantity of nails at Bagendon sets the site apart from other Late Iron Age sites in the region. Thomas (2005c) notes that iron nails generally were not used prior to the Late Iron Age, although cleats and dogs are known from some sites. The presence of iron nails in large quantity were an indication of changes occurring in the period, perhaps reflecting the construction of new structures.

Other objects

[8.69] Iron strip forming hook at one end and a loop at the other end. The loop end appears to be D-shaped, but this may be the effect of weathering. It is slightly twisted between the hook and loop end. Overall dimensions: L: 75.3mm, W: 25.6mm; hook end strip measurements: W: 12.5mm, Th: 2.2mm; loop end measurements: 13.0mm x 22.5mm; perforation measurements: 5.1mm x 6.8mm. BAG79-81; Context 81-31; SF 81-38. (Figure 8.5)

[8.70] Iron hook. Now missing. BAG79-81; Context 79-13; SF 79-44.

[8.71] Incomplete joiner's dog or staple. Iron strip with both ends bent at right angles. L: 46.3mm, leg length: 30.9mm and 13.4mm, W: 6.3mm, Th: 4.0mm. BAG79-81; Context; SF 81-158. (Figure 8.4)

[8.72] Shaft with square cross-section that is bent at both ends, which were both broken. This may be a small staple or joiner's dog. There is a large amount of corrosion material that also includes organic material on one corner. Crown length: 33.0mm, W: 4.4mm, leg 1: 22.7mm; leg 2: 9.4mm. BAG79-81; Context 81-II/20; SF 81-123. (Figure 8.4)

[8.73] Large oval ring with overlapping ends with a strip of iron wrapped around it. There is a second piece of iron strip that was probably originally attached. Overall measurements: L: 120.0mm; W: 40.4mm Rod diameter: 8.0mm Overall strip measurements: L: 120mm; W: 40mm; Th: variable but approximately 5.5mm Second (non-attached strip) measurements: L: 10.6; D: 21.3mm; Th: 2.2mm. BAG79-81; Context 81-51; SF 81-60. (Figure 8.4)

[8.74] Partial ring or ferrule. D: 18mm, Th: 10.4mm. BAG79-81; Context 80-5.

[8.75] Fragmented ring. D: 25.9mm. BAG79-81; Context 80-1. (Figure 8.5)

[8.76] Ring made from a spiralled strip of iron roughly rectangular in cross-section. The ring is approximately 26.2mm in diameter, 9.7mm thick, with an internal diameter of 11.4mm. The overlapping ends extend approximately half way around. BAG79-81; Context 81-3; SF 81-101. (Figure 8.4)

[8.77] Fragmented ring, uneven shape. D: 19.9mm. BAG79-81; Context 80-1.

[8.78] Iron rivet. Now missing. BAG79-81; Context 79-24; SF 79-82.

[8.79] Iron loop with spike end. It is made from an iron rod that is rectangular in cross-section and measures approximately 4.7mm x 5.4mm. The fragment measures approximately 13.0mm long and the loop is roughly circular and measures approximately 22.6mm x 19.4mm. BAG79-81; Context 81-33; SF 81-46. (Figure 8.4)

This may be a split pin or one of Manning's (1985: 130) 'double-spiked loops' which, when attached to woodwork or masonry, provided a loop. A box fitting from Stanway Warrior burial also looks similar and is of similar size (Crummy *et al.* 2007: 193). Alternatively, it could be a latch-lifter.

[8.80] T-clamp made from square in cross-section iron bar. L: 106.7mm; shaft W: 8.1mm, cross piece L: 46.7mm, W: 10.5mm. BAG79-81; Context 81-24; SF 81-42. (Figure 8.4)

T-clamps are described by Manning (1985) as a common item of structural ironwork that were used especially to attach tiles to walls, although they could be used for a range of functions.

Tools

[8.81] Length of iron rod that widens at least at one end, but possibly both ends. BAG79-81; Context 80-1. (Figure 8.4)

Possible double ended tool, such as a wax spatula, or file/gouge.

[8.82] Iron knife with a tang, but missing point. The blade is triangular in form with a straight spine and a tapering blade. The tang is bent. Blade L: 60.0mm, max W: 16.6mm, tang L: 35.4mm, W: tapers from 8.7 to 3.4mm. BAG79-81; Context 80-1; SF 80-73.

[8.83] PossibleIron knife with an incomplete blade and tang with an ancient break. The blade has a straight edge and spine. Part of the blade is covered in a mineralized organic deposit. Blade L: 56.7mm, blade W: 14.5mm, Th: 2.0mm, tang L: 25.5mm, tang W: tapers from 6.5mm to 2.8mm. BAG79-81; Context 81-14; SF 81-37. (Figure 8.4)

[8.84] Fragment in two pieces that has one straight side and one convex side, possibly part of a blade. L: 57.7mm, max W: 22.1mm, Th: varies but approximately 2.6mm. BAG79-81; Context 81-17; SF 81-31.

[8.85] Fragment of iron, possibly the junction between a knife blade and tang. L: 31.4mm, W: 15.9mm, Th: 7.4mm. BAG79-81; Context 81-37; SF 81-156.

[8.86] Possible fragment of a knife blade. L: 80.5mm, W: varies but approximately 14.5mm, spine Th: 4.8mm, blade edge Th: 1.6mm. BAG79-81; Context; SF 81-167.

[8.87] Fragment of iron strip with possible part of a tang from possible tool. The possible tang end is slightly bent out of alignment. L: 12.4mm, W: varies between 11.5mm and 6.5mm. BAG79-81; Context 81-12; SF 81-104.

[8.88] A rectangular strip with a tapered spike on one end and the other end bent to form a circle approximately 23.7mm in diameter. Cross-section is variable, but generally rectangular. Overall measurements: L: 77.6mm, W: tapers from 9.3mm to 3.3mm; strip portion measurements: W: 20.9mm, Th: 2.0mm. BAG79-81; Context 81-3; SF 81-61. (Figure 8.4)

[8.89] Fragment of a blade. Now missing. BAG79-81; Context 79-9; SF 79-39.

[8.90] Possible fragment of a blade. Now missing. BAG79-81; Context 79-17; SF 79-66.

[8.91] Possible fragment of a blade. Now missing. BAG79-81; Context 79-9; SF 79-17.

[8.92] Fragment of a blade. Now missing. BAG79-81; Context 79-17; SF 79-57.

[8.93] Fragment of a blade. Now missing. BAG79-81; Context 79-6; SF 79-36.

[8.94] Fragment of a blade. Now missing. BAG79-81; Context 79-9; SF 79-40.

[8.95] Spiral ring formed from a rectangular strip. The ends overlap by approximately 18.0mm. Strip measurements: W: 6.7mm, Th: 3.9mm; overall measurements: external D: 17.5mm, internal D: 9.2mm. BAG79-81; Context 81-44; SF 81-94. (Figure 8.4)

[8.96] Spiral ring formed from a rectangular strip. The ends overlap by approximately 9.0mm. Strip measurements: W: 5.3mm, Th: 2.6mm; overall measurements: external D: 17.3mm, internal D: 12.5mm. BAG79-81; Context 81-53; SF 81-87. (Figure 8.4)

[8.97] Iron chain. Now missing. BAG79-81; Context 79-1; SF 79-60.

[8.98] Complete chisel, punch, or wedge with a rounded and slightly mushroomed head. L: 68.3mm, flattened chisel end W: 7.8mm, head end: 12.2mm. BAG79-81; Context 81-22; SF 81-128. (Figure 8.4)

An example of a similar tool was found at Hod Hill, Dorset (Richmond 1968: 115, B7b) and was included in Manning's (1985: 10 Cat. no. A26) catalogue of tools. It was found in the foundation trench of Barrack I.

[8.99] Complete iron wedge or chisel. L: 53.9mm, head W: 21.5mm, point W: 13.2mm, Th: tapers from 17.8mm to 2.6mm. BAG79-81; Context 80-1; SF 80-31. (Figure 8.5)

A similar example is from Fishbourne, (Cunliffe 1971: 131, no. 37) dating to Late Iron Age or early Roman period, which was described as a wedge, field anvil, or chisel.

[8.100] Incomplete rectangular sectioned rod, possible punch or chisel. The narrow end of the tool appears to be broken. L: 77.3mm, W: tapers from 14.3mm to 11.3mm, Th: varies from 12.4mm to 9.6mm. BAG79-81; Context 80-1; SF 80-70. (Figure 8.4)

[8.101] Small conical ferrule or tool socket of other use. L: 25.7mm. BAG79-81; Context 80-1. (Figure 8.5)

[8.102] Square-sectioned rod with one end curling up onto itself and the other flattened out into a spatula. Strip end: W: 12.1mm, Th: 1.7mm, shaft end: W: 6.3mm, Th: 4.4mm. BAG79-81; Context 81-18; SF 81-118.

Miscellaneous

[8.103] Traces of copper-alloy coating on an iron ring. The ring terminals overlap slightly. External D: 8.5mm, internal D: 3.7mm, wire D: 2.3mm. BAG79-81; Context 81-18; SF 81-41.

[8.104] Iron spike. L: 58.6mm, W: tapers from 14.7mm to 2.9mm. BAG79-81; Context 81-62; SF 81-186.

[8.105] Short length of iron tube, now flattened. L: 20.9mm, W: 22mm, Th: 11.2mm. BAG79-81; Context 80-40. (Figure 8.4)

[8.106] Rectangular iron plate with a central circular perforation. L: 34.3mm; W: 30.4mm, Th: 4.1mm. Perforation D: 12.9mm. BAG79-81; Context 81-33, SF 81-33. (Figure 8.5)
[8.107] Sheet fragment with perforation. L: 22.9mm, W: 19.9mm, Th: 2.8mm. Perforation D: 4.7mm. BAG79-81; Context 80-10. (Figure 8.5)
[8.108] Fragment of sheet with intact perforation. L: 30.6mm, W: 23.6mm, Th: 5.4mm. Perforation D: 5.0mm. BAG79-81; Context 80-25. (Figure 8.5)
[8.109] Sheet fragment with perforation and possible remains of another perforation. L: 21.6mm, W: 18.2mm, Th: 4.8mm. BAG79-81; Context 80-10. (Figure 8.5)
[8.110] Large sheet fragment with large perforation. L: 24.3mm, W: 3.9mm, Th: 3.6mm. Perforation D: 24.3mm. BAG79-81; Context 80-40. (Figure 8.5)
[8.111] Fragment of sheet with a perforation. L: 30.3mm, W: 12.7mm, Th: 1mm. BAG79-81; Context 80-1. (Figure 8.5)
[8.112] Curved sheet with possible perforation. L: 26.5mm, W: 24.8mm, Th: 2.5mm. BAG79-81; Context 80-1. (Figure 8.5)
[8.113] Roughly circular cross-section rod. One end bent at a right angle. D: 3.1mm, L: 79.8mm. BAG79-81; Context 80-25. (Figure 8.5)

2015 Black Grove excavations

[8.114] Iron cleat. L: 30.0mm, W: 13.8mm, Th: 5.1mm. BAG15; Context 15-5003; SF 15-15. (Figure 8.4)

Similar to Manning (1985: 131) R57 and R58. He describes cleats as coming from footwear, but some could have been used to fasten wood.

[8.115] Possible small joiner's dog. L: 45.4mm (estimated original), W: 12.5mm, Th: 8.1mm. BAG15; Context 5029; SF 15-31. (Figure 8.4)

This example is similar to Manning R53 (1985: 131), but it is smaller in size and distorted.

[8.116] Partially complete 'ox-goad' or pen nib. L: 22.8mm. BAG15; Context 5006; SF 15-21. (Figure 8.4)
[8.117] Possible broken 'ox-goad' or pen nib. D: 16.7mm, W: 7.8mm, Th: 3.9mm. BAG15; Context U/S; SF 15-01.
[8.118] Penannular loop made with square cross-section wire. Overall L: 39.7mm, W: 28.8mm, wire Th: 7.3mm x 6.3mm. BAG15; Context 5001; SF 15-13.
[8.119] Sheet fragment. L: 26.0mm, W: 25.4mm, Th: 4.8mm. BAG15; Context 5010; SF 15-22.
[8.120] Iron fragment. L: 28.7mm, W: 14.7mm, Th: 6.1mm. BAG15; Context 5006; SF 15-20.
[8.121] Rod fragment with square cross-section. L: 167mm, W: 5.2mm, Th: 4.9mm. BAG15; Context 6007; SF 15-18.
[8.122] Rod fragment bent at right angle, square cross-section. L: 170mm, W: 6.1mm, Th: 6.1mm. BAG15; Context 6007; SF 15-17.
[8.123] Oval iron sheet similar to a cleat, but with a central rounded boss on one side. The boss does not seem to be part of a rivet, so may be decorative. L: 25.5mm, W: 14.2mm, Th: 5.4mm. BAG15; Context 15-6006; SF 15-10.

1979-81 excavations

The excavations in 1979–81 produced a large assemblage of finds of nearly 1100 objects and fragments. The bulk of the assemblage was made up of iron with a smaller number of copper-alloy objects. Unfortunately, the high levels of corrosion and fragmentation of much of the iron assemblage prevented further identification work. Nonetheless, it is indicative of some of the Late Iron Age and early Roman activity at Bagendon.

The artefacts from this phase of excavations considered here were primarily structural related, although this is skewed by the large number of nails. No doubt some of the nails, especially the smaller ones, were used for smaller portable objects rather than in the construction of buildings. This is very similar to the artefacts reported by Clifford (1961), who also noted a large number of iron nails, but also recorded other structural fixtures and fittings, tools related to wood, stone, or iron working as well as textile crafts, objects that would have been worn by individuals consisting of hobnails, finger-rings, mirrors, and of course brooches. Clifford (1961) also noted artefacts related to transportation in the form of a linch pin and chariot fitting, although on comparison with Manning (1985) the identification of these might now be questioned. The 1979–81 excavations only produced one such example (a linch pin) that has since gone missing. Overall, the material assemblage is comparable to the assemblage from Clifford's excavations.

The quantity of nails found during both the 1950s and 1979-81 excavations is unusual, as quantities of this size are usually indicative of a Roman period assemblage. Clifford's and Ruddock's (1961) interpretation suggested that the nails were manufactured at Bagendon, along with the potential production of other metalwork (the Bagendon type brooch, coins, other household items), which formed one of Clifford's key export groups. Although there is evidence for both iron smelting and smithing at the site, there is no evidence to support the possibility that the nails specifically were being manufactured at Bagendon and they could equally have been brought in. If the pits were interpreted as a secondary refuse disposal, which would account for the poor levels of preservation and organic material associated with the corrosion on some objects, then the evidence suggests that there were timber and nail-built structures, in the vicinity and possibly some wooden containers built with nails, all of which were dismantled and disposed of in the pits.

The assemblage of ironwork recovered from this phase of excavations is comparatively large, especially when the size of the excavations at Bagendon is taken into account, which suggests that perhaps something was different about the activity at this site. For example, during the large-scale excavations at sites such as Thornhill Farm, Gloucestershire (Jennings *et al.* 2004) and nearby Cotswold Community, Gloucestershire (Powell *et al.* 2010 and Smith *et al.* 2010) only small assemblages of finds came from the Late Iron Age and early Roman phases. A similarly small assemblage of finds came from the excavations of the quarry complex at Ditches, Gloucestershire (Trow *et al.* 2009) and further afield at Stanwick, North Yorkshire (Haselgrove 2016). The diversity of the Bagendon assemblage in some ways is similar to that of Stanwick and the Late Iron Age phases at Silchester, Hampshire (Fulford *et al.* 2018), although there are some noted exotic and rare artefacts at Stanwick (e.g. the obsidian glass bowl fragment and native style sword). At Silchester, however, Crummy (2018) noted that the assemblage was dominated by artefacts related to dress accessories, which is a pattern that is not found at Bagendon. Other similarities include the presence of numerous fittings (iron and copper alloy) and textile related equipment, although Crummy notes that tools were not abundant finds.

Iron spearhead from Scrubditch enclosure

Yvonne Inall

[8.124] The spearhead was recovered from ditch F22, the antenna ditch from Scrubditch enclosure. The context, BAG13-2022, was an ashy deposit, which appears to have formed the final infilling of the ditch terminus, possibly marking the end of the use life of the settlement. Pottery from this context suggests a Middle to Late Iron Age date and a C14 date obtained from context 2025, below 2022 is 2136 ± 31 (352-54 BC at 95%). (Figure 8.6 and 8.7)

Physical dimensions and description

The spearhead is small with an overall length of 186mm and a blade 40mm long with a diamond to leaf-shaped profile. The blade is 21mm wide at its widest point, 33mm from the tip, towards the base of the blade. The mid third of the blade tapers slightly, with rounded blade edges, and the top third of the blade tapers smoothly to a slightly rounded point. The blade is thin with a near flat section and a blade edge 2mm thick. The tip of the blade remains intact and there is only slight damage to one edge of the blade. There is a smooth transition from socket to blade, with a minimum diameter of 19mm at the neck. The socket is conical, with a round section and no visible weld seam. The socket measures 146 mm, more than twice the length of the blade. The external diameter of the socket is 23mm, with an internal diameter of 18 mm. Wood remains preserved within the base of the socket, although no analysis has been performed to identify species. There is a small rivet hole visible on one lateral side of the socket.

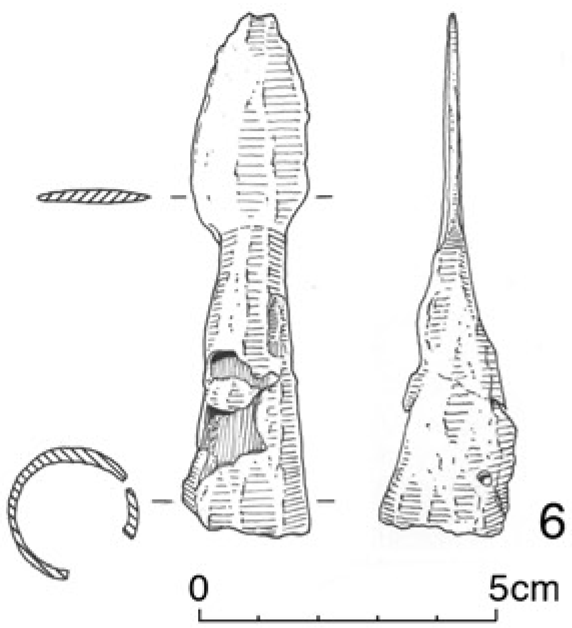

Figure 8.6. Iron spearhead (drawn by Yvonne Beadnell).

Figure 8.7. Photograph of iron spearhead, after conservation (Photo: Jeff Veitch).

Condition

The x-ray shows the core of the metal to be present, although there is heavy mineralisation to the spearhead. The x-ray also revealed the edge of a second, lateral rivet hole, of similar dimensions to the one which remains visible. There are some clear breaks to the socket, which has been reconstructed by the conservators.

Functional and Typological Assessment

The spearhead is identifiable as a small throwing form, which was widely distributed in Iron Age Britain. The overall morphology of the spearhead allows allocation to Inall's (2015) type 1.1, diamond-bladed spearhead. The example can be allocated to the subtype 1.1.b.2. The defining characteristics of Type 1.1.b.2 are a small blade with an elongated diamond-shaped profile, with a maximum width approximately half the length of the blade. Similarly, the sockets of type 1.1.b.2 spearheads are noticeably longer than their blades. The Bagendon spearhead blade profile is slightly unusual for a member of this spearhead form as it is widest closer to the base of the blade, rather than the mid-blade, making this example something of an outlier. However, the Bagendon spearhead is not the only 1.1.b.2 example to exhibit this blade morphology and the closest comparisons come from Uley, Gloucestershire, Spettisbury, Dorset and South Cadbury Castle, Somerset. These spearheads each exhibit profiles which are wider towards the base of the blade, than they are at the mid-blade. It is noteworthy that these are all southern examples. Members of type 1.1.b.2 which display distinctly diamond blade profiles, widest at the mid-blade, are predominantly northern examples, with the majority recovered from Arras Culture burials in East Yorkshire. It is possible that the difference in blade profile is the result of regional variation, although some southern examples do display a classically diamond blade profile. The possibility that this difference in morphology is the result of chronological variation should also be considered as the examples from Uley, Spettisbury and South Cadbury can all be dated to the Late Iron Age, whilst a Middle Iron Age date has been postulated for Arras Culture burials generally (Jay *et al.* 2012).

Comparanda

Throwing spearhead forms were the most widely distributed classes of spearhead during the British Iron Age. In an assessment of over 395 Iron Age spearheads from 49 British sites, held in museum collections more than 300 (77%) were identified as designed to be thrown (Inall 2015). Consistent features of throwing spearhead forms are: short blades, less than 100mm in length, and short overall length, with the vast majority measuring less than 200mm total length. Such weapons can be thrown over distance with accuracy, and it is likely that the throwing of spearheads formed a core component of Iron Age warfare in Britain. Descriptions of indigenous warfare from Caesar's British campaigns refer to throwing spearhead forms, and throwing actions (Caesar *Gallic Wars* IV.26-35). Similarly, reference to native martial practice recorded in the Vindolanda tablets, also allow inference that spears were predominately thrown (Tab. Vindol. II.164).

Members of the spearhead type 1.1 were one of the most frequently discovered and widely distributed forms, for the British Iron Age. More than 80 examples have been noted from at least 20 sites, including this example from Bagendon. Type 1.1 spearheads have been recovered from Middle Iron Age Arras Culture burials at Kirkburn, Garton Station, Rudston, Wetwang and the recent unpublished excavations at Pocklington in East Yorkshire (Dent 1985; Stead 1991a). Examples have also been recovered from structured deposits at Orsett Cock, Essex (Carter 1998), Late Iron Age settlement sites including Hod Hill, Dorset, Madmarston Camp, Oxfordshire and Dragonby, Lincolnshire (Fowler 1960; Manning 1985; May 1996; Richmond 1968). Examples from Bredon Hill, Gloucestershire, South Cadbury Castle, Somerset, and Spettisbury, Dorset, were all recovered in association with complex deposits of disarticulated human remains in the enclosure ditches or entranceways of hillforts (Barrett *et al.* 2000; Gresham 1939; Hencken; 1939). A single example can be positively identified as coming from a river context, recovered from the Thames (BM 1868: 0904.12). A number of small throwing spearheads were recovered from the timber causeway deposit at Fiskerton, Lincolnshire, however they were too poorly preserved to allocate to a specific spearhead type.

Members of type 1.1.b, with its elongated blade profile have been recovered from at least 18 Iron Age sites, including Bagendon, with 50 examples recorded by Inall (2015), 30 of which came southern sites. Type 1.1.b spearheads have been recovered as far south as Spettisbury, Dorset and as far north as Traprain Law, East Lothian, Scotland.

As mentioned, above, the closest comparisons to the Bagendon spearhead come from southern sites. Three type 1.1.b spearheads were recovered from the nearby site of Uley, Gloucestershire, geographically closest to Bagendon (Woodward and Leach 1993: Nos.5, 8 and 15). One of these (No.8) has a long socket, typical of type 1.1.b.2 and features a blade profile very similar to the Bagendon spearhead, widest towards the base of the blade. The Uley spearheads were all recovered from the West Hill shrine complex during the 1970s. The No.8 spearhead was recovered from the enclosure ditch F264, dated by Woodward and Leach (1993) to the mid-1st century AD. Ditch F264 was associated with a timber enclosure of pre-conquest date, which was later disturbed by the construction of the Romano-British temple. Spearheads appear to have been singled out as a class of object appropriate for deposition at the site, with 39 spearheads deposited in at least five separate events (Woodward and Leach 1993). All spearheads datable to the pre-conquest period were small throwing forms, identifiable as members of type 1.1 or type 1.3 (the latter type characterised by sharply-pointed, triangular blade profiles). Uley spearhead No.8, which resembles the Bagendon spearhead, was one of a group of eight throwing spearheads deposited in a single event.

A spearhead from Bredon Hill, Worcestershire is perhaps chronologically closest to the Bagendon example. Bredon Hill, on the western fringes of the Cotswolds was excavated by Hencken between 1935 and 1937. A complex deposit of human remains and martial objects was excavated at the inner entranceway to the hillfort (Hencken 1939). The deposit included seven iron spearheads, an iron sword scabbard and copper alloy shield fittings (Hencken 1939; Hurst and Jackson 2006; Stead 1991b). Spearhead No.3 from this deposit closely resembles the blade form of the Bagendon spearhead and has similar blade dimensions, although it has a shorter socket. While Hencken (1939) had suggested the deposit related to the Roman conquest of the region, Stead has (1991b) suggested a 1st century BC date for the deposit, which Hingley (2006) posits may have been displayed in conjunction with the human remains prior to a subsequent event sealing the deposit with stones.

Two other spearhead deposits from Bredon Hill, also warrant brief discussion due to their contextual similarities. Hencken (1939: 13) discovered a single iron spearhead 'high in the filling of the original ditch-end of the overlapping entrance' at the south east corner of the hillfort, and another single spearhead, deposited close to the north entrance of the fort. While these were both versatile spearhead forms, distinct from the Bagendon example, their placement in ditches, in proximity to the entranceways is significant.

Another comparable spearhead comes from South Cadbury Castle, Somerset. The spearhead (No.1117) was one of the 51 spearheads and projectile points recovered from a complex deposit of human remains and metal objects located at the south western gateway of the hillfort. Spearhead 1117 has a comparable blade morphology and overall dimensions to the Bagendon spearhead (Barrett *et al.* 2000). Other weapons in the deposit included Roman ballista bolts and range of throwing and versatile spearhead forms. The deposit, dated to the latter half of the 1st century AD was initially interpreted as a the result of a massacre (Alcock 1972). However, Barrett *et al* (2000) noted that the human remains appeared to have been deposited over a period of time, and that the deposition of skeletal material was selective. It is possible that the deposit may represent the result of a violent encounter which was ameliorated through the deposition of further human remains and votive objects in a process of enshrinement (Fogelin and Schiffer 2015; Inall 2015). Like Bredon Hill, the deposit was sealed with stones after which the gateway was substantially reworked (Barrett *et al.* 2000).

Another comparable spearhead was recovered from Spettisbury Rings, Dorset, where another complex deposit of human remains and associated objects was discovered during railway works conducted in the mid-nineteenth century (Gresham 1939). While the contextual details of the find are limited, it is clear that the remains of multiple individuals were discovered in the enclosure ditch of the hillfort along with weapons and other objects including currency bars, brooches and a copper alloy cauldron. Gresham (1939) published 13 spearheads from this deposit, and spear No.7 closely resembles the example from Bagendon. The spearhead features a similar long socket and diamond blade profile, widest towards the base of the blade.

One final example which bears consideration comes from Madmarston Camp, Oxfordshire. A single type 1.1 spearhead was found, sealed under a layer of stones in the northern rampart. The sealing of deposits with stones has also been noted at South Cadbury and Bredon Hill. Similarly, other structured deposits at South Cadbury, Madmarston Camp and at Four Crosses, Powys demonstrate associations with exposure to extreme heat with the inclusion of ashy residues, fire-cracked stones or direct exposure of the deposited objects to heat (Inall 2015). These associations suggest that fire, and the sealing of votive deposits with stones may have played important roles in votive practice.

Chapter 9

An analytical study of Late Iron Age bloomery slag from Bagendon

Loïc Boscher and Marcos Martinón-Torres

Introduction

Investigations in the 1950s and 1980s have revealed significant metallurgical activities within the Bagendon occupation located in the valley, covering a wide range of materials (iron, silver, and copper) as well as production processes (smelting, smithing, and casting) which have been subject to two very brief and preliminary studies (Ruddock 1961: 186-196; Clogg unpublished – in site archive), one of which was never published.

The 1950s excavation report indicates that large quantities of iron slags were uncovered in and around a smelting furnace (Ruddock 1961:186-189) and confirmed through analysis the presence of smelting slags. An unpublished evaluation conducted by Phil Clogg of a small portion of the material excavated in the 1980s, however concluded that some of the material uncovered from a number of features within Area A (Chapter 4) were the result of both iron smithing and smelting activities. Iron working activities were established entirely on the presence of a few small, rounded slag cakes interpreted as smithing hearth bottoms, while smelting was inferred from the morphology of the rest of the slag and from the EDXRF analysis of a single sample.

As part of the latest research at the Bagendon *oppidum*, a large quantity of material from the 1980s excavations has been discovered which was not included in Clogg's preliminary report, and which prompted a re-evaluation of the assemblage. This report presents the results of a re-assessment of the production remains excavated in the 1980s and the analytical study of seven slag samples from this assemblage. Additionally, possible slag recovered during the more recent excavations within the Bagendon complex, at Cutham and Scrubditch 'banjo' style enclosures (Chapter 3) and the Roman villa at Black Grove (Chapter 5), were also evaluated and the chemical analysis of two samples from this new assemblage is reported here. The aims of the study was to clarify the nature of these industrial remains and to provide a technological characterisation of the iron industries of Bagendon.

Methods

The metallurgical material from Bagendon was first visually evaluated and photographed before being separated into groups based on morphology, density, and colour. This resulted in the identification of three separate types of iron smelting or related remains. Twenty random specimens from these categories of material were then selected and cross-sectioned using a tile-cutter to examine their texture and internal structure, which resulted in the identification of an additional subcategory of material. Nine samples, representing the four classes of suspected metallurgical remains were then selected for further microscopic and chemical analysis.

All nine samples were further sectioned to form specimens approximately 1 cm^3 in size, which were then mounted in epoxy resin, ground, and polished to a 1 μm following standard sample preparation procedures. They were then examined with a reflected light optical Leica DMLM microscope using both plane- and cross-polarised light to record their microstructure and identify areas of interest for chemical analysis. The samples were then carbon coated and analysed using a Philips XL30 scanning electron microscope with an Oxford Instruments EDS detector operating at 20 kV and at a working distance of 10 mm. Chemical compositions were calculated from the measured intensities of characteristic energy lines using a ZAF correction procedure. Bulk chemical compositions of the slags were obtained by analysing four areas measuring 1 mm^2 on each sample, avoiding areas overly affected by porosity, corrosion, or particularly rich in metallic phases. Crystalline and metallic phases were individually assessed using spot or small area analyses. Results are presented in this report are normalised to 100% with the un-normalised totals indicated on each table. Oxide phases are presented stoichiometrically while metallic phases are presented as elemental weight percentages.

Following the SEM-EDS analysis, the two iron slag samples which were found to be particularly rich in metallic iron (see below) were prepared for metallographic analysis. This was done by first removing the carbon coating through mechanical means and polishing the samples back to a 1 μm finish once again. The samples were then etched with a solution of nital (100 ml ethanol [C_2H_5OH] and 2 ml nitric acid [HNO_3]), soaking the sample surface between 20-40 seconds and following the procedures outlined by Scott (1991). The etched specimens were then studied and photographed using the same optical microscope previously mentioned.

Macroscopic observations

The total excavated iron production and/or working remains from the 1980s excavations weigh 23 kg. From the dating evidence available these consistently derive from contexts which are likely to date between the AD 40s and AD 60s. The materials from the more recent excavations enclosure weigh 750 g. However, approximately half of the latter material consists of reddish-brown stones and pebbles that were mislabelled as slag and therefore are probably unrelated to metallurgy. Seven samples were prepared from the assemblage from the 1980s, while two samples were prepared from the more recent fieldwork, one from Scrubditch (S-9) (dating to the Mid-Late Iron Age) and one from a context at Black Grove Roman villa (S-8) which dates to the 2nd or 3rd century AD (although the find itself may be redeposited).

Based on their microscopic characteristics, the Bagendon slags from the 1980s excavations can be subdivided into four broad categories: amorphous iron slag, roughly circular iron slag cakes, roughly circular iron slag cakes rich in metallic iron, and lighter amorphous molten ceramic. A single fragment of slag was found to be attached to and flowing over a ceramic rim, but upon close inspection, this was deemed the result of slag dripping onto a broken piece of ceramic rather than part of a structural feature. Additionally, two small amorphous fragments of green-stained material were mixed in with the iron slag and are most probably corroded pieces of copper scrap. Given the widespread presence of copper objects recovered from Bagendon and the existing analysis of these objects no further work was undertaken on these minor corroded fragments.

Amorphous slags (Figure 9.1) are generally the most abundant fraction identified within the assemblage, representing roughly 90% of the total metallurgical waste by weight. None of these can be orientated in any way and their surfaces range from angular to rounded, or a combination of both, presumably the result of both formation and post-depositional processes. They vary greatly in size and weight, ranging from 1 cm to 10 cm and weight anywhere from 5 g to 200 g, although the vast majority are 1-5 cm in size and weigh approximately 50-100 g. They are orange-brown in surface colour with frequent reddish iron corrosion stains. They are relatively dense, although they nearly all show some evidence of porosity due to the release of gas while molten or semi-molten. When cross-sectioned, the slags were found to be dark grey in colour and occasionally contain very small (<1 mm) metallic prills. With only a few exceptions, the amorphous slag does not exhibit any flowing textures and thus was most probably not tapped out of the furnace while molten. The amorphous slag is therefore best be described morphologically as belonging to the 'furnace slag' category described by several authors (Paynter 2006; Schrüfer-Kolb 2004:

Figure 9.1. Photograph of typical slag assemblage from Bagendon (context 80-40). The top left slag is a slag cake, while the others are amorphous.

Figure 9.2. Photographs of top view and section of three Bagendon slag cakes. The topmost example is analytical sample IoA-BAG-S-5 while the middle example is sample IoA-BAG-S-6. The bottommost was sectioned but not sampled.

Figure 9.3. Photographs of top view and section of three metallic-iron rich slag cakes from Bagendon. The topmost example was not sampled, while the middle is analytical sample IoA-BAG-S-3, and the bottommost is sample IoA-BAG-S-4.

9-10; Tylecote 1990: 137). Four samples of amorphous slag were selected for further analysis, two of which originate from the 1980s excavations, while the other two are from the more recent excavations.

Approximately 30 iron slag cakes could be identified in the assemblage thanks to their consistently recognisable shapes (Figure 9.2). They are typically 10-20 cm in diameter, 5-10 cm thick, roughly circular to oval in outline, have a convex base, and a slightly concave top surface. In a few examples, an off-centred protrusion extends from the base, suggesting that the cakes cooled on a somewhat inverted conical-shaped surface rather than a rounded bowl. They weigh between 200 g and 750 g. The top surface appears smooth and flatter than the base, which is much rougher and exhibits negative soil impressions. Just like the amorphous slag, they are orange-brown in colour with frequent reddish iron corrosion stains. Similarly, the slag cakes are identical in cross section to the amorphous slag. Even though the morphology of these slag cakes is similar to that of smithing hearth bottoms (SHB), their presence in proximity to a smelting furnace and the large quantity of amorphous slag associated with them suggest that they are iron smelting slags – as confirmed by the analyses presented here. Furnace bottom slags with similar shapes have been encountered at a number of Iron Age sites in Britain (Cleere 1972; Clough 1985; Tylecote 1990), although it must be noted that they are often significantly larger in size (30-40 cm) and weight (10-20 kg), such as at Longsham Lake and Leda Cottage (Paynter 2007: 205-206), as well as at Welham Bridge (Clogg 1999). Two samples from this category were selected for microscopic and chemical analysis.

The next category of slag from Bagendon is a sub-grouping of the iron slag cakes already described. These are identical in their outward appearance, but their cross sections revealed extraordinary quantities of metallic iron (Figure 9.3). Of the 10 slag cakes sectioned as part of the macroscopic evaluation of the assemblage, four proved to be rich in metallic iron. The metallic iron is present not only as the thin foil-like sheets that could result from the reduction of metal on the slag surface after it was deposited (Iles and Martinón-Torres 2009), but also more commonly as large blebs and masses commonly observed in unconsolidated blooms. Both the presence of iron metal in furnace slag cakes and the fact that this metal was never recovered despite being the intended product are points that will be discussed in some depth below. For the analysis, this distinction was considered significant enough to warrant further

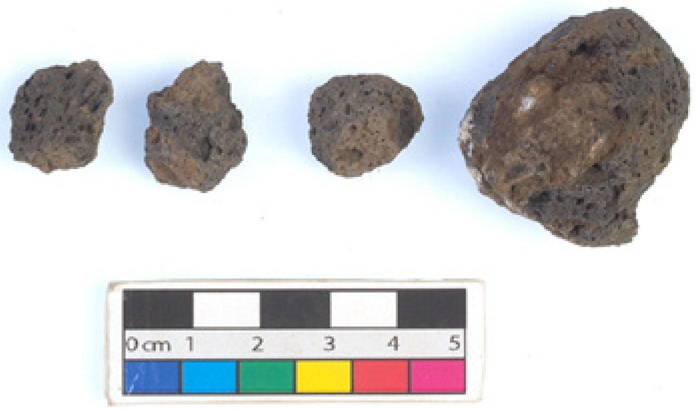

Figure 9.4. Photograph of molten ceramic material from Bagendon (BAG15-5003).

attention and thus two samples were chosen for further analysis.

The last group of material observed within the metallurgical assemblage consists of highly porous, light slag (Figure 9.4). These are always amorphous in shape and range from reddish orange to black in colour depending on the redox conditions during their formation. These finds are commonly found in association with metallurgical sites and are most likely molten or semi-molten technical ceramics such as furnace wall or tuyère fragments. A single sample was chosen for analysis in order to establish the bulk chemical composition of the ceramics.

Microstructure

With the exception of sample S-9, which is very different from the others and discussed separately, most of the amorphous slag and the two types of slag cakes exhibit very similar microstructures. These all contain abundant wüstite crystals (FeO), present either as small dendrites or as larger sub-angular crystals, along with olivines occurring as skeletal chains (Figure 9.5) or more developed euhedral crystals. The composition of these olivine phases is predominantly fayalitic (Fe_2SiO_4), although in the more lime-rich samples (S-3 and S-6) there is calcium substituting for iron and the olivines are more kirschsteinitic ($[Ca,Fe]_2SiO_4$) (Figure 9.6). The surrounding matrix is microcrystalline in most cases, and glassy in some.

Two samples also contain tetragonal leucite crystals $KAlSi_2O_6$, suggesting the increased presence of potassium in the smelt possibly introduced by a higher fuel contribution within the charge. The three amorphous slags also contain dense and usually subangular clusters of wüstite that are like to be the pseudomorphs of incompletely dissolved iron ore minerals (Figure 9.7). In some cases, these relic mineral fragments are associated with small metallic prills, which will be discussed later. The two iron-metal rich slag cakes are evidently dominated by large quantities of iron metal, which appear as both large blebs and as small prills, occasionally arranged linearly (Figure 9.8). One of the slag cakes selected for the absence of visible metallic iron in cross section (S-5) proved to also contain some minute prills of the metal, albeit generally only between 10-25 µm in size. Conversely, the last slag cake and the three amorphous slags contained no metallic iron prills.

Interestingly, sample S-2 contained elongated thin flakes of magnetite that have the appearance of hammerscale (Figure 9.9). It was at first thought that this might indicate that these samples might relate to smithing activities given that such relics are often associated with smithing slag (Dungworth and Wilkes 2007). However, nearly identical features are also present within the vitrified ceramic sample C-7 (Figure 9.10), and within the odd sample S-9 that is unlikely to be metallurgical (discussed below). Their presence in these non-metallurgical slags suggests that they

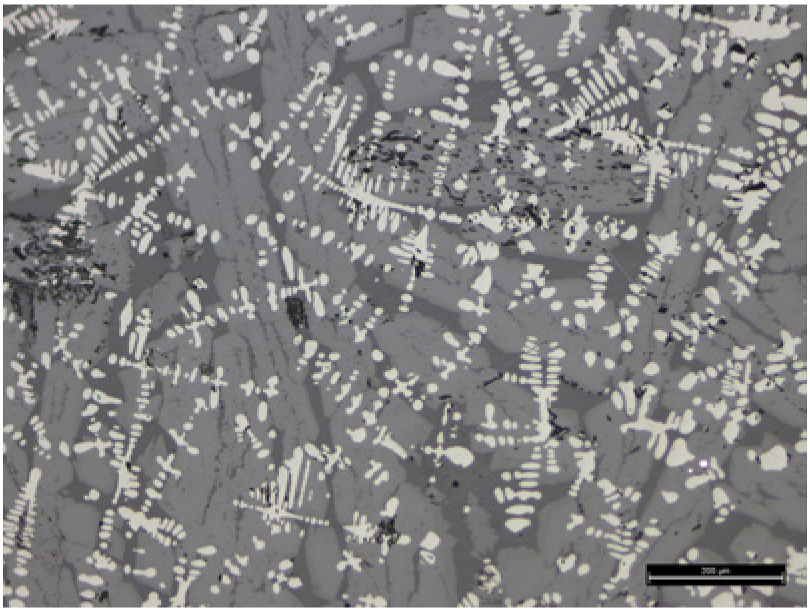

Figure 9.5. Photomicrograph of the slag matrix of sample IoA-BAG-S-5. The dendrites are wüstite crystals, the grey skeletal chains are fayalite, the bright prills in the bottom right corner are metallic iron, and the underlying matrix in this case is microcrystalline and probably dominated by second-generation fayalite chains.

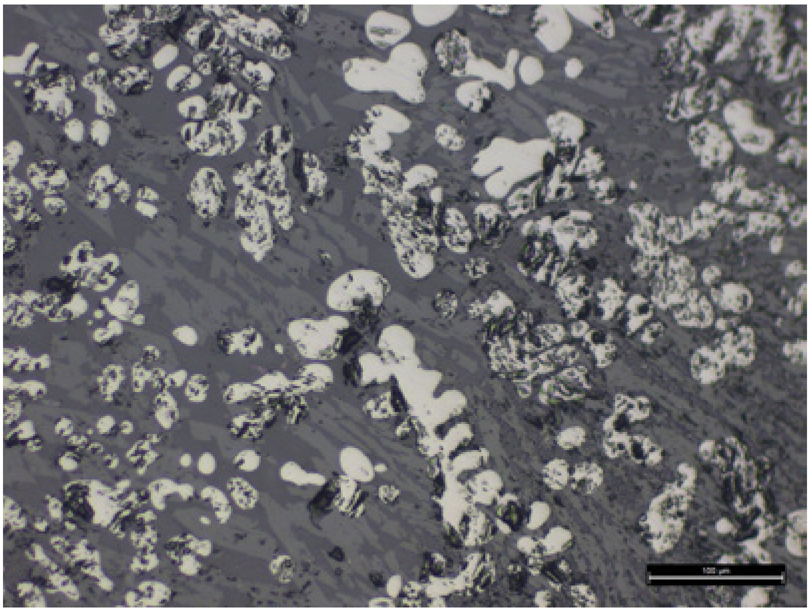

Figure 9.6. Photomicrograph of slag microstructure of sample IoA-BAG-S-6. The dendrites are wüstite while the angular grey crystals are olivines approaching the composition of kirschsteinite. The underlying matrix is glassy.

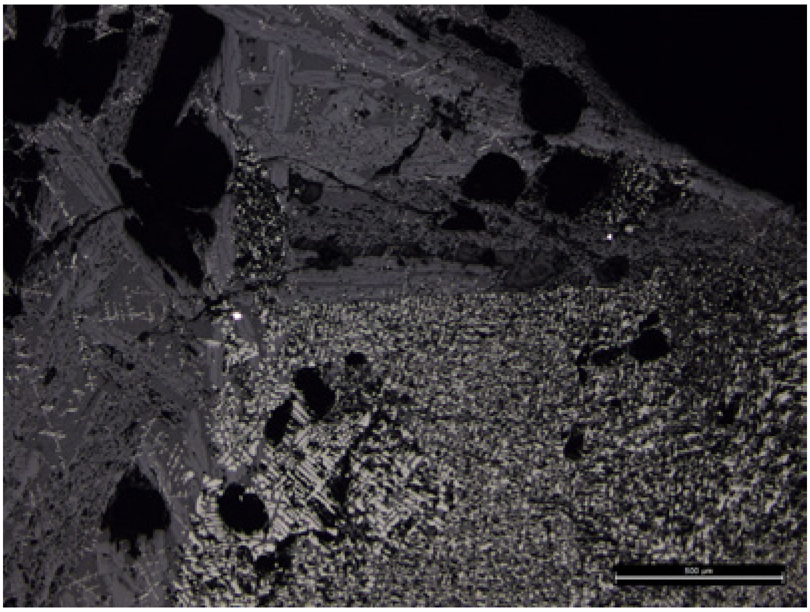

Figure 9.7. Photomicrograph of slag matrix of sample IoA-BAG-S-2 showing a pseudomorph of a partly decomposed relic mineral ore fragment as suggested by its sharp angular morphology. It has largely been reduced to wüstite dendrites and implies that it was probably a rich iron oxide or hydroxide mineral. Note the two bright metallic prills on the edge of the mineral which are complex iron arsenides. The surrounding matrix is composed of fayalitic skeletal chains and wüstite dendrites in microcrystalline matrix.

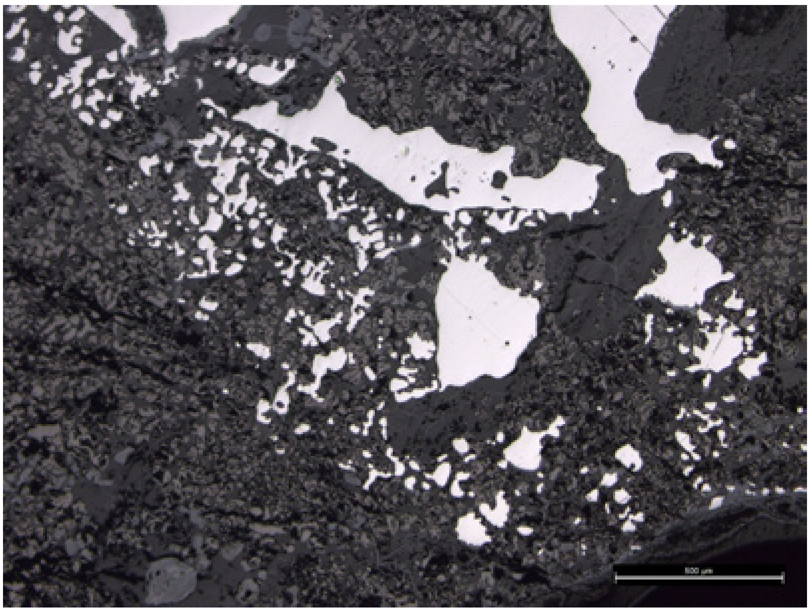

Figure 9.8. Photomicrograph of metallic iron blebs in linear, foil-like arrangement in sample IoA-BAG-S3. The surrounding matrix is dominated by light grey wüstite dendrites and grey fayalite skeletal chains and euhedral crystals in a microcrystalline matrix.

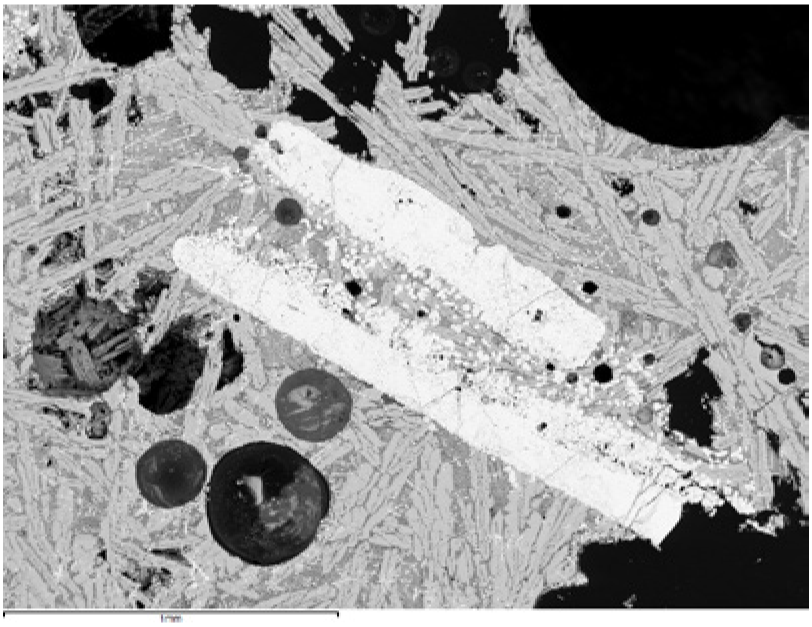

Figure 9.9. SEM image of flakes of iron oxide first thought to be hammerscale in sample IoA-BAG-S2. The surrounding matrix is typical of the slag from Bagendon and is composed of white wüstite dendrites and grey olivine skeletal chains in a microcrystalline matrix.

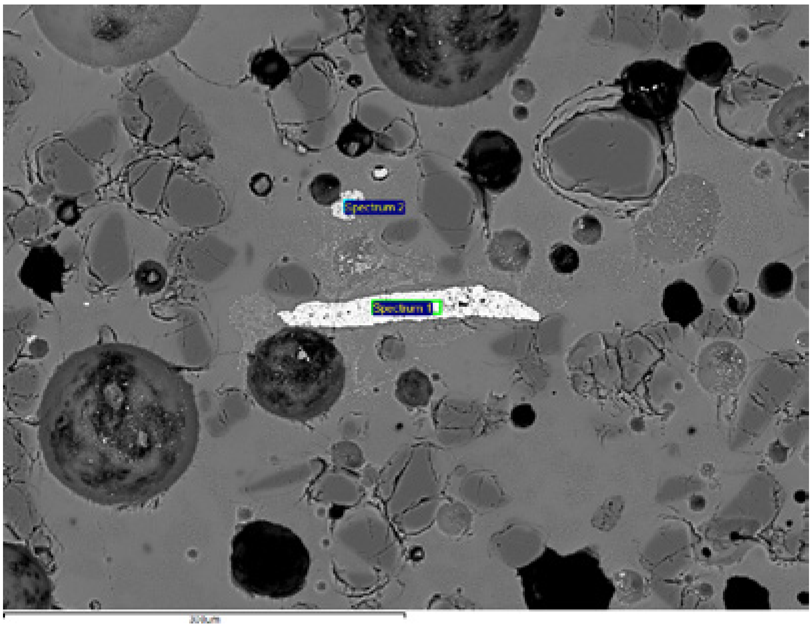

Figure 9.10. SEM image of flake of iron oxide in vitrified ceramic sample IoA-BAG-C7. The sub-circular dark grey minerals are heat fractured and partially dissolved quartz in a largely vitrified matrix.

may have formed *in situ* by local oxidation, or simply constitute relics of natural minerals.

Metallographic analysis of the two metallic iron-rich slag cakes was undertaken in order to quantify the carbon content of the iron present in them. The aim was to ascertain whether the excess metallic iron present at what would have been the very bottom of the furnace was the result of excessively reducing conditions leading to the production of cast iron. As such, greater attention was paid to the larger accumulations of metallic iron rather than the smaller prills and blebs. These revealed that the majority of the iron appears largely ferritic (Figure 9.11), that is to say low-carbon (<0.1%). In some instances, the presence of some carbon is evidenced by the inclusion of minute graphite flakes (Figure 9.12), which may indicate higher carbon content is some localised pockets. However, it is clear that by the time of solidification, little carbon remained.

Sample S-9, which was selected for analysis as it had the outward appearance of typical slag, proved to be microstructurally distinctive and is unlikely to be iron slag. Magnetite crystals (Fe_3O_4) are very abundant and often occur in clusters, along with tabular crystals that approach the composition and appearance of esseinite ($CaFeAlSiO_6$), often growing out of the magnetite. The underlying matrix is entirely glassy (Figure 9.13). The

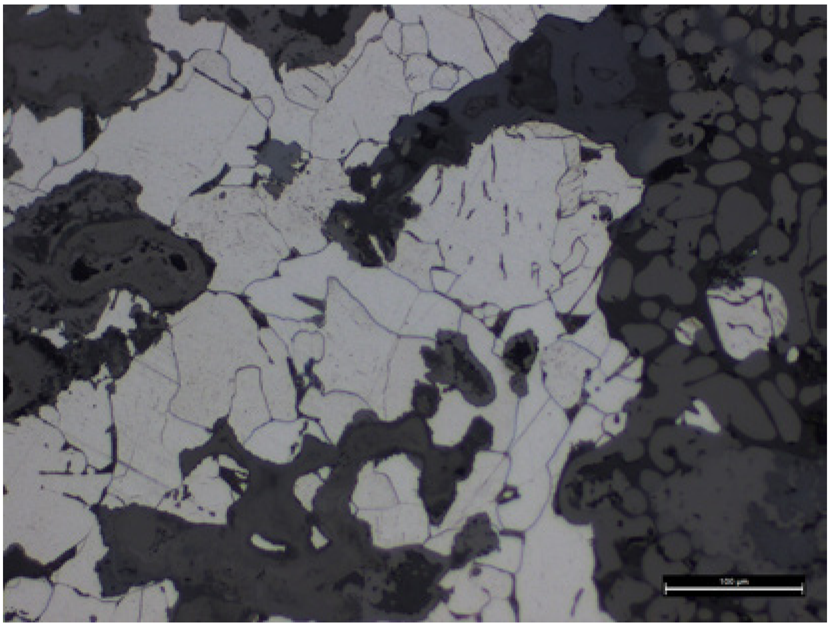

Figure 9.11. Photomicrograph of ferritic iron in sample IoA-BAG-S-3. Sample etched in nital.

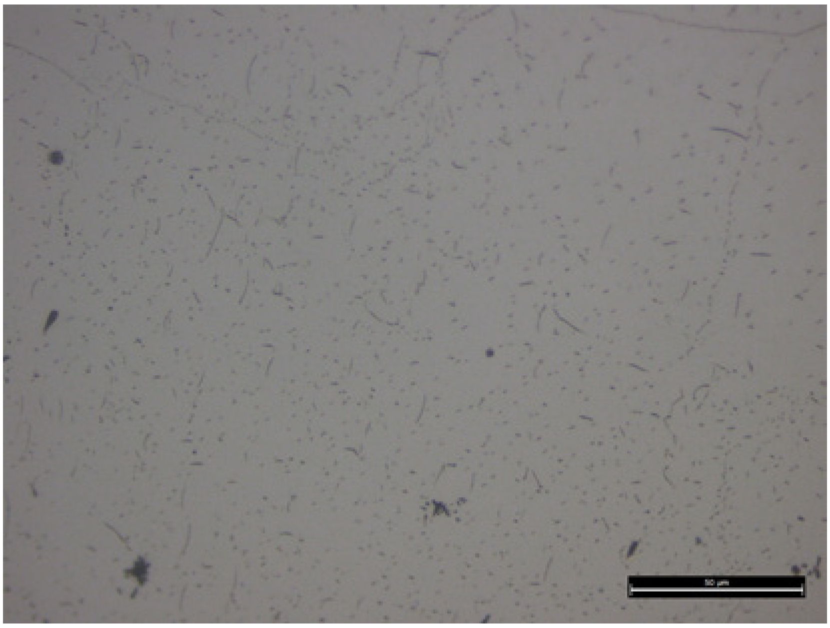

Figure 9.12. Photomicrograph of local presence of graphite flakes within some metallic iron blebs in sample IoA-BAG-S4. Sample etched in nital.

presence of iron oxide in its higher oxidation state suggests relatively oxidizing conditions while this material was molten, incompatible with iron smelting, and it is therefore no surprise to find no metallic iron prills. This sample stands apart from the iron slag already described, and since it is unlikely to be related to iron metallurgy, it is best described as molten material. This type of material, which appears to be burnt limestone heated to in some cases relatively high temperatures, is common at both Cutham and Scrubditch. The possible implications of this material are discussed in Chapter 3.

The only ceramic sample analysed (C-7) was found to be highly vitrified and contained large quantities of heat-altered, semi-molten, sub spherical quartz grains throughout (Figure 9.14). These were likely added as temper to improve strength and refractoriness. Near the outer surface, where the ceramic was least affected by heat, the fabric is more bloated and distorted rather than fully vitrified. The opposite edge is much denser, microcrystalline, and contains significant quantities of wüstite dendrites, presumably the result of increased interaction with iron smelting slag. The contribution of molten furnace wall to the composition of iron slag is typical of iron smelting furnaces and likely helped to produce a fully liquefied slag as well as the formation of the iron bloom by facilitating flow and density separation (Craddock *et al.* 2007; Velhujzen and Rehren 2007).

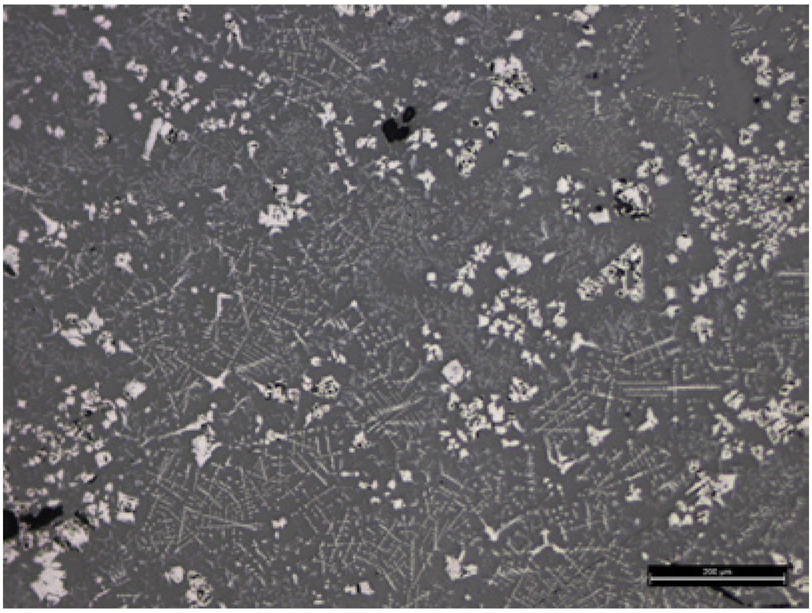

Figure 9.13. Photomicrograph of matrix of lime-rich molten material IoA-BAG-S-9. The bright angular crystals are magnetite spinels while the light grey elongated angular crystals approach the composition of essenite, both of which are found in a glassy matrix.

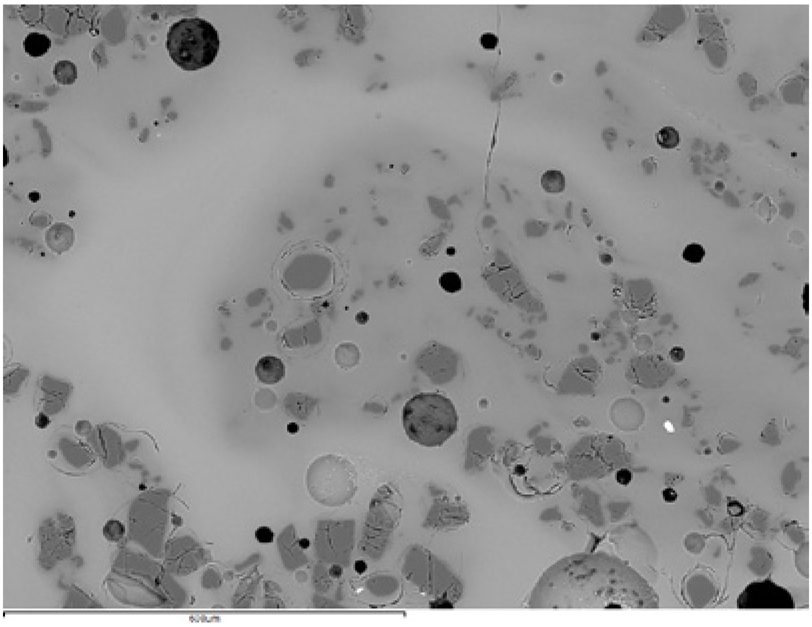

Figure 9.14. Photomicrograph of technical ceramic sample IoA-BAG-C7, likely to be furnace wall. The matrix is largely vitrified, but includes numerous heat fractured and partially dissolved quartz grains. The bright phases are zircon and ilmenite minerals.

Chemical composition

Microscopic and chemical analysis by SEM-EDS was used to confirm the microstructure observed under the optical microscope, obtain bulk compositions of the samples, identify major and minor elements within the metallic phases, and explore features of interest identified under the microscope. The results of the bulk analysis are presented in Tables 9.1 and 9.2 and represent three types of materials: molten geological material, iron smelting slag, and technical ceramic. Each category will be discussed separately.

Unsurprisingly, the small nodule found to be highly distinctive under the microscope (S-9) is also very different from the other samples compositionally and confirms its exclusion from the iron production process. Its iron oxide content (25.6 wt.%) is too low for it to be considered an iron smelting or smithing slag of this period, and too high to be a considered a typical molten ceramic body. While such an iron content is often associated with mixtures of ceramic and slag at the interface between the furnace wall and charge, in this case the alumina content (17.5 wt.%) is significantly higher than the analysed technical ceramic sample (discussed below) and thus could not be the result of the mixing of the two. This, in addition to its high calcium content (22.5 wt.%) and the oxidation state of the iron found mainly as magnetite, means that this sample is most likely unrelated to iron smelting or smithing activities. The high calcium content and the presence of several pits of 'burnt limestone' at the site suggest that this sample may derive from one of such structures. Since in all likelihood it does not relate

Table 9.1. Average composition of the slag measured by SEM-EDS. Values are averages of several areas of approximately 1000 x 1200 µm. The analysis of the slag samples focused on areas with little or no porosity, the least amount of corrosion present, and as clear of metallic phases as possible, hence the results are indicative of the bulk slag composition. Results are presented as stoichiometric oxides and normalised to 100% to account for the abundant porosity. Empty cells denote values below detection limits (~0.1 wt.%).

Sample	Description	Context	NaO	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	FeO	Non-norm
IoA-BAG-S-1	Amorphous slag - dense	80-US		0.3	2.3	11.3	0.2	1.7	2.6		81.6	101.3
IoA-BAG-S-2	Amorphous slag	80-US	0.7	0.5	5.9	29.8	0.5	2.8	6.7	0.3	52.7	101.9
IoA-BAG-S-3	Slag cake - iron rich	80-1	0.3	0.5	2.8	14.9		1.3	8.1		72.0	96.2
IoA-BAG-S-4	Slag cake - iron rich	80-60	0.4	0.4	5.0	25.7	1.0	1.6	5.2		60.8	98.0
IoA-BAG-S-5	Slag cake	80-36	0.6	0.5	4.8	24.4	0.5	1.3	6.0	0.2	61.8	101.3
IoA-BAG-S-6	Slag cake	80-16	0.6	0.7	4.7	20.4	0.7	2.3	6.9		63.6	94.1
IoA-BAG-S-8	Amorphous slag	Bag 15 TR 6 6011	0.5	0.5	4.3	23.2	0.4	1.9	5.5		63.7	99.9
IoA-BAG-S-9	Amorphous lump	Bag 13 TR1 1173	0.5	1.3	17.5	29.2	0.5	2.2	22.5	0.7	25.6	96.6

Table 9.2. Average composition of the ceramic fabric measured by SEM-EDS. Values are averages of areas of approximately 1000 x 1200 µm, which included some quartz grains, hence the results are indicative of the bulk ceramic composition rather than that of the ceramic matrix. Results are presented as stoichiometric oxides and normalised to 100% to account for the abundant porosity. Empty cells denote values below detection limits (~0.1 wt.%).

Sample	Description	Context	NaO	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	FeO	Non-norm
IoA-BAG-C-7	Molten ceramic	80-60	0.9	0.8	11.5	72.3		4.0	3.9	0.9	5.7	88.5

to metallurgy and since no conclusive interpretation can be made, this sample is not further discussed here. Conversely, the other sample recovered in recent fieldwork (S-8), and from a much later phase, is practically indistinguishable from the other slag analysed. Although it may be tempting to infer some form of technological continuity from the Late Iron Age to the later Roman period, the general scarcity of such slag material from later contexts at the site suggests that it is much more likely that this sample represents redeposited Iron Age material.

The slag samples all have bulk compositions within the range expected for bloomery iron smelting slags. Their mean silica content (21 wt.%) is higher than is usually observed in smithing slag and closer to the composition of olivine smelting slags approaching the iron-rich eutectic of the $FeO-SiO_2-Al_2O_3$ phase diagram. Conversely, smithing activities tend to form slag which is richer in iron oxide (often above 80 wt.%), while the results observed here (65 wt.%) are in line with iron silicates produced during smelting. While there are some exceptions to this (samples S-1, S-2, and unpublished analysis), these are the result of analytical bias and are not representative of the true composition of the Bagendon slags. As such, while sample S-1 is much richer in iron and deficient in all other elements when compared to the other iron slags, this is because relic iron ore remains, present as angular clusters of wüstite, could not be avoided during bulk analysis, thus inflating the reported iron content. This is likely also the case for the unpublished analysis by Clogg a single fragment of smelting slag from context 79-6 of the 1979 excavations (Table 9.3, Figure 9.15), which appears to be compositionally and microstructurally very similar to sample S-1. Similarly, the high bulk iron content of sample S-3 is in large part due to the abundant presence of large metallic iron blebs, which could not be entirely excluded from area analyses. Bearing in mind the two high-iron samples and S-9 as outliers, when the slags are plotted in the Al_2O_3-FeO(+CaO)-SiO_2 ternary phase diagram (Figure 9.16), it is immediately apparent that they plot within the olivine region, in agreement with the microstructural observations.

Based on the chemical composition, most of the analysed Bagendon slag was found to be highly efficient at reducing iron metal. This can be quantified using Charlton's 'reducible iron index', or RII (Charlton *et. al.* 2010), and when calculated, provides an average RII value of 0.98 when excluding the two iron-rich slag, or 0.78 when including them. This indicates that, generally, relatively little free iron oxide was available for further reduction in the majority of the slags

Table 9.3. Analytical results of EDXRF analysis of smelting slag from 1979 excavations context (79-6) conducted by Phil Clogg.

Sample	Description	Context	NaO	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	FeO	Non-norm
1979 context 6	'tapped' slag	79-6	n/a	n/a	2.2	14.0	0.3	1.0	4.8	0.2	76.5	n/a

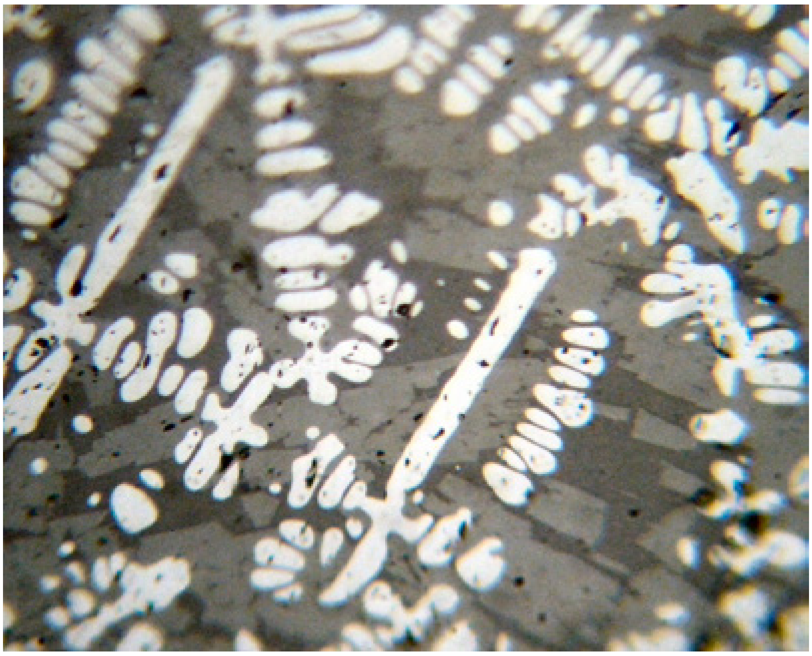

Figure 9.15. Photomicrograph from Phil Clogg's unpublished analysis of Bagendon slag. The microstructure appears to be similar to that observed in the new analysis, and is best described as white wüstite dendrites and light grey skeletal chains of fayalite in a dark grey glassy matrix.

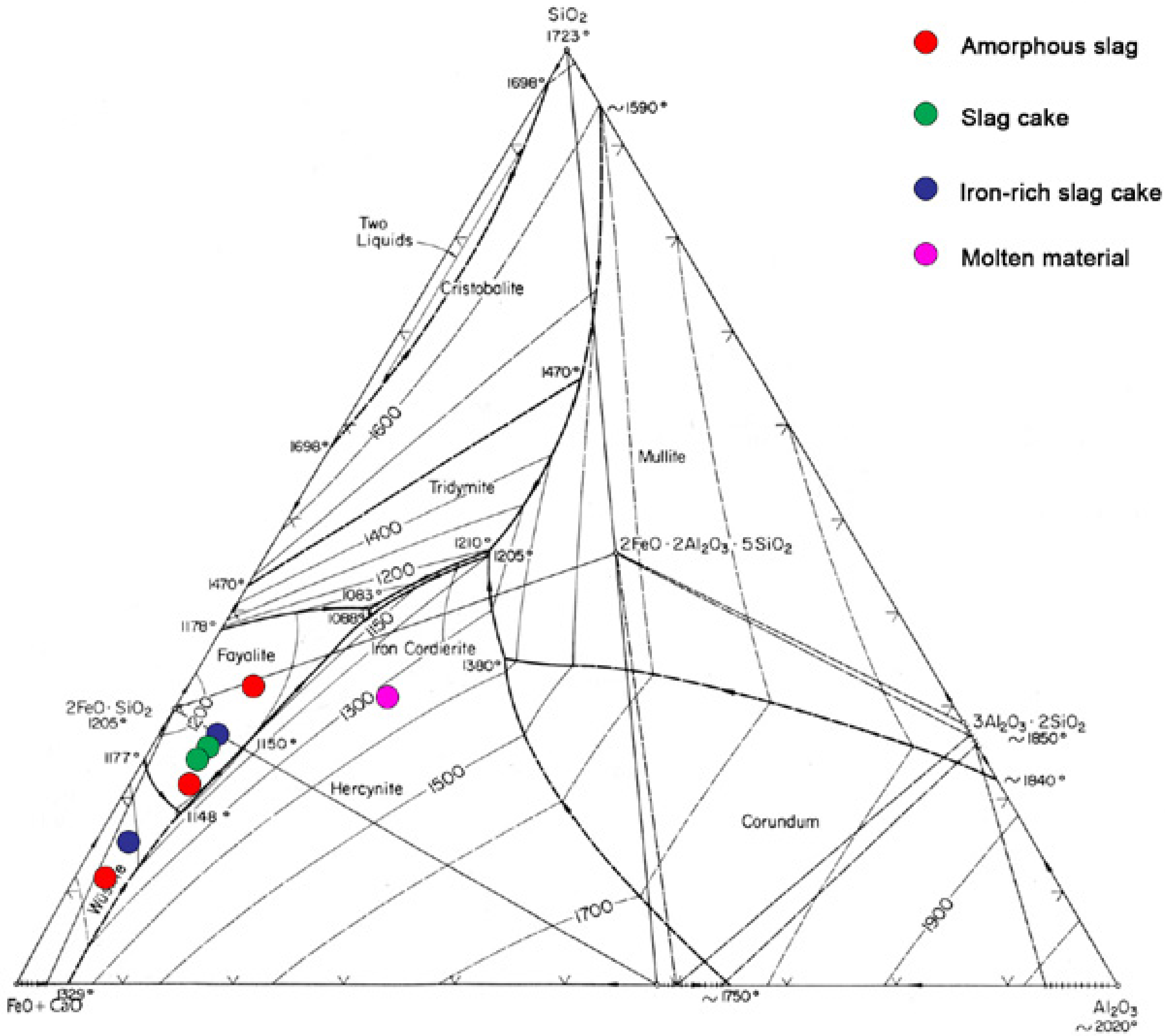

Figure 9.16. Composition of the Bagendon slag samples plotted in the Al2O3-FeO(+CaO)-SiO2. Note the two outliers high in iron oxide (IoA-BAG-S-1 and IoA-BAG-S-3) and the molten material, which is very distinct from the smelting slags. The smelting slag of Bagendon therefore plots well within the olivine-rich region of the diagram.

analysed. It should be noted, however, that the iron-reduction efficiency suggested by the analysis of the silicate slag stands in curious contrast with the fact that relatively large masses of metallic iron were left in some of the slag cakes, as noted above. In the two amoprhous iron-rich slags, it appears that some excess iron oxide was present which was not reduced, as also noted by the observation of ore pseudomorphs. This could have been caused by a number of factors, perhaps an insufficient smelting time.

Although the composition of the slag matches well with that from contemporaneous smelting sites in the region (Paynter 2006; Paynter 2007), it is worth noting that the calcium content of the Bagendon slag (mean 6.4 wt.%) is approximately fourfold more that found in other recorded slag from the Forest of Dean (mean 1.7 wt.%) and nearly double that found further south at Chelme's Combe (3.5 wt.%). While this distinction probably indicates the use of a different ore sources altogether, it does not necessarily exclude the use of these same ore deposits, but may reflect differing beneficiation or smelting practices.

Although the similarly elevated potassium content might suggest that the increased levels of calcium relate to fuel consumption and the inclusion of fuel ash into the system, the fact that they do not correlate well with each other (Figure 9.17; r=0.13), implies that one of these two elements originates from the ores as well as the fuel. This is likely to be calcium, given the calcareous substrate of the site; its enrichment certainly suggests that bog ores, which are poor in this element, were not used in this instance.

This point is further reinforced by the analysis of metallic prills situated near the remains of incompletely dissolved ore fragments (Figure 9.18) within three slag samples (S-1, S-2, and S-8). These proved not to be metallic iron, but complex iron-arsenide, or speiss, containing variable amounts of nickel, copper, tin, antimony, and in some instances sulphur (Table 9.4). These prills are isolated to just a few examples in each of the three samples and indicate the preferential partitioning of these elements into metallic phases under reducing atmospheres, but they are useful indicators of the non-ferrous heavy elements likely present in the ore. Although all three samples containing iron arsenide prills contained no metallic iron prills, this is likely because these particular slag samples came from the upper region of the furnace as suggested by the presence of incompletely dissolved ore. Although not altogether revealing about the iron smelting process, these iron arsenide prills reinforce the interpretation of the use of complex mineral ores rather than bog ores. The nearby rich limonite and goethite deposits of the Forest of Dean (Tylecote 1990: 125), or those of the Bristol-Mendip region (Young and Thomas 1999) would be possible candidates to explore as potential ore sources for the smelting site of Bagendon. However, the distance between Bagendon and the Forest of Dean (~50 km) and Bristol (~60 km), as well as the slight compositional differences between this slag and that from sites known to have exploited the Forest of Dean Carboniferous Limestones or the Triassic Dolomitic Conglomerates of the Bristol-Mendip area (Paynter 2006: 276-277), suggests that perhaps a more localised source may be more likely. The Middle-Jurassic oolitic limestones that cover the Cotswolds are not known to be rich in iron-bearing minerals of economic importance (Benham *et al.* 2006) and no deposits are known to have been exploited in antiquity. However, concentrations of relatively lean carbonates weathered to hydrated hematite exist in the Inferior Oolite formation of Northern Oxfordshire and Northamptonshire that form part of the larger Jurassic Ridge. It is conceivable that smaller such deposits are also present in Inferior Oolite deposits located some 10 to 20 km north of Bagendon in the area around Cheltenham. An oolitic ore source could certainly account for the elevated calcium content observed in the slags.

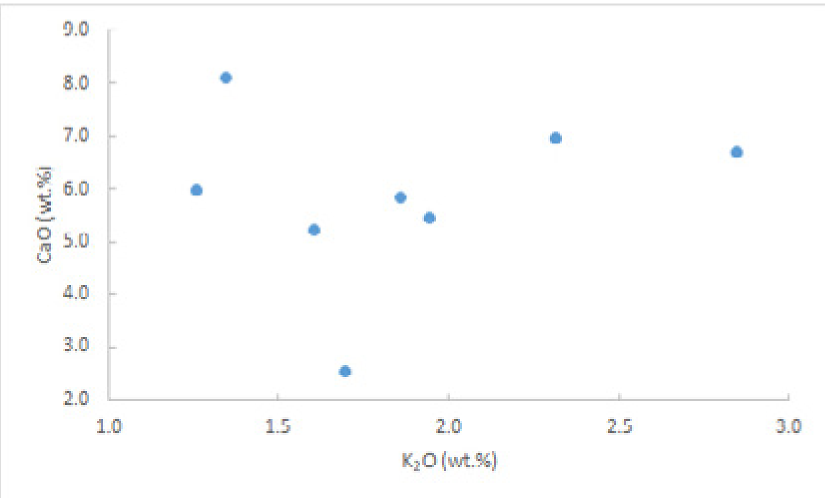

Figure 9.17. Scatterplot diagram of the potassium and calcium content of the Bagendon slags. Note that there is no clear correlation between the two elements despite their common introduction from fuel ash. This is probably because the calcium largely originates from the ore minerals in this case.

Three of the samples (S-3, S-4, and S-5) contained metallic iron prills, blebs, and larger agglomerations that are best described as unconsolidated bloom fragments. Analysis of these with the SEM-EDS showed them to be largely free of other elements within the detection limits of the instrument. Only the large area analysis of a large bleb in sample S-4, which included very small inclusions, showed that it contained detectable amounts

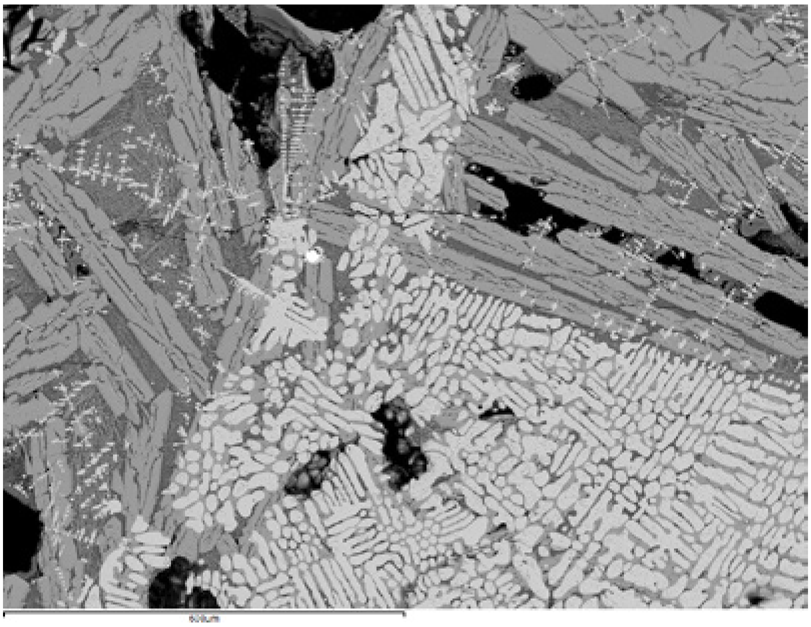

Figure 9.18. SEM image of complex iron arsenide metallic prill at the edge of a relic iron ore mineral. It appears that the operation was stopped while the mineral was in the partial process of reduction as a solid solution reaction to wüstite and never achieved a fully molten state. The surrounding matrix is composed of fayalite skeletal chains and wüstite dendrites in a microcrystalline matrix.

Table 9.4. Average composition of metallic prills in Bagendon slags as determined by SEM-EDS of complex iron arsenide prills identified in three slag samples from Bagendon. The number in brackets indicates the number of prills analysed. Note that sample IoA-BAG-S-4 contained a number of small pure iron metallic prills as well as larger prills that contained significant phosphorous content and minute secondary phases of tin.

		O	S	P	Fe	Ni	Cu	As	Sn	Sb	Non-norm
Complex iron arsenide	S-1 (2)				46.7	12.3	3.0	36.3	1.5	0.5	110
	S-2 (2)	1.4	0.3		69.1	8.2	8.1	13.4	0.7		105
	S-8 (3)		0.6		54.8	5.8	3.7	35.1			101
Metallic Iron	S-3 (5)				100.0						100
	S-4 (4)			0.3	98.0				3.6		96

of phosphorus and tin. The phosphorus comes as no surprise as it has a tendency to partition into iron metal (McDonnell 1989), and the presence of tin seems to tie the sample to those with complex iron-arsenide prills. The identification of these impurities may facilitate future studies trying to connect iron objects to the slag analysed here.

In the absence of any obvious furnace wall fragments within the available assemblage, a sample of molten ceramic attached to some slag was chosen for analysis as a means of assessing the composition of what is assumed to be technical ceramic (Table 9.2). The composition of this fragment came as no surprise and matches well with the expected composition of ceramics tempered with crushed quartz or sand to increase refractoriness. The clay itself does not appear to be particularly heat resistant on its own as it lacks the high alumina content usually observed in highly refractory technical ceramics (Freestone 1989). As such, it could probably not withstand indefinite exposure to the 1200°C needed to reduce metallic iron, which likely explains the bloated and vitrified appearance of the sample. This reinforces the idea that a significant portion of the furnace wall would be incorporated into the slag in order to produce the low viscosity necessary to effective separate the metallic iron from the gangue (Craddock *et al.* 2007; Velhujzen and Rehren 2007). Indeed, while the iron content of the ceramic is relatively low (5.6 wt.%) and thus contributed little iron to the smelt, the similarity of the SiO_2:Al_2O_3 ratio, what Buchwald (2005: 164) terms the F-value, in the ceramic (6.3) to that of the slag (mean 5.0) suggests that much of the slag's silica and alumina content was introduced through the incorporation of molten ceramic into the melt.

Discussion

Several aspects of the metallurgy of Bagendon are worth discussing in further details. Firstly, the lack of tapping features in the slag's morphology, and the identification of slag cakes, suggest that furnaces employed probably belonged to the less common Iron Age 'sunken hearths' type (Clogg 1999; McDonnell 1988; Schrüfer-Kolb 2004; Starley 1998; Tylecote 1990). The well-developed crystal structures and lack of oxidized surfaces, denoting a slow solidification inside the furnace, are consistent with this observation. That being said, a number of contemporaneous sites in the region, such as Stowe Hill (Paynter 2006) and Chelms Combe (Schubert 1957: 21-26), have also been shown to make use of the same furnace model. Interestingly, much like Bagendon, slag from these two sites are also much richer in calcium and potassium than contemporaneous tapped slags. Paynter (2006: 287) suggests that there may be a link to the increased presence of these elements with the specific smelting process using sunken hearths and the results from Bagendon reinforce this idea. Unfortunately, without identifying the ore sources associated with these sites, it remains impossible to ascertain whether the differences are geological or cultural.

Equally interesting is the fact that despite their shape being reminiscent of smithing hearth bottoms, the analysis conducted as part of this study shows them to be conclusively categorised as smelting slags. Upon review of the unpublished analyses of slag from the site, it appears that their interpretation as smithing slag was made entirely on morphological grounds. Only fragments of slag classified as 'tapped' in the original report, described as having a smooth upper surface and rough underside, were further analysed metallographically and chemically, and the results have already been discussed. The much larger assemblage made available for this study revealed a number of complete examples of circular convex slag cakes, but no signs of slag tapping. The sectioning and sampling of several of these revealed that some of them contained extraordinary amounts of metallic iron, strongly refuting the idea that they could be the result of smithing activities since smithing hearths are rarely exposed to the reducing atmospheres or temperatures necessary to form metallic iron or to prevent its oxidation. Such large iron metal blebs in the slag cakes are therefore best described as fragments of an unconsolidated bloom. The microscopic and chemical analysis of the slags, showing that they are similar to other contemporaneous smelting slags from the Britain further strengthens their interpretation as smelting furnace base slags rather than smithing residues.

Also interesting is that in at least some instances the Bagendon smelters do not appear to have been concerned with the total recovery of the produced metal as evidenced by the large quantity of metallic iron in some of the furnace slags. This can be only explained in one of three ways: 1. they were unaware of the existence of this reduced metal; 2. they considered it waste; or 3. they were simply unconcerned with the effort of extracting the remaining metallic iron from the slag cakes. Since metallographic assessment of these metallic phases does not show them to be particularly carbon rich, they certainly cannot be described as cast iron waste but really as perfectly useable bloom iron.

Unfortunately, beyond identifying the ore as probably rich gossan minerals, such as limonite or goethite, rather than bog ore, it has not been possible to pinpoint the exact type or location of the minerals exploited by the smelters of Bagendon. Furthermore, without knowing the iron content of the ore minerals and without an estimate of the quantity of slag produced at Bagendon, an estimation of the scale of iron production at Bagendon remains impossible.

Conclusions

The purpose of this analysis was to explore the metallurgical remains uncovered at the 1st century AD *oppidum* site of Bagendon over the course of several decades. This brief analysis has not only confirmed the presence of active primary iron extraction activities at the sites, but also revealed a number of details about the metallurgical technology and context during the Late Iron Age/Roman transition. Indeed, smelting at the site, using the sunken hearths that were not slag-tapping, the efficiency of the smelting process juxtaposed against the dramatic waste encountered in some of the slag cakes, and the use of gossan ores rather than bog ores, are patently different from the features commonly associated with iron extraction in Roman Britain. They show the use of a technology which does not appear to have been influenced by Roman engineers and which remained relatively conservative. Future work should seek to establish the ore source and the scale of these iron production activities, as a starting point to address the distribution network of the metal produced here within the broader landscape of iron-making sites in Late Iron Age Britain.

Chapter 10

Iron Age Coins

Colin Haselgrove
With a catalogue of Roman coins by Richard Reece

Introduction

Eight Iron Age coins were recovered during the 1979–81 excavations in the Bagendon valley, one in the 2014 excavation of the Cutham enclosure and two in 2015 at Black Grove. All 11 are silver units, three of them plated. They augment the 30 Iron Age silver coins and a coin blank discovered in the 1954–56 excavations (Allen 1961) and six Iron Age coins excavated between 1982–85 at The Ditches, 3.5 km to the north-west in North Cerney (Haselgrove 2009; Selwood 1988). The new coin finds bring excavated total for the Bagendon complex to 48 (summarised in Table 10.1 below).

In addition, 15 Iron Age coins found at or near Bagendon have been reported to the Celtic Coin Index (CCI) at Oxford or recorded in the trade since 1979, along with seven from North Cerney, to add to a 1957 chance find from Perrot's Brook, Bagendon, and two 1980s finds from The Ditches. Most are metal detecting (MD) finds with only a parish-level provenance, but a few have more specific findspots. Including these 25 non-excavation finds (summarised in Table 10.2 below), the Bagendon-North Cerney total is 73, of which 69 can be identified. All but four are local silver types belonging to the Western region.

No attempt has been made to compile an inventory of Iron Age coins from the wider region, but it is worth noting the virtual absence of Iron Age coins of silver or gold from the other four parishes immediately neighbouring Bagendon to the south and west (clockwise from North Cerney, these are Baunton, Daglingworth, Duntisbourne Rouse and Duntisbourne Abbots), apart from two Western silver units from Stratton in Baunton (CCI 61.0001; 65.0001). Some of the 16 MD finds recorded in the CCI over the last thirty years as from the Cirencester area (again mostly Western silver issues, but including two British RB gold quarter staters, two Anted staters and one of Bodvoc) could conceivably be from Bagendon-North Cerney – indeed at least one coin from North Cerney has also been reported as a near Cirencester find – but they are not discussed here.

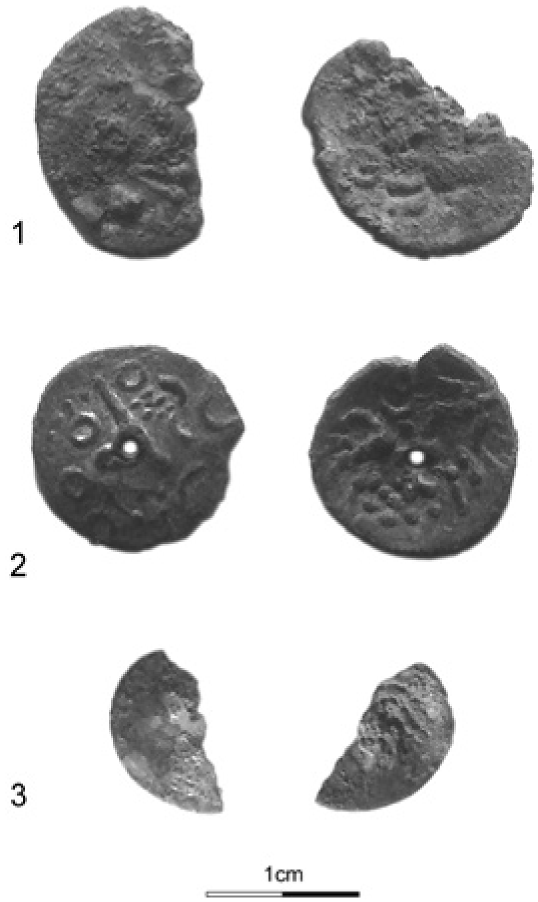

Figure 10.1. Iron Age coins from the 2014–15 Bagendon excavations. Nos 1–2 Black Grove; No. 3 Cutham enclosure. All 2:1.

Catalogue

Part I of the catalogue provides details of the 11 excavated coins, whilst Part II lists 22 other finds since 1979 from Bagendon-North Cerney. For ease of reference, the coin numbers run sequentially throughout. References to standard works are as follows: Allen = Allen 1961; BMC = Hobbs 1996; ABC = Cottam *et al.* 2010; Leins = Leins 2012. Only the 2014–15 excavation finds are illustrated (Figure 10.1). The 1979–81 coins have all been recorded on the CCI and photographs of these and most of the non-excavation finds may be found online at http://www.celticcoins.ca/ or via the Portable Antiquities Scheme (PAS) database (https://finds.org.uk/). Dating and chronological phases follow Leins (2012) for Western types and Haselgrove (1993) for Iron Age coins from other regions.

I: Excavated coins

Bagendon Valley 1979–81

1. Western silver unit. Allen C, ABC 2018, BMC 2963-67. Weight not recorded. CCI 82.0014. Leins WE1.
   Area A, context 81-6, sf 81-20. Layer slumping into top of pit AD which contained Tiberian-Claudian samian and TR; sealed by layer containing Claudian samian (81-3 = 81-32). Claudian or later.
2. Western silver unit. Allen C, ABC 2018, BMC 2963–67. Weight not recorded. CCI 82.0004. Leins WE1.
   Area A, context 81-33, sf 81-45. Upper fill of pit AL, poorly sealed. Claudian or later.
3. Western silver unit. Allen D, ABC 2021, BMC 2968–75. Weight 0.91 gm. CCI 91.0025. Leins WE1–2.
   Area B, context 80-1, sf 80-63. Hillwash.
4. Western silver unit. Allen F, ABC 2027, BMC 2981–3000, Weight 0.76 gm. CCI 91.0026. Leins WE2.
   Area B, context 80-1, sf 80-67. Hillwash
5. Western silver unit. New variety. ABC–, BMC –. Weight not recorded. CCI 03.0939. Leins WE2.
   Obverse: struck off-centre, but stylized head right, with pellet border and arc of crescents and pellets. Ringed pellet for eye; cross and another ringed pellet below; below this, another pellet and part of lips. Reverse: triple-tailed horse left, ringed pellets for eye, chest and rump, with others in front of nose and between the legs. Single pellets above, below and in front of horse; pellet rosette above. The obverse is close to Allen E–F and Eisv. The horse has clear affinities to Eisv units (which have the same trio of pellets, but with the legend replacing the pellet rosette above the horse and ringed pellet below). It is also similar to Allen E–F, Anted and Allen N (which has a sun ornament above the horse and ringed pellet below, but only a single pellet in front of the horse). Some Allen F units have ringed pellets below, in front and above the horse (P. Healy, pers. comm.), the last replacing the 'bird's head' or 'hand' ornament characteristic of uninscribed Western types. The coin does not appear to have been inscribed and, on balance, is probably best regarded as a variant of Allen F.
   Area A, sf 81-95. Unstratified, immediately below turf line.
6. Western silver unit. Allen IJ, ABC 2036, BMC 3003–11. Weight not recorded. CCI 82.0046. Leins WE2.
   In line with Cottam *et al.* (2010) and Leins (2012), Allen I–J have been merged here, as they cannot be distinguished from one another.
   Area A, context 81-28, sf 81-70. Lowest fill of pit AH, with Tiberian and Tiberian-Claudian samian. No earlier than AD 35, probably Claudian.
7. Western silver unit. Allen IJ, ABC 2036, BMC 3003–11. Weight not recorded. CCI 82.0049. Leins WE2.
   Area A, context 81-28, sf 81-73. Lowest fill of pit AH, with Tiberian and Tiberian-Claudian samian. No earlier than AD 35, probably Claudian.
8. Southern silver unit, plated. Verica. ABC 1235, BMC 1450–84. Weight 0.67 gm, CCI 91.0024. Date, *c.* AD10–40, in the later part of this range, Haselgrove S8.
   Area B, context 80-1, sf 80-18. Hillwash.

Black Grove, Bagendon, 2015

9. Western silver unit, plated, copper alloy core. Allen C/D, probably C, ABC 2018, BMC 2963–66. Weight 0.8gm, broken. CCI –. Leins WE1. Figure 10.1, no. 1.
   BAG15 Trench 5, context 5018, sf 24. Occupation over clay surface 5021, rear of wall 5007. Mid-second century AD or later.
10. Western silver unit, plated. Allen IJ, ABC 2036, BMC 3003–11. Weight 1.25gm, pierced centrally. CCI –. Leins WE2. Figure 10.1, no. 2.
    BAG15 Trench 6, context 6017, sf 28. 'Dump' of material, perhaps levelling deposit in pit-like feature or quarry hollow. Early second century AD.

Cutham enclosure, Bagendon, 2014

11. Very thin silver flan, broken and distorted. Uncertain type, but probably an Iron Age coin. Weight 0.13gm. CCI –. Figure 10.1, no. 3.
    Obverse: traces of pattern? Reverse: curving pattern, conceivably two (possibly three?) tails of a left-facing horse, with leg(s) below, as on regular Western types. The distorted flan is, however, paper thin. Very thin flans are a feature of the well-known Hampshire series (BMC 2780–87) and of other early uninscribed Southern silver types (Bean 2000: QsT group), some of which have left-facing horses with multiple tails and were struck on flans of a similar diameter (e.g. Bean QsT1-4).
    BAG14, Trench 4, context 4006, sf 002. Upper fill of enclosure ditch F23. Late Iron Age–Early Roman.

II: Non-excavation finds

Bagendon, 1979–2018

12. Western silver unit. Allen A, ABC 2012, BMC 2950–51. Weight 1.31 gm. CCI 82.0001. Leins WE1.
Perrots Brook, before 1983 (de Jersey 1994: 73). MD find?
13. Western silver unit. Allen B, ABC 2015, BMC 2953–62. Weight not recorded. CCI 82.0005. Leins WE1.
Field B4, *c.* 1981 (de Jersey 1994: 74). Fieldwalking.
14. Western silver unit. Allen B, ABC 2015, BMC 2953–62. Weight 1.0 gm. CCI 92.0580. Leins WE1.
Bagendon, *c.* 1988 (de Jersey 1994: 74). MD find?
15. Western silver unit. Allen B, ABC 2015, BMC 2953–62. Weight 0.9 gm. CCI 05.0511. Leins WE1.
Bagendon, 1991. MD find.
16. Western silver unit. Allen B, ABC 2015, BMC 2953–62. Weight 1.02 gm. CCI 94.1507. Leins WE1.
Bagendon near, 1994. MD find.
17. Western silver unit Allen B, ABC 2015, BMC 2953–62. Weight 0.94gm. Leins WE1.
Bagendon near, before 2019 (eBay, information J. Robinson). MD find.
18. Western silver unit. Allen C, ABC 2018, BMC 2963-67. Weight 0.76 gm. CCI 93.0270. Leins WE1.
Bagendon near, before 1994. MD find?
19. Western silver unit. Allen C/D, ABC 2018/2021, BMC 2963-67. Weight 1.12 gm. CCI 18.1705. Leins WE1–2
Bagendon, before 2019. MD find?
20. Western silver unit. Allen C/D, ABC 2018/2021, BMC 2963-67. Weight 0.99gm. CCI–. Leins WE1–2.
Bagendon, before 2019 (Silbury Coins EC188). MD find.
21. Western silver unit. Allen D, ABC 2021, BMC 2968–75. Weight 0.83 gm. CCI 82.0023. Leins WE1–2.
Bagendon, *c.* 1981 (de Jersey 1994: 79 as Anted). MD find?
22. Western silver unit. Allen F, ABC 2027, BMC 2981–3000. Weight not known. CCI 82.0038. Leins WE2.
Between Field C3 and Cutham earthwork, *c.* 1982 (de Jersey 1994: 78). Found in building work.
23. Western silver unit. Allen F, ABC 2027, BMC 2981–3000. Weight 0.83 gm. CCI–. Leins WE2.
Bagendon, before 2019 (Silbury Coins EC187). MD find?
24. Western silver unit. Allen G, inscribed Anted, ABC 2072, BMC 3032–38. Weight 1.06 gm. CCI 94.1406. Leins WE3.
Bagendon, near, 1992. MD find?
25. Western silver unit. Allen G, inscribed Anted, ABC 2072, BMC 3032–38. Weight 0.95 gm. CCI 18.1793. Leins WE3.
Bagendon, before 2019. MD find?
26. Western silver unit. Allen H, inscribed Eisv, ABC 2081, BMC 3043–51. Weight 0.96 gm. CCI 02.0341. Leins WE3.
Field B5, near Cutham enclosure, 2002. MD find.

North Cerney, c. 2006–18

27. Western silver unit. Allen A, ABC 2012, BMC 2950–51. Weight 1.01gms. CCI–. Leins WE1.
North Cerney, 2016 or before (Liz's shop July 2016). MD find?
28. Western silver unit. Allen B, ABC 2015, BMC 2953–62. Weight 1.03 gm. CCI 07.0531. Leins WE1.
North Cerney, 2007 or before. MD find? Also recorded as 'near Cirencester.'
29. Western silver unit. Allen B, ABC 2015, BMC 2953–62. Weight 1.04 gm. CCI 18.1648. Leins WE1.
North Cerney, 2012 or before (CR Liz's List 57, no. 35 Feb 2012).
30. Western silver unit, plated? Allen C/D, ABC 2018/2021, BMC 2963–67. Weight 0.67 gm. CCI –. Leins WE1–2.
North Cerney, 2016 or before (CR Liz's List 85, no. 27, Oct 2016). MD find?
31. Western silver unit. Allen D, ABC 2021, BMC 2968–75. Weight. 0.52gms. CCI–. Leins WE1–2.
North Cerney, 2016 or before (Liz's shop July 2016). MD find?
32. Western silver unit. Inamn, ABC 2063 (this coin), BMC –. Weight 1.05 g. CCI 06.0147. Leins WE2.
North Cerney, 2006 or before. Also recorded as 'near Cirencester'. MD find?
33. Western silver unit. Allen H, inscribed Eisv. ABC 2081, BMC 3043–51. Weight 0.97 gm. CCI 18.1815. Leins WE3.
North Cerney, 2017 or before (CR Liz's List 89, no. 33, June 2017). MD find?

Discussion

The 11 Iron Age coins from the 1979–81 and 2014–15 excavations closely mirror the 28 identifiable coins from the earlier excavations in Bagendon valley (Table 10.1). With two exceptions, the coins are local silver units and all of these apart from No. 5 are types previously attested at the complex. As in 1954–56, the two earliest Western silver types (Allen A–B) are absent, whereas the next oldest type (Allen C) is well represented. Other affinities with the previous finds include the high incidence of plated copies (27% *vs* 29%) – which Allen (1961: 98) also highlighted – and the relative scarcity of inscribed issues (9% *vs* 11%). Coins of Anted and Eisv, the two major issuers of Western inscribed silver, are absent among the new finds and the only additional inscribed coin (No. 8) comes from outside the region. Allen IJ coins are better represented than before (27% vs 7%), but given their small number, it would be unwise to put too much emphasis on this. Similar strictures apply when comparing the Bagendon finds with the six Iron Age coins excavated at The Ditches enclosure, although these do seem to have a rather different emphasis, with a majority of inscribed types (67%).

Table 10.1. Excavated Iron Age coins from Bagendon and The Ditches (n = 48).

Coin type	Bagendon 1954–56	Bagendon 1979–2015	The Ditches 1982–85
Allen A			
Allen B			
Allen C	10	3	2
Allen D	2	1	
Allen E	3		
Allen F	5	2	
Allen IJ	2	3	
Irregular	2		
Bodvoc			
Anted	1		2
Eisv	1		2
Southern	1	1	
South-Western	1		
Uncertain[8]	2	1	
Coin blank	1		
	31	11	6

*One of the two uncertain Bagendon coins was possibly Allen type C, but does not survive.

A few of the excavated coins call for comment. The variant silver type (No. 5) remains unmatched among *c.* 650 Western silver coins reported to the PAS and CCI for the entire country since the excavations concluded. The type was absent from the large Pershore hoards (Hurst and Leins 2013), but the silver coins in this find were nearly all Allen IJ (n = 1102) or B–D (n = 290). There were no Allen E–F and only four inscribed silver. The wider implications of this are discussed below; for now, we need only note that whilst the Bagendon coin has some affinities with the Eisv series, it seems more likely to belong in the middle phase of Western coinage (Leins WE2), when legends began to be added on some types. There is no indication that the Bagendon coin was itself inscribed.

A second noteworthy find is the neatly perforated Allen IJ unit from Black Grove (No. 10; Figure 10.1). The central piercing was presumably made in order for the coin to be worn, for instance on a necklace or as a pendant, or so that it could be displayed from a surface or wall. For many pierced Iron Age coins, this was clearly done much later, but this coin was from a deposit of late first to early second century AD date, which implies that it was not curated for a particularly long time. Iron Age piercing of coins is attested in the mirror burial at Langton Herring, Dorset (Russell *et al.* 2019), although here the coin in question is Roman and the perforation is far cruder, and there are indications of Iron Age coins having been affixed to strips for display at Iron Age temples such as Harlow, Essex.

The plated Southern silver unit of Verica (No. 8) is one of this ruler's later issues (Sills 2017: 384) and notable as only the fourth coin definitely from another region found at the complex. A plated unit of Epaticcus, his successor at Silchester, was found in the 1950s at Bagendon (Allen 1961: no. 31, ABC 1349). Whether the presence of these two late Southern coins is linked in any way to the earlier ties to the same region implicit in the adoption of the triple-tailed horse symbolism for Western gold and silver, is less easy to say. Coins from other regions could have reached Bagendon for many reasons, not least after the Roman invasion, when we may suspect that the military were behind the dispersal of many Iron Age coins outside their area of origin (Haselgrove 1993, 62). The Epaticcus coin, which was found on a Period III stone surface (Clifford 1961, 18), and a South-Western bronze stater (Allen 1961: no. 30) were both from Claudian deposits.

This does not mean that we should discount political relations as a factor in the movement of coins between major Iron Age centres. On his gold staters, Epaticcus presents himself as a descendant of the Eastern ruler, Tasciovanus, based at *Verulamium*, whose portrait head was copied on the silver units of Bodvoc (Sills 2000) around the start of the first century AD. Not only does this put us in mind of Cassius Dio's comment that a part of the 'Bodunni' were subject to *Catuvellaunian* rulers (*Historiae Romanae* LX.20), but an example of a Tasciovanus bronze that was copied (ABC 2676) is known from The Ditches (CCI 90.0743; Sellwood 1984: 43). It was found on the surface in the southern half of the enclosure and is the only recorded non-Western coin from this part of the Bagendon complex.

If the uncertain coin (No. 11, Figure 10.1) from the Cutham enclosure is indeed a thin silver coin with a triple- or double-tailed horse reverse, it could be referencing the same links as the mainstream Western coinage, since the Southern region was also home to the thin silver coinage tradition (Bean 2000) to which this coin seems most likely to belong. The ditch fill in which it was recovered has a broad late Iron Age to early Roman date, so it is unfortunately impossible to tell whether this coin was an early arrival at Bagendon – always assuming that it was both an import and a coin.

Compared to Silchester, the nearest equivalent territorial focus, where 80% of the Iron Age coins were minted in other regions, including many Gaulish bronze and potin types (22%), the scarcity of non-local coins at Bagendon (7%) might seem surprising for a well-connected Iron Age centre. Silchester is, however, an exception, its coins reflecting an unusually complicated pattern of shifting political allegiances (Haselgrove 2018). Other important complexes such as St Albans (*Verlamion*) (6%) have equally low proportions of non-local coins. The absence of Gaulish coins at Bagendon might be for chronological reasons or a result of recycling imported coins for their metal, which might well have been the fate of precious metal issues in good metal imported from other regions. Where not actually plated, many Western silver coins were struck in relatively poor alloy (Allen 1961: 99; Haselgrove 1993), in sharp contrast to the high levels of purity found in dynastic silver issues in southern and eastern England, many of which were probably minted using silver recycled from Roman *denarii* (Northover 1992).[1] Interestingly, lead isotope ratios for one debased Allen F coin analysed by Ponting (2018: 194–5) match those found in *denarii* made from recycled Spanish silver, whereas the ratios for another Allen F suggest its silver came from the Mendips. This indicates that Western moneyers relied on silver from multiple sources even for a single issue and that recycling did occur, as well as raising the intriguing possibility that some *denarii* reached this region before the invasion, although British coins made from imported Roman silver, such as those of Verica, could also be the source of the metal.

The 1979–81 excavations provide some much-needed insight into the archaeological context of the Bagendon coins, details sadly missing from the 1961 report. None of the coins were from deposits that are indisputably pre-Roman and most seem to be from secondary contexts, in some cases of much later date. In these characteristics, they not only mirror the earlier finds from the valley – as far as we can tell – and at The Ditches, but also at sites across the Western coinage region, where it is difficult to identify any Iron Age coins from contexts pre-dating the mid-first century AD (Haselgrove 1993; Moore 2006: 200–204).

The earliest stratified coins are two Allen IJ units (Nos 6–7) in the basal fill of Pit AH in 1979–81 Area A. They were associated with sherds from four south Gaulish samian vessels of Tiberian or Tiberian-Claudian date; among the plentiful finds from the overlying fill (20) were a piece of pellet mould, three brooches of Aucissa, Colchester derivative and penannular type respectively, sherds from two Italian Dressel 2–4 amphorae, a Tiberian 'Arretine' platter from Pisa, and a range of indigenous fabrics, including a butt-beaker copy in Savernake ware (Chapters 6, 7 and 11). From this evidence, the excavators inferred a Claudian date for the lowest fill of the pit, with an earliest possible date of *c.* AD 35; there seems no reason to depart from this dating, although we should perhaps allow for the coins being a deliberate deposit at the bottom of the pit.

Two Allen C coins (Nos 1–2) came from other pits belonging to the same horizon of activity in Area A, but this time from upper fills certainly no earlier than Claudian in date and possibly later, whilst all three coins from Area B were in later hillwash (Nos 3–4, 9). As noted, the uncertain coin (No. 11) from Cutham came from a ditch fill that cannot be closely dated, but if it is indeed a thin silver coin, it may well be the earliest of all the finds, whereas both coins from the site of the Roman building at Black Grove came from second century contexts (Nos 9–10). At The Ditches, five coins came from probable Claudio-Neronian deposits; two Eisv and an Anted from the inner enclosure ditch, and a C–D unit in make-up below the first villa and another in a quarry hollow fill. A second Anted unit was found in a second-century field ditch (Haselgrove 2009).

When exactly the activity in Bagendon valley began remains a matter of debate, but most of the archaeology investigated by Clifford (1961) was evidently no earlier than Claudian in date, with the occupation also ending later than she suggested, in the AD 60s or 70s (Chapter 4). Revisiting the stratification table provided by Allen (1961: 115), this would leave just two (unspecified) Western coins from Clifford's Period I as possible pre-Claudian losses. Presumably these coins were found in the ditches of the trackway and enclosures that made up Period I, but if so, they are unlikely to have been deposited appreciably earlier than the coins in Pit AH. A further 17 coins (including an Allen F and the Epaticcus unit) are attributed to Clifford's Periods II–III, many of them from the 'Mint area' at Site C. Based based on the re-interpretation of the archaeology set out in Chapter 4, we can infer that some of these coins were (re)deposited in backfilling the early ditches and pits, and the rest during the occupation that followed the construction of the metalled roadway, surfaces and culverts. A date in the AD 40s or 50s seems appropriate for all these 'losses'.

There were 10 coins from Period IV, now seen as dating to the AD 60s or slightly later. All came from the so-called 'final level of occupation debris'. At face value, this might seem to indicate that Iron Age coins continued to be deposited right up to the end of the occupation, but if that were the case, we might have expected more inscribed coins among the 1954–56 finds, as in the Claudio-Neronian deposits at The Ditches. A second possibility, that these coins were some sort of closure deposit, is open to the same objection. With the benefit of hindsight from the 1979–81 excavation, it seems more likely that most of the Period IV coins were disturbed or redeposited from earlier contexts (like the coins found in the colluvium over Area B). Indeed, given the nature of the archaeology, it would not be surprising if there was also a strong element of residuality among the

[1] Genuine Verica and Epaticcus coins generally have a silver content of >96%.

Table 10.2. Non-excavation coin finds from Bagendon and North Cerney (n = 25). The right-hand column gives a breakdown of other Western silver coins recorded by the PAS since 2010 for comparison.

Coin type	Bagendon	North Cerney	PAS
Allen A	1	2	20
Allen B	5	2	42
Allen C	2	1	11
Allen D	2	1	17
Allen E			7
Allen F	2		12
Allen IJ			7
Irregular			1
Inamn		1	0
Bodvoc			6
Anted	2		19
Eisv	2	1	20
Eastern		1	
Total	16	9	162

coins from Period I–III deposits. We will return to possible explanations for the number of Iron Age coins in the valley and whether this might relate to Clifford's 'mint', but first we need look at the other finds from the complex.

Table 10.2 presents a breakdown by type of the 22 non-excavation finds from Bagendon and North Cerney listed above. Also included are the Tasciovanus bronze noted above, and an Allen A silver unit found during the 1980s in Ditches field, which encompasses the northern part of the late Iron Age enclosure (CCI 91.0030; Haselgrove 2009: 144) and an Eisv discovered in 1957 at Perrot's Brook just outside the Bagendon earthworks (CCI 82.0057; Allen 1961: 119). Apart from the Tasciovanus, all the new coins are Western silver units. They include a second Allen A coin from North Cerney (No. 27) and a first example from Bagendon itself (No. 12), as well as multiple finds of Allen B (Nos 13–17; 28–29). Of particular interest is the silver unit inscribed Inamn (No. 32), a name previously known only on staters, all but one found outside the region (Allen 1961: 93; ABC 2060).[2] The Inamn silver unit is essentially an Allen D type with an added inscription (Leins 2012), placing this issuer in his middle phase of Western coinage (WE2).

As Figure 10.2 shows, the profile of the non-excavation finds differs significantly from the excavated coins, most obviously through the presence of so many early silver coins, but also because C and F (the two commonest excavated types) do not dominate in the same way and IJ (the third most common) is absent. With the MD finds, we do need to be alive to a possible reporting bias

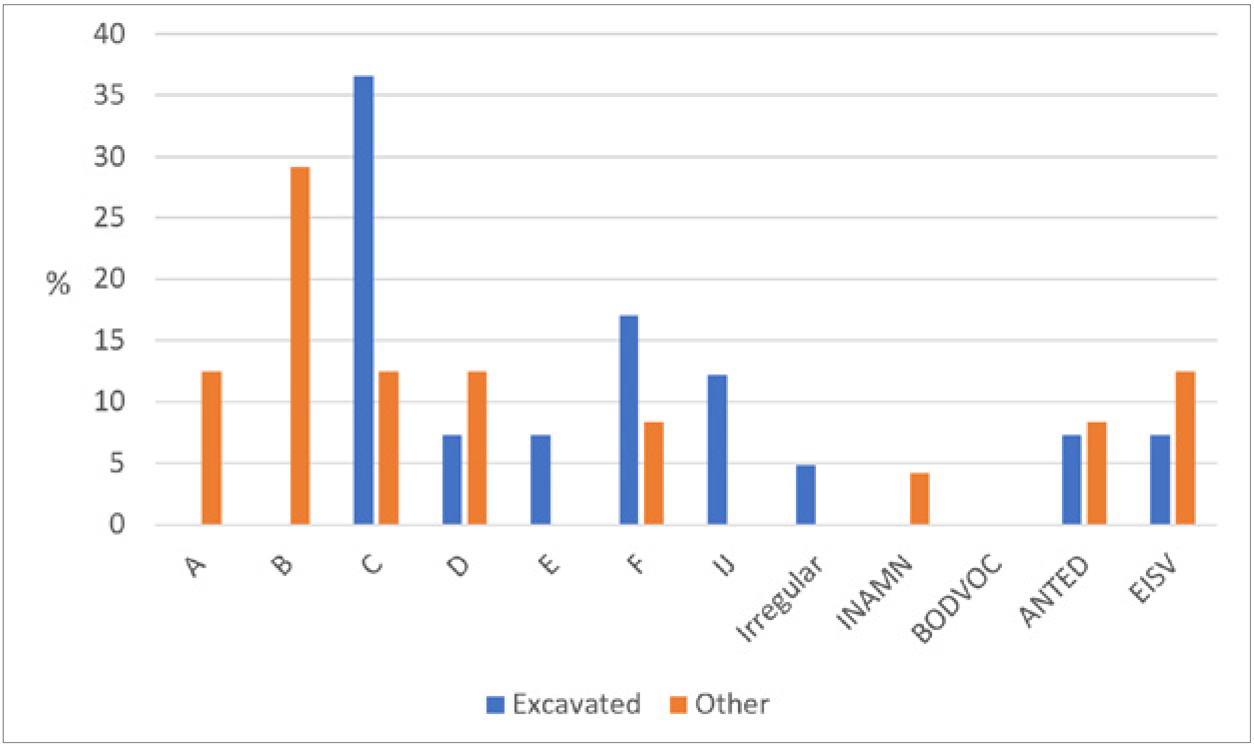

Figure 10.2. Types of Western silver units found at Bagendon-North Cerney in excavations and by other methods (n = 65).

[2] Examples are recorded from Hod Hill, Dorset; North Creake, Norfolk; Bisley, Gloucestershire; and Hayling Island, Hampshire, the last not certainly of this type (de Jersey 1994: 72). All but the Bisley stater are plated.

in favour of early silver and inscribed issues, which are the types are most often recorded by the PAS (Table 10.2), but less common than Allen C or IJ in the dataset of over 650 coins assembled by Leins (2012) primarily from CCI records. Nevertheless, the number of early and inscribed coins does suggest that the surface finds are capturing different patterns of deposition and/or activity foci to the excavated sample. This makes sense, since detecting is likely to have favoured parts of the complex that are under the plough, which are mostly on the higher ground above the Bagendon valley and around The Ditches.

The coins with known findspots provide further support for this view. As well as the Allen A from Ditches field, three coins come from different locations on the north side of the Bagendon valley – an Allen B and an Eisv from close to the Cutham enclosure (Nos 13, 26) and an Allen F by the Cutham earthwork (No. 22) – and two from Perrot's Brook outside the earthworks, where there is known late Iron Age occupation – an Allen A (No. 12) and the 1957 Eisv. Their evidence confirms the association of the early silver units with the complex – although not definitely with occupied areas, since deposition could be in uninhabited zones – whilst the Perrot's Brook finds perhaps hint at a chronological span for the activity here more akin to The Ditches. Importantly, the range of types suggests (with the caveats already noted) that the MD finds are representative of the complex. This allows us to integrate their evidence with the excavated finds to generate a more complete picture of Iron Age coinage at Bagendon-North Cerney than either group provides on its own – which is not the case for all sites.

It thus seems that Iron Age coin deposition at Bagendon-North Cerney encompassed the full span of regional silver after all, but before we explore the implications, we need to review current thinking about the Western coinage and what it represents. In keeping with the time, Allen (1961) essentially saw the series as a single coinage struck by the pre-Roman *Dobunni* at Bagendon, where the tribal mint was located, its operation seemingly attested by numerous clay pellet mould, crucible and ladle fragments, the coin blank, and items such as iron tongs that could have been used in making coins.[3] He did however admit the possibility of an earlier mint elsewhere (to explain the absence of Allen A–B) and accepted that the irregular types L–M and possibly IJ were produced elsewhere (Allen 1961: 97). He also proposed that the coins of Bodvoc and Corio (who is named only on gold) were minted in parallel, relating their distinct distributions (Figure 24.25) to the passage in Dio (Allen 1961: 101–2). The distributional contrasts are still apparent (below), but there are now strong grounds for thinking that Bodvoc and Corio were amongst the earliest Western inscribed issues, preceding Anted and Eisv, rather than the latest, as Allen thought (Haselgrove 1993; Sills 2003; Van Arsdell 1989).

Whilst there have been attempts to place the entire Western coinage in a single sequence (e.g. Van Arsdell 1989), recent research implies an intricacy and fluidity of social and political relations that seems incompatible with a simple tribal model. After a thorough review of the evidence in the wake of the Pershore finds, Leins (2012: 153–69) has proposed three phases of Western production. His WE1 encompasses the early gold (British R) and silver (A–D), along with the irregular L–M types. A–D silver are mostly found within 50 km of Bagendon, mirroring the overall distribution of Western coinage (Figure 24.24), albeit with marked clustering in some areas, which was to endure throughout the series. One persistent concentration exists around Bagendon-Cirencester, and others occur in the Thames valley west of Oxford, especially in the Eynsham-Charlbury area; around the Severn-Avon confluence; and to a lesser extent down the Severn valley and along the Somerset Avon near Bath (Leins 2012: figs 4.71–4.72) Early gold is confined to the eastern half of the distribution and the L–M silver to the south-east quadrant (Leins 2012: fig. 4.69), confirming that these were a discrete development, albeit not sustained beyond the early phase.[4] With many new findspots, there is little doubt that Allen A is indeed a Western type, rather than a Southern coinage that served as a prototype for Western issues proper (*contra* Haselgrove 1993: 59). The validity of the distinctions between B–D can be questioned, however, as they seem to represent an unbroken chain of obverse and reverse dies, resulting in continuously evolving designs with no distinct break between classes (Leins 2012: 155).

In WE2, two streams of uninscribed silver emerged, and inscriptions appeared on Western coinage for the first time. Allen E–F and IJ both developed from D, although the right-facing horse on IJ was also influenced by Eastern types (Hurst and Leins 2013). Both E–F and IJ occur at Bagendon, but IJ essentially belongs to the northern half of the Western area; as well as dominating the Pershore hoards (where E–F is absent), it is the commonest Iron Age series at the Claudio-Neronian fortress at Kingsholm, Gloucester, which after Bagendon has one of the largest groups of site finds in the region and may have succeeded an Iron Age settlement (Haselgrove 1993). E–F is more widely

[3] Allen does not seem to have subscribed to the Bagendon report's identification of an iron anvil as a coin holder, or of various corroded iron objects as possible coin dies (Clifford 1961: pl. XLVI).

[4] Allen L–M are classed by Cottam *et al.* (2010: 107–9) as an East Wiltshire series along with other early gold and silver types. As Leins (2012: 154) notes, the series sits within the overall distribution of Western style coinages, but, as they are absent from Bagendon, they are not considered further here.

distributed, but is rare in the far north-east. There are also differences in composition between the two streams; the silver content of IJ coins averages around 40%, whereas the left-facing horse series in good metal show only a slight decline in silver content over time, from *c.* 79% for Allen B to *c.* 69 % for Eisv coins (Haselgrove 1993; Northover 1992: 292–3).[5] Last but not least, there were no IJ coins in the second largest hoard of Western silver from Nunney, Somerset, which instead consists largely of E–F (176) and Anted/Eisv units (43), reversing the position at Pershore (Hurst and Leins 2013: table 1).

Other WE2 types include the Inamn unit, which is also based on Allen D (above), the other irregular types (Allen MX, N, O), and probably the new Pershore type stater (Hurst and Leins 2013). Allen N–O were included in the East Wiltshire series by Cottam *et al.* (2010: ABC 2137–2140), but the findspots suggest a Western origin, with N among the Bagendon finds (Leins 2012: 160–62).[6] The other main WE2 series are those of Corio and Bodvoc; seemingly contemporaries, the former's gold types reveal clear links to British R, and penetrated further west and south, whereas Bodvoc's coins, especially the silver, spread further to the east, consistent with the borrowing from the Eastern ruler, Tasciovanus, on the silver and possibly the gold (Leins 2012; Sills 2003). The coinage of the Southern ruler, Tincomaros, is an alternative and perhaps more likely inspiration for the gold.

The three principal coinages in WE3 were those of Anted and Eisv, whose silver types follow on from E–F, and Catti, known only from gold. Coins of all three occur in the Pershore and Nunney hoards and in another smaller find from Sherbourne, Gloucestershire. There are significant distinctions between their distributions, however, including between gold and silver bearing the same legends. Catti gold only occurs in the western half of the region, whereas Anted gold circulated more widely and Eisv gold favours the Severn valley. Anted silver, however, has a focus on the Cotswolds, whilst Eisv silver is mostly found east of the Severn. This would seem to imply that the two metals circulated via discrete networks, with gold being employed in longer distance interactions and with groups on the fringes of the region, and silver for transactions within and between settlements in areas with well-established relations (Leins 2012; Pudney 2019, cf. Haselgrove 1993: 57–8).

Some caveats are nevertheless necessary. The distributions reflect the final resting places of coins, but coin circulation is dynamic, potentially changing during the life of a single type, so that the final distribution is a palimpsest (see Haselgrove 1987: 36–9 for further discussion). This is highly relevant for the Western region, if – as the site finds suggest – much of the silver was not deposited until after the Roman invasion, which must have had a dramatic impact on the ways in which Iron Age coins were perceived and used. Whilst some site finds are probably residual, the compositions of the Pershore and Nunney hoards show that large numbers of earlier Western silver were still in circulation in the peri-Conquest period. Although assembled in WE3, both hoards are dominated by WE2 types (E–F, IJ), and contain an appreciable number of still earlier types (B–D).

The slender nature of the numismatic dating for the Western series must also be stressed. Due to the conservative imagery of both gold and silver, it is amongst most difficult British series to order (Sills 2003), with only Bodvoc and the IJ reverses really standing out. In the absence of virtually any stratified coins from pre-Roman contexts to calibrate the typological arguments, the present scheme rests on three main props:

- the broad mid-first century BC dating of the Southern prototypes for the earliest Western issues, from which the start date of *c.* 40 BC for WE1 is extrapolated;
- the copying of Tasciovanus coins by Bodvoc, on which the estimated start date of *c.* 10 BC for WE2 is based;
- the dating for WE3 derives from the Pershore and Nunney hoards, allied to the assumption that the invasion rapidly brought indigenous minting to an end.

Since the start dates for both WE1 and WE2 depend on *termini post quos*, the actual dates could well be appreciably later, or even in this case, since the prototypes are themselves only imprecisely dated, slightly earlier. British QB, the ultimate model for British RA staters, is well tied into other British gold coinages dating to the mid first century BC, but it now appears that borrowing occurred via an intermediate generation of staters and quarter-staters (Bean 2000: 53; Sills 2017: 191–2, North-Western QB and QC), which were the first coins to be struck in the Western region, where they circulated for a while along with imported Southern gold before British R commenced. Although the time interval could have been short, the existence of these transitional types would if anything tend to push the inception of the Western gold proper later rather than earlier. The dating of Allen A silver is even less certain, as no specific model can be identified. They are an offshoot of the large family of uninscribed silver

[5] This follows a sharp fall in purity between Allen A and B at the start of the series, with two Allen A coins analysed having silver contents of 94% and 87% respectively (Northover 1992: 292).

[6] The rare MX type is also closely related to Allen D (cf. Leins 2012: 161), whereas N and O look more towards the East Wiltshire group, hence the decision of Cottam *et al.* (2010) to classify them there.

types minted in different parts of central southern England in the first century BC, for which there is little dating beyond the *terminus ante quem* provided by the adoption of legends and copying of Roman types in the Southern region after *c.* 30 BC. It is unlikely however that Allen A pre-dated the first Western gold proper and they might well be an even later introduction, independent of the gold.

The start date of *c.* 40 BC for WE1 could thus be a decade or two early, especially for the silver, with implications not only for Allen A but also the subsequent B–D types. These give every appearance of being minted over a protracted period. They are the commonest of all Western types, accounting for 39% of provenanced silver outside the two large hoards, and 48% of the main series up to Eisv. Whilst large numbers do not necessarily translate into long-lived coinage, their widespread distribution is consistent with a gradual spread through regional political, social or economic networks over a long period of time (Leins 2012: 160). By way of a contrast, Leins cites the irregular East Wiltshire group as an example of a short-lived local series that never spread far from its source, reaching only a limited number of local groups, an argument that could equally apply to other later Western silver types with relatively restricted distributions, such as Bodvoc.

Since the Bodvoc coins are an offshoot of the main Western series, the *terminus post quem* provided by his borrowing from Tasciovanus bronzes is of limited value for dating WE2, since it could have occurred during or after the currency of Allen D and does not directly date the two main silver series in WE2 (E–F, IJ). Tasciovanus was a contemporary of Augustus, some of whose coins he imitated; his coinage is attributed to the period from *c.* 25/20 BC–AD 10, but whilst the portrait coins seem to fall in the middle of his reign, individual types cannot be precisely dated. On balance, the copying by Bodvoc is unlikely to be much before the turn of the millennium and could be later, not least because ABC 2676 and many other Tasciovanus types bear the name of his seat at Verlamion, where, if we believe the evidence of the principal known cemetery at King Harry Lane, occupation commenced around *c.* 10–1 BC (although as at Bagendon, there might be an earlier focus elsewhere).

Turning to the later part of the Western series, there are grounds for suggesting a shorter timescale for the remaining types. In his model, Leins allowed that the some of the new varieties that copied Allen D might have overlapped their prototype by extending its currency into WE2. Further overlap is possible at the end of WE2, between E–F and Anted/Eisv, which as Leins notes, are essentially inscribed versions of E–F, with legends replacing ephemeral design motifs on the latter[7] (Leins 2012: 160–1). IJ types might also have overlapped Anted/Eisv. IJ was evidently a coinage of some duration, since at least seven reverse varieties are apparent (Hurst and Leins 2013, 315) and it dominates the Pershore hoards, which are unlikely to have been deposited until the AD 30s, as Pershore 2 included a stater of Cunobelin struck around the middle of his reign (Sills 2017: Type 5). This tends to suggest that IJ types were still being minted well into WE3, when the hoards were assembled. As Leins notes, the tiny number of Anted and Eisv coins at Pershore could have a geographical rather than chronological explanation (Hurst and Leins 2013: 308), since all the late Western inscribed gold and silver types are represented, apart from the exceptionally rare Comvx.

A final strand of evidence comes from the Nunney hoard. This included seven Roman coins, the latest a bronze of Claudius struck in *c.* AD 41–50, which suggests that the hoard was assembled after the Roman invasion. In a deposit of this period we might expect Anted and Eisv types to dominate the contents, but they form only 18% of the silver, marginally below their overall incidence among the Western silver (22%). Instead, the hoard is dominated by the earlier E–F coins (75%). In this case, geography does not present an obvious answer, although there still could be another reason. Whilst it would be unwise to place too much emphasis on one hoard, this would seem to bring the production of the other main WE2 silver series much closer to the Conquest period than current thinking allows.

Standing back from the detail, as well as a later start date for WE1 we can suggest a shorter timescale for WE2 and WE3, or even that these later phases should be merged. Precise dates are more difficult, but a range for Allen B–D of *c.* 30/20 BC–AD 10/20 seems perfectly plausible. Unless compelling evidence to the contrary comes to light, a date in the earlier first century AD seems more likely for the remaining series, with the first inscribed issues (Bodvoc, Inamn and the Corio gold) appearing around the turn of the millennium and the rest being minted between *c.* AD 10/20–40/50 (Allen E–F, IJ, Anted/Eisv). A shorter timescale would help explain the mixture of 'earlier' and 'later' types found in the 1980s Bagendon-Ditches excavations in contexts of mid-first century AD date (4 CD, 2 IJ, 1 Anted, 2 Eisv). Equally, if this shortening of the duration of Western coinage appears extreme, it may be compared to the dating proposed for the North-Eastern gold and silver series following the discovery of the Hallaton hoards. There, in a region with a history of gold coin use going back to the earlier first century BC, the first inscriptions only appear around AD 20 (Leins 2011: fig. 43; Leins 2012: fig. 5.3), although once writing was introduced,

[7] A point reinforced by the conflicting affinities of coin No. 5.

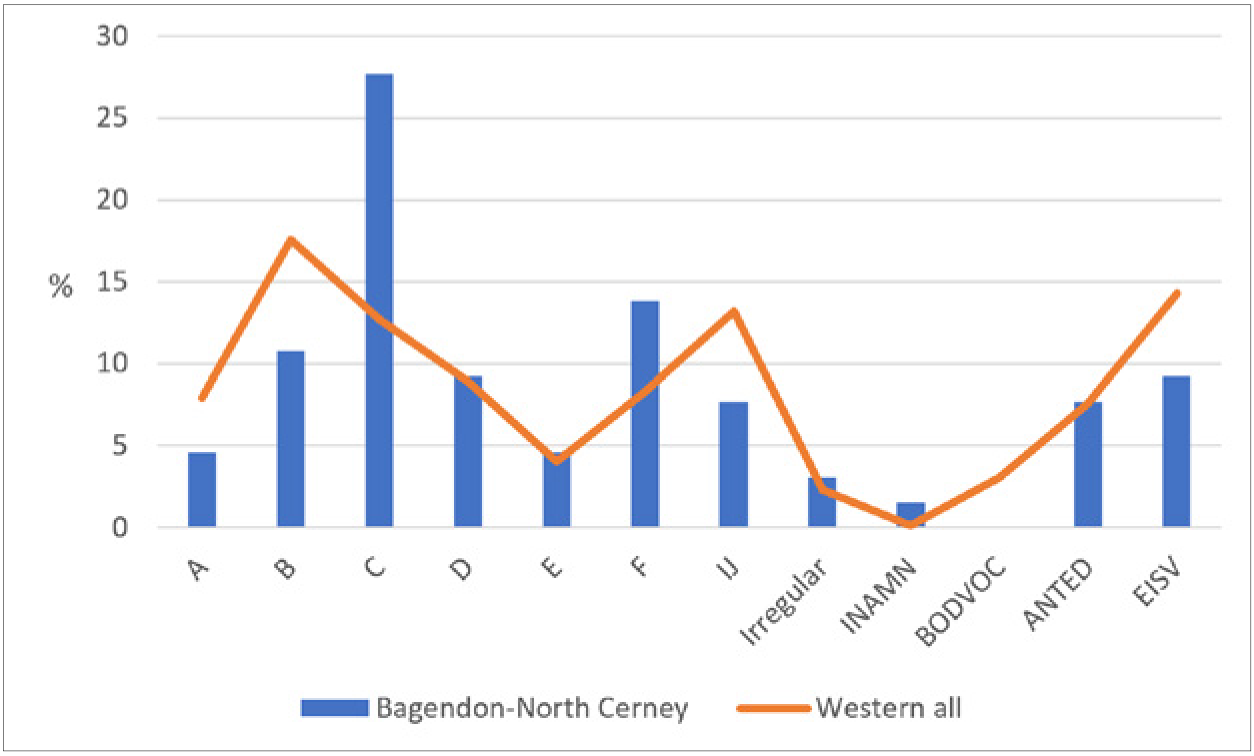

Figure 10.3. Types of Western silver units from Bagendon-North Cerney (n = 65) compared to all provenanced Western silver coins reported to the CCI and PAS (n = 819). Excludes the Pershore and Nunney hoards.

the practice rapidly took hold, with all the latest series bearing more or less decipherable legends.[8]

How then do these spatial and chronological complexities impact on our understanding of Bagendon-North Cerney as a regional centre and possible mint? The locality is near central to the distribution of the early Western silver types, but a major rupture is apparent towards the end of the B–D series, when new types began to be struck, some probably elsewhere. Although some of these issues are also known from Bagendon and some later distributions appear still to be focused on the complex (e.g. Anted silver), it lies rather at the margins of other series (e.g. Bodvoc, IJ), giving the site the attributes of a meeting place on which discrete groupings converged. There are also a number of potentially competing late Iron Age territorial foci elsewhere within the Western coin distribution, at Minchinhampton and in particular the vast North Oxfordshire Grim's Ditch complex (Chapter 24), this last coinciding with a concentration of coin finds in the Eynsham-Charlbury area, one of a number of persistent clusters identified by Leins (2012).[9]

One way to explore these issues is to compare the frequency of coin types from Bagendon (excavated and non-excavated), with the overall profile of all Western finds (see also Haselgrove 1993). In the absence of known gold finds from the complex, the comparison is confined to silver; the two large hoards are also excluded, along with imported coins and the irregular Allen L–M types. We immediately see some deviations from the regional pattern (Figure 10.3). Allen C and F are both over-represented, reflecting their dominance of the excavated finds from Bagendon valley. On the other hand, A and B are still under-represented even with the non-excavation finds included, as are Eisv and IJ – although these last because there are no non-excavation finds. Bodvoc is the only silver issuer who is absent. The remaining frequencies are very much in line with the region as a whole. Viewed in this light, the infrequency of Anted coins at a site intensively occupied in the mid first century AD is less surprising, although we would have anticipated more Eisv coins.

Clearly with an assemblage of only 65 coins, some of the variations may be down to the small numbers of each type involved. Only in the case of Allen C is the divergence sufficiently great (15% above the mean) to call for explanation, whilst pausing to note that the next largest deviation is for the preceding type, Allen B (*c.* 7% below). Factors that could have contributed to over-representation of Allen C include:

[8] The 'Helmet' hoard from Hallaton, probably deposited between *c.* AD 40–50, included four Western silver units, three BCD and one Eisv (Leins 2011: 211, 228) further underlining the extent to which the earlier silver types were still circulating in the peri-Conquest period.
[9] As with Bagendon and perhaps some of the other clusters, the Upper Thames valley concentration may to some extent reflect the 'pull' on MD activity from the presence of several known sites in the general vicinity.

- the excavation coins incorporate the remains of a scattered hoard (in the sense of a group of coins originally deposited together, for whatever reason)
- the minting of Allen C coincided with the start of the occupation
- the high incidence of plated copies and/or recall of (earlier) coins in good silver before deposition occurred
- the imposition of an arbitrary classification on what is in fact a continuous series.

Given the lack of information on the provenance of the 1954–56 coins, the first of these possibilities cannot be ruled out, especially when the coins for which we do have data seem to be in secondary contexts, which implies that most of the other valley coins were also redeposited from earlier layers. There was clearly a cluster of coins on the relatively small Site C (Clifford 1961: 16) and overall, the density of coin finds from the 1950s excavations is roughly three times as high as for 1979–81.[10] On the other hand, any hoard did not distort the overall representation of Allen C, as there is a very similar proportion of this type among the more recent excavation finds from the valley and The Ditches (29% *vs* 32%), underlining its relative frequency as a Bagendon type. The second point would require no older stock having been brought to the newly-occupied area, which seems inherently less likely now that Allen B is attested at Bagendon; nor does it explain why C is better represented than the later types on a site that was occupied until after the minting of Western coinage ceased.

The incidence of plated Allen C coins is higher than for any other type (40% of 15 excavated finds of Allen C coins from Bagendon-Ditches are plated), which might be a factor in their increased representation.[11] Allen (1961, 98) linked the high incidence of plated 'forgeries' at the site directly to the mint, suggesting that these were rejects abandoned on account of flaws that would have given them away, but his idea would seem to be negated by the two plated finds from The Ditches, and can probably be discounted. And surely the rejects would have been recycled even for their base metal, rather than just discarded. Nevertheless, the number of plated copies might help explain the higher number of Allen C coins if for some reason they were preferentially represented among the losses, for instance through having been retained in circulation after coins in good silver were recalled for reminting. Given the late date of the deposits in which Allen C coins occur at Bagendon, this last is certainly not to be ruled out, particularly as this could help explain the absence of the A and B types among the excavated finds. Although the difference is not huge, their average silver content is still 10–20% higher than for the latest issues (above and note 5).

The observation that the BCD types were struck from an unbroken chain of obverse and reverse dies (above; Leins 2012: 155) might also be a factor. The original Allen C coins from Bagendon were classified by Allen himself, who saw the coins fresh. Although he was adamant about the absence of type B coins, four of the C coins were at best tentatively identified (of which only one now survives)[12] and the rest are in poor condition, so some of the coins could have been incorrectly classified. At the same time, we should acknowledge since the advent of metal detecting, more B types have been recorded compared to C or D than the incidence of all three amongst the older CCI data would predict. This could indicate a reporting bias in favour of the earlier coins with their less abstract head-horse images and/or of off-site finds (which might also privilege earlier types), in turn distorting the proportions of the three types.

Now that BCD are known to form a continuous series, there is clearly a case for reworking the data to see how Bagendon compares to the rest of the Western region when they are no longer differentiated. The same has been done for EF, as they too are essentially one series, distinguished only by ephemeral design motifs (Leins 2012: 160). The net result is to smooth the profile so that Bagendon-North Cerney is now closer to the region as a whole, still with a high incidence of BCD (8.5% above the mean) and less so, EF (*c.* 6%), but deviating to a lesser extent than before. The rest of the picture is largely unchanged, with IJ, Eisv and A all somewhat under-represented and Bodvoc absent, whilst Anted and the minor types are in line with the wider region (Figure 10.4).

From this perspective, the profile of Iron Age coin finds from Bagendon closely mirrors the pattern of coin loss across the region. Given the degree to which after its early stages, the wider Western coin distribution seems to have been an amalgam of silver coinages with more localised distributions, this affords another strong indication of Bagendon's centrality, if only as a place on the boundaries of different landscape zones and exchange systems (Chapter 24), where otherwise autonomous groups periodically came together. Other sites in the region lack sufficiently large, closely provenanced coin groups for rigorous analysis, but a selective comparison with some other assemblages (Table 10.3) nonetheless helps to set Bagendon in context, at the same time underlining

[10] On a crude calculation, the recovery rate for 1954–56 was approximately one Iron Age coin per 19 sq m excavated compared to one coin per 55 sq m for 1979-81.

[11] Two of the seven Allen F coins are also plated, which may have raised the total for this type.

[12] CCI 82.0016 = Allen (1961, no. 9). Two coins that no longer survive identified as 'probably C' (nos 8, 10) are included in the site total, but not the third (no. 11, 'possibly C'), which is treated as Uncertain.

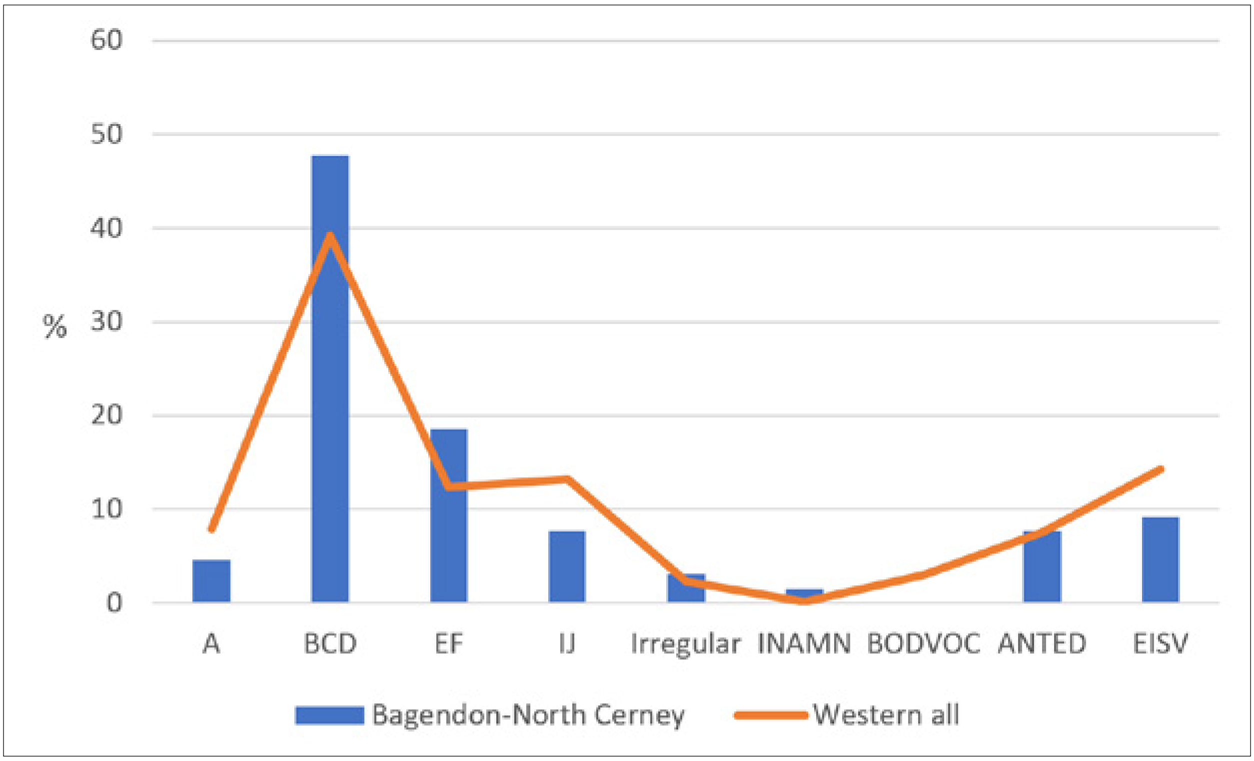

Figure 10.4. Types of Western silver units from Bagendon-North Cerney (n = 65) compared to all provenanced Western silver coin finds reported to the CCI and PAS (n = 819), with Allen types BCD and EF amalgamated.

Table 10.3. Iron Age coins from other places in the Western region (data from de Jersey 1994; Leins 2012).

	Kingsholm	Dowdeswell-Andoversford	Cleeve Prior	Weston u. Penyard	Charlbury	Eynsham	Witney	Bath
A		1	1	1				
BCD	3	11	4	6	7	5	5	
EF	1	4	4	4	3	0	1	4
IJ	7	2	6	4	5	2	1	
Irregular				1	1	1	1	
Bodvoc					4	1	1	
Anted		1			5			2
Eisv	3	3	1	1	2	1	3	5
WE gold	2			3	1	5	1	
Other	3			8				
Uncertain					1			1
TOTAL	19	22	16	28	29	15	13	12

the heterogeneity of the Western coin evidence. At the Kingsholm fortress, half of the Western silver coins are IJ types (many very debased), whilst other uninscribed coins (including only one F) and Eisv occur in roughly equal numbers; there are also three South-Western bronze staters and a plated Anted stater – typical finds from a military site. However, only 20 km to the east, at Dowdeswell-Andoversford, and further to the north at Cleeve Prior (Worcestershire) and Weston under Penyard (Herefordshire), uninscribed coins predominate, with fairly even numbers of IJ and EF; the mostly old finds from Weston also include several gold and other coins from outside the Western region. East of Bagendon, the numerous finds from Charlbury on the North Oxfordshire Grim's Ditch include four Bodvoc silver units, absent from the previous sites, and five Anted. Bodvoc silver also occurs in two smaller groups from Oxfordshire from Eynsham and Witney whilst, as at Charlbury, IJ are more common than EF. Conversely, to the south-west of Bagendon, there are no BCD or IJ amongst the scatter of Western coins from the Sacred Spring at Bath, which perhaps unsurprisingly (given that the offerings are probably of Roman date), are dominated by late inscribed coins of Eisv and Anted, with some EF. Last but not least, although few coins from the Cirencester area are closely provenanced (above), the older finds from the Roman town include a Bodvoc silver from Watermoor, and a miscellany of Iron Age bronzes from other regions, typical of the post-Conquest diaspora.[13]

With regard to chronology and adopting the shorter timescale proposed above, the Iron Age coin profile implies the existence of an important focus in the Bagendon area by the late first century BC, of which The Ditches and Cutham enclosures were part, whilst the higher numbers of BCD and EF types are consistent with a flourishing settlement in the Bagendon valley itself in the early first century AD, albeit at a location(s) yet to be pinpointed. Although the paucity of coins in pre-Roman contexts is puzzling, we need only point to the quantities of Italian and South Gaulish samian dating to the period *c.* AD 20–40 (or in some cases earlier) also recovered in Claudian or later contexts, where, like the coins, they were palpably residual (see Chapter 6). The brooch assemblage, which includes several types current in the earlier first century AD (Chapter 7), points in the same direction. The deficit of late inscribed coins hints, however, at a possible hiatus in activity in the peri-Conquest period, although other explanations are possible, as discussed below.

Given the nature of the complex, it seems likely that at least some of the Iron Age coins found at Bagendon were minted there, but with hindsight we might question Clifford's identification of Site C as the locus of this operation. Whilst clay pellet moulds were used in the late Iron Age across Europe to manufacture metal pellets of various alloys, there is less consensus over whether they were used specifically in coin making (Haselgrove 2018a). Reviewing the Bagendon evidence, Allen (1961: 147) himself concluded that the connection between moulds and coins was neither simple nor direct, and that, if anything, they were used for controlling the mixture of alloys. The quantity at Bagendon is also tiny compared to the finds from Old Sleaford, Braughing-Puckeridge, Leicester and now Scotch Corner (Landon 2016; Landon *et al.* 2020). Tellingly, the last site lies outside the parts of Britain where Iron Age coinage circulated, but was surely engaged in using these moulds over a long enough period for some coin output to have survived, if there was any.

The 1979–81 Bagendon excavations added little useful evidence other than for a thinning out of mould debris away from Clifford's Site C, which suggests that the core of activity lay further south. There were no fragments from Site B and only eight from pits at Site A (Chapter 11) compared to 33 fragments at least from Clifford's Site B and 68 pieces on her Site C (Allen 1961: 146; plates XL–XLI), and all appear to be in secondary contexts. A further challenge to their simple equation with minting is posed by the subsequent discovery of mould fragments at The Ditches (and at other sites in the region, such as Andoversford; Chapter 24) and by a series of essentially qualitative analyses undertaken in the 1950s and 1980s on 25 mould scrapings (Chapter 11; Clifford 1961: 148, table 1). These detected residues of ternary gold-silver-copper and binary silver-copper alloys in some samples, which would be consistent with Western coin metals, but brass and copper only in others, which points in other directions. For the present, the moulds are perhaps best treated as attesting to a range of non-ferrous metalworking in Bagendon valley and elsewhere at the complex, complementing the evidence for different stages of ironworking, from smelting and smithing to the spit-shaped iron bars from The Ditches (Chapter 4; Clifford 1961; Trow 1988a: 40).

Given their frequency at Bagendon, the most obvious candidates for having been minted at the complex are the BCD and EF series, although this leaves us to explain the lack of early BCD coins from the valley assemblage. One possibility is that the BCD coins were initially struck elsewhere, and production then transferred to Bagendon, but this may be thought less likely now that we know they represent a continuous die chain. Another is that early silver coins were recalled for reminting (above). Allen may, however, have been right to infer that some or all of the A types were minted elsewhere; although they occur throughout the Western coin distribution area, they do appear to be clustered primarily to the east and south of Bagendon in the zone bordering the Southern coin region (Leins 2012: fig. 4.71), which was the inspiration for the Western series. For the reasons already cited, it seems likely that the IJ series were struck elsewhere, and Bodvoc, as both are under-represented at the complex (above). With only one findspot each in the region for the silver and the gold, little can be said about Inamn. The Anted types are a reasonable candidate for minting at Bagendon: they follow on from EF and the complex appears to sit at the centre of the silver distribution, if less so the gold. Whilst the silver is not as common as might be expected if minted at Bagendon, they are not under-represented. Eisv is more doubtful, given that it is somewhat under-represented, and whilst Bagendon is reasonably central to the silver distribution, there are clusters elsewhere, notable in the Avon valley, closer to where the gold focuses in the Severn valley.

[13] A second Bodvoc silver listed by de Jersey (1994: 82) under Cirencester is apparently the coin found in 1949 at Northmoor Farm, Marsden, in Rendcomb (Allen 1961: 121), the next parish north of North Cerney.

In sum, whilst Bagendon may have been the major mint in the early period, the indications are that from early in the first century AD, minting had become fragmented. There were plausibly at least two parallel streams of coinage being issued in the later stages of the Western series, if not three (IJ, EF-Anted, Eisv). There are also signs that this separation and the possibly greater volume of coinage being minted created pressure on the available metal resources, evident not only in the low quality of IJ silver, but also in the reduced weight and gold content of Anted gold coins (Northover 1992: 253, 287). There are no analyses of Anted silver coins,[14] but seeking to maintain their silver content with diminishing resources could have provided a context for recalling earlier silver issues in good metal, leaving us with an assemblage dominated by plated and debased coins, as found at Bagendon.

Conclusion

By any measure, this is a major group of Iron Age coin finds. Although the total for Bagendon-North Cerney is far lower than at some other Iron Age focal sites such as Colchester, Braughing-Puckeridge and Canterbury (Haselgrove 1987), these sites lay in areas with prolific Iron Age base metal coinages, whereas the Bagendon coins are all (notionally) silver types. Closer comparisons are afforded by other *oppida* such as St Albans (65 coins, nearly all bronze, including 10 in one grave) and Silchester on the edge of the bronze-using zone (75 coins; Haselgrove 2018), both of which have been extensively excavated. In the silver-only zone, the 48 excavated coins from Bagendon-Ditches far exceeds centres such as Chichester-Fishbourne or Leicester, where exploration of the earliest phases has admittedly been quite limited.

As with most major Iron Age sites, the Bagendon coins are predominantly regional types, mixed with a few attesting to contacts with other coin-using regions, which may well have political rather than economic overtones. Similarly, the recovery of nearly all the Iron Age coins from Claudio-Neronian or later contexts, rather than from pre-Roman deposits, is far from unique to Bagendon and indeed is replicated at other *oppida* (Haselgrove 1987). In general terms, this reflects the rapid and dramatic changes in the nature of activity at major centres following the Conquest, with precious metal coinage disappearing rapidly, but with native base metal and plated issues seemingly being co-opted to redress the initial shortage of official Roman bronze coinage (of which the proliferation of Claudian copies is another symptom). The nearby Kingsholm fortress provides a local example and this could be a factor in the nature of the recovered Bagendon-North Cerney assemblage as well.

Where Bagendon differs from other major centres is in its more extreme lack of finds in pre-Roman contexts, although judging from the non-excavation finds, foci of earlier coin deposition do exist within the complex, and no doubt will eventually come to light. With the current assemblage, the small number of pre-Roman contexts in all of the areas excavated in the valley is certainly a relevant factor, but we should not forget that the absence of coins in pre-Roman contexts is also a region-wide phenomenon. Before the conquest, it seems that Western precious metal coins generally entered the archaeological record as deliberate deposits or offerings, large or small – as we see at overtly religious sites both within (Nettleton, Uley) and beyond the region (e.g. Hallaton, Hayling Island), but also for example at Pershore, where it is argued that the hoards were deposited in a sacred part of a settlement (Hurst and Leins 2013) – with 'accidental' losses very much the exception. After the Conquest, attitudes to indigenous coinage altered significantly, with the debased and plated Western coins in particular perhaps taking on a more conventional monetary function than before in the absence of local bronze issues, before eventually passing out of use if not memory, as shown by the piercing and curation of the coin from Black Grove.

There seems little doubt that Bagendon was a centre of coin production, but the old model of a single tribal mint must be questioned, even in the early stages, as Leins has shown. It is likely that the overall duration of the Western coinage was somewhat shorter, with most issues struck in the half century before the Claudian invasion, perhaps continuing for a short while after. A strong case can be made that Bagendon was the main or only centre for the striking of the BCD series around the turn of era, but in the later stages, Western coins were clearly minted at more than one location, and indeed the gold potentially separately from the silver – or indeed independently of silver (Corio, Catti?). Whilst Bagendon remained relatively central to coin circulation in the region through this later phase, it may no longer have held as much sway as a political centre as before, even if still influential in the eventual choice of Cirencester as the capital of the newly created Roman *civitas* of the *Dobunni*.

[14] A plated coin analysed from Kingholm as possibly of Anted (Haselgrove 1993: 47) is more likely to be of Eisv (CCI 91.0018).

Catalogue of Roman coins from Black Grove (2015)

Richard Reece

This catalogue comprises the small assemblage of coins recovered from the excavations of the Roman buildings at Black Grove (see Chapter 5).

1. Sestertius of Marcus Aurelius. Rev. Mars holding spear and shield. Not all the legend visible, but as RIC 861. Date: AD 160-170 – earlier part of the reign. sf 15-3. BAG2015, Trench 5, context 5000.
2. House of Constantine copy of Fallen Horseman reverse otherwise details uncertain. Copy as CK 25. Date: AD 350-360. sf15-35. BAG2015, Trench 5, context 5001.
3. House of Constantine. copy of Constantinopolis otherwise details uncertain. Copy as HK 52. Date: AD 330-345. sf15-5. BAG2015, Trench 5, context 5002.
4. Victorinus. Reverse Invictus, RIC 114. Date: AD 268-70. sf15-16. BAG2015, Trench 5, context 5003.
5. uncertain. Obverse: diademed head right mid-Constantine. Reverse appears to be the right hand half of an altar as in Claudius II, Consecratio. Date: after about AD 330. sf15-7. BAG2015, Trench 5, context 5001.
6. Probably House of Constantine copy, Fallen Horseman, but very indistinct. Copy as CK 25. Date: AD 350-60. sf15-19. BAG2015, Trench 6, context 6006.
7. Unusual, probably Honorius, reverse Salus Reipublicae. CK as 806. Date: AD 394-402 sf15-12. BAG2015, Trench 5, context 5001.
8. House of Constantine copy of Constantinopolis. Copy as HK 52. Date: AD 330-45. sf15-14. BAG2015, Trench 5, context 5001.
9. Carausius, reverse Pax Aug, no mint-mark. As RIC 893. Date: AD 286-90; BAG2015, Trench 5, context 5010. Sf15-32. BAG2015, Trench 5, context 5010.
10. Carausius, reverse Pax Auggg – very unusual. London mint. RIC 143. Date: AD 290-93; sf15-1. BAG2015, Trench 5, context 5001.
11. Tetricus I RIC 79, Date: AD 270-3; sf15-36. BAG2015, Trench 5, context 5002.
12. Constantius II, Date: AD 330-5, mint Trier, as HK 69 ?good copy. Unstratisfied stray finds from spoil heap.
13. House of Valentinian, Date: AD 364-78, Securitas Reipublicae, as CK 96. Unstratisfied stray finds from spoil heap.
14. Gratian, Date: AD 367-75, Securitas Reipublicae, CK 320, unusual. Unstratisfied stray finds from spoil heap.

Chapter 11

The Late Iron Age coin moulds

Mark Landon

With a contribution by J.A. Morley-Stone

Introduction

This report examines a sample of the coin moulds excavated from the Bagendon complex including some from the associated site of The Ditches (Trow 1988a; Trow *et al.* 2009), in order to generate a comprehensive and up-to-date interpretation. Clay coin moulds have been found at both locations, but the best-preserved material comes from the Bagendon valley occupation area (discussed in Chapter 4). The discussion of the coin moulds from Elsie Clifford's 1954-56 excavations (Allen 1961) is interesting not only because it is one of the first detailed discussions of pellet moulds, but also because he noted aspects that escaped later writers. The subsequent excavations between 1979-1981 (Chapter 4) recovered more fragments of mould tray whilst a small number of fragments were recovered from The Ditches enclosure, at least one of which had traces of gold present within it (Trow 1988a: 55). Together with three samples from the Clifford assemblage and two samples from The Ditches (Trow 1988a), the 1979-81 material was subjected, in the 1980s, to spectroscopic analysis for metal traces (see below), a draft report for which is in the archive (Trow and Clough unpub.).

This report focuses on examining the coin moulds retrieved in 1979-1981, including two samples from the Clifford assemblage. Given the very small size of the studied sample, it would be unwise to draw any detailed statistical conclusions from this data. Nonetheless, it is possible to derive, with some certainty, the method of mould tray manufacture, the part they played in the minting process and the types of metal cast in some of them. It is also possible to put forward some theories about the social, political and economic context of coin minting at Bagendon, and its relation to the several minting traditions discernible in Late Iron Age Britain and Europe.

Observations and analysis

The sample of coin moulds[1] discussed here comprises 11 fragments (Table 11.1): 9 from Bagendon and two

Table 11.1. Samples of coin mould from 1979-81.

Clough Sample number (Trow and Clough 1988)	Context/Small find number
1	Ditches 1982, 17
2	Ditches 1982, Fieldwalking
3	Bag 1981, 1 (sf. 81-3)
4	Bag 1981, 2 (sf. 81-2)
6	Bag, 1981, 16 (sf. 81-52)
7	Bag 1981, 16 (sf. 81-97)
8	Bag 1981, 44 (sf. 81-96)
9	Bag 1981, 20 (sf. 81-83)
10	Bag 1981, 35 (sf. 81-48)
11	Bag 1981, 44 (sf. 81-93)
12	Bag Clifford 1954-6
13	Bag Clifford 1954-6

from The Ditches, which have not been fully reassessed. Within this corpus there are three certain pairs of conjoining fragments, all of which appear to have modern fractures, and one possible conjoining pair, the edges of which have been subjected to modern abrasion making it is impossible to distinguish whether the fracture is ancient or modern, or if the fragments are genuinely conjoining. Much of the sample shows signs of modern modification, many holes have been damaged by sampling for metal residues, and at least one fragment shows signs of having been damaged during cleaning. For the purposes of this study only the material from the Bagendon 1979-1981 excavations can be considered as a single assemblage. The two fragments from Elsie Clifford's 1950s material can be used for comparison. The latter are from an assemblage of around 100 fragments, around 68 of which derived from one Clifford's site C (Allen 1961: 144), what Clifford described as the 'coin mint', with some also from her site B. All of the samples from 1979-81 (Table 11.1) excavations derived from pits in Area A, dating to the

[1] Although a number of numismatists (e.g. Gruel *et al.* 2015), worried by the apparently very late context within which many coin mould assemblages have been found, have doubted that the primary function of pellet mould was as part of the minting process, the arguments advanced to date are insufficiently strong to warrant confidence in such a conclusion.

middle decades of the 1st century AD. Although there is no positive evidence that the two sets of coin mould are related, the areas of excavation are in close proximity and likely to have very similar types of material.

The absence of any very small fragments in the sample is surprising. Fragments too small for individual measurement[2] comprise 33.7% of the total number of fragments in the Puckeridge Assemblage, and 48.8% of the total number of fragments in the Ford Bridge Assemblage. This would seem to suggest four possibilities: first, that standards of retrieval for the 1979-81 excavations were low; second, that there has been a high degree of selectivity in putting together the study sample; third, that smaller fragments, although retrieved, were not subsequently retained; fourth, that the mould fragments were selected in antiquity, before deposition. From other material and the site records it is clear the first three hypotheses are unlikely and it seems that there may have been some selectivity in deposition and that the 1979-81 material represents more than one episode of selective deposition of debris from at least one episode of pellet manufacture. There are potential parallels for such selectivity; the Wickham Kennels assemblage (Partridge 1982) and the Gatesbury Track assemblage (Partridge 1979) for example, seem very likely to have been in some sense 'symbolic' deposits, since both comprised small numbers of relatively large fragments placed in pits, together with feasting debris including significant quantities of imported pottery.

The average size of fragment in the study sample is 44.13 mm (Length 1) x 36.59 mm (Length 2). This is significantly larger than the figures for both Puckeridge (33.60 mm x 31.35 mm) and Ford Bridge (27.19 mm x 25.15 mm), and tends to reinforce the impression of selectivity exercised at some point between use and this study.

The proportion of incomplete holes to complete holes in the Bagendon sample is relatively low, but not unusually so. The Scotch Corner assemblage, which comprises more than 12kg of coin mould, has a lower proportion, as does the more directly comparable Wickham Kennels small assemblage.[3] The very close agreement between the average numbers of holes in rows and columns for the Ford Bridge Assemblage and the Bagendon sample,[4] as shown in the table above, tends to suggest that – despite the apparent bias of the sample in other respects - in terms of the conformation of larger fragments, the Bagendon sample is not untypical. Further possible implications of this are explored below.

Table 11.2. Percentages of incomplete and complete holes in eight coin mould assemblages.

Site	Percent inc holes	Percent comp holes
Bagendon sample	***75.34***	***24.66***
Blackfriars, Leicester	84.33	15.67
Ford Bridge, Braughing, 2007	92.34	7.66
Ford Bridge, Braughing, 2016	90.67	9.33
Henderson Collection, Braughing	90.09	9.91
Puckeridge, Hertfordshire	87.69	12.23
Scotch Corner	73.49	26.51
Turners Hall Farm, Hertfordshire	97.52	2.48
Wickham Kennels, Braughing	59.50	40.50

Of the eleven samples, there are four middle fragments; four edge fragments; one 90° corner; one oblique corner. There is one fragment with an unclassifiable position type.

The overall condition of the Bagendon study sample is poor, on a par perhaps with the Henderson Collection, slightly less good than the Tuners Hall Farm assemblage, but rather better than the Scotch Corner coin mould.

Tray forms

There is no evidence within the study sample which is diagnostic of tray form. However, since there are two corners present (18.2% of the sample, as compared with 12.3% for the Ford Bridge Assemblage; 16.9% for the Puckeridge Assemblage; 7.1% for the examined portion of the Turners Hall Farm Assemblage; 9.7% for the examined portion of the Old Sleaford material; 4.9% for the Henderson Collection coin mould),[5] and assuming that this figure is roughly typical of the original (pre-depositional) makeup of the Bagendon material,[6] then it would not be unreasonable to suggest that the trays forms from which it derives were very possibly rectangular and/or pentagonal, as opposed to triangular, hexagonal (as suggested of some of the Colchester material – Allen 1961) or polygons with even greater numbers of sides. Both of the corners in the study sample are of types consonant with both

[2] Defined as: '(lacking edge) + (lacking either base or top) + (having no measurable holes)'.

[3] A 'Small Assemblage' is here defined as comprising no more than 20 fragments.

[4] The large number of fragments with modern mending makes more problematic the derivation of similar averages for the Puckeridge Assemblage.

[5] Where it is demonstrable that standards of retrieval were very poor, and reason to believe that some of what was retrieved has subsequently gone missing.

[6] Although, as noted above, there are strong reasons for suspecting that the makeup of the study sample has been biased in several parameters, the fact that the percentage of corners is within spitting distance of the Puckeridge figure tends to suggest that, in this respect at least, the Bagendon sample is typical.

Figure 11.1. Sample 11 (context 81-44, sf 81-93) showing possible purposeful trimming or accidental fracture (Photo: Jeff Veitch).

rectangular and pentagonal tray forms. Furthermore, the close agreement noted above between the average numbers of holes in rows and columns between the Bagendon and Ford Bridge material could perhaps imply similarity of form between the original trays from which the fragments derive, although this is by no means certain.

There is one fragment in the study sample, sample 11 (BAG81-44, sf 81-93) (Figure 11.1), concerning which at least one secure conclusion may be drawn. Since this fragment has a maximum of 6 holes in both row and column, no edge profiles, and a total of 25 holes, we may be certain that it could not derive from a Puckeridge form tray. In addition, it is one of only two fragments examined so far with more than five holes in either row or column that has not been subjected to modern repair. It is tempting to deduce from the 6 x 6 conformation of this fragment, together with its lack of edge profiles, that it unlikely to have come from a *Verulamium* form tray, on the grounds that it would be highly improbable to have broken off all trace of edge profiles without sacrificing more than one hole in either dimension in the process. Instead, a tray conformation larger than 7 x 7 holes might be posited.

Table 11.3. Average number of holes in rows and columns for fragments with more than 5 holes.

Site	Av. holes in row	Av. holes in column
Ford Br.	3.375	2.825
Bagendon	3.5	3.166667

In opposition to this inference, it should be noted that the other fragment with 6 holes in either row or column which has not been subjected to modern repair (BRR/04/160 from Ford Bridge) also has no edge profiles. There is no suggestion that any tray forms other than *Verulamium* and Puckeridge were in use at Ford Bridge, and so it would seem at least possible for a fragment of this conformation to be formed from a 7 x 7 tray form. As has been noted elsewhere (Landon 2009), great caution must be exercised when assuming new tray forms without strong positive evidence.

It has been suggested (T. Moore pers. comm.) that the fragment might have been trimmed deliberately into a roughly circular form in antiquity, and indeed all the fractures are ancient. Unfortunately, this is also true of the fractures that slight the apparent circularity – and it should be noted that all the fractures are ragged: that craftsmen of the Late Iron Age were perfectly able to trim ceramic both neatly and accurately is shown by the numerous spindle-whorls cut from potsherds dating to this period. Taking these factors into consideration with the 'luting' of holes noted on fragments from both the Puckeridge Assemblage and the Merlin Works (Leicester) material (David Parker pers. comm.), and signs of differential heating on both Puckeridge and Ford Bridge fragments that might be interpreted as demonstrating that not all the holes on a given tray had actually been used, both of which techniques would render trimming unnecessary.

Instead of a rather clumsy attempt to trim a sub-rectangular or pentagonal tray into a sub-circular form, it is simpler to regard Sample 11 (BAG 81-44; sf. 81-93) as the remains of a mould tray from which both corners and edges have been removed. Seen in this light, the

Table 11.4. Bagendon edge profile types tabulated.

Code	Profile Type	Frequency	% of Profile total
1	I-Section	0	0
2	Lazy S	4	50
3	Straight section	1	12.5
4	Angled section	0	0
5	Rolled edge	1	12.5
6	Overhang	0	0
7	Cut & tear	0	0
8	Other	0	0
9	Unquantifiable	2	25

fragment provides reinforcement of the idea that edges and corners were somehow significant to the makers, owners or users of coin mould.

That there may have been more than one tray form in use at both Bagendon and The Ditches is suggested by two fragments described by Trow and Clough (unpub.), Sample 1 (Ditches 1982-17) and sample 2 (Ditches 1982- Fieldwalking), which have not been reassessed in this group. Trow and Clough are emphatic that these fragments had holes arranged in 'diagonal rows, rather than the usual rank and file pattern'. Thanks to 'Table 1: morphology of mould fragments' and illustrations 6 and 12 (Trow 1988a: fig. 27), it is clear both are edge fragments, which makes the identification of the unusual hole pattern more secure: illustration 6 is certainly the left hand edge of a *Verulamium* form apex, together with a portion of the apex hole. Furthermore, it seems likely that the fragment in illustration 12 also derives from the left hand edge of a *Verulamium* form tray, albeit without the apex hole. Since these fragments come from The Ditches at some remove from the Bagendon find site, and since no fragments in the study sample show any sign of this 'diagonal' arrangement, we cannot be certain that the fragments in the study sample also derive from *Verulamium* form trays, and we should bear in mind that there is no reason why one tray form only should be adhered to in any given assemblage. This should remind us that methods such as Collis's (Tournaire *et al.* 1982) edge:middle:corner ratio for calculating possible tray capacities, and the 'Min. Trays' formula used by this author to demonstrate compositional anomalies in coin mould assemblages, cannot generate absolutely secure conclusions.

There is one further point to be made concerning the morphological composition of the Bagendon samples. As mentioned above, the two corner fragments make up 22.22% of the 1981 Bagendon pit-deposited material, a proportion surpassed only by the 50% of the unstratified (and therefore not entirely reliable) RR/RC find. When one considers that the average proportion of corner fragments from the five largest assemblages examined in the course of this work is 7.5%, it is clear (as adumbrated above) that the Bagendon 1981 pit-deposited material is not typical.

Trow and Clough's original analysis applied John Collis's (Tournaire *et al.* 1982) edge:middle:corner method to attempt to estimate the possible capacity of trays used at Bagendon and The Ditches, and arrive at a figure of 4x4 holes per tray, which they at once discount, citing Sample 11 (BAG 81-44, sf. 81-93) with its 6x6 conformation as clear evidence that the Collis formula figure must be wrong. They ascribe this apparent failure to 'the smallness of the sample', but this conclusion seems almost certainly incorrect. Instead, what the Collis formula has highlighted is the anomalous composition of the sample. Comparing the five edge fragments: two middle fragments: two corner fragment ratio of the Bagendon 1981 material, which equates to 2.5:1:1, with the 248 edge fragments: 202 middle fragments: 74 corner fragments of the Ford Bridge assemblage, equating to 3.4:2.7:1, it is clear that, as well as an overplus of corners and edges in the Bagendon sample, there is a commensurate dearth of 'middle' fragments.

That the morphological composition of the Bagendon 1979-1981 material is atypical therefore seem undeniable. The possible reasons for this atypical composition remain open for discussion.

Edge profiles

There are four samples with a single edge profile in the material supplied, and two with two edge profiles, making a total of eight profiles. Although the sample is far too small to give statistically derived conclusions, it is worth noting that the percentages for profile categories two, three and nine agree well with figures for the same categories for both the Puckeridge and Ford Bridge assemblages:

Table 11.5. Edge profile percentages compared.

Code	Profile type	Percentage of profile type for each site		
		Puckeridge	Ford Bridge	Bagendon
2	Lazy S	47.2	41.6	50.0
3	Straight section	14.8	9.2	12.5
9	Unquantifiable	20.7	34.9	25.0

The percentages are not identical, certainly, but the fact that they do not differ by any great order of magnitude can give us some confidence that the picture they give is both plausible and credible. We may maintain with some confidence that the bulk of the original material was probably made using a bowl-mould. This is perhaps to be expected: of the seven larger assemblages examined so far (Puckeridge, Ford Bridge 2007, Ford Bridge 2016; Scotch Corner, Henderson Collection, Old Sleaford and Turners Hall Farm) only the Henderson Collection and Scotch Corner do not exhibit this preponderance.[7] For the Bagendon material, the implication seems clear – it falls, for the most part, within the parameters of the best-understood tradition of British Iron Age

[7] The Old Sleaford material examined exhibits a peculiar edge profile not seen elsewhere for which it has not been possible to suggest with any certainty a method of manufacture: it is hypothesized that this is a modification of a Type 2 profile.

minting: the single 'Straight Section' profile occurs in conjunction with a 'Lazy S'. The single 'Rolled Edge' profile is also entirely consistent with manufacture in a bowl mould.

Edge markings

There are no examples in the study sample of 'Band and lines' edge markings. This may be a result of the small sample[8], or it may be a reflection of the poor state of preservation of the sample; however, it is very likely that no such markings were present. Of all the assemblages described in any detail from both Britain and Continental Europe, 'Band and lines' have been noted only on material from the Braughing area.

If the interpretation of 'Band and lines' marking as the trace of a particular type of mould lining is correct, then the single possible instance in the study sample of a possible mould lining trace (Sample 3; BAG 81-1; sf 81-3) becomes very significant. This would be strong evidence tying the Bagendon material more tightly into the main British minting tradition, in which trays were made in three-sided bowl-moulds, lined along the edges to prevent adhesion of the wet clay to the mould. Unfortunately, the traces are so faint that it is impossible to be certain what type of mould lining – if any – was used.

Evidence of elaboration

There is no evidence of any form of elaboration noted elsewhere. There are no 'cleavage grooves', as observed by Elsdon on some of the Old Sleaford material. This is scarcely surprising since, as demonstrated above, they are quirks of taste, and represent no functional enhancement of the mould. However, their absence may be taken as suggesting the minting tradition at Bagendon was not closely related to the Old Sleaford tradition.[9]

The absence of the 'incised guidelines' noted on Puckeridge, Ford Bridge and Turners Hall mould could be interpreted in the same way, but since there is good reason to suppose that these lines were 'ownership marks', it is also possible that their absence on the Bagendon material indicates that coin production here took place within a different social or economic context. If the presence of 'guidelines' at Braughing/Puckeridge and Turners Hall Farm is evidence that more than one person or group was involved in the pellet-casting operations at these sites, the absence of guidelines at Bagendon could equally indicate single ownership of the output of the mint there. These must remain, for the time being, interesting speculations.

Methods of hole manufacture

Although it may seem (in keeping with the whole, convoluted, process of British Late Iron Age minting) unnecessarily laborious, all the evidence is that the holes in British clay pellet mould were made singly. The Bagendon study sample is not exceptional in this.

The largest fragment in the study sample, sample 11 (BAG 81-44; sf. 81-93), is of a size sufficient for the measurement of the spaces between holes to generate meaningful results. The measurements demonstrate that there are no repeated patterns in the spacing of holes in either axis,[10] which means that we can be certain that the holes on this fragment were not made using a multi-pronged dibber. Additionally, there is no repeated pattern to the variation in hole base diameters in either axis.

While there are no clear examples on this fragment of hole-slighting, it is also very clear that the holes were not made all-at-once using a peg-board. If such an implement had been used, then any splaying on one hole (caused by deviation from the vertical of either the angle of insertion or the angle of extraction) would necessarily be replicated on all the other holes on that fragment. In fact, Hole 10 on sample 11 (BAG 81-44; sf. 81-93) shows no splay, while Hole 9 (to its left) splays to the bottom right, and Hole 6 (immediately above it) splays to the top left.

As demonstrated above, hole-slighting is prima facie evidence that a peg board was not used to make the holes on that fragment, and that a multi-pronged dibber was not used on the axis of the slighting. Therefore, if slighting occurs on two axes, we may be certain that a multi-pronged dibber was not used in the making of the tray from which the fragment derives. Slighting in two axes can be seen very clearly on fragment Sample 10a (BAG 81-35; sf. 81-48) (Figure 11.2).

It is not clear why the smiths who used the pellet mould, the people who made the mould,[11] or those

[8] Given that 'Band and lines' markings occur on only 5.8% of all Puckeridge Assemblage edge profiles, and 4.1% of all Ford Bridge Assemblage edge profiles, it is well within the bounds of statistical possibility that, even if this edge marking were present in the original material, it could easily fail to appear in the Bagendon study sample: one would need at least 20 edge profiles to have a reasonable chance of even one example of 'Band and lines'.

[9] Although both are part of the same broad tradition of pellet mould minting as seen, with minor local variations, at all the major British mint sites, except perhaps Turners Hall Farm.

[10] Although it may be objected that some of the hole-spacings measured along the row are exceptionally similar, it is undeniable that a multi-pronged dibber will replicate its spacings *exactly* each time it is used – and this is not what we see on sample 11 (See Plate 31 (b) in Tournaire *et al.* 1982 for a tray which was clearly made using a multi-pronged dibber).

[11] There is reason to suppose that in the Puckeridge Assemblage, at least, the mould was made neither by the smiths themselves, nor by those who commanded the minting.

Figure 11.2. Sample 10a (upper) and Sample 10b (lower). Note the slighting in two axes on sample 10a (BAG81, 81-35, sf 81-48). Arrows indicate D-shaped flattening of hole outline. Sample 10b (lower image) (BAG81, 81- 35; sf. 81-48). Arrows indicate possible channels linking holes on fragment of possible potin mould (Photo: Jeff Veitch).

who controlled the minting of coin, should have used such a time-consuming procedure, with its relentless focus on the single and the individual. It has been hypothesized elsewhere (Landon 2008) that this was perhaps associated with an attempt to add value to base metal coinage by means of input labour, but this would not seem to be true of the Bagendon material, since it seems likely that it was used for the manufacture of noble metal coin pellets.

Instead, maybe this focus should be seen as a reflection of the inherent value of the coin, something akin to a jewel. It is a truism that a society will attempt to understand and to define the new and the unfamiliar in terms of the old and the established,[12] and coin usage in Britain was a relatively new arrival which, by AD 43, had still to reach more than half the island. Notwithstanding, if concepts of monetary value were still largely alien, there was a well-established tradition of the worth of beautiful and intricate objects made by consummate craftsmen, a tradition stretching back to the Bronze Age and beyond. The idea of the production of many ‘similar but unique’ objects is encountered in deposits of palstaves, such as the Langton Matravers Hoard, in the miniature bronze shields of the Salisbury Hoard, and later in deposits of Iron Age torcs. Even when struck from the same die, no two British Iron Age coins are identical – and, since the dies used are often far larger than the coins they were intended to impress, this would seem to be deliberate: each coin bears part of the same design – but not necessarily the same part. Coins may be ‘functionally identical’ (of the same weight and composition, and bearing equally valid marks), and yet be by deliberate intent physically unique.

Number of holes in a tray

Since it has proved impossible either to define with any certainty even one tray form present in the study sample, or to determine whether all the fragments in the study sample derive from the same tray form or not, it is also impossible to express any meaningful opinion concerning the total number of holes in any of the trays from which the Bagendon fragments derive. The best that can be said is that the tray from which sample 11 (BAG 81-44; sf 81-93) derives almost certainly had no fewer than 36 holes.

Predictable relationship between base and top hole diameters

Since it was first propounded by Tournaire (Tournaire *et al.* 1982), several writers have repeated his odd and evidentially unsupported claim that the module of coin made in any given specimen of coin mould was determined by the diameter at the mouth of the hole (top diameter). It is therefore important to take the time and effort to lay this absurdity to rest.

There are seven fragments in the study sample from which it is possible to obtain diameters at both the top and base of the holes. Average values were generated for each fragment for both top and base diameters. This tended to even out some of the observable variability in the material: it was felt that this ‘evening out’ would tend to operate in favour of the hypothesis that the relationship between the two variables is predictable, so that if – even under the most favourable interpretation of the data – the hypothesis was not upheld, then the result would have to be considered definitive.

In order to examine alone the variability in the relationship between top and base hole diameters, independently of actual diameter measurements, a figure for variability for each fragment was generated by subtracting average base diameter from average top diameter. It is obvious from the table above that the relationship between top and base hole diameters is

[12] The retention by the builders of railway carriages of features associated with horse-drawn carriages is a good example of this phenomenon.

Table 11.6. Variability in relationship between top and base diameters.

Range	Count
<1 mm	0
1-2 mm	1
2-3 mm	2
3-4 mm	3
4-5 mm	0
5-6 mm	1

Table 11.7. Average intra-fragment variation in top diameter

Assemblage	Average
Bagendon 81	1.30
Blackfriars, Leics	1.02
Ford Bridge 2007	0.99
Ford Bridge 2016	1.01
Henderson Collection	0.88
Puckeridge, Herts.	2.23
Scotch Corner	1.22
Experimental	0.52

highly variable, and so unpredictable that it is unlikely that this relationship was significant to those who made and used the Bagendon coin mould. The great and unpredictable difference between base and top hole diameter in the 1960 material was sufficiently striking for Allen (1961) to take particular note of it, and the study sample would seem to support her interest.

The average difference between top and base hole diameters in the Bagendon material is 3.31 mm, which compares with a figure for the Puckeridge mould of 2.23 mm, and an experimentally derived average difference of 0.68 mm, and this high figure may result from carelessness or haste on the part of the makers – but it is also possible that it reflects damage caused by aggressive sampling following retrieval. The sense that the variability in top diameter exhibited by the Bagendon coin mould is abnormal is strengthened by the very high figure derived for average intra-fragment deviation, as set out in Table 11.7.

Since there are only three fragments among the Bagendon sample from which the necessary data can be obtained, once again it should be remembered that the Bagendon figure for average intra-fragment variation in top diameter is well within the bounds of (statistical) sampling error, and therefore must be treated with some caution. However, it is certainly true that the average variation in intra-fragment top diameter exhibited by these three fragments is large enough that a single fragment could have holes with top diameters suitable for more than one of the hole-diameter groups proposed by Elsdon.[13] In their present condition, therefore, there can be no connection made for the Bagendon fragments between top diameter and coin module.

Predictable relationship between hole base diameter and coin denomination

Even before any statistical data is taken into account, there are two constants affecting the resolution of this question which tend to suggest that there could never have been a predictable relationship between base hole diameter and coin denomination.

The first constant is experimentally derived. Holes were made in a clay slab with a single-pronged dibber which had been accurately measured on two axes. The clay was allowed to dry naturally, and the holes were then also measured across the base in two axes. The results showed that, whatever care was taken during hole making, the base diameter of the holes routinely varied across a slab by up to 3 mm This accorded well with data taken from actual mould fragments, which leads to the conclusion that the base diameter of mould holes made using this method cannot be controlled to a more accurate standard.

The second constant relates to the behaviour of molten metal. Molten bronze, and silver and gold alloys, do not behave any differently to mercury, in that they do not flow out into a thin sheet (like water) when poured onto a flat surface, but instead coalesce into globules under the influence of surface tension.[14] This means that there would be no direct physical relationship between the pellet and the wall of the mould hole. Indeed, both Geoff Cottam (pers. comm.) and Longden (2008) emphasize that contact between metal and mould hole was to be minimized, lest the pellet fuse with the mould. The consequence of this is that, while there is a definite upper limit on the size of coin that can be cast in a hole of a given size, there is no lower limit. Taking these two constants together, the most that one can say of a hole of a particular diameter is that it was large enough for the making of pellets of a particular weight – but that there is no way of deriving from the evidence that the hole was actually used for making pellets of this size.

This is not the final word on the subject of base hole diameter. Elsdon (1997) proposes the idea of hole diameter groups, and although her data do not actually demonstrate that the groups she proposes exist in the Sleaford material, and her methodology (assuming, as it does, the existence of a direct relationship between base and top hole diameters) is so flawed that no valid conclusions can be drawn from it, the idea is nonetheless not without value.

[13] Elsdon 1997: op. cit. (David Parker pers. comm.) feels very strongly that one fragment from the Merlin Works assemblage exhibits precisely this peculiarity, in that the variation in both top and base diameters across the fragment is so great (4 mm) that it could have been used for making two different coin modules. However, experiment has shown that variability of this order is easily created accidentally. Nonetheless, fragment Context 31000/SF12911/CPM no. 495 from Scotch Corner bears holes of 4.4-5.1mm and ≥10mm, a difference large enough to rule out the use of a single dibber. Furthermore, EDS results suggest that the small holes were used to make silver alloy pellets and the larger hole to make a gold ternary alloy pellet).

[14] Assuming that this takes place in a reducing atmosphere.

There are grounds to suspect that at least one large assemblage (Old Sleaford) exhibits a continuous spectrum of base hole diameters, and we know from accurate measurement that another two (Ford Bridge and Merlin Works; D Parker pers. comm.) exhibit a discontinuous sequence of base hole diameters. The Puckeridge assemblage does not fit precisely into either category. There is a continuous sequence of base hole diameters from 7 mm to 20 mm but – unlike the top hole diameter sequence from Old Sleaford – the distribution graph shows two distinct clusters within the sequence, the first ranging (approximately) from 8 mm to 14 mm, and the second (approximately) from 15 mm to 20 mm To discover the distribution pattern for the Bagendon study sample, as with top hole diameter above, average base diameters were generated for each fragment, and the results are set out in Figure 11.3.

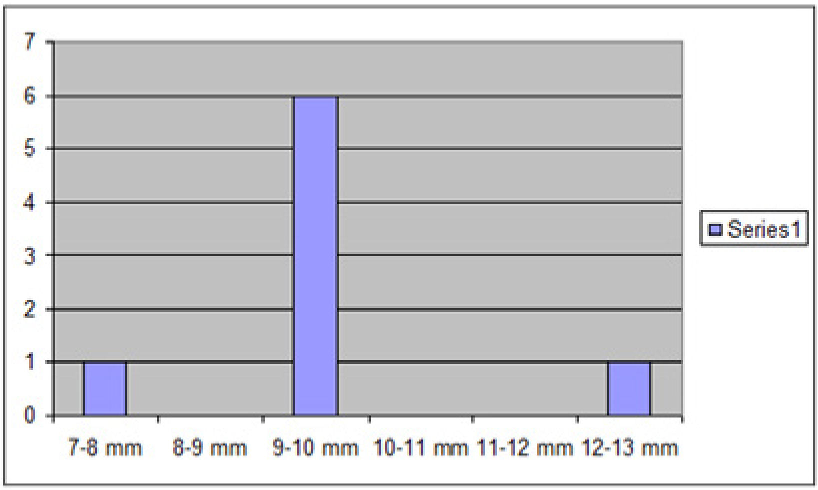

Figure 11.3. Graph of base diameter distribution.

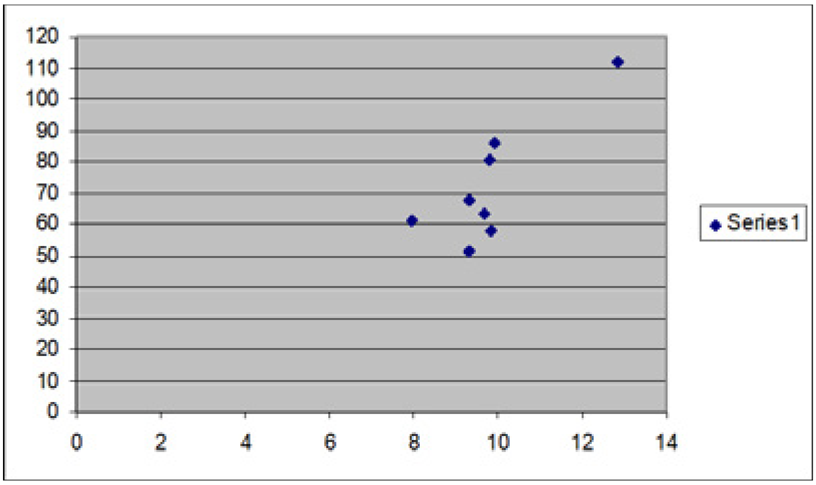

Figure 11.4. Scatter graph plotting base diameter in mm. against volume in mm.

With the provisos that, as previously mentioned, the sample population is too small to permit the drawing of firm conclusions about the parent population, and that there is a distinct possibility that measurements from some fragments may have been distorted by sampling for metal residues, it is still possible to make valid comments on the composition of the sample itself.

The first point to make is that the range of base diameters exhibited by the Bagendon material is not is any way exceptional: the holes are neither untypically large nor untypically small.[15] The range of base diameters (from 7.2 mm to 13.8 mm) is somewhat restricted when compared with the assemblages from Puckeridge and Ford Bridge,[16] and exhibits at first sight more – and more pronounced – discontinuities than almost any other assemblage of coin mould examined hitherto. However, out of eight fragments with retrievable data, two exhibit intra-fragment base diameter variation of 2.2 mm, and since one of these fragments is sample 11 (BAG 81-44; sf. 81-93), the largest fragment in the study sample, which also seems not to have been subjected to any post-retrieval damage, the variation it exhibits is both original and genuine: the smallest base diameter measurement is 8.7 mm, and the largest is 10.9 mm. At once the larger discontinuity, between 10 mm and 12 mm, has been narrowed by rather more than a millimetre, and the possibility that that the discontinuities are simply a function of the smallness of the sample becomes very real.

Comparison of the average intra-fragment variation in base diameter for Bagendon, Puckeridge, Ford Bridge, and experimental tray manufacture (Landon 2016: appendix 1), as set out in Table 11.7 , shows that the Bagendon fragments sit comfortably within 'normal' parameters for coin mould made using the same techniques as Braughing/Puckeridge mould.

[15] This range is actually quite broad. Allowing for the tapering typically seen between the mouth of a hole and the base, the smallest holes seen at Old Sleaford (hole fills here were retained intact, thus making direct measurement impossible) could have a diameter as small as 2 mm at the base, while the largest mould holes known have a base diameter close to 25 mm

[16] But not dissimilar to the diameter range of the Henderson Collection (4 mm – 7 mm) or the Wickham Kennels Assemblage (7 mm – 13 mm). The Wickham Kennels Assemblage, comprising only four fragments, also exhibits a pronounced discontinuity in base diameter range (5 mm), which would seem to confirm that the smaller the sample of coin mould, the more likely it is to exhibit discontinuities.

Control of volume

As discussed elsewhere (Landon 2016), very precise control of hole volume is a necessary precondition of the credibility of two theories concerning the purpose and method of use of coin mould. Both the Sellwood/Casey hypothesis that coin mould was a means of ready-reckoning for the production of alloys, and the widely-entertained idea that metal might have been introduced into mould-holes by pouring in the molten state, assume that it was possible to control the volume of a mould hole sufficiently to permit its use as a measuring device.

As a first measure of the suitability of the Bagendon coin mould for use in either of these ways, it should be noted that average intra-fragment standard deviation in depth across the assemblage is ± 0.86 mm, and average intra-fragment standard deviation in volume is ± 7.46 mm^3. Bearing in mind that the volume of an *Icenian*

Table 11.8. Base diameter intra-fragment and inter-fragment variation in coin pellet mould from Bagendon

Site code	Context	Bag ID	Base values per frag	Av base dia	Max dia	Min dia	Diff.
BAG 81	81-1; sf 81-3	Sample3	3	12.83	13.8	12.3	1.5
BAG 81	81-2; sf. 81-7	Sample4	2	9.9	10.1	9.7	0.4
BAG 81	81-16; sf 81-52	Sample6	0		0	0	
BAG 81	81-16; sf 81-97	Sample7	1	9.8	9.8	9.8	
BAG 81	81-44.sf. 81-96	Sample8	4	9.68	10.6	9.1	1.5
BAG 81	81-20; sf 81-83	Sample9	9	7.94	9.3	7.1	2.2
BAG 81	81-35; sf 81-48	Sample10a	3	9.3	9.3	9.3	0
BAG 81	81-35; sf 81-48	Sample10b	4	9.33	9.8	8.6	1.2
BAG 81	81-44; sf 81-93	sample 11	27	9.85	10.9	8.7	2.2

Table 11.9. Base diameter ranges in 10 assemblages compared

Range	Bagendon 81	Blackfriars Leicester	Ford Bridge 07	Ford Bridge 16	Henderson Collection	Old Sleaford sample	Puckeridge	Scotch Corner	Turners Hall Farm	Wickham Kennels
>=2, <3	0	0	0	0	0	0	0	0	0	0
>=3, <4	0	0	0	0	6.45	0	0	8.38	0	0
>=4, <5	0	0	0	0.07	8.06	0	0	46.46	4.55	0
>=5, <6	0	0	0	3.25	69.35	0	0.04	29.71	0	4.55
>=6, <7	1.82	14	0	9.35	16.13	27.27	0.08	3.45	4.55	45.45
>=7, <8	12.73	14	0.9	28.95	0	36.36	0.46	0.43	36.36	13.64
>=8, <9	7.27	22	2.25	27.22	0	27.27	4.29	0.35	31.82	0
>=9, <10	63.64	5	14.38	8.1	0	9.09	18.24	1.04	18.18	0
>=10, <11	9.09	3	41.57	2.35	0	0	39.78	3.8	4.55	0
>=11, <12	0	16	30.79	3.88	0	0	26.62	3.8	0	0
>=12, <13	3.64	16	6.97	7.89	0	0	3.98	1.99	0	36.36
>=13, <14	1.82	9	0	5.61	0	0	0.08	0.43	0	0
>=14, <15	0	1	0	2.29	0	0	0.34	0.09	0	0
>=15, <16	0	0	0	0.62	0	0	0.8	0.09	0	0
>=16, <17	0	0	0.67	0.28	0	0	2.92	0	0	0
>=17, <18	0	0	2.25	0.14	0	0	1.86	0	0	0
>=18, <19	0	0	0.22	0	0	0	0.49	0	0	0
>=19, <20	0	0	0	0	0	0	0.04	0	0	0
>=20, <21	0	0	0	0	0	0	0	0	0	0
>=21, <22	0	0	0	0	0	0	0	0	0	0
>=22	0	0	0	0	0	0	0	0	0	0

silver unit is approximately 125 mm^3, variation in this degree across a single fragment is scarcely significant. The Bagendon material would certainly seem to exhibit much closer control of volume across a single fragment than the Puckeridge mould, for which the average intra-fragment standard deviation in volume is ± 95.69 mm^3 However, it is the study of inter-fragment variability that shows most clearly the difficulties of utilising the coin mould as a measuring device (Table 11.8).

First, it will be noted that, although it would seem undeniable that there are two distinct hole size groups here (one group having only one member), it is also undeniable that the more numerous group exhibits such a broad spread of values for both volume (nearly 40 mm^3, or close on 30% variation) and base diameter (more than 2 mm, or 25% variation), that there is no clear relationship between the two groups. The smaller diameter group is between 50% and 75% of the volume of the larger hole diameter group. This degree of variability would seem to render highly unlikely the possibility that the Bagendon mould was used as a measuring device. Notwithstanding these complications, it is possible to state with confidence that the pellets manufactured in the Bagendon study sample must all have been considerably smaller than an *Icenian* silver unit.

Calcium carbonate traces

This has previously been noted only on material from Verulamium and Braughing/Puckeridge. It has been surmised that chalk wash was applied to the mould, in the holes and, less frequently, on top, base and sides in order to create and maintain a reducing atmosphere during the casting of pellets with a high base metal content. Tylecote (1962), Cottam (pers. comm.) and Longden (2008) are all clear that a failure to exclude oxygen while casting such alloys will result in the fusion of pellet to mould.

As base metal coinage was not commonly issued during the British Late Iron Age,[17] the restricted distribution of the use of chalk wash is not entirely surprising. However, a beige or brown deposit had been noted on some of the Bagendon fragments (T. Moore pers. comm), and it was debated whether this might represent a coating of powdered local (to Bagendon) limestone, which varies in colour between beige and brown, performing much the same function as chalk wash. Closer examination of the fragments revealed that, although the coating might well derive from the local limestone, it covered not only the holes and original surfaces of the fragments, but also the fracture surfaces. It was therefore concluded that the coating should probably be regarded as taphonomy rather than as a purposive treatment.

Once again, sample 11 (BAG 81-44; sf 81-93) is not typical of the Bagendon material. Not only is its fabric more close-grained than the other fragments, but it appears to have a coating of calcium carbonate on its base. This does not seem to accord with the oxidized layer just within the cortex of the base, and indeed it is hard to account for its presence given the absence of all but the most minute flecks of calcium carbonate on the upper surface (which seem anyway to be inclusions rather than traces of a coating). For this reason, it is probably best to regard this as no more than a possible instance of the use of calcium carbonate to maintain a reducing atmosphere.

The introduction of metal into holes

Although the label on the box containing Sample 13 (from Clifford's excavations) proclaims 'Gold flecks?', sampling has removed any trace there might have been. It seems certain that the same fate would have befallen any similar traces there might have been in the study sample. As a result, there is now no evidence at all of any metal at a supra-microscopic level, and therefore no direct evidence in the form of prills, droplets or splashes not only of the means by which metal was introduced into the holes, but even of what metal might have been cast in the parent moulds.

However, there is one undeniable piece of evidence that metal was not poured into the holes in these fragments of coin mould. The signs of extreme heating on the Bagendon 1981 material are not confined to the holes themselves, as they would have been if they had been moulds pure and simple rather than dual-purpose crucible/moulds, nor are the signs of extreme heat confined to the upper surface of these fragments – or to any surface at all. Instead, most of the samples are heated from surface to core to temperatures at or around the melting-points of silver-copper and ternary gold alloys.

There is one intriguing possibility: fragment Sample 10b (BAG 81- 35; sf. 81-48) (Figure 11.2). exhibits what seem to be channels linking its holes. They have been cut into the surface, possibly after the firing of the tray. While it is true that this fragment has been subjected to severe post-retrieval modification[18], the possibility remains that this is a fragment of potin mould, also known as 'strip mould' – and, if this is so, then this is the first find of this type of mould in Britain. Although the absence

[17] In the main, bronze coinage was restricted to the issues of Tasciovanus, Cunobelin, and the potin coins of Kent.

[18] What appears to be modern abrasion has so modified the broken edges of this fragment that it is impossible to determine whether the joint with fragment SAMPLE 10a. (implied by keeping the two fragments in the same box) is actually true. On balance, this study has concluded that they are not conjoining fragments.

of known potin or strip-moulded issues in the South West of Britain must be a strong argument against this interpretation, the possibility is still sufficiently important to justify its inclusion in this report.

If this mould was used for casting by pouring, this might explain first, the ambiguous, at best very slight, signs of vesiculation, and also the reddening on the base indicating that at some point this fragment has been heated in an atmosphere from which oxygen has not been excluded. However, the variability in hole volume is such that neither it, nor any other fragment in the sample, could have produced pellets of consistent weight.

Proportions of used and unused pellet mould

Although (as noted in Landon 2016) it is not often possible to discriminate with any certainty between used and unused coin mould without recourse to microscopic and spectrographic examination, there are a number of observations that can usefully be made of the different degrees of heating evinced by the Bagendon assemblage.

The first point to make is that the often equivocal, and never more than slight, signs of vesiculation, together with the complete absence of even surface vitrification, and not the least sign of the slumping and ballooning noted elsewhere, would seem to suggest that the Bagendon study sample might not have been heated to the same degree as mould from some other sites[19]. Elsdon (1997) states that the vitrification of clay occurs around 950°C, while the work of Longden demonstrates that temperatures in excess of 1000°C were used to cast copper alloy pellets at Ford Bridge (Longden 2008). Nonetheless, a significant proportion of the fragments exhibit blackening within the body of the fabric (three samples out of 11 listed, or slightly less than 30% of the total), and together with the two examples of whitening and crazing on the base of fragments, it seems certain that these moulds have been subjected to temperatures greater than those usual in firing ceramic. It is clear, therefore, that the Bagendon study sample was probably not used for the casting of copper alloy pellets (with the possible exception of fragment Sample 10b; BAG 81-35; 81-48).

By contrast, both 14 carat yellow gold and 'coin grade' silver melt at 875°C. In addition, as Tylecote (1962) has proved that it is perfectly possible to cast pellets with a high noble metal content in an oxidizing atmosphere. This also chimes well with the very high proportion of fragments (6 out of 11, or slightly more than 50%, compared with 3.9% in the Puckeridge Assemblage) showing the reddening characteristic of heating under oxidizing conditions. On the basis of the signs of less intense heating than has been observed on other assemblages of coin mould, together with the prevalence of signs of oxidization, it would not seem unreasonable to conclude that the fragments in the Bagendon study sample were used for casting noble metal coin pellets. Furthermore, the location of these signs of oxidization are not typical. Of the 6 fragments with reddening, only three have reddening on the base – 50% of the total of oxidized fragments, compared with a figure of 86% for the Puckeridge material. The remainder have reddening which is either internal or located on surfaces other than the base.

Gebhard *et al.* (1996) have theorized, on the basis of the much greater extent to which the glassy phase extends into the fabric of British mould they have examined, that British coin mould was subjected for extended periods to high temperatures to the base as well as to the top. Longden (2008), examining the Ford Bridge mould using SEM, states that very few samples exhibited vitrification of the base, and that therefore much greater heat was applied to the top surfaces than to the base surfaces of mould from this site. Bagendon coin mould also exhibits traces of different intensities of heating on the top and bottom surfaces of fragments. However, as can be seen from the two images of fragment Sample 3 (BAG 81-1; sf 81-3) that – in one case at least – there are signs of greater heat, in the form of much clearer signs of vesiculation overlying an oxidized layer, than on the top, where the vesiculation is barely visible, and there is no oxidization.

There are no fused fragments or fragments with their fracture surfaces sealed by melting and no samples heated beyond use, such as were observed on the Puckeridge coin mould. If these phenomena are to be interpreted as thee signs of a closing ritual, then it would seem that no such ritual occurred at Bagendon.

Grass marks, chaff marks and grain casts

Many trays were left to dry on a bed of grass before being fired, a practice which experiment has shown can leave distinctive markings on the base of a tray. Four fragments from the Bagendon study sample show signs of having been laid to dry on a bed of grass. This is scarcely surprising, given the ubiquity of the material. There are none of the signs noted at Puckeridge and Ford Bridge of the substitution of chaff for grass, and there are none of the parallel markings occasionally noted on the base of Puckeridge trays which have been interpreted as matting marks, but given the smallness of the study sample this absence is probably not significant. Of much greater interest is the probable grain cast noted on fragment Sample 9 (BAG 81-20; sf 81-83) (Figure 11.6).

[19] Puckeridge; Ford Bridge; Old Sleaford; Turners Hall Farm.

Figure 11.5a/b. Sample 3 (BAG81, 81-1; sf. 81-3) showing differential signs of heating on base and top of a single mould fragment. Note the oxidization and clear surface vesiculation on the base, compared with very slight vesiculation and little reddening on the top (Photo: Jeff Veitch).

Figure 11.6. Grain cast on the base of Bagendon coin mould fragment (Sample 9) (Photo: Jeff Veitch).

The Bagendon study sample is the fourth assemblage of coin mould to have yielded grain casts, the others being Puckeridge, Ford Bridge and Old Sleaford. This must therefore be of significance: a great volume of coin mould from widely separated parts of the area of Iron Age coin manufacture and use would seem to have been made at a time when stray grain was common in the communities where minting was taking place. The obvious inference from this must be that minting in many British Iron Age polities was – at least to some degree – a seasonal activity related to harvest-time.

It would seem very likely that this seasonal minting represents the conversion of an agricultural surplus into cash in preparation for an important trading opportunity soon after harvest. At Hengistbury Head, at Braughing/Puckeridge, *Verulamium* and Colchester the most visible traded commodities are amphorae and expensive tableware, exotic imports from overseas. The imports found at Bagendon include a range of Gallo-Belgic wares and *terra sigillata* but a range of other material may have come from elsewhere which has left little archaeological trace. That minting, and therefore coin mould, was associated strongly with trade is perhaps demonstrated by the fact that coin mould is often found in association with ceramic that is undeniably imported, as has been noted at both Scotch Corner and Ford Bridge.

Inclusions in mould fabric

There are no traces of intentional inclusions or tempers in the fabric of the Bagendon study sample. Indeed, apart from the two or three minute flecks of presumed calcium carbonate in fragment sample 11 (BAG 81-43; sf 81-93), there is no sign of any accidental inclusion in the clay used to make these moulds.

This stands in marked contrast to the Puckeridge Assemblage, where 10% of the fragments contained inclusions, some of which could well have been crushed shell temper, and others which were truly massive flint and quartzite pebbles up to 15 mm across and could well have affected the functionality of the tray.

Instead, it looks as though the clay used to make the Bagendon mould had been properly puddled before use to remove to remove any large stones, which could be interpreted as suggesting that the clay used to make the trays was processed in the same way as clay used by potters to make vessels. However, given the considerable variability noted by Derek Allen (1961) in the 1950s material, it does not seem that the care taken over the preparation of the clay carried over into the manufacture of the trays.

Clay caps and luting

The apparently deliberate capping or filling with clay of holes in a tray showing signs of having been subjected to intense heat has been noted both in the Puckeridge Assemblage and in the Merlin Works material – and, to date, nowhere else (Figure 11.7).

The most credible suggestion for the function of these techniques comes from Dave Parker (pers. comm.) who feels that this deliberate filling of holes is possibly associated with the making of fewer pellets in tray than the number of holes might suggest. No example of either of these practises has been noted in the study sample, but even in the Puckeridge Assemblage (Figure 11.8), which has produced the most examples of both capping and luting, only 0.8% of the material, fewer than one in one hundred fragments, did so. In an assemblage of only 11 items, this translates into a worse than 1:10 chance of the presence of either capping or luting, so it may just not occur in this sample size. In fact, given the robust cleaning and aggressive sampling to which much of the study sample has been subjected, and the fragility of traces of 'capping' in particular, it is entirely possible that these were missed during this process.

Conclusions

Despite the smallness of the assemblage, and bearing in mind the caveats expressed in Section 1 about the dangers of assuming too far on the basis of a statistically insignificant sample, it is nonetheless possible to draw some fairly firm conclusions from the material supplied, and to advance some evidentially-derived hypotheses concerning the manufacture and use of the mould-trays from which these fragments derive, and even of the social, political and economic context within which this minting activity took place.

The first conclusion must be that, at some point between use and the occasion of this study, the sample has been subject at least once to a process of selection, because of the total lack of unmeasurable small fragments, which at other sites have formed a very significant proportion of the total number of mould fragments retrieved. This picture of selection is reinforced by the fairly high proportion of complete versus incomplete holes in the study sample: the only comparable assemblage examined so far with a higher proportion of complete versus incomplete holes comes from the Wickham Kennels (Partridge 1982) site in Braughing. This very small assemblage – only four fragments are extant, and the indications are that the assemblage originally retrieved was little, if at all, more numerous – was very

Figure 11.7. Luted hole from Merlin Works, Leicester (Photo: courtesy Dave Parker, ULAS).

Figure 11.8. Example of a 'Clay cap' from the Puckeridge, Hertfordshire coin mould assemblage (Photo: Mark Landon).

likely subjected to selection prior to deposition, and the proportion of complete holes is even higher, 40.5% of the total number of holes in the assemblage compared with 24.7% in the Bagendon study sample. There are, however, additional dimensions to the manufacture, use and deposition of coin mould both generally across Britain, and more particularly at Bagendon, which suggest that a simple linear model is not adequate to explain what we see.

The 'ownership marks' noted on coin mould fragments from Hertfordshire suggest that minting may have been carried out on a contributory basis at these sites, whereas at Scotch Corner it has been possible to distinguish two very different traditions of coin mould making. At Ford Bridge 2016, not only are there two very different traditions of coin mould manufacture (for one of which the closest parallels come from Gaul), but there exists the strong possibility that clays sourced from geologically different locations are being used for the coin mould. This means that it is possible that coin moulds are being used at several locations, and only brought together after use for central disposal.

While at Bagendon 1979-1981 the main deposit of coin mould was not found, we have instead the repeated deposition of small quantities of pellet mould, including some from a feature which also contained an Iron Age coin. It seems most likely that the 'main deposit' was the 100 or so fragments of coin mould retrieved by Clifford around 20m to the south-east in her site B and C. If one factors in the unusually high proportion of corner fragments, then two out of the three elements[20] noted elsewhere[21] in presumed symbolic deposits of coin mould are present in the Bagendon 1979-1981 material. On balance, therefore, it seems entirely possible that this assemblage represents repeated episodes of selective deposition of coin mould following use elsewhere.

The second conclusion to be drawn is that, in terms of its dimensions and the techniques used to make it, the Bagendon study sample sits comfortably within the parameters of the main pellet-mould tradition. It is for this reason that the possibility that fragment BAG 81/AAG/35.48/Sample 10b. might be 'strip-mould' or 'potin-mould' has reluctantly been abandoned: it seems too anomalous in what is otherwise a relatively homogenous body of material, and too irregular to produce a consistent weight of pellet by means of pouring. We can be reasonably certain that the Bagendon mould was used for melting pre-weighed quantities of metal and casting them into globular pellets.

[20] The third element being imported pottery (Landon 2016)

[21] Braughing/Puckeridge and *Verulamium* (Landon 2016)

The third conclusion to be drawn is that the moulds were most probably used for the casting of noble metal pellets, as the degree to which they have been heated is evidently somewhat lower than would be required for the casting of copper alloy pellets, and it is clear from the prevalence of signs of oxidization that no care was taken to maintain a reducing atmosphere. In the absence of the metal-testing results, the best supporting evidence for this is the claim on the label for fragment Sample 13 from Clifford's excavations for possible visible traces of gold. This concurs with the apparent evidence of gold traces on examples from The Ditches (Trow 1988a: 55). It must be said, however, that the sampling process to which this fragment has been subjected means that whatever once was visible has now vanished.

The fourth conclusion to be drawn is that some of the information which could have been obtained from the study sample has been lost by a combination of aggressive sampling and poor curation. This indicates a need for an agreed procedure for dealing with finds of coin mould.

Moving now into the realms of evidentially-derived hypothesis, we may see the absence of 'ownership marks' as suggesting that minting in this area was carried out on the orders of a single authority, whereas in the North Thames area there are at least four mint sites – and at two of them,[22] a least, there seems to have been more than one commissioning power. Similarly, in East Anglia minting may have taken place on a number of sites, but on a fairly small scale at each (judging by the size of the assemblages recovered to date). The closest parallel in terms of centralization (though not in terms of scale) would seem to be Old Sleaford in Lincolnshire. It may be seen as significant that both areas sit very much on the periphery of what has been considered the area of coin manufacture and use[23] in Late Iron Age Britain, and therefore perhaps on the periphery of a trading network which centred first on Hengistbury Head in Southern Britain, and later on the Thames Estuary and the River Lea in the South-East.

The emphasis on the link between trade and the minting of coin is quite intentional. Although some (John Collis pers. comm.) have speculated that coinage in the British Late Iron Age was not a fully-functioning means of exchange as we would understand it, but had a greater function as a form of offering to the 'other world'. The fact that four assemblages of coin mould – including the Bagendon study sample – have yielded grain-casts, implying their manufacture around

[22] Braughing/Puckeridge and Turners Hall Farm.

[23] The large but possibly very late (AD 43-54) assemblage of coin mould found at Scotch Corner in 2015-2016 is calling into question many of the accepted ideas about native coin manufacture and use in Peri-conquest Iron Age Britain.

harvest-time, would seem to link episodes of minting very closely with the agricultural cycle, and hence (for these tribes were almost entirely agrarian) with the economic cycle of the societies which issued the coinage. Coin was being made at a time of year when a farming society would have been at its richest.

We know that the area of greatest coin-use, the Baldock-*Verulamium*-Braughing-Colchester cluster, also coincides with the greatest concentration of preconquest imports from Continental Europe, and that such imports are rarely, if ever, seen beyond the Severn-Trent line of coin-use. We know that the weight and composition of Late Iron Age coins was controlled very closely, which would only be necessary if they were intended as a standardized means of exchange. Such control is certainly not seen in other, more certainly quasi-ritual Iron Age metalwork, such as torcs.[24]

While it is probably true that in the case of the Bagendon hinterland we are not looking at a fully monetized economy, as perhaps we are in the Braughing area, nonetheless, if the local leadership is trading with the region north of the Thames, including *Verulamium* and Colchester (and the evidence suggests that they were), coin would certainly have been a very acceptable medium of exchange.

The Metallurgy of the Pellet Moulds from the Bagendon complex

J.A. Morley-Stone

In the 1980s a scientific analysis was performed on a sample of the pellet moulds including all those deriving from the excavations at Bagendon in 1979-1981, some from Elsie Clifford's excavations and some from the enclosure at The Ditches (Trow 1988a). A draft report was written by S. Trow and R. Clough in 1988 and this discussion is structured around that initial draft. No new analysis was undertaken by the author of this study and, sadly, it is not possible to gain access to the raw data from the initial study.

In brief, the report by Trow and Clough contains an assessment of the moulds morphological features followed by a summary of the analytical technique used (atomic absorption spectroscopy); the sampling process (powder scrapings from the mould holes), and finalised with a discussion of the results. The results of the study are presented in Table 11.10 below.

From table 11.10, it becomes immediately apparent that there is at least one major alloy present, a ternary alloy of gold, silver and copper. It is clear that the

Table 11.10. Percentage of individual metal traces from coin mould fragments (expressed as % of total metal residues detected), reproduced from Trow and Clough draft report (in archive).

Clough Sample no.	Trow Frag no.	Au	Ag	Cu	Pb
1	1	53	12	36	-
2	12	17	-	83	-
3	9	-	10	90	-
4	10	-	-	100	-
5	5	-	32	68	trace
6	3	30	11	59	trace
7	7	-	trace	100	-
8	11	-	trace	100	-
9	13	44	13	43	-
10	14	26	4	70	Trace
11	2	-	-	100	-
12	4	-	-	100	-
13	6	-	-	100	-
14	8	-	-	100	-

[24] Although Andrew Fitzpatrick (pers. comm.) claims that the Snettisham torc 'weighs 100 staters', given the wide range in weight between different issues, the question must be asked 'which stater?'

data above has undergone statistical manipulation in order to process the raw data from the analysis into an interpretable format. However, without knowledge of the statistical methodologies employed, it is hard to support the conclusions made from the available data without inviting counter argument. It is presumed that the raw data has been stripped of the trace and unnecessary elements recorded and the remaining percentages normalised to 100%. The raw data would highlight specifics regarding actual percentages recorded, and had the results for the standard reference material been available, one could make an assessment on the instrumental precision and accuracy of the study. Without these, the data can only be considered qualitative or semi-quantitative at best, and is therefore limited in what it can inform us of the metals being used during pellet production.

More recent studies of pellet moulds have focussed research towards quantitative analysis, so that statistical models may be constructed and analysed to aid interpretation (Longden 2008; Morley-Stone 2016). Much like the study of previous moulds found at Bagendon (Allen 1961), the data has been presented in relative terms and therefore is not suitable for such quantitative analysis. This being said, the data does hold substance for a number of observations common throughout the field of pellet mould study.

Alloy reconstruction is the typical pursuit following metallurgical analysis of pellet moulds, as this provides a link with which we may identify finished products for which the pellets were intended. It is noted within the report's discussion that 'analysis of the moulds alone cannot differentiate between their use in the manufacture of coinage or their use in other precious metal working processes'. This statement holds truth to an extent, and careful consideration must be made of what the results tell us about the alloy used in production.

Following David Dungworth (2000), it is apparent that poor melting techniques can lead to an over-representation of copper within the metal residues left on a mould/crucible due to its more volatile nature over silver and gold. Add this to Landon's observation (above) that poor care was taken to maintain a reducing atmosphere for the moulds and it becomes plausible to argue that these factors resulted in the high representation of copper within the results (on average the copper percentages seen in Table 1 are >50%). Alternatively, it has been argued that given copper's solubility in ground waters (Landon *et al.* forthcoming; Trow and Clough unpub.), the reverse occurs, and the copper becomes under-represented in the sample, though without the additional taphonomic data no further comment can be made here.

The principal conclusion made of the moulds sampled is that the gold alloy residues were exclusive to the larger module moulds, whilst the smaller modules contained silver and copper alloys; the implication being that two sizes of pellet, of distinct compositions, are being produced. This shows parallels to common denominations of Iron Age coinage in circulation (i.e. gold staters and smaller silver-copper issues), though without rigorous metallurgical data, it is impossible to distinguish a specific issue. It is noted, that despite evidence of silver and copper alloys in the previously discovered moulds at Bagendon (Clifford 1961), the module sizes of the samples were not recorded. Combining this with the presence of only copper in the three Clifford samples analysed by Trow and Clough (sample no. 12, 13 and 14), it becomes difficult to cross-compare the results of the two groups. This being said, the conclusions are consistent with evidence seen from other assemblages studied in recent years (Ford Bridge, Hertfordshire; Scotch Corner, North Yorkshire). Moulds from Scotch Corner can be placed into two module size groups, with the metallurgical data suggesting two pellet alloy compositions to match (see Landon *et al.* forthcoming). Despite the small size of the study, and qualitative nature of the results, the moulds from The Ditches are nonetheless valuable evidence of an important Iron Age production process involving the use of precious metal resources, and merits further study.

Chapter 12

Miscellaneous materials

Elizabeth Foulds, John Shepherd, Ruth Shaffrey, Chris Green, Cynthia Poole, Tom Moore and Freddie Foulds

Lead

Elizabeth Foulds

Artefacts made from lead consisted of fragments of sheet and lengths of lead rod or wire. They were generally in good condition, but did have oxidised surfaces.

1979-1981 excavations

[12.1] Small roughly oval lead sheet. The surface and edges were very irregular. L: 12mm, W: 9mm, Th: 0.5mm. BAG79-81; Context 80-19; SF 80-95.2.

[12.2] Sheet lead twisted into an irregular cone shape. It has a fresh break on the tip and a large ancient break at the other end. L: 37mm, W: 7-2mm. BAG79-81; Context 80-1; SF 80-47.

[12.3] Sheet lead folded over several times to form a roughly rectangular piece. The surface and edges are highly irregular. L: 65mm, W: 27mm, overall Th: 4mm, individual sheet Th: 1mm. BAG79-81; Context 81-20; SF 81-75.

[12.4] Sheet lead folded over multiple times to form a roughly rectangular piece. The surface and edges are highly irregular. L: 56mm, W: 26mm, overall Th: 3mm, individual sheet Th: 1mm. BAG79-81; Context 81-20; SF 81-63.

[12.5] Large irregular lead sheet with irregular edges that were folded over in places. L: 100mm, W: 78mm, Th: 1mm. BAG79-81; Context 81-1; SF 81-5.

The purpose of the three pieces of folded lead sheet is not clear, but they all came from pit contexts: 12.3 and 12.4 were recovered from pit AH and 12.5 was found in pit AA. It is possible that they may represent the use of lead flashing on a building, or they may be simply scrap pieces of lead sheet that were folded prior to being re-melted.

[12.6] Fragment of lead rod with a hammered flat pointed tip. It was roughly rectangular in cross-section and was twisted slightly. L: 36mm, Th: 2-3mm. BAG79-81; Context 80-40; SF 80-86.

[12.7] Fragment of lead rod or wire. The surface shows diagonal striations, which suggests that at some point it was highly twisted. D: 2mm, L: 20mm. BAG79-81; Context 80-19; SF 80-95.1.

[12.8] Crescent shaped or incomplete lead ring with an irregular surface. D: 16mm, H: 4mm, perforation: 12mm x 8mm. BAG79-81; Context 80-1; SF 80-46.

[12.9] Lead fragment, now missing. BAG79-81; Context 80-38; SF 80-104.

2015 Black Grove excavations

[12.10] Small fragment of lead rod/wire. L: 36.3mm, D: 5.6mm. BAG15; Context 6025.

[12.11] Roughly circular lead sheet. D: 29.8mm. BAG15; Context U/S.

Worked bone

Elizabeth Foulds

Objects made from bone were small in number and consisted of possible tools (bone points) and dress objects.

2012-2013 Scrubditch

[12.12] Crudely worked bone point. L: 61.3mm, max D: 4.2mm. BAG12; Context 1045.

2014 Cutham

[12.13] Tapered bone point. L: 40.5mm, max D: 7.3mm. BAG14; Context 3029; SF 14-06.

It is unclear how this bone point was used. It may have been used as an awl or similar type of piercing tool, or used to fasten cloth or skins.

[12.14] Fragment of a rib bone with a centrally placed circular perforation. L: 49.0mm, W: 21.9mm, Th: 8.3mm. The perforation is approximately 3.4mm in diameter. BAG14; Context 3126; SF 14-17 (Figure 12.1).

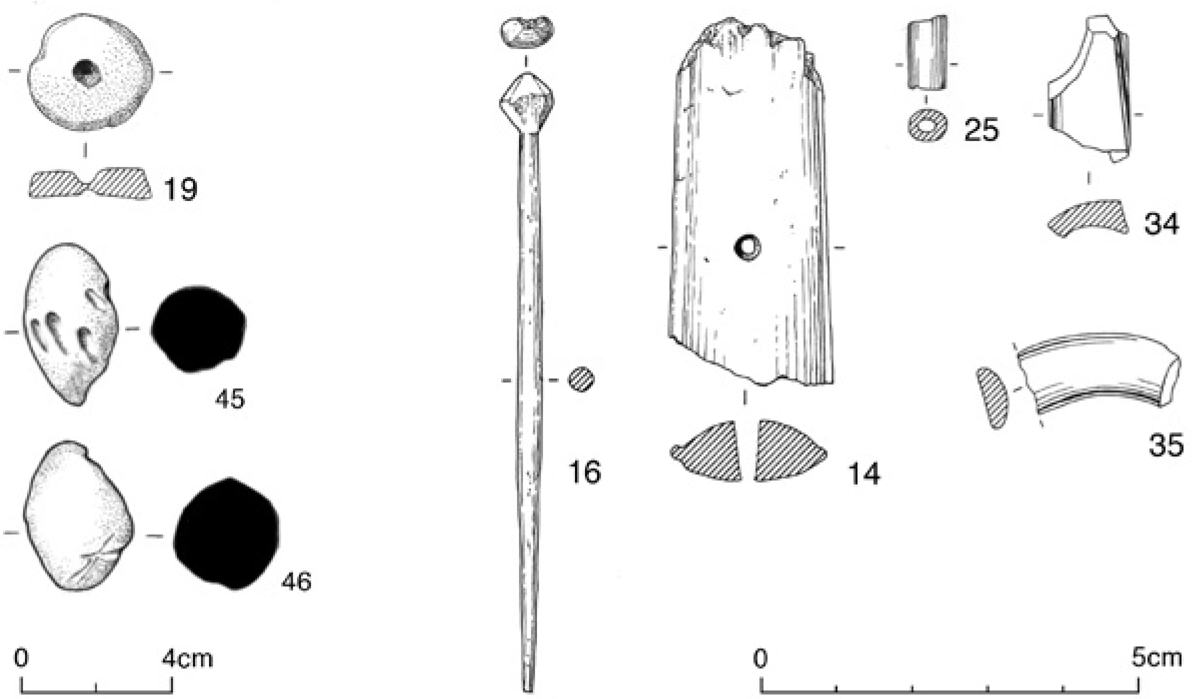

Figure 12.1. Miscellaneous items of bone, spindle whorl, bead and shale (drawn by Yvonne Beadnell).

A similar rib fragment was found at The Ditches, Gloucestershire (Trow 2009: 166), which was described as a comb for making decoration on clay. This rib fragment is not serrated to the same degree as The Ditches example, but could have served a similar purpose. Another example was found at Conderton Camp, Worcestershire (Thomas 2005a: 165, BO5).

1979-1981 excavations

[12.15] Incomplete cylindrical bone object that may be possibly head of a bone pin, pendant, or toggle. It is semi-circular in section and has a 2mm wide and 1.5mm deep circumferential incision. BAG79-81; Context 80-1; SF 80-72.

2015 Black Grove excavations

[12.16] Nearly complete bone hair pin with a round head, but missing point. L: 81.9mm. BAG15; Context 5004; SF 15-09 (Figure 12.1).

Spherical and ovoid headed pins of Crummy's (1979) Type 3, which she suggests were used from *c.* 200 to the late 4th /early 5th century AD.

[12.17] Fragment of a bone pin or needle. L: 60.1mm, max D: 3.9mm. BAG15; Context 5004; SF 15-08.

[12.18] Possible ivory shaft fragment from a pin or needle. L: 51.7mm, max D: 4.2mm. BAG15; Context 5026; SF 15-34.

Non-vessel ceramic (spindle whorls)

Elizabeth Foulds

Non-vessel ceramic objects were restricted to worked circular fragments of pottery with a perforation, which are usually interpreted as spindle whorls. An additional probable spindle whorl, made from an amphorae fragment is discussed in Chapter 6.

2014 Cutham

[12.19] Roughly circular unfinished pottery sherd perforated disc or spindle whorl. Fabric: GROG. D: 31.2mm, Th: 8.3mm. BAG14; Context 3071 (Figure 12.1).

The two opposing drill marks on either side of the disc show that it was intended to be a spindle whorl, but given that the partially drilled holes were not in line with each other, the craftsperson seems to have discarded it.

1979-1981 excavations

[12.20] Roughly made pottery sherd pierced disc or spindle whorl with central perforation. Fabric SAV GT. D: 42.9mm, Th: 6.1mm, perforation D: 7.5mm. BAG79-81; Context 81-78; SF 81-86.

[12.21] Well made pottery sherd pierced disc or spindle whorl with slightly off-centre perforation. Fabric SAV GT. D: 41.4mm, Th: 9.9mm, perforation D: 8.5mm. BAG79-81; Context US; SF 81-88.
[12.22] Roughly made pottery sherd pierced disc or spindle whorl with mistake in the location of the perforation. Fabric SAV GT. D: 41.4mm, Th: 11.2mm, perforation D: 4.0mm. BAG79-81; Context 81-24; SF 81-91.
[12.23] Fragment of a pottery sherd perforated disc or spindle whorl. Fabric BGWR. Th: 7.2mm. BAG79-81; Context 81-24; SF 81-92.

Glass beads

Elizabeth Foulds

1979-1981 excavations

[12.24] Translucent green-yellow annular bead with opaque yellow whirl motif. Foulds (2017) Class 8 Type 1608 (DB 17441). D: 26.5mm, H: 13.1mm, perforation D: 14.1mm. BAG79-81; Context 81-33; SF 81-58 (Figure 12.2).

Single glass beads are relatively common finds from Iron Age sites. The Late Iron Age is characterised by very large glass beads. None of these have been found *in-situ* in an inhumation, so it is unclear if they were used as part of dress and/or personal adornment or served some other function.

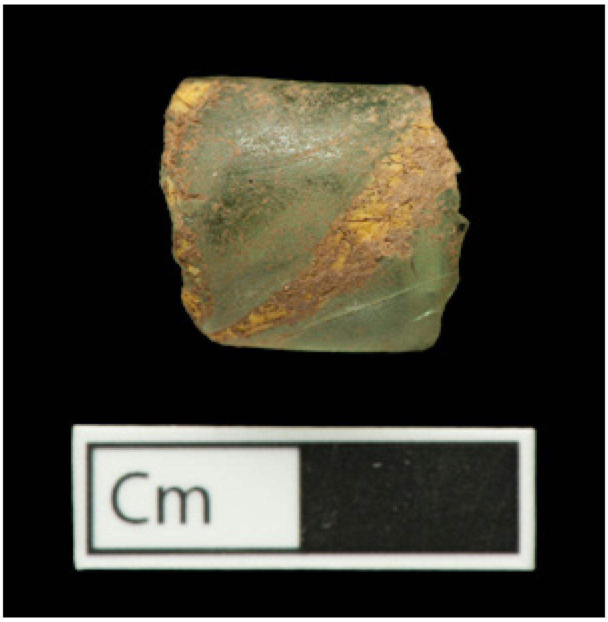

Figure 12.2. Photo of glass bead from Bagendon (catalogue no. 12.24) (Photo: Jeff Veitch)

2015 Black Grove excavations

[12.25] Translucent dark blue cylinder bead with oval cross-section. L: 5.4mm, W:4.7mm, H: 10.3mm, perforation D: 2.6mm x 2.0mm. BAG15; Context unstratified; SF 15-02 (Figure 12.1).

Roman glass beads tend to be small, made from blue and green glass, and formed into simple shapes. They were used for different types of jewellery, such as necklaces, bracelets and as part of earrings. Cylindrical blue beads are a common type of bead that was used throughout the Roman empire (Swift 2000: 112). Guido (1978: 94) suggests that they were used throughout the period, although they were more prevalent in contexts that date to the 2nd century AD or later.

Vessel Glass

Elizabeth Foulds

1979-1981 excavations

[12.26] Translucent pale green glass vessel fragment with pinched or tooled decoration. BAG79-81; Context 80-1; SF 80-57.

The pinched decoration is a characteristic feature of the conical jug (Isings 1957, form 55). Price and Cottam (1998) date this common form to the last third of the 1st century to the third quarter of the 2nd century AD. A similar fragment was found at The Ditches, Gloucestershire (Shepherd 2009: 157, no. 12).

2015 Black Grove excavations

The assemblage of vessel glass from Black Grove was very small and undiagnostic of form and date.

[12.28] Undiagnostic blue/green glass fragment. Th: 5.9mm. BAG15; Context 6006.
[12.29] Small fragment of translucent blue glass. BAG15; Context 5036.
[12.30] Two undiagnostic fragments of light green glass fragments with small bubbles. BAG15; Context 5026.
[12.31] Undiagnostic translucent light green glass fragment with small bubbles. BAG15; Context 5033.
[12.32] Small undiagnostic yellow/green body sherd fragment. Th: 1.4mm. BAG15; Context 6006.
[12.33] Light green body sherd fragment. Occasional bubbles, iridescent surface. Convex-curved side. Possibly from a cup or bowl. Th: 0.9-1.6mm. BAG15; Context 6011; SF 15-23.

Claudian Glass Bowl

John Shepherd

[12.27] Glass Bowl. BAG79-81; Context 81-3 and 81-52; SF 81-62) (Figure 12.3).

Nine fragments from the rim and side of a bowl (Isings 1957: 17, form 2) imitating a *terra sigillata* vessel, Dr. 27 outsplayed and flattened horizontal lip. Cast and wheel polished, base missing. Translucent blue glass with diameter of 131mm.

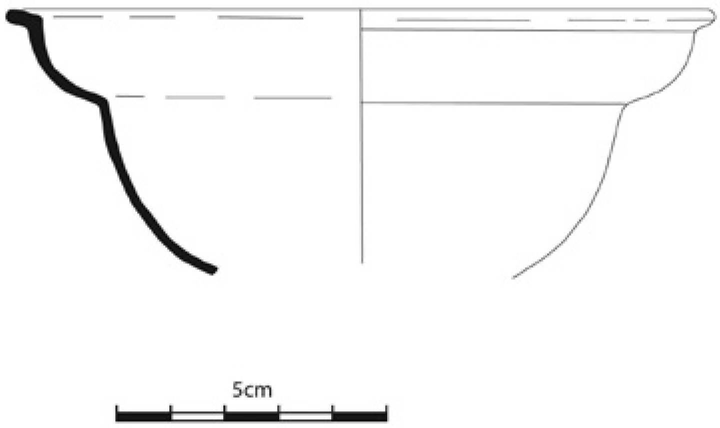

Figure 12.3. Claudian glass bowl (catalogue no. 12.27).

This example comes from a range of sixteen cast cups, bowls and platters in translucent monochrome glass imitating Arretine and *terra sigillata* forms, both groups probably being inspired by metal types. Colours include 'emerald' green, dark or cobalt blue, deep blue-green (aquamarine) and Persian or 'Peacock' blue. Grose (1991: 2-9) describes the sixteen vessel forms as being 'aggressively Roman in character' as they have no obvious associations with late Hellenistic traditions of casting. Their distribution is firmly centred on Italy and the northern provinces (Grose 1991: 2) but they are known in the eastern Mediterranean, although they are not common there. An Italian manufacturing centre, owing to the colour range and technique of manufacture, can be assumed.

The earliest datable example, an opaque red vessel from Haltern (Loeschcke 1909: 371, no. 3) comes from a context dated to 11 BC–AD 16. Examples from *Vindonissa* (Berger 1960: 28, nos 38-41), Magdalensburg (Czurda-Ruth 1979: 67-72, nos 528-572), *Conimbriga* (Alarcão and Alarcão 1965: 39, no. 39), *Camulodunum* (Harden 1947: 301, no 57) and Vetera (Hagen 1922: 398) date this form primarily to the Tiberian to Claudian periods. However, the examples from *Camulodunum* and *Vetera* above may be early Flavian and their presence in the Vesuvian eruption assemblages of AD 79 suggests that they continued to be retained for use beyond that date.

Stone

Elizabeth Foulds

Objects made from stone consisted of shale objects of dress and possible utilitarian objects (vessels).

2014 Cutham

[12.34] Fragment of worked shale, probably from a bowl or other vessel. BAG14; Context 3072; SF 14-14 (Figure 12.1).

[12.35] Small fragment of flat shale ring. W: 8.2mm, Th: 3.8mm. BAG14; Context 3029; SF 14-05 (Figure 12.1).

1979-1981 excavations

[12.36] Shale armlet fragment with circular cross-section. Approximately originally 100mm in diameter. L: 61.6mm, Th: 8.8mm. BAG79-81; Context 79-81; SF 79-89 (Figure 12.4).

[12.37] Near complete shale bead/ring. Plano-convex cross-section. D: 41.8mm, Th: 7.5mm, internal D: 19.7mm. BAG79-81; Context US; SF 81-84 (Figure 12.5).

Large beads or rings, often with large perforation holes are known from other Late Iron Age and early

Figure 12.4. Shale armlet (catalogue no. 19.36)

Figure 12.5. Shale ring (catalogue no. 19.37)

Roman period sites. As discussed above, some are made from glass and are highly decorated with multiple colours of glass, but others are carved from stone and undecorated. Other similar stone examples have been found with the Birdlip burial necklace (Bellows 1880–81), with the collection of glass beads found with the Chesil mirror burial (Foulds 2019), and at Glastonbury Lake Village where they are described as harness rings (Bulleid and Gray 1911: 264, K17 and K23).

[12.38] Smooth pebble, possibly used as a slingstone. L: 39.0mm, W: 29.5mm, Th: 19.3mm. BAG79-81; Context 81-38; SF 81-159.

[12.39] Whetstone. Now missing. Original site description 'Pebble with edges rounded and a hole bored in one place towards edge. 2.6cm long [1.9cm wide?], hole *c.* 4cm across, 2cm from edge'. BAG79-81; SF 80-109.

[12.40] Smooth stone with intentional perforation. General plano-convex cross-section. Possibly used as a whetstone or smoothing rubber. L: 52.4mm, W: 47.8mm, Th: 23.5mm. BAG79-81; Context 79-18; SF 79-90.

Quernstones

Ruth Shaffrey

Three items of stone were submitted for analysis. A small edge fragment of upper rotary quern was found in the 1980s excavations, recovered from pit BG (BAG79-81: context 80-99) in Area A, in contexts which are likely to date to the mid-1st century AD. It is of Quartz Conglomerate (Old Red Sandstone) from the Forest of Dean. It appears to be of an unusually small size, but its circumference is damaged and only a small percentage of it survives, so the measurement may not be accurate.

A fragment of stone with a curved edge suggesting an approximately circular original shape was found in one of the postholes in the Scrubditch enclosure (context 1077) in posthole [1076]. This has been pecked to shape with a flat, worn grinding surface and a rounded back. The micaceous sandstone from which it is made is from the Brownstones division of the Old Red Sandstone and may have the same source as the rotary quern above.

The third item of stone is a quartzite cobble found in pit F16 (context 1083). This stone has some suggestions of use in the form of some smoothing and percussion damage around the edges, but it is most likely that this occurred naturally and that the stone is unused. It is not local to the site, however, and may have been brought here with the intention of use. Scattered pebbles and cobbles of quartzite are found across the area as remnants of the Northern Drift formation (ancient river terrace sediments), and were naturally occurring at Hazleton Long Barrow some 13km north of Bagendon where they were found at a concentration of one per 9.5m2 (Sumbler *et al.* 2000: 73; Worssam 1987). Nearer sources are possible but are not directly documented in the geological literature.

Catalogue of stone

[12.41] Upper rotary quern fragment. Small rim fragment. The grinding surface has been pecked and has some polish caused by wear towards the circumference. Both the grinding surface and the upper face have suffered some damage where quartz clasts have been plucked out leaving voids behind. The quern measures approximately 260mm diameter but the circumference is slightly damaged and only a small section survives. The original size may have been bigger. Old Red Sandstone, Quartz Conglomerate. Pit fill BAG79-81 (80-99); AD 20–60.

[12.42] Rubber fragment. With part of curved edge and one approximately flat face has been worn very smooth. The other faces are pecked to shape with rounded sides curving into a rounded top. It is not quite circular - but if it were roughly so, it was about 120-130mm diameter x >50mm thick. Brownstones, a medium-grained micaceous feldspathic brown sandstone with well-sorted grains. BAG12: context (1077); Scrubditch enclosure; fill of posthole [1076] of the possible roundhouse.

[12.43] Probably unworked cobble. Some damage around the circumference, which could be from percussion damage and smooth faces which could be from use as a rubber, but overall it is unlikely this stone was used as all the wear could have occurred naturally. Measures >80 x >42 x approximately 44mm thick. Quartzite. Context (1083); upper layers of Pit F16.

Discussion

The rotary quern fragment is of the same Quartz Conglomerate as several querns found by Clifford (Clifford 1961: 196 and 151; Shaffrey 2006). The area around Bagendon was the centre of the region supplied by querns of Old Red Sandstone during the Late Iron Age and Roman periods and this additional quern fragment reinforces our current understanding of quern use in the region. The lower Old Red Sandstone (Brownstones) used for the saddle quern, was also typical of the region, but it was more usual for it to be used for stone roofing from the 2nd century AD onwards as its finer grain size made it less suitable for grinding (Shaffrey 2006).

The presence of querns and rubber fragments is usually taken as being indicative of the preparation of grain and thus of the domestic supply of food. The rubber fragment would thus fit well with the feasting role assigned to the Scrubditch enclosure. The preparation of flour remains the most likely function of the querns, especially the rotary quern, but alternative functions should not be discounted since the evidence is increasingly revealing the multi-functionality of such tools (Anderson *et al.* 2014: 27). Both the rotary quern and the rubber could have been used to grind a whole range of foods such as nuts, seeds, roots, vegetables, minerals, cereals, lentils, spices, as well as fish and fish products (Barker 1985: 12; Dominguez-Bella and Casasola 2011: 457). Non-food related products that could be processed on querns include medicines, dyes and pigments, mineral ores and pottery temper (Watts 2014: 38).

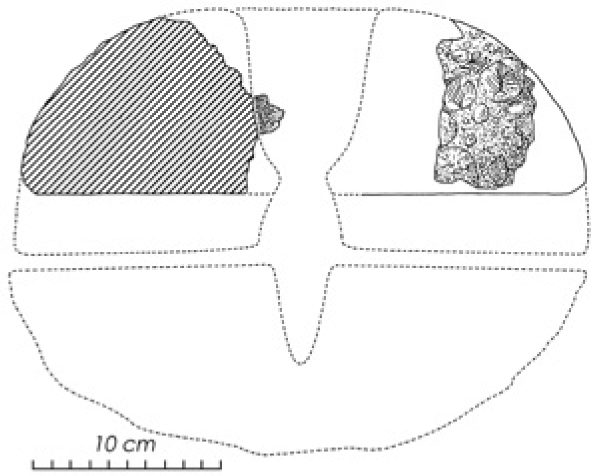

Figure 12.6. Drawing of Hertfordshire Puddingstone quern fragment (drawn by Chris Green)

Figure 12.7. Photo of Hertfordshire Puddingstone quern fragment (Photo: Jeff Veitch)

Hertfordshire Puddingstone quern

Chris Green

[12.44] A single fragment constitutes roughly a 5% segment of the upper stone of a domed or 'beehive' Hertfordshire Puddingstone quern. Context: Area B, cobbling; BAG79-81: context 80-89 (Figures 12.6 and 12.7).

Hertfordshire Puddingstone is an intensely hard silcretised Palaeocene flint-pebble conglomerate, obtained in antiquity either as surface boulders or as sporadic *in situ* or periglacially disturbed concretions, never more than a very few metres in diameter. The rock comes from a confined region of the Chiltern dip-slope: eastern Buckinghamshire, Hertfordshire and north-west Essex. But the querns had a much wider and essentially East Anglian distribution in the century or so after the Conquest (Green 2011).

Hertfordshire Puddingstone varies in its details. This example is typically packed with large well-rounded toffee-coloured flint pebbles (with a characteristic dark grey 'rind') up to 45 mm in diameter, in a grey matrix. Here however the interstices are packed with ill-sorted flint clasts as small as 1-2 mm rather than the finely sandy or often chert-like matrix (the same rock as sarsen) usually encountered in querns. So, the rock has been poorly selected and perhaps for this reason the outside surface has been left unusually rough. Though the quern will have been efficient in operation, it cannot have been as marketable as many of the shapely and smoothly-finished counterparts found in East Anglia.

A very small area of the upper bore (the 'hopper') survives, allowing the diameter to be estimated at 300 mm, average for its type. The height is around 100 mm (98 mm survives), suggesting a fair degree of wear but perhaps not as far as the constriction above the mouth, which marks the end of these querns' designed lives. The grinding surface shows wear points but was well-maintained, with the sharp facets of the fractured flint very much in evidence, and no extensive 'glazing'. There is no surviving sign of the turning mechanism, and while the 'handle' socket is unlikely to be evident in so small a fragment, there is no trace of the peripheral groove (for an iron band) which so often accompanied the socket, and it was probably never present here. Lack of a driving band strengthens the suspicion that this was not the most expensive and desirable of Hertfordshire Puddingstone querns.

It was however one of the furthest travelled, being much the most westerly known example, fully 80 km west of the maximum of the main distribution, and 58 km beyond the next locality at Alchester, Oxon. Hertfordshire querns are very rarely found beyond Yewden villa (downstream from Henley-on-Thames), Aylesbury and Milton Keynes. In the Late Iron Age and Roman periods Devonian Old Red Sandstone Conglomerate (ORS) querns from the Forest of Dean were far more readily available to the west, and Bagendon lies practically at the epicentre of ORS use (Shaffrey 2006). It should also be noted that ORS was in inexhaustible supply, while Hertfordshire Puddingstone was a relatively uncommon rock. Isolated and inexplicable finds of Hertfordshire querns do occur far afield, certainly in Jersey and near Skipton (North Yorkshire), but at Bagendon there is the suspicion that the importance of the place has drawn in the quern, perhaps with its owner. Similarly, a recent single find at Silchester, a town otherwise dominated by Lodsworth Greensand and ORS querns, may be significant of the place rather than the marketing of querns (Mike Fulford pers. comm.; Peacock 1987; Shaffrey 2003; Shaffrey and Roe 2011). Hertfordshire Puddingstone querns may have been regarded as of very high quality since they will have released very little grit into the flour, and worn slowly; the rock is a well-cemented almost pure silica.

The dating of querns is generally difficult as they have uncertain but potentially long lives, and may be put to other uses once worn out. Major (2004) has confirmed the view that Hertfordshire Puddingstone querns were current during the first fifty, and no longer than the first hundred years of Roman rule. Others, like Stead (Stead and Rigby 1986) and Williams (1999), have found few Hertfordshire Puddingstone querns on likely sites first occupied *c.* AD70–75, which would imply a very short period of production of about 25 years. Their use shortly before the Roman Conquest has been placed in doubt by the possibility of confusion with French or Surrey Puddingstone querns (Green 2016; 2017). In the present state of knowledge Hertfordshire Puddingstone querns with hemispherical (as here) and more conical upper stones should be regarded as having been *made* post-Conquest and during the 1st century AD. Properly observed and published discoveries from future excavations can confirm or modify this view.

The fragment is relatively small, but sharp-edged, and there may be the implication of deliberate breakage requiring some force.

Fired Clay

Cynthia Poole

Introduction

A small assemblage of fired clay amounting to 65 fragments weighing 612g was made available for recording and analysis (Table 12.1). A further quantity of fired clay classified as daub, all undiagnostic amorphous fragments, had also been recovered from the excavations are listed below. The material was recovered from the fills of the enclosure ditch, pits, a posthole and miscellaneous deposits. The preservation was relatively poor with a low mean fragment weight of 9.4g and the majority of pieces moderately to heavily abraded. Most fired clay is not intrinsically dateable, except for a limited number of diagnostic forms and is reliant on associated dateable artefacts for phasing. One object can be dated to the Iron Age – early Roman period, which is consistent with the overall dating of the contexts between the 3rd century BC and mid-1st century AD.

Methodology

The assemblage has been fully recorded on an Excel spreadsheet in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007), which whilst not specifically designed for fired clay, provide appropriate guidance. The record includes quantification, fabric type, form, surface finish, organic impressions, dimensions and general description. The assemblage is quantified by form and fabric in Table 12.1. Fabrics were characterised on macroscopic features supplemented by a x20 hand lens for finer inclusions.

Table 12.1. Summary of the fired clay by form and fabric.

Fabric	**QV**		**Qf**		**F**		**L**		**Total**	
Form	**Count**	**Wt (g)**	**Count**	**Wt (g)**	**Count**	**Wt (g)**	**Count**	**Wt (g)**	**Count**	**Wt (g)**
Furnace lining/ industrial			4	25					4	25
Oven wall	3	38							3	38
Structural? Oven/ hearth	14	83							14	83
Wattle supported structure					1	4			1	4
Indeterminate			7	52					7	52
Triangular Perforated Brick							33	387	33	387
Oven/hearth furniture?	3	23							3	23
Total	**20**	**144**	**11**	**77**	**1**	**4**	**33**	**387**	**65**	**612**

Fabrics

Four fabrics were identified of which all, but one, were sandy. Fabric QV, the most common, was a red to reddish brown, fine micaceous clay containing a low density scatter of medium-coarse quartz sand *c.* 0.5mm and a low to moderate density of scattered chaff impressions up to 10mm long. Fabric QF was a fairly soft fine sandy silty clay generally fired to red, orange or reddish brown in colour. A single fragment of fabric F was a similar orange fine sandy clay but was differentiated by the presence of frequent rounded dark red ferruginous clay pellets 0.5-10mm. Fabric L was a soft, silty clay containing common limestone and shell grits up to 8mm in size.

Forms

The fired clay essentially divides into structural material from ovens, hearths and furnaces and portable oven/hearth furniture.

Structural fired clay

Fragments from context (1022), at Scrubditch enclosure and (3012), from Cutham enclosure, have been tentatively identified as oven wall or lining. These have a roughly moulded surface with shallow undulations made by the fingers moulding the clay. Finger marks most commonly occur on the inner wall surface of ovens or kilns at all periods when such structures have been observed *in situ*. A small fragment had an angled groove on the back face, which is probably a small wattle impression *c.* 12mm in diameter.

In addition to this there were two pieces from industrial structures both recovered from Area B (context 80-40), a mid-1st century AD deposit of occupation debris. One was typical vitrified furnace lining. It has flattish, irregular and undulating surface, which has been lightly vitrified and cindered resulting in a vesicular layer across the surface before grading through a black fired margin 5mm thick to the oxidised more lightly fired core. The exterior probably remained unfired and has eroded and weathered away from the fired inner section of the furnace wall. The second fragment is not as heavily fired with a cindered vesicular edge, suggesting it came from a more peripheral area of the structure. The fragments measured 12-22mm thick. This could be the wall lining of either a metal working furnace or smithing hearth.

Portable oven/hearth furniture

Two objects were identified as portable oven or hearth furniture. A single fragment from a mid-late Iron Age pit fill from Scrubditch (1026) has two moulded surfaces set at slightly less than a right angle (*c.* 88-89°) joined by a sharp angular arris. One surface is very flat and even probably made by pressing onto a flat surface during manufacture. The other surface is smooth but undulating and slightly plano-convex. The curvature of this surface suggests it may come from the base angle of a cylindrical pedestal with a diameter of *c.* 130-140mm.

The second item consists of a group of fragments probably all from a single object from mid-1st century pit fill from Area A (context 81-2). This is the only material in the shell gritted fabric L. Most pieces have a single flat fairly smooth moulded surface. The largest fragment has a diagnostic feature of a perforation running parallel to the surface, and though the surviving edge is in very poor condition, it would appear that the perforation pierces it at an angle and therefore can be identified as a triangular perforated brick. The perforation measures *c.*14mm in diameter. It measured over 42mm thick and the total thickness is estimated to be *c.* 85mm, which indicates it was of an average size. A couple of pieces are better fired but in general the brick is poorly fired, especially the core, which is often a feature of these objects.

Miscellaneous

A small quantity of indeterminate fired clay is of uncertain function. Whilst most of the pieces have a single flat moulded surface, the character of the surface has no distinctive characteristics that might allow it to be assigned to either of the broader groups.

Discussion

The fired clay is a typical middle-late Iron Age assemblage producing evidence of domestic and industrial structures. Most pieces are probably representative of domestic ovens or hearths related to cooking and heating. The triangular brick probably served as oven or hearth furniture. At most sites, the evidence for this is circumstantial often being dumped in deposits rich in burnt debris. This was first suggested in relation to material from Danebury (Poole 1995) but more recently examples have been found in Kent (Poole 2015: 304) used in specialised situations in relation to salt working where the salt discolouration shows they were used as pedestals. Whether this was their function in all circumstances is uncertain and it is possible they were regarded as generalised oven/hearth furniture to be utilised as circumstances demanded. The evidence of industrial activity is confined to the 1st century AD and is likely to represent ironworking, most probably smithing rather than smelting (cf. Chapter 9).

Non-vessel ceramic (sling shots)

Tom Moore

Two sling shots were recovered from the 1979-1981 excavations. Both are of a similar shape and size to examples recovered from The Ditches (Trow and Moore 2009a), which were also found in mid-late 1st century AD contexts. The fabric of both also appears similar to The Ditches examples and shares some similarities to the grog tempered ceramics found at Bagendon (see Chapter 6) which are suspected to originate in the area. This type of slingshot is usually interpreted as having been used in hunting, rather than warfare.

[12.45] Fired dark-grey/orange clay spherical slingshot, damaged on one side. L: 43mm, W: 23mm, Th: 21mm. BAG79-81; Context 81-6 (Figure 12.1).

[12.46] Fired dark-grey/orange clay spherical slingshot, damaged on one side. L: 41mm, W: 25mm, Th: 30mm. BAG79-81; Context 79-29 (Figure 12.1).

Building Materials

Elizabeth Foulds

Evidence of potential building materials also consisted of fragments of fired clay, some of which may be undiagnostic remnants of daub, and from Black Grove wall-plaster, including some painted plaster.

2012-2013 Scrubditch

Fragments of fired clay were recovered from 10 contexts at Scrubditch (Table 12.2), with the largest assemblage coming from the fill of ditch [1007]: contexts (1042) and (1021).

2014 Cutham

A small amount of fired clay was recovered from three contexts at Cutham (Table 12.3).

1979-1981 excavations

In addition, the material examined by Poole (above), a small amount of fired clay was recovered from the 1980 and 1981 excavations (Table 12.4).

2015 Black Grove excavations

A small collection of unfired clay was recovered from the excavations at Black Grove (Table 12.5). Fragments of wall plaster was also discovered (Table 12.6). Some fragments had traces of paint (noted in table).

Table 12.2. Summary of fired clay at Scrubditch.

Site code	Context	Count	Weight(g)
BAG12	1006	1	8.7
BAG12	1055	14	82.3
BAG12	1036	3	5.3
BAG12	1030	3	12
BAG12	1001	2	6.8
BAG12	1042	21	332
BAG12	1021	24	104
BAG12	1045	3	25.8
BAG13	1122	3	16.5
BAG13	1138	2	0.8

Table 12.3. Summary of fired clay from Cutham.

Site code	Context	Count	Weight(g)
BAG14	4011	3	8.1
BAG14	4007	2	9.2
BAG14	3037	1	11.7

Table 12.4. Summary of fired clay from 1979-81 excavations.

Site code	Context	Count	Weight(g)
BAG81	31	4	16.3
BAG81	44	1	4.9
BAG81	7	1	5
BAG80	16	1	10
BAG80	1	2	12.3
BAG80	69	9	41

Table 12.5. Summary of fired clay from Black Grove .

Site code	Trench	Context	Count	Weight(g)
BAG15	5	5001	2	17.2
BAG15	5	5026	2	8.3
BAG15	5	5002	4	12.6
BAG15	5	5035	1	11.8

Table 12.6. Summary of wall plaster from Black Grove.

Trench	Context	Weight (g)	Colours present
5	5004	79	-
	5016	48	Light traces of red and black
	5017	254	-
	5022	36	Red and orange
	5024	4	Red
	5026	2	Red and black on one fragment
	5033	>1	-
6	6007	4	Red
	6009	777	Red, orange, black, white
	6010	29	Red
	6011	30	Red
	6015	>1	Red

Roofing material from Black Grove

Tom Moore

A relatively small assemblage of Ceramic building material (CBM) was retrieved from Black Grove. This included various fragments of imbrex and tegula (Table 12.7). Whilst the majority of this material occurred in phase 5 contexts, related to the collapse of the final building, significant amounts were also found in phase 3a and 3b contexts, suggesting that the earliest phase of the villa was perhaps at least partially roofed with tegula. That those examples found in later contexts were often relatively abraded may suggest they were largely redeposited from earlier contexts.

In addition to the CBM, the upper layers from trenches 5 and 6 produced significant quantities of limestone tiles, a number of which contained nail holes and still retained their iron nails. These are of diamond shaped, varying in size but normally around 0.40 m x 0.30 m. The number and weight of these in upper contexts mean a 100% sample was not retained with only representative examples from relevant contexts. Significant numbers came from context (5022), two of which have been

Table 12.7. CBM from Black Grove.

CBM	Undiagnostic		imbrex		tegula		Phase
context	frags	weight(g)	frags	weight (g)	frags	weight (g)	
5027	2	158					Ph3a
6023			1	240.4			Ph3a
6032					3	603.1	Ph3a
5017	20	303.4	4	691	1	67.6	Ph3b
6011	2	75.3					Ph3b
5016	5	26.6			2	141.6	Ph4
5034	3	133.6	1	114.8	1	103.6	Ph4
5000	23	325.8	3	254	1	304	Ph5
5001	21	178.2					Ph5
5002	3	46.4					Ph5
5003	27	382.9	4	563.8	4	146.4	Ph5
5004	71	1083	15	1655	13	1823.7	Ph5
5006	13	220.4	4	427.8			Ph5
5008	4	207.2					Ph5
5024	17	518.4	2	539.6	4	648	Ph5
6000	13	240.3			2	261.5	Ph5
6004	10	70.6					Ph5
6005			1	140.9	2	934	Ph5

Figure 12.8. Photo of Roman limestone roof tile (Photo: Jeff Veitch)

photographed (Figure 12.8), and they were also found in contexts (6004), (6007) and (6011). These are typical of the region from the Roman period up until the modern era and suggest that the later phases of the Black Grove building was roofed in stone tiles with only the earlier phase building covered in tegula or, as Poole (2018) has suggested, a potential mix of both roofing materials.

Lithics

Freddie Foulds

Introduction

This report presents the analysis of the lithic artefacts recovered during excavations at Bagendon between 2012 and 2015 and those from the 1980s. To these can be added to a small lithic assemblage recovered in the 1950s (Gracie 1961b). A total of 101 lithics were assessed, of which 20 were shown to be natural in origin. The remaining artefacts generally consisted of undiagnostic flakes and debitage characteristic of core reduction, interspersed with several more diagnostic artefacts, which demonstrated activity ranging from the Mesolithic to the Early Bronze Age. The material recovered between 2012–2015 is discussed according to the areas of excavation (Scrubditch enclosure, Cutham enclosure and Black Grove; see Table 12.8). A summary discussion of the raw material for the entire assemblage is also provided.

In addition, a total of 22 lithics and three ground stone axes recovered during the 1979-1981 excavations and field walking between 1982-1985 were reassessed. Of the lithics, six were shown to be natural in origin, with the remaining 16 artefacts (as well as the axes) found to be characteristic of periods ranging from the Mesolithic/ Neolithic through to the Early Bronze Age. The lithic artefacts are discussed separately, while the discussion of the raw material component has been combined with that from the later excavations, in order to form a more homogenous assessment of raw material usage within the landscape. Only the material identified as humanly modified is discussed below.

Method

Recording was carried out in accordance with existing guidelines (CIfA 2014; Watkinson and Neal 2001). Where reference to specific guidance within the literature on stone tools has been made, this is stated in the method statement below. All material was inspected by eye, using a hand lens (30x and 60x magnification) where appropriate, and logged in a database using Microsoft Access.

Raw material

Most of the artefacts were produced using flint (n=94; 94%). This ranged in colour from black to grey, although for a significant portion of the assemblage the raw material colour could not be determined due to patination. Cortex was present on 37 of these pieces (39.4%), which generally presented as cream or white in

Table 12.8. Lithic assemblage composition according to excavation area.

Material Type	Scrubditch Enclosure	Cutham Enclosure	Black Grove	1980–85 Excavations and Field Walking	Total
Worked	42	17	22	19	100
Natural	6	3	11	6	26
Total	48	20	33	25	126

colour and in all cases was abraded. Only a single flake fragment displayed an entirely cortical dorsal surface, and only five pieces including this one displayed 70% or greater cortex. The generally limited presence of cortex suggests that the assemblage presents mainly secondary and tertiary reduction stages and indicates that primary working was likely taking place elsewhere. In addition, the abraded nature of the cortex may indicate that the raw material was being sourced from deposits that had been mobile, possibly fluvial or glacial, rather than being brought to the site from chalklands further to the south.

Patination of the flint artefacts was extensive. Only seven showed no patination, while nearly three quarters of the assemblage (74.5%) displayed 70% or greater patination. In most cases, this presented as a white or milky-white stain to the exposed outer surface of the raw material, although two pieces displayed a light grey patina. The presence of patina across much of the assemblage enabled the presence of edge and other post-depositional damage to be more easily determined and indicated that most of the artefacts had seen some damage following the point of their original discard.

The remaining six artefacts were produced using a mixture of quartz/quartzite (n=2), tuff and other volcanic rocks (n=4). Three of these artefacts consisted of the Neolithic ground stone axes. One of these appears to have been produced on a fine grained, black volcanic rock, possibly basalt, while the others appear to be tuff. One appears to be green in colour and a similar flake in a green tuff was also recovered. Further petrological analysis may be warranted to establish the origin of these.

Technology

The assemblage was divided according to the areas of excavation conducted between 2012 and 2015. In each case, the artefacts were classified according to type and are discussed accordingly below. The assessment of the artefacts from the 1980–1985 excavations and field walking follows. The report is concluded with a summary and discussion of the assemblage and its potential.

Scrubditch Enclosure (2012–2013)

Excavations at Scrubditch in 2012-2013 investigated a pair of enclosures. Two trenches were excavated; Trench 1 was placed to investigate the interior of a penannular enclosure (A) and its relationship to the conjoining sausage-shaped enclosure (B), while Trench 2 examined the entrance to the site. A total of 42 lithic artefacts were recovered during the excavations (Table 12.9).

Table 12.9. Composition of the worked Lithic assemblage recovered from Scrubditch Enclosure according to type.

Knapped Form	Trench 1	Trench 2
Cores and core fragments	2	-
Flakes	20	3
Blades/bladelets	6	-
Debitage	9	2
Total	37	5

Core and core fragments

A single core was recovered from the upper fill of ditch [1009] and a core trimming flake was recovered from the upper fill of ditch [1032]. Both artefacts were recovered from Trench 1. The core was produced on a small pebble and displays single platform working. A total of nine removal scars were recorded, indicating minimal working prior to its abandonment. The core trimming flake represents a core rejuvenation flake taken from a flake core. The former platform edge can clearly be seen on the dorsal surface and again suggests single platform working. Both may be Mesolithic or Neolithic in date.

Flakes, blades, and other debitage

A total of 20 flakes were recovered from contexts associated with Trench 1. These were generally isolated finds within features. However, two concentrations are worth noting. Five flakes were associated with the fills of ditch [1007] and were accompanied by a further five artefacts, comprising a bladelet and debitage. A further four flakes were associated with the fill of ditch [1032].

In general, these flakes were undiagnostic of any period, although six displayed dorsal scar patterns that might suggest core working patterns characteristic of the Mesolithic/Neolithic. All the flakes were produced as part of secondary or tertiary stage reduction and most (n=14) displayed flat platforms. In addition, they displayed characteristics of soft hammer working, though three had more pronounced bulbs of percussion. One flake of note was produced from a green coloured tuff and stands out from the other, which were all produced from flint. It may be linked to Neolithic axe manufacture.

Trench 2 produced only three flakes. Two were recovered from the fill of ditch [2021], with the remaining flake recovered from the topsoil. All three were undiagnostic of any period.

Only four blades were recovered, three from within Trench 1 and one that is recorded as unstratified. These represent a mixture of broad and narrow blades, and mostly fragments thereof. One (BAG12_L003) displays a small amount of retouch applied along the distal end. All came from different fills associated with ditches and postholes. They are broadly interpreted as Mesolithic to early Neolithic in date.

The remaining debitage, comprising 11 pieces (nine from Trench 1 and two from Trench 2), consists of indeterminate fragments (chunk/shatter) and flake fragments, which can all be attributed to knapping.

Summary

The assemblage from Scrubditch Enclosure is small and while most of the material is undiagnostic, a small number of artefacts have affinities with material dated to the Mesolithic and/or early Neolithic. The presence of a flake of green tuff also suggests the present of Neolithic activity, considering such raw material is known to be used in polished stone axe manufacture. Overall, the available evidence suggests core working aimed at the production of flakes and small blades/bladelets. The majority (n=21; 50%) display diffuse bulbs of percussion, with only six (14.3%) displaying pronounced bulbs. Many of the platforms, where present, were flat. Almost all the assemblage represents secondary and tertiary stage working, suggesting cores were brought to the area roughed out. Given that only one small core was found at the site, it is likely that cores were curated and transported away from the site.

Due to the lack of any definitive tools, little can be said about the type of earlier prehistoric activity taking place at Scrubditch Enclosure. Most of the lithic artefacts were recovered from the eastern side of the site and originated from ditches [1007], [1009] and [1032]. This suggests that any activity was limited to this area. However, given the small amount of material and the fact that all artefacts were recovered from later features, the assemblage is suggested to represent a background of prehistoric material that has most likely been disturbed.

Cutham Enclosure (2014)

Excavations at Cutham Enclosure produced an assemblage of 17 lithic artefacts, with 11 originating from Trench 3 and the remainder from Trench 4. These were classified by type as shown in Table 12.10.

Table 12.10. Composition of the worked assemblage recovered from Cutham Enclosure according to type.

Knapped Form	Trench 3	Trench 4
Arrowhead	1	-
Flakes	4	3
Blades/bladelets	2	2
Debitage	4	1
Total	11	6

Arrowheads

A single Early Bronze Age barbed and tanged arrowhead was recovered from Trench 3, from topsoil. The tip has been damaged and there is recent damage to the barbs and edge. It is of a similar type to that found during the earlier investigations within 'Pylon Field' (see below), which is field B4 (see Figure 2.1b). It is difficult to classify according to Green's (1980) typology due to the damage sustained. However, it may fall into the Conygar Hill or Sutton types based on morphology, and given the flaking and size of the tool, it is more likely to fall into the latter type.

Flakes, blades and other debitage

The rest of the assemblage comprised debitage form core working. A total of seven flakes were recovered. Four were recovered from inside the main enclosure area, while three came from the fill of ditch [4002] in Trench 4. While most were undiagnostic, one displayed a curved profile with an extensively scarred dorsal surface, which may be attributed to bifacial thinning, possibly in the production of an axe. In addition, another flake displayed a possible platform edge on the dorsal side and may be attributed to core trimming to rejuvenate a small flake core. In both cases, these may be dated to the Mesolithic or Early Neolithic, but a more precise date cannot be provided.

Three blades, one of which can be classed as a bladelet (width <12mm; after Butler 2005), were also found. These originated from ditches [3003] and [4002], with the bladelet being unstratified. Only the bladelet was whole, with the remaining two displaying recent breakages indicative of post depositional damage. No use wear or retouch was noted, and all may be attributed to the Mesolithic or Early Neolithic.

The remainder of the assemblage consisted of debitage, comprising four flake fragments and an indeterminate fragment of flint likely resulting from knapping. All this material was undiagnostic of any period. Two pieces were burnt, which originated from pits [3032] and [3084].

Summary

The lithic assemblage from Cutham Enclosure is very small and therefore of limited potential in providing any information regarding earlier prehistoric activity on the site. The extant material indicates use of the landscape from as early as the Mesolithic through to the Early Bronze Age. The arrowhead is indicative of hunting equipment but is an isolated find. The remaining debitage suggests core working was taking place, but no pattern in its special distribution across the site could be determined, both due to the small size of the assemblage and the presence of isolated artefacts across the site. Only ditch [4002] contained a larger number of lithic artefacts and here only five in total.

All the material was small, being between 14 and 40mm in size. Only secondary and tertiary stage working was present, with a mixture of platform types. However, diffuse bulbs of percussion predominated, suggesting soft hammer working was generally used. This fits with the suggested date of Mesolithic to Early Neolithic for the diagnostic pieces.

Overall, the assemblage, being associated with later prehistoric features, should be considered as residual evidence of background prehistoric activity prior to the construction of the enclosure.

Black Grove (2015)

Excavations at Black Grove in 2015 produced a total of 22 lithic artefacts, which have been classified by type (Table 12.11).

Microliths

A single Late Mesolithic geometric microlith was recovered in Trench 5, from amongst the demolition rubble between walls (5007) and (5009). It is a scalene triangle of Jacobi's (1978) type 7a, produced from grey flint with no patination to its surface.

Scrapers

Two scrapers were found in Trench 6, with both being recovered from the topsoil. One is a crude endscraper fashioned on a distal end fragment of a flake using very coarse, scaled retouch. The second is a small scraper of thumbnail type, albeit crudely worked, which appears to have suffered post depositional damage. Both are most likely to date to the Later Neolithic or Bronze Age periods. However, micro scrapers are also known to be present amongst Mesolithic assemblages. Therefore, an earlier date for the latter of these two tools cannot be ruled out.

Table 12.11. Composition of the worked assemblage recovered from Black Grove according to type.

Knapped Form	Trench 5	Trench 6
Microliths	1	-
Scrapers	-	2
Flakes	4	5
Blades/bladelets	2	-
Debitage	1	7
Total	8	14

Flakes, blades and other debitage

The remainder of the assemblage is formed of debitage attributable to core working. A total of nine flakes were recovered, with four from Trench 5 and five from Trench 6. No concentrations of material were apparent. Most were undiagnostic, although one displayed evidence for multiplatform working via its dorsal scar patterning, suggestive of Neolithic core reduction. In addition, one appears to be a core trimming flake, used to rejuvenate a core, as evidenced by the presence of a platform edge across the dorsal surface.

Two fragments of a single blade were also recovered in Trench 5, from the silt beneath cobble surface (5019). These fragments refit, suggesting that the break is recent, and the pieces had not travelled far. It may be Early Neolithic in date due to the flat platform and apparent absence of platform preparation. However, an early Mesolithic date cannot be ruled out. The lack of further blades in the assemblage precludes further speculation.

The remaining pieces were debitage, which predominantly consisted of indeterminate fragments (n=6). Two flake fragments were also recovered. Much of this material originated form Trench 6, with three pieces from the topsoil and three from amongst the rubble abandonment between walls (6002) and (6003). All this material was undiagnostic.

Summary

The assemblage from Black Grove, like that from Cutham Enclosure, is small and mostly consists of debitage. The small quantity of material is indicative of background prehistoric activity in the vicinity of the Roman structures. The assemblage consists of secondary and tertiary stage reduction products. Where present, flake platforms were generally flat, with diffuse bulbs of percussion predominating, which corresponds with Mesolithic and Early Neolithic flint working. The diagnostic tools correspond with this assessment, with the caveat that any activity may have also stretched into the Early Bronze Age as well.

The 1980-1985 material

A total of 19 lithic artefacts that were recovered during the 1980-1985 excavations and field walking at Bagendon were reassessed for this report. These included one Neolithic ground stone axe, as well as two axe fragments. The remaining 16 artefacts were classified as show in Table 12.12.

Table 12.12. Composition of the worked assemblage recovered from 1979-81 according to type.

Knapped Form	Quantity
Arrowhead	2
Axes	3
Scrapers	2
Flakes	3
Blades/bladelets	1
Debitage	7
Other tools	1
Total	16

Arrowheads

Two Early Bronze Age barbed and tanged arrowheads were recovered during fieldwalking within Pylon Field during earlier investigations at Bagendon. They are both very similar in shape, with RF1 displaying possible impact damage to the tip. Both display damage to the barbs, which appears to have occurred during antiquity. Due to the damage to the barbs, it is difficult to provide an accurate classification using the scheme provided by Green (1980), which relies on classification of both tang and barb types. Both arrows may however fall into the Conygar Hill or Sutton types based on their morphology. As per the example from the more recent excavations, based on the size and flake scar patterning, they are more likely to fall into the latter of these two types.

Axes

A single Neolithic ground stone axe and two axe fragments were recovered during field walking between 1983 and 1985. Metrics for all the axes were taken, which included length, width and thickness. Measurement of the width was further broken down to provide measurements of the width of the blade and the midpoint. When measuring a fragment, the width of the break was provided as opposed to the midpoint. All the tools were examined by eye and with the aid of a hand lens in order to provide an assessment of the petrology. However, further petrological analysis is recommended to confirm the conclusions of this assessment. Until this is complete, any interpretations regarding petrology should be treated tentatively.

The complete axe was most likely produced using greywacke, given the fineness of the inclusions compared to dolerite, though further petrological assessment would be required to confirm this. However, it may fall into Group XIX, suggesting a possible origin for the stone in Cornwall (Clough and Cummins 1979; 1988; Evens *et al.* 1964: 226). It appeared to have been polished all over and then later reflaked, though deep scars across one face have significantly altered its form and likely led to its discard. The blade displays three chips, which may relate to use wear. It can be classed as a Type B thin butted form, or as a Type A under Field and Woolley's (1984) typology (oval varying between nearly circular to elliptical).

The remaining two fragments comprise the blade and butt ends of two separate axes. The blade end fragment was produced on a fine-grained, green-coloured tuff. Given its fine nature and colouration, especially on one unweathered section, it is possible that this axe may have been produced from Langdale tuff and thus falls into Group VI (Clough and Cummins 1979; 1984; Keiller *et al.* 1941). It may therefore have originated from the axe factories in the Great Langdale and Scafell areas of the central Lake District. There is significant damage to the blade edge, which may be post-depositional in origin rather than from use. There is also significant scarring around the breakage point and some weathering and scarring to the surfaces. Several incised lines were noted across the polished surface, which appear recent and may have resulted from plough damage. Edge facets can just be seen, placing this axe in Field and Woolley's (1984) Type C (lenticular with edge facets).

The other fragment represents the butt end of a polished stone axe. The stone is cream in colour and may be a fine-grained tuff, although this would require further examination to conclusively prove. If so, however, it may fall into Group VIII, which includes light-coloured igneous rocks that may be described as silicified rhyolitic glass, a fine tuff or a sediment (Clough and Cummins 1979; 1984; Keiller *et al.* 1941). This would suggest an origin from south-west Wales and axes of this group are widespread in central England. Given the limited size of the fragment, a typological classification is difficult to supply. Edge facets may be present, although are not clearly defined. It may therefore fall into either of Field and Woolley's (1984) Type A or Type C.

Scrapers

Two scrapers were recovered, both from the 1981 excavations. No stratigraphic information was provided for these and they form part of a collection of artefacts under recorded find no. 205, which included a pot boiler (see 'Other tools' below). The first of these artefacts is a hollow scraper produced on a fragment and is likely to be Bronze Age in date; however, hollow scrapers have been found associated with Mesolithic assemblages (Butler 2005) and so an earlier date cannot be ruled out. The other scraper is a side scraper produced on a thick, broad blade. This may date to either the Mesolithic or the Neolithic.

Flakes, blades and other debitage

Most of the lithic artefacts found during the 1980-1981 investigations comprised debitage from core working. Only three flakes were found, two of which are undiagnostic. The third may be Neolithic, based on the dorsal scar pattern being indicative of multiplatform core working. This flake originated from context (80-8), which also contained iron strips. As a result, it is almost certainly residual. Only one blade was recovered, during the 1981 investigations from context (81-14). This is a distal end fragment and may date to the Mesolithic or Early Neolithic.

The remaining debitage presents a mixture of flake fragments and indeterminate fragments likely to result from knapping. Most of these were undiagnostic. However, a single fragment from a broad blade may be attributable to the Mesolithic or Early Neolithic.

Other tools

Half of a single rolled and fragmented brown quartzite cobble was recovered during the 1981 investigations at Bagendon. It is listed as unstratified and has been given the recorded find no. 205. This artefact is interpreted as a possible pot boiler, displaying internal fragmentation of the cobble that has been caused by heat. The outer surface also displays light crazing. A date is difficult to assign, as these were used throughout prehistory.

Discussion and conclusions

Overall, the assemblage from the Bagendon collections is representative of a background of earlier Prehistoric activity spanning from the Mesolithic through to the Bronze Age. Much of this material has been disturbed by later activity, both during the Iron Age and Roman periods, as well as by modern agricultural practices.

The assemblage is dominated by debitage, primarily flakes, flake fragments and indeterminate pieces that can provide little insight into chronology or activity beyond an indication that core working was taking place. The general absence of cores throughout the excavations may suggest that they were brought to sites, worked and then removed. However, the high level of disturbance precludes any accurate interpretations that may be drawn in this regard.

The diagnostic artefacts make up 11% of the total assemblage and span the Mesolithic (microlith) to the Early Bronze Age (arrowheads). They primarily suggest hunting activities, with projectile points and scrapers forming most of these tools. However, the presence of Neolithic axe heads also suggest wood working and woodland clearance occurred within the vicinity of the sites.

While the flint appears to suggest a relatively local acquisition of raw materials and the utilisation of smaller nodules, the ground stone axes indicate a wider network of trade for the Neolithic, with stone possibly being imported from Cornwall, Wales and the Lake District. This is in keeping for the distribution of such tools and raw materials within Gloucester and the south-west of England as a whole.

Chapter 13

Radiocarbon dating and Bayesian modelling of the Cutham and Scrubditch enclosures

Derek Hamilton

Twenty-three samples of charcoal, charred plant remains, snail shell, and animal and human bone/teeth were submitted to the Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating by accelerator mass spectrometry. All the samples were single entities (Ashmore 1999) and came from features associated with the Bagendon enclosures of Cutham and Scrubditch, as well as a sequence within the fills of the rampart ditch in Trench 7. The samples were pretreated following the protocols described in Dunbar *et al.* (2016). Graphite targets were prepared and measured following Naysmith *et al.* (2010). SUERC maintains rigorous internal quality assurance procedures and participation in international inter-comparisons (Scott 2003; Scott *et al.* 2003; 2007; 2010) indicates no laboratory offsets; thus, validating the measurement precision quoted for the radiocarbon ages.

Conventional radiocarbon ages (Stuiver and Polach 1977) are presented in Table 13.1. Calibrated date ranges were calculated using the terrestrial calibration curve (IntCal13) of Reimer *et al.* (2013) and OxCal v4.3. The date ranges in Table 13.1 have been calculated using the maximum intercept method (Stuiver and Reimer 1986) and quoted with the endpoints rounded outward to 10 years. The probabilities shown in Figure 13.1 were calculated using the probability method of Stuiver and Reimer (1993).

The samples and models

A Bayesian approach has been applied to the interpretation of the radiocarbon dates from the two enclosure sites (Buck *et al.* 1996). The chronology of the activity can be estimated not only by using the absolute dating derived from the radiocarbon measurements, but also by modelling the relationships between samples and their archaeological contexts. The modelling technique used is a form of Markov Chain Monte Carlo sampling and has been applied using the program OxCal v4.3 (http://c14.arch.ox.ac.uk/). Details of the algorithms employed by this program are available in Bronk Ramsey (1995; 1998; 2001; 2009) or from the online manual. The algorithm used in the models can be derived from the OxCal keywords and bracket structure shown in Figure 13.1.

Cutham

A total of nine samples were submitted from an equal number of contexts from the Cutham enclosure.

Six of the radiocarbon results are from samples excavated at various locations along the primary enclosure F23/24. From the north-west section [3070] of Ditch F23, there is a date (SUERC-66844) on a cattle tooth from the basal fill (3153) and a second date (SUERC-64216) on an inhumation that is from within the lower fill (3125) later Phase 4 recut. A single date (SUERC-65627) was made on a cattle bone in the lower fill (3029) of a possible recut of Ditch F23 in the north-east section [3019]. A single grain of spelt wheat was dated (SUERC-79377) from the lower fill (4016) of the possible recut in section [4002] of ditch F23. Finally, there are two dates in a sequence in section [4004] of Ditch F24. A hazel nutshell was dated (SUERC-64220) from the basal fill (4019), while a charred wheat grain was dated (SUERC-63697) from an upper fill (4007).

From within the enclosed area, there is a result (SUERC-64211) on a charred barley grain in an upper fill (3092) in Pit F27. A charred grain of spelt wheat was dated (SUERC-79376) from the fill (3089) of a posthole that forms part of the post ring for structure F32.

A cattle tooth was dated (SUERC-66848) from a Phase 4 fill (3078) in section [3023] of Ditch F26.

Scrubditch

Twelve samples were submitted from ten contexts associated with the Scrubditch enclosure. There is a result (SUERC-63691) from a single grain of barley recovered from an upper fill (1004) in ditch F1 associated with Phase 3 of the enclosure. In ditch F2, there are results from fills associated with both Phase 2 and 3 on the site. A cattle bone from Phase 2 fill (1054) produced SUERC-64219, while a grain of wheat from Phase 3 fill (1049) produced SUERC-64212. There are two results (SUERC-64217, -63695) from ditch F4, a horse bone in the Phase 2 fill (1062) and a wheat grain from the Phase 3 fills in the opposite terminal. There are two results (SUERC-63696, -82678) on a barley grain and pig mandible from fill (1023) in Pit F7.

Table 13.1 Radiocarbon dates from the Cutham and Scrubditch enclosures and Dyke 'e' at Bagendon

Lab ID	Feature	Context description	Material	δ13C (‰)	δ15N (‰)	C:N	Radiocarbon age (BP)
Cutham							
SUERC-63697	F24	Upper fill (4007) of section [4004]	carbonised grain: wheat	-22.4			2093 ±31
SUERC-64211	F27	Upper fill (3092) of pit F27	carbonised grain: barley	-24.8			2089 ±29
SUERC-64216	F23	Upper fill (3125) of section [3070]	human bone	-20.4	10.2	3.3	1996 ±28
SUERC-64220	F24	Basal fill (4019) in section [4004]	hazel nutshell	-24.2			2123 ±29
SUERC-65627	F23	Lower fill (3029) of the possible recut at section [3019]	animal bone: cattle	-22.1	3.3	3.3	2204 ±30
SUERC-66844	F23	Basal fill (3153) of section [3070]	animal tooth: cattle	-22.4	5.1	3.2	2196 ±29
SUERC-66848	F26	Fill (3078) in section [3023]	animal tooth: cattle	-21.0	7.0	3.3	1987 ±29
SUERC-79376	F32	Fill (3089) of posthole in structure F32	carbonised grain: spelt wheat	-22.8			2153 ±32
SUERC-79377	F23	Lower fill (4016) of the possible recut at section [4002]	carbonised grain: spelt wheat	-22.0			2075 ±32
Scrubditch							
SUERC-63689	F22	Lower fill (2031) associated with Phase 2	carbonised grain: barley	−23.3			2386 ±31
SUERC-63690	F22	Upper fill (2025) associated with Phase 3	charred hawthorne fruit stone	−25.2			2136 ±31
SUERC-63691	F1	Upper fill (1004) associated with Phase 3	carbonised grain: barley	−23.4			2132 ±31
SUERC-63695	F4	Upper fill (1104) associated with Phase 3	carbonised grain: wheat	−23.2			2126 ±31
SUERC-63696	F7	Fill (1023) of pit	carbonised grain: barley	−22.1			2139 ±31
SUERC-64212	F2	Upper fill (1049) of enclosure ditch	carbonised grain: wheat	−22.9			2047 ±27
SUERC-64217	F4	Lower fill (1062) associated with Phase 2	animal bone: horse	−22.7	5.4	3.4	2185 ±32
SUERC-64218	F16	Secondary fill (1181) of pit [1082]	animal bone: cattle	−21.4	3.4	3.3	2191 ±32
SUERC-64219	F2	Lower fill (1054) of enclosure ditch	animal bone: cattle	−21.6	2.8	3.3	2212 ±32
SUERC-79374	F22	Lower fill (2031) associated with Phase 2	animal bone: cattle	−22.0	2.5	3.2	2142 ±33
SUERC-79375	F12	Fill (1112) of posthole [1111] in centre of structure	carbonised grain: spelt wheat	−22.4			2198 ±32
SUERC-82678	F7	Fill (1023) of pit	animal bone: pig; mandible	−22.4	7.4	3.3	2197 ±30
Dyke E							
SUERC-79379		Upper fill (7011) of the rampart ditch in Trench 7	carbonised grain: barley	−25.0			479 ±32
SUERC-90671		Basal fill (7015) of the rampart ditch in Trench 7	shell: *Aegopinella nitidula*	−8.0			2308 ±25
SUERC-90672		Basal fill (7015) of the rampart ditch in Trench 7	shell: *Oxychilus cellaris*	−8.7			2221 ±25

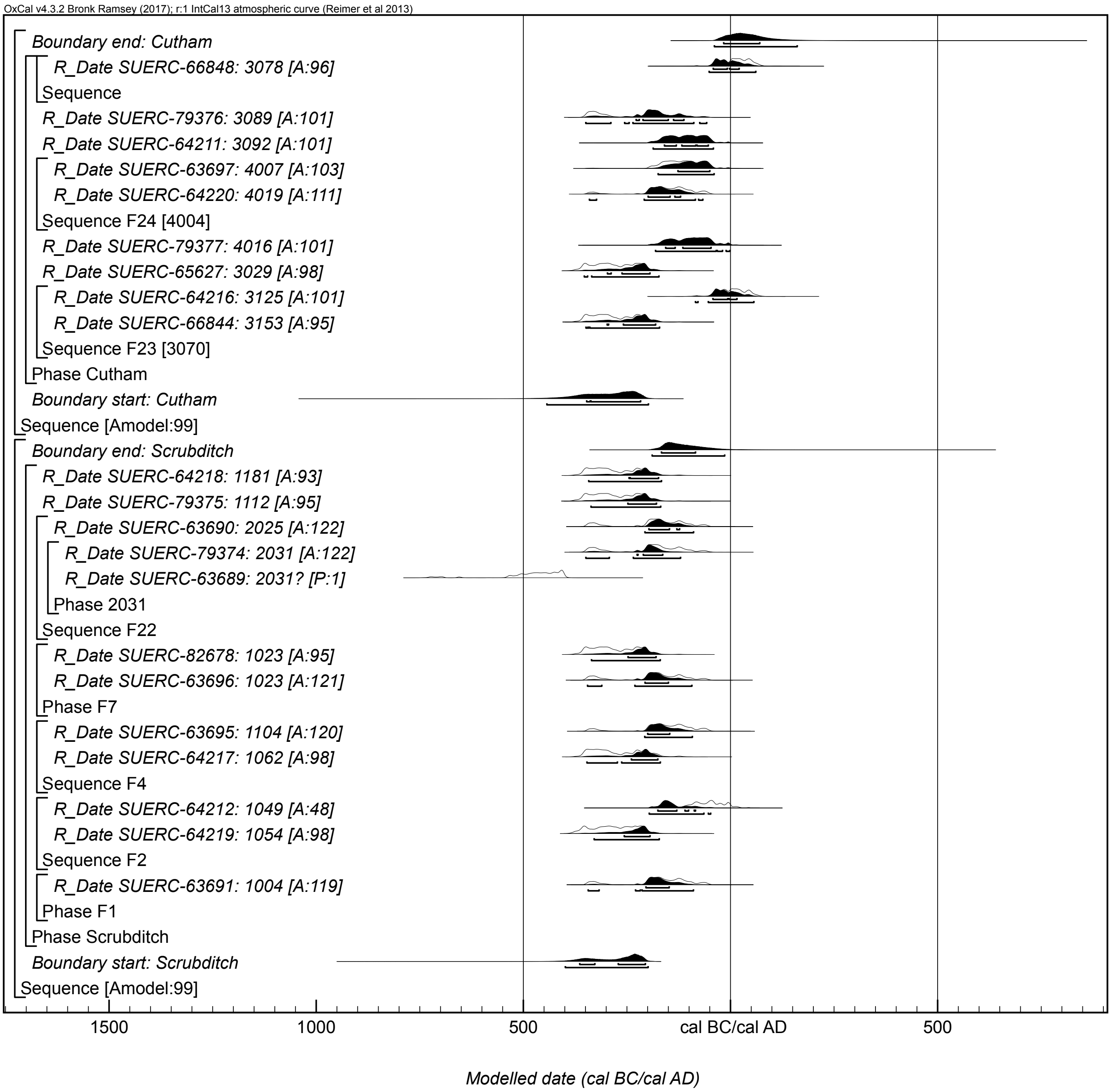

Figure 13.1. Chronological model for the Cutham and Scrubditch enclosures at Bagendon. Each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, '*start: Cutham*' is the estimated date for the dated activity at the Cutham enclosure. The large square 'brackets' along with the OxCal keywords define the overall model exactly.

In ditch F22, there are results from fills associated with both Phase 2 and 3 on the site. A grain of barley and cattle bone from Phase 2 fill (2031) produced SUERC-63689 and -79374, respectively. The barley grain (SUERC-63689) is considerably earlier than all the other dated material from the site and is either a statistical outlier or related to earlier activity in the area and is residual in this context. It has been excluded from all subsequent modelling. A charred hawthorn fruit stone from Phase 3 fill (2025) produced SUERC-63690. A grain of charred spelt wheat from the fill (1112) of posthole [1111] in the centre of structure F12 produced SUERC-79375. A cattle bone was dated (SUERC-64218) from the secondary fill (1181) of Pit F16 [1082].

Dyke E

There are three radiocarbon results from the basal and upper fills of the rampart ditch in Trench 7. The upper fill (7011) produced a result (SUERC-79379) that dates to the medieval period, cal AD 1400–1460 (95% probability). While there were no samples from the lowest fills that could be inferred to derive from human activity, the basal deposits were plentiful with terrestrial snail shell remains. Two shells of different species of snail were selected for radiocarbon dating, in an effort to provide an estimated date for when the ditch base was last exposed. When dating shell it is especially important to reduce any potential carbon reservoir offset in the sample, which can be connected to the autecology of the different species and especially what they eat to provide the calcium necessary for shell formation and growth. The three primary sources for calcium are plant materials, other snails and their shells, and limestone. With that in mind, the sample selection aimed to avoid species that are known to rasp limestone and focus on those that eat leaf litter and perhaps other snails.

The two species selected included a predatory snail (*Aegopinella nitidula*) that is known in Britain too selectively consume *Nesovitrea hammonis*, a leaf-litter consuming species. Even as a predatory snail, its diet is primarily living or dead plant material, with only about 10% of the specimens studied by Mordan (1977) containing any shell or tissue from other snails in their faeces. The second snail (*Oxychilus cellaris*) also primarily eats plant material, but has been noted as consuming more animal material than some of the other common woodland snails in Britain (Mason 1970). Many terrestrial snail species can be considered omnivorous, but as long as the other snails that are commonly eaten do not include ones that frequently digest limestone then the radiocarbon ages should be minimally offset. In any case, a degree of caution should be used when interpreting the results as these dates should only be considered as *tpq* if the snails were consuming radioactively 'dead' carbon.

The two results from the basal fill (7015) of the rampart ditch (SUERC-90671 and -90672) are not statistically consistent (T'=6.1; ν=1; T'(5%)=3.8; Ward and Wilson 1978) suggesting one or both of the ages is affected by a reservoir offset of unknown age. All reasonable care has been made in selecting the samples and ensuring two different species were selected, which presumably have different feeding preferences. Given the calibrated dates are very close to one another, calibrating just either side of 370 cal BC, it is felt any offset is minimal. Therefore, the later of the two results (SUERC-90672) is used to provide the best estimate for when the ditch was last open in 380–200 cal BC (95% probability, Figure 13.2).

The results

The dates for the Cutham and Scrubditch enclosures have been run together in a single OxCal model, but are included as independent groups of samples for the purposes of the overall statistical analysis. The model has good agreement (Amodel=99) between the radiocarbon dates and the archaeological information (e.g. relative grouping and internal stratigraphy for the ditches).

The dated activity associated with the Cutham enclosure began in *445–195 cal BC* (*95% probability*; Figure 13.1; *start: Cutham*), and probably in *350–215 cal BC* (*68% probability*). The activity spanned *180–555 years* (*95% probability*; Figure 13.3; *span: Cutham*), and probably *225–410 years* (*68% probability*). The dated activity at Cutham ended in *40 cal BC–cal AD 165* (*95% probability*; Figure 13.1; *end: Cutham*), and probably in *20 cal BC–cal AD 75* (*68% probability*).

The dated enclosure activity at Scrubditch began in *400–195 cal BC* (*95% probability*; Figure 13.1; *start: Scrubditch*), and probably in either *365–325 cal BC* (*16% probability*) or *275–205 cal BC* (*52% probability*). The dated activity ended in *190–15 cal BC* (*95% probability*; Figure 13.1; *end: Scrubditch*), and probably in *170–85 cal BC* (*68% probability*). The total span of dated activity was *15–360 years* (*95% probability*; Figure 13.3; *span: Scrubditch*), and probably *45–260 years* (*68% probability*).

Discussion

The chronological modelling presented above provides robust estimates for the timing of the radiocarbon-dated activity associated with the Cutham and Scrubditch enclosures. Within the ditches of each site, the cut-and-fill sequences were used to aid in the production of more general site phasing. Rather than include this information into the primary model used to estimate the start and end dates of overall site activity, it was included in an alternate model, solely developed for the purpose of estimating the transition to Phase 4 at Cutham (deliberate backfilling and abandonment) and Phase 3 at Scrubditch (recutting and ashy fills). The inclusion of these extra model parameters result in slightly more precise ranges for the start and end dates, but this is seen as unimportant as the purpose is

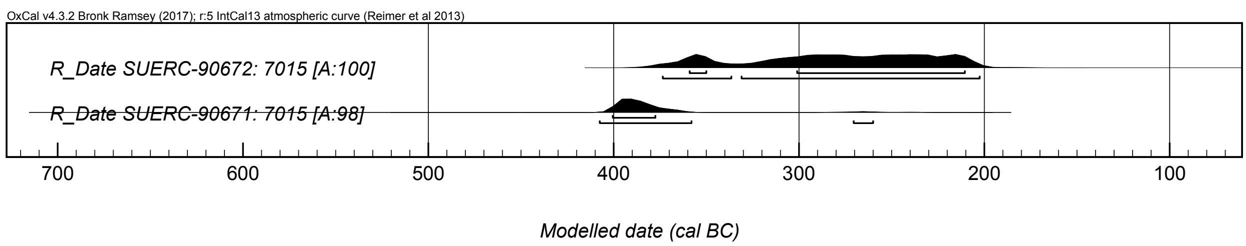

Figure 13.2. Calibrated radiocarbon results from the snail samples at the base of the rampart ditch in Trench 7.

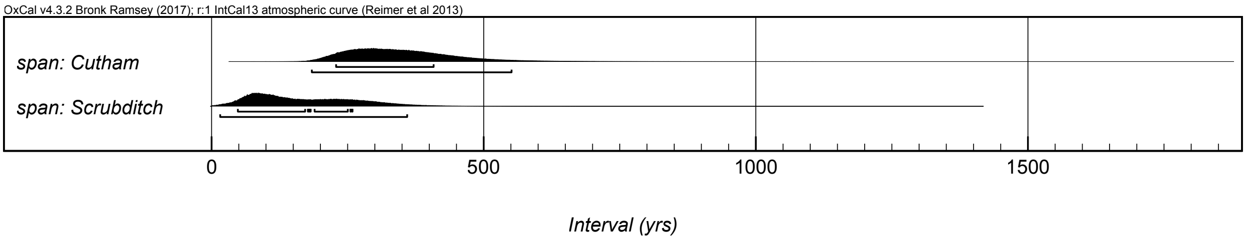

Figure 13.3. Probabilities for the overall spans of activity at the two enclosure sites shown in Fig 13.1

to determine elements of the internal site chronologies that should remain otherwise unaffected.

At Cutham, the Phase 4 deposits were modelled in the profiles as forming at two locations in the dated stratigraphy: between SUERC-66844 and -64216; and before SUERC-66848. At Scrubditch, the Phase 3 deposits clearly began forming: between SUERC-64219 and -64212; SUERC-64217 and -63695; and SUERC-79374 and -63690. The alternative modelling estimates that Phase 4 at Cutham began in *285–1 cal BC* (*95% probability*; Figure 13.4; *start: Phase 4 (Cutham)*), and probably in *200–40 cal BC* (*68% probability*), while Phase 3 at Scrubditch began in *285–120 cal BC* (*95% probability*; Figure 13.4; *start: Phase 3 (Scrubditch)*), and probably in *215–150 cal BC* (*68% probability*).

While the primary model for Cutham and Scrubditch provides a 59% probability that *start: Cutham* is earlier than *start: Scrubditch*, there is little reason to believe there is any meaningful chronological separation between the inception of activity at the two enclosures. What is clear is that the activity at Scrubditch ended prior to that at Cutham (98% probability *end: Scrubditch* occurred before *end: Cutham*). The later end-of-activity date for the Cutham enclosure is entirely driven by the inclusion of the two latest dates (SUERC-64216 and -66848), which are derived from the inhumation and a cattle tooth from upper (Phase 4) fills in enclosure Ditches F23 and F26, respectively.

In further exploring the chronology of the Cutham enclosure these two dates were excluded from the model to see the effect on the end-of-activity date and directly compare that to *end: Scrubditch* (Figure 13.5). After modification, there remains a 73% probability that *end: Scrubditch* predates *end: Cutham*. The radiocarbon dating does not suggest a hiatus in the dated activity, thus supporting a longer period of use for the Cutham enclosure. However, this is not to say that further dating from the Cutham sequences will not alter this conclusion. It has been clearly demonstrated with the chronological modelling at Nettlebank Copse that banjo enclosures with Early and Middle Iron Age origins can have substantial hiatuses in dated activity before being reused in the early Romano-British period (Haselgrove *et al.* 2020).

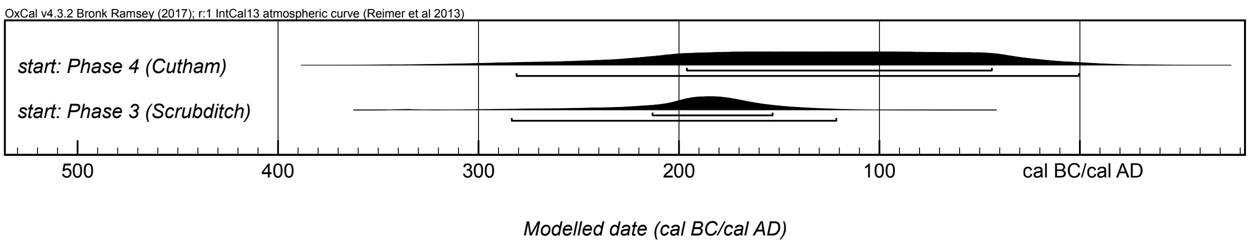

Figure 13.4. Estimated dates for the transition to Phase 4 at Cutham and Phase 3 at Scrubditch, based on the alternative model discussed in the text

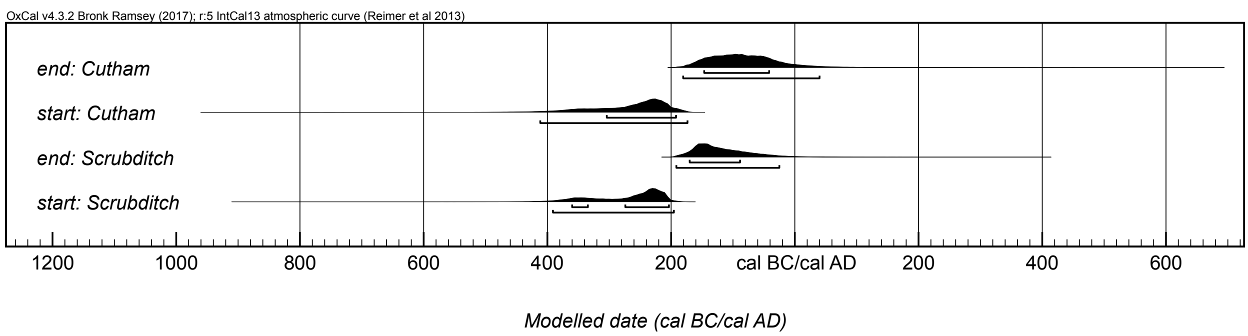

Figure 13.5. Comparison of original modelled dates for activity at the Scrubditch enclosure and the modified model for Cutham, which excludes the two latest dates (SUERC-64216 and -66848) as described in the text

Other radiocarbon-dated enclosures in the vicinity

Existing radiocarbon dates were collected from 13 other enclosure sites nearby to Bagendon to be used as a broad comparative dataset to put the Bagendon enclosures in their wider geographic and temporal context (see Figure 23. 9). The dating include 14 from Beckford (Jordan *et al.* 1994); 10 dates from Preston Enclosure (Mudd *et al.* 1999); eight from Ermin Farm (Mudd *et al.* 1999); seven from Highgate House (Mudd *et al.* 1999); three from Birdlip Bypass (Parry 1998); two each from Guiting Power (Marshall 2004), Bank Farm (Coleman *et al.* 2006), and Kingshill North (Biddulph and Welsh 2010); and single dates from Spratesgate Lane – Site B (Vallender 2007), Wormington (Phase 2) (Coleman *et al.* 2006), Frocester Court (Price 2000), Horcott Pit (Hayden *et al.* 2017), and Deans Farm (Colls 2016). These dates were produced at various times in the past half century and are likely of differing scientific quality, but the resources did not exist to rigorously interrogate them against the excavation record or the publications of the radiocarbon laboratories to determine if there were specific archaeological or scientific grounds that any individual dates should be excluded from consideration. Furthermore, there are nearly 100 newer radiocarbon dates from Beckford that were undertaken and published by Historic England (then English Heritage) under the Aggregates Levy Sustainability Fund scheme, and these are also not considered here.

Where there are three or more dates from a site, a chronological model using a simple bounded phase (see Hamilton and Kenney 2015 for a description) was used to provide an estimate for when the associated human activity began and ended at the site. Since it was not possible to rigorously vet each date, it was decided that they will all be included in the individual site-based models. The results provide a broad chronological framework for comparison.

The Preston enclosure has some longevity to its use, spanning the first millennia BC and AD. However, the radiocarbon dates fall out into two rather distinct groups on either side of the BC/AD divide. The modelling estimates the activity began in *695–275 cal BC* (*95% probability*; *start: Preston enclosure*), and probably in *525–370 cal BC* (*68% probability*). The activity ended in *cal AD 245–635* (*95% probability*; *end: Preston enclosure*), and probably in *cal AD 295–460* (*68% probability*). Although the latter dates have been regarded as problematic and it is thought the enclosure ended occupation in the Late Iron Age (Mudd *et al.* 1999: 54).

The dates from Highgate house appear to be very consistent, dating to the latter half of the first millennium cal BC. The modelling estimates the activity began in *510–245 cal BC* (*95% probability*; *start: Highgate house*), and probably in *430–370 cal BC* (*68% probability*). The activity ended in *395–160 cal BC* (*95% probability*; *end: Highgate house*), and probably in either *390–315 cal BC* (*50% probability*) or *275–220 cal BC* (*68% probability*).

The two radiocarbon dates from Guiting Power have large errors and provide little more information beyond the site having been used at some point in the latter quarter of the first millennium cal BC or even the opening century cal AD.

Ermin Farm is another site where the radiocarbon dates are all very consistent. Here the dating estimates associated activity began in *500–240 cal BC* (*start: Ermin Farm*), and probably in either *450–365 cal BC* (*66% probability*) or *295–275 cal BC* (*2% probability*). Activity ended in *370–115 cal BC* (*95% probability*; *end: Ermin Farm*), and probably in *345–200 cal BC* (*68% probability*).

The three dates from Birdlip Bypass provide a modelled estimated start date in *680–210 cal BC* (*95% probability*; *start: Birdlip Bypass*), and probably in *420–250 cal BC* (*68% probability*). The settlement ceased being used in *380 cal BC–cal AD 85* (*95% probability*; *end: Birdlip Bypass*), and probably in either *355–345 cal BC* (*1% probability*) or *300–100 cal BC* (*67% probability*).

The dating from Beckford is much more protracted than the other sites. Although the older radiocarbon dates have wide error margins on them, a look at the dates produced more recently supports the idea of a complex multi-period site. The dates presented here estimate the activity began in *1355–470 cal BC* (*95% probability*; *start: Beckford*), and probably in *1160–825 cal BC* (*68% probability*). The dated activity ended in *80 cal BC–cal AD 405* (*95% probability*; *end: Beckford*), and probably in *cal AD 10–225* (*68% probability*).

The single date from Spratsgate Lane suggests the site was used at some point in 370–190 cal BC (95% probability). The two results from Bank Farm are nearly identical, placing activity at this site in the period 360–1 cal BC (95% probability; WK-15341).

Phase 2 of the Wormington enclosure is dated to 380–160 cal BC (95% probability). The two dates from Kingshill North place the activity there in the latter two centuries cal BC or first century cal AD. Frocester Court has a single date that places the activity there in the period 370–1 cal BC (95% probability). The result from Horcott Pit estimates activity sometime in the period 370–170 cal BC (95% probability). Deans Farm can be dated to the period 400–200 cal BC (95% probability) from one radiocarbon date.

Chapter 14

The date of the Roman fort at Cirencester: samian pottery and coins

G.B. Dannell, Robert Kenyon and Richard Reece

The date of the fort found in excavations in the 1960s has been variously quoted since the original publication. Since it is important for the dating at Bagendon the samian pottery has been briefly reconsidered by G.B. Dannell and the Claudian coins by Robert Kenyon. The pottery considered is from a deposit in the fort ditch which probably belongs to the days of the dismantling of the fort. The copies of coins of Claudius I are from Cirencester in general because there was no single fort deposit of coins.[1]

Samian pottery in the fort at Cirencester, and its dating

G.B. Dannell

There is a little to add to the original report (Hartley and Dickinson 1982) which was mainly concerned with a deposit of material found in the filled-in ditch of the fort. It is not possible to comment on finds from more general deposits in the fort because those could not be firmly identified in the publication.

The potter's stamps from that group are solidly Neronian (AD 54–68) though the extent to which they overlap with Colchester Pottery Shops 1 and 2 may have been over-emphasized (cf. Hartley and Dickinson 1982: 139). The interpretation of individual deposits can be equivocal. Potters names which one might expect to appear throughout a given period are often missing because one is looking at a particular point in time representing latest deliveries to the site, or particular batches chosen from the originating warehouse stocks. Elsewhere, they may show a wider spectrum when the material has been curated in a local store.

All one can do is to look at the stamps themselves, the forms and the decoration. To this end, one can say that the absolute latest date would be *c.* AD 70, but this would not represent the bulk of the material which is earlier. How much earlier is debatable but perhaps a date between AD 55-65, with the best indications being towards the end of that period. For instance, it is interesting that the stamp list does not conform at the later end to that of the Oberwinterthur Keramik Lager (Ebnöther and Eschenlohr 1985) which, it is thought, had something to do with the Batavian Revolt (AD 69). For an earlier comparison, the stamps do not overlap with the Narbonne Couche 3 (Fiches *et al.* 1978) group which looks to be earlier Neronian.

The forms are revealing. They do belong to what one would normally find on a military site of the Claudian-Neronian period, especially the Ritterling (Ritt.) form 12s, the R dishes, and the inkwells (which are rare on civilian sites in Britain). However, the comparative absence of Ritt. 8 and 9, and Drag. 24 would again suggest that we are dealing with later, rather than earlier, in the suggested time slot.

What may be more significant is that there is little in the decorated ware to suggest that this was an 'early fort' founded in the first flush of conquest, or if it was, samian from such a fort did not form part of the ditch deposit. Apart from two form 29 (nos. 40 and 51 in the original lists) there is nothing that seems to come from a mould made before *c.* AD 50. However, there is a smattering of plain ware from the Leaholme area which is Claudian or Claudian-Neronian, and this should raise some caution concerning a presence, military or otherwise, before the main series.

These points suggest that the 'Fort ditch deposit' itself represents a clear-out from the fort stores as a result of the movement of the garrison post-Boudicca.

Copies of coins of Claudius I (AD 41-54) at Cirencester

Robert Kenyon

Analysis of the forty-two Claudian *aes* excavated at Cirencester indicate an absence of supportive coin-evidence for its early origin, i.e., immediately following Claudian invasion of Britain. However, a review of the amount of wear found on those coins, and following comparison with the amount of wear found on the Claudian bronze coins of Lincoln's Castle Hill purse group, it is possible to propose a period of loss for each coin or group of coins as summarized in Table 14.1.

[1] It is worth noting that while the samian pottery in the ditch obviously did not continue in use on the site of the later town, coins from the fort period could clearly have continued.

Table 14.1. Period of loss for each coin or group of coins from Cirencester.

	Denomination	Coin-type	Struck	Condition	Lost?
1	*Sestertius*	Orthodox	AD 41/42	Good	From AD *c.*50
2	*Dupondius*	Copy	AD mid-40s	Good	AD early-50s
3	*As* x 2	Native Copies	AD early-50s	Good	AD late-50s/ early-60s
4a	*As* x 1	Orthodox	AD 41/42	Worn	AD early-50s
4b	*As* x 7	Copies	AD late-40s	Worn/ Very worn/ Poor	AD late-50s
5a	*As* x 5	Native Copies	AD early-50s	Worn	AD early 60s
5b	*As* x 10	Copies, incl. 4 Native Copies	AD early/mid-50s	Very worn/ Poor/ Very poor	AD late-60s/ early-70s
6	*Dupondius*	Native Copy	AD early-50s	Poor	AD early-70s
7	*Quadrans*	Orthodox	AD 41/42	?	AD *c.*69+

In addition, as a potential contribution to the consideration for a date of origin and occupation of a site, close attention has been paid to the relative proportions of the different modules of the thirty-seven Claudian copy *asses* recorded at Cirencester. It was noted that a preponderance (*c.* 89%,) of copy *asses* belong to the medium-and smaller-modules coin groups while *c.* 59% of all *asses* are shown to be of the smaller (later) coin module.

The above complementary observations, based on this sample of 42 excavated Claudian *aes,* indicate a later, rather than early, Claudio/Neronian date of origin for Roman Cirencester. Analysis of size, weight and wear of the coins together with consideration of the composition of denominations and coin-types found proved instructive and indicated that there is considerable numismatic evidence for a date of origin in the first half of the Neronian period, i.e., after AD 54, but before AD 61.

Part IV

The Environmental evidence

Chapter 15

The Human remains

Tina Jakob and Tom Moore

Introduction

Two inhumation burials were encountered at Bagendon. One was located in 1980, in Area B (Skeleton 1), and the other (Skeleton 2) was from Cutham enclosure (BAG14-3148). In addition, a cranial bone fragment was found at Black Grove (BAG15-6025). These represent quite different evidence of human remains from the complex, spanning its Iron Age and Roman occupation.

Skeleton 1 derives from the latest phase of activity in Area B (see Chapter 4). Although it was impossible to date this individual (the radiocarbon date having failed), considering its stratigraphic context and parallels for such inhumations, it probably dates to the Late Roman period (between the 2nd and 4th century AD), after the occupation in the valley had ceased. It seems likely to relate to occupation at the nearby Black Grove villa and represents a peripheral rural burial, which are relatively common in the region (see discussion below).

Skeleton 2, from Cutham enclosure is from the latest phase of activity at the enclosure within the backfilling of the enclosure ditch (see Chapter 3 BAG14-3125/3148). It provided a radiocarbon date (SUERC-64216) of 50 BC-68 AD (95%)/ 39 BC-48 AD (68%). It appears to have been deposited within the rubble backfilling of the enclosure as part of the enclosure's abandonment, possibly at the same time the Late Iron Age activity in the valley was commencing (see discussion in Chapter 3 and 4).

Fragment 1, a fragment of cranial bone from Black Grove (see Chapter 5) derived from the fill of the wall trench [6033] for the construction of the west range of the building. The date for the construction of this range is somewhat unclear but seems likely to date to the 3rd century AD.

Analysis of Human Remains

Tina Jakob

Methodology

Both skeletons and the isolated bone fragment were macroscopically analysed, assessing the preservation and completeness (McKinley 2004), as well as determining the age (Buikstra and Ubelaker 1994), sex (Buikstra and Ubelaker 1994) and stature (Trotter 1970) of the individuals. In addition, pathological lesions and trauma (Ortner 2003; Roberts and Manchester 2007) were recorded.

Osteological Analysis

Skeleton 1 (Probably late Roman)

Skeleton 1 showed evidence for surface erosion rating cortical preservation as 'poor' and many of the bones were highly fragmented, especially those of the axial

Table 15.1. Sex estimation for Skeleton 1 (- = not observable).

SKULL	
Supraorbital ridges	M
Orbital rims	M
Forehead slope	-
Bossing	-
Mastoid processes	M
Post. zygomatic arch	M
Nuchal crest	M
Ex. occipital protruberance	M
Mentum	M
Gonial angle	M
Gonial flare	M
Mand. ramus flexure	M
PELVIS	
Gr. sciatic notch	M
Composite arc	M
Pre-auricular sulcus	M
Auricular surface	M
Subpubic angle	-
Subpubic concavity	-
Pubic bone length	-
Ischio-pubic ramus	-
Ventral arc	-
Obturator foramen	-
Pelvic inlet/outlet	-
Acetabulum	?M
Sacrum segments	-
Sacrum morphology	-
SEX	**Male**

Table 15.2. Osteological summary Skeleton 1.

Skeleton. (year of excavation)	Age	Sex	Stature	Preservation	Fragmentation	Completeness
Sk1 (1980)	Middle adult (36-45 years)	Male	157 cm +/-3.27 cm (femur)	Poor	High	Good (61-80%)

skeleton. Skeletal completeness was rated as 'good' with 61-80% of bones present. Biological sex was male, based on morphological feature of the skull and os coxae (see Table 15.1) and based on the degeneration of the auricular surface (Lovejoy *et al.* 1985), Skeleton 1 was a middle adult (Phase 4; 36-45 years). Stature was calculated as 157 cm +/-3.27 cm (femur), which falls well below the average male stature of 169 cm for this time period (Roberts and Cox 2005: Table 8.1). A summary of the osteological findings is presented in Table 15.2. All bones and teeth were examined macroscopically for evidence of pathological changes and a summary of skeletal lesions and dental disease is listed in Table 15.3.

Palaeopathological Assessment

Trauma is common in many skeletal collections, both in form of healed and healing fractures as well as soft tissue trauma to muscle insertions (Roberts and Manchester 2007). Skeleton 1 had sustained a fracture to the left proximal shaft of the fibula (Figure 15.1). The fracture had fully healed at the time of death of the individual. It is likely that this injury was caused by a fall or some other accident, since fractures caused by inter-personal violence are usually directed towards the head, face or thorax and not the lower legs (Walker 1989).

Ossifications at the sites of muscle insertions were recorded as entheseal changes (EC) and these occurred in Skeleton 1 on both radii (radial tuberosities) and the left distal tibia (medial aspect). Entheseal changes have been associated with advanced age (Molnar 2006), which would explain their occurrence in this middle adult individual.

The most common type of joint disease observed tends to be degenerative joint disease (DJD). DJD is characterised by both bone formation (osteophytes) and bone resorption (porosity) at and around the articular surfaces of the joints, which can lead to discomfort and disability (Rogers 2000). Skeleton 1 showed skeletal changes consistent with DJD on the left distal ulna, likely a result of his advanced age. However, poor preservation of other joint surfaces affected further observations.

Analysis of the teeth and alveolar bone from archaeological populations can provide important clues about health, diet and oral hygiene, as well as information on environmental and congenital conditions. For example, calculus in form of mineralised dental plaque is abundant in archaeological populations whose dental hygiene was less meticulous than it is current practice now. If plaque is not removed from the teeth on a regular basis deposits may mineralise and form concretions on the tooth crowns or roots, if they become exposed by a receding gum line, and calculus can be seen along the line of the gums. Mineralisation of plaque can also be common in individuals with a high protein diet, although carbohydrate consumption may also lead to calculus (Hillson 1996; Roberts and Manchester 2007). Calculus was observed in Skeleton 1, attesting a lack of dental hygiene and these deposits were likely responsible for further dental problems.

Figure 15.1. Skeleton 1, showing healed fracture of the left proximal fibula.

Dental caries (tooth decay) forms when bacteria in the

Figure 15.2. Skeleton 1, showing grooved occlusal wear of the anterior maxillary teeth.

oral plaque metabolise sugars available from the diet and produce acid, which then causes the loss of minerals from the teeth and eventually leads to the formation of a cavity (Zero 1999). Simple sugars occur in fruits, vegetables, dried fruits and honey, as well as in processed, refined sugar. Complex sugars derive from carbohydrates, such as cereals and are thought to be less caries inducing. However, processed carbohydrates, such as milled grains, will usually increase caries rates as they are soft and sticky and adhere to the tooth surface. Carious lesions were seen in Skeleton 1 with seven teeth affected; the right maxillary canine and left maxillary first premolar having lost their entire tooth crowns to decay.

Periapical lesions (dental abscesses) occur when bacteria infiltrate the pulp cavity of a tooth leading to inflammation and a build-up of pus at the apex of the root. A sinus can form in the surrounding bone allowing the pus to drain and relieve the pressure. Periapical lesions may form as a result of dental caries, heavy tooth wear, trauma to the teeth, or periodontal disease (Roberts and Manchester 2007). Skeleton 1 had two such externally draining periapical lesions; both were likely caused by the caries infections of the maxillary canine and premolar.

Ante-mortem tooth loss (AMTL), or the loss of teeth during life, can occur as a result of a number of factors, such as dental caries, pulp-exposure due to advanced tooth wear, or periodontal disease (occurring when inflammation of the gums, gingivitis, spreads to the surrounding bone). Gingivitis can be the consequence of calculus deposits that irritate the gums. When a tooth is lost during life, the empty socket becomes filled in with new bone over time. Skeleton 1 had lost two teeth (both mandibular first molars) during life, and he also showed evidence for advanced periodontal disease in form of remodelling of the alveolar margins.

Skeleton 1 had uneven, sloped dental wear affecting the teeth present in the right half of the maxilla, as well as the mandibular right second and third molars and the left mandibular third molar. In addition, the anterior maxillary dentition showed unusual grooves of the occlusal surface (Figure 15.2) and it can be speculated that such abrasions might be caused by extra-masticatory activities such as using teeth as tools (Eshed *et al.* 2006).

Table 15.3. Palaeopathological summary Skeleton 1.

Skeleton.(year of excavation)	**Age**	**Sex**	**Pathological Changes**	**Dental Disease**
Sk1 (1980)	Middle adult (36-45 years)	Male	Healed fracture of left proximal fibula, entheseal changes both radii and left distal tibia, degenerative joint disease left distal ulna	Caries lesions, calculus, ante-mortem tooth loss, periapical lesion, periodontal disease, uneven wear on molars (activity-related?)

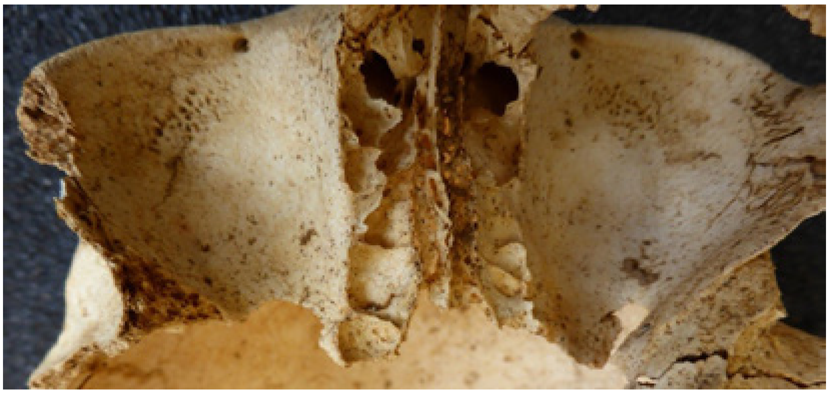

Figure 15.3. Skeleton 2 with bilateral cribra orbitalia

Skeleton 2

In contrast, Skeleton 2, had good cortical preservation with moderately fragmented bones. Skeletal completeness for Skeleton 2 was higher with 81-100% of bones present and was rated as 'excellent'. Skeleton 2 was female (see Table 15.4) and likely of advanced age. The auricular surface (Phase 8) and the pubic symphysis (Stage VI, Brooks and Suchey 1990) determined that she was an old adult (45+ years), although there are some indications that she could be significantly older, perhaps well over 60 years, based on her extremely thin ribs and evidence for joint degeneration and osteoarthritis. However, it is impossible to provide a precise age range for this individual. Stature for Skeleton 2 was estimated as 153 cm +/-3.55 (femur and tibia), and again, this is slightly lower than the average female stature of 159 cm during the Roman period (Roberts and Cox 2005: Table 8.1). The osteological results (Table 15.5) and palaeopathological assessment (Table 15.6) summarise the bioarchaeological data of Skeleton 2.

Palaeopathological Assessment

Cribra orbitalia, or fine pitting of the orbital roof, tends to occur in childhood, and often becomes remodelled during adolescence or early adulthood. The condition is caused by acquired and inherited anaemias, excessive blood loss due to underlying disease and high parasite loads (Walker *et al.* 2009). Skeleton 2 (Figure 15.3) had bilateral *cribra orbitalia*, rated as type 2 (small isolated pores) based on Stuart-Macadam's (1992) classification), while no orbital lesions were observed in Skeleton 1.

Skeleton 2 showed a vertical fracture to one of her left ribs (Figure 15.4). Although healing was almost complete, the fracture callus still consisted of some transitional bone (Figure 15.5). Rib fractures are often caused by accidental falls, but the vertical fracture line indicates that direct forces led to the fractured rib, indicating that this injury was probably caused by a direct blow to the left side of her torso (Roberts and Manchester 2007).

Skeleton 2 had more wide-spread entheseal changes on both ulnae (olecranon process, Figure 15.6) and radii (radial tuberosity), os coxae (ilium and ischial tuberosity) and patellae (anterior aspect) than Skeleton 1. Entheseal changes have been associated with advanced age (Molnar 2006), which was likely to be the case in this old adult female.

Bone tissue need time to respond to infectious diseases, so evidence of any acute infection will not be present in the skeleton (Roberts and Manchester 2007). However, bone can form a response to the presence of a chronic infection through the formation of new bone. Initially, this new bone is porous and disorganised

Table 15.4. Sex estimation for Skeleton 2 (- = not observable).

SKULL	
Supraorbital ridges	F
Orbital rims	F
Forehead slope	F
Bossing	F
Mastoid processes	F
Post. zygomatic arch	F
Nuchal crest	F
Ex. occipital protruberance	F
Mentum	F
Gonial angle	F
Gonial flare	F
Mand. ramus flexure	F
PELVIS	
Gr. sciatic notch	F
Composite arc	F
Pre-auricular sulcus	F
Auricular surface	F
Subpubic angle	F
Subpubic concavity	F
Pubic bone length	F
Ischio-pubic ramus	F
Ventral arc	F
Obturator foramen	-
Pelvic inlet/outlet	-
Acetabulum	F
Sacrum segments	F
Sacrum morphology	F
SEX	**Female**

Table 15.5. Osteological summary Skeleton 2.

Skeleton.(year of excavation)	Age	Sex	Stature	Preservation	Fragmentation	Completeness
Skeleton 2 (2014)	Old adult (45+ years)	Female	153 cm +/-3.55 (femur and tibia)	Good	Moderate	Excellent (81-100%)

Table 15.6. Palaeopathological summary Skeleton 2.

Skeleton 2 (2014)	Old adult (45+ years)	Female	Bilateral *cribra orbitalia*. Healing fracture of left rib, entheseal changes both ulnae and radii, os coxae and patellae. Lamellar new bone formation on visceral aspects of ribs and metatarsal shafts, osteoarthritis vertebrae	Caries lesions, calculus, periodontal disease, advanced wear on anterior teeth with pulp exposure (activity-related?)

Figure 15.4. Skeleton 2 with healing fracture of a left rib

(woven bone), but if healing occurs, woven bone becomes remodelled and transforms into organised lamellar bone. The presence of lamellar bone indicates an infection that had healed at the time of death; the presence of both in the same bone may suggest a recurring, or long-standing infection (Roberts and Manchester 2007).

Lung infections can lead to deposits of new bone on the visceral surfaces of the ribs (Roberts and Manchester

Figure 15.5. Close up of Sk2 fracture callus

2007) and in clinical studies most of these lesions have been associated with tuberculosis (Matos and Santos 2006; Mays *et al.* 2002; Santos and Roberts 2001; Santos and Roberts 2006). Skeleton 2 showed evidence for respiratory disease in form of remodelled new bone formation on the visceral (inner) surfaces of her ribs. Tuberculosis was undoubtedly present in the Iron Age, but would have been much less common than in the medieval and post-medieval periods (Mays and Taylor 2003). Furthermore, a diagnosis of tuberculosis should not be made based on the presence of rib lesions alone, since other respiratory infections (e.g. chronic bronchitis and pneumonia, Roberts and Cox 2003), exposure to smoke or air pollution, and inhalation of fungal spores (Aufderheide and Rodríguez-Martín 1998) can also cause new bone formation on the visceral (inner) surface of ribs.

Figure 15.6. Skeleton 2 Entheseal changes on both proximal ulnae

Woven and lamellar bone is often found on the lower leg and foot bones of archaeological skeletons, and its prevalence has been used as a general measure of stress in past populations

Figure 15.7. Skeleton 2 with lamellar new bone on two metatarsals

Figure 15.8. Skeleton 2 with small caries lesions on the mandibular right second and third molars

(Ortner 2003). Inflammation of these bones may be due to infection, but other causes, including low-grade trauma and chronic ulceration may lead to new bone formation with the latter two changes particularly common on the shaft of the tibia (Ortner 2003; Roberts and Manchester 2007). Skeleton 2 showed evidence for non-specific infectious disease on her metatarsal bones where deposits of lamellar new bone were observed on the shafts (Figure 15.7). However, her lower leg bones (tibiae and fibulae) were not affected.

Osteoarthritis is a degenerative joint disease characterised by the deterioration of the cartilage that in life covers synovial joints, leading to exposure of the underlying bone. The resulting bone-to-bone contact can generate polishing of the bone known as eburnation, which is the pathognomic sign of osteoarthritis. Osteoarthritis can be the result of mechanical stress and other factors, including lifestyle, food acquisition and preparation, social status, sex and general health (Larsen 1997).

Osteoarthritis affected the thoracic vertebrae of Skeleton 2 in form of joint porosities, eburnation and marginal osteophytes. It seems plausible that the occurrence of osteoarthritis in these joints was related to the individual's advanced age (Aufderheide and Rodríguez-Martín 1998, Roberts and Manchester 2007). In addition, several of the thoracic and lumbar vertebrae had osteophyte formation on the margins of the vertebral bodies.

Calculus was also observed in Skeleton 2, but this individual only had one moderately large caries lesion affecting the left first mandibular molar and two small lesions on the right mandibular second and third molars (Figure 15.8).

Skeleton 2 had advanced dental wear exposing the pulp cavities of the anterior mandibular teeth and leaving distinctive grooves in the teeth of the maxilla (Figure 15.9). Again, these alterations might have been caused by some activity-related use of her teeth. Grooves on the teeth of Iron Age individuals have been noted in a number of populations, especially women (Giles 2012: 103) and may relate to some agricultural or occupation activity, perhaps leather working.

Figure 15.9. Skeleton 2 with grooved occlusal wear of the anterior maxillary teeth

Fragment 1

The isolated cranial bone fragment (Fragment 1) excavated in 2015 (BAG15-6025) consists of the superior aspect of the frontal bone near bregma and two smaller parts of the left and right parietal bones and include parts of the coronal suture and anterior portion of the sagittal suture. Cortical preservation is excellent and all margins, apart from a small area on the right parietal bone, indicate that the fragmentation was not due to post-mortem damage. No biological sex estimation was possible for this fragment due to the absence of sexually dimorphic features and age could only be determined as 'adult'. The endocranial (internal) aspect of the two preserved sutures was obliterated, but both sutures were still visible on the ectocranial (outer) aspect. No pathological lesions were observed on this cranial bone fragment, but on the endocranial aspect of the right parietal bone (near bregma), three ovoid depressions were noticed. These are known as arachnoid granulations or Pacchionian pits and are classified as normal skeletal variants with no clinical significance (De Keyzer *et al.* 2014).

Conclusion

Both Bagendon individuals display a range of skeletal and dental diseases. It is interesting to note that both individuals had sustained fractures during their lives and both suffered from poor dental health and joint disease, which is in concordance with their advanced age. However, the remains of these two individuals were found in different contexts, are from different time periods, thus these pathological conditions are unconnected and rather typical for rural farming populations.

The human remains from Bagendon in context

Tom Moore

The human remains found in the recent excavations add to a corpus of human remains from the Bagendon complex indicating a complex treatment of the dead spanning the Iron Age and Roman periods.

Finds of disarticulated fragments of human remains are widespread on Iron Age sites in the region and beyond (Moore 2006: 110-124; Whimster 1981). Such remains are not distinctive of particular types of site or function. A preference for elements of the skull and leg bones appears to be evident in the Severn-Cotswolds, however, although to what extent this might be related to taphonomy and retrieval methods is unclear (Moore 2006: 116). There has been debate on whether these disarticulated remains represent the remains of some form of excarnation (Carr and Knusel 1997; Tracey 2012) another form of defleshing, perhaps below ground (Madgwick 2008). Either way, whatever happened to the majority of the population, they were treated in a way which means the majority of their remains have not survived.

The diversity of treatment of the dead throughout the Iron Age is well-known (Lambrick *et al.* 2009: 326). The burial from the Late Iron Age ditch at Cutham reflects a particular rite, seen across the region and beyond, of certain individuals singled out for inhumation (Cunliffe 2005: 532-553; Moore 2006: 111). Whilst many of these inhumations were placed in pits, others were inserted into boundary features, such as ditches. The Cutham individual is distinctive and unusual in a number of ways. Most of the inhumations recorded in the region were placed in a crouched position (Moore 2006: 111); the Cutham example is unusual in being extended with her legs folded beneath her. A relatively similar burial occurs relatively locally, however, at Kingshill North (Biddulph and Welsh 2011: 17). Here a male, in their 40s, dating probably to the 2nd-1st century BC or possibly somewhat later, was also placed in the grave with its legs drawn up behind it. The burial is somewhat different in that in this example the burial was clearly in a grave, rather than the ditch fill, although the grave was cut into an existing ditch. In the Kingshill example, the contorted nature of the burial is argued as being because of the small size of the grave (Biddulph and Welsh 2011: 17). A number of other burials from the Thames Valley, dating to the Middle-Late Iron Age, also appear contorted or to have been bound when buried and were also placed or cut into enclosure ditches (Lambrick *et al.* 2009: 310). Too few examples of such burials exist to know if they represent a distinctive regional rite, but they emphasize that for some reason certain individuals were marked out for ditch burials.

Defining the reasons for treating these individuals differently is difficult. It is possible that, at least in some cases, they were interred only for elements of the body to be retrieved later (Sharples 2010: 290). That seems unlikely for others, such as the Cutham internment, which marked the end of the life of the enclosure. There is little clear patterning in terms of the sex of those chosen for such treatment whilst the type of site (e.g. hillfort or small enclosure) does not appear to dictate which have burials (Moore 2006: 113). Age may have been a factor in why such individuals were treated to a distinctive burial rite. Refining the age of the Cutham individual beyond that she was over 45 at the time of death is difficult, but there are indications that she was probably much older, perhaps over 60 (Rebecca Gowland pers. comm.). It has been argued that average age of death in the Iron Age was in the 30s or 40s (Wait 1985: 90). Even if it was somewhat higher, this would make her likely to have been a relatively old member of the community. A possible selection bias towards the inhumation burial of relatively elderly females has been identified elsewhere in the region, with for example three female burials from Bourton-on-the-Water (Cotswold School) also seemingly over 45 at time of death (Holst 2006). An additional recent male burial from nearby Salmonsbury was also described as a very elderly individual (Roman 2018), although claims that this individual was 70-80 are highly problematic. All of these individuals were placed in pits rather than ditches, but whether such differences had social meaning in the Iron Age is unclear. To what extent elderly individuals might have been singled out because of their social status, perhaps because of their historical or oral knowledge, or for other reasons is not clear.

Other aspects of the individual from Cutham appear to make her unusual. Isotopic analysis indicates that she was brought up elsewhere, probably in south

Wales or the Malverns and that she may have moved a significant amount in her formative years (Chapter 17). There were clearly significant connections between the Cotswolds and west of the Severn, visible in material such as ceramics from the Malvern hills and Droitwich briquetage (see Figures 24.2 and 24.3), the former present at these enclosures. At Bagendon it is also now clear that some horses and pigs, which came from the same region, were also moving to the area suggesting that people and animals were possibly moving together. Sadly, the small number of burials, and even fewer that have been subject to isotopic analysis, make it impossible to know whether she was unusual in having come so far or whether many residents and visitors to Bagendon came from some distance. It is also noticeable that she appears to have moved more than once, perhaps emphasizing that at least some people were relatively mobile in the Iron Age. Added to this, the retrieval of fish bones from soil samples beneath her thorax (Robson in Chapter 16) although not definitely attributable to her diet, may suggest she was eating fish, a seemingly unusual practice in the British Iron Age (Dobney and Ervynck 2007).

The unusual nature of her burial raises the possibility that she was sacrificed. Unfortunately, the cause of her death could not be determined. The fracture to her rib, which was still in the process of healing when she died, could well have been caused by a deliberate blow (Rebecca Gowland pers comm). However, as Giles (2012: 101) has noted, such fractures are relatively common amongst Iron Age populations, such as that in East Yorkshire, reflecting the common injuries to which agricultural populations are susceptible. There are no signs of pathologies that indicate she was killed, however, although these might not have been visible on her skeletal remains. The unusual arrangement of her body might imply that she was kneeling when she went in to the grave and fell backwards, reminiscent of a deliberate killing, but this cannot be proven.

The burial of elderly members of the community in ditches in Roman contexts, in a relatively similar fashion often with similar injuries, has been argued to potentially be evidence of elderly abuse and their marginalization in the community (Gowland 2016). It is impossible to prove a similar situation here and it is possible to interpret some aspects of this individual and her burial as indicating the opposite, that she was a valued member of the community. The placement of inhumation burials in enclosure ditches, often as the ditch appears to have been being decommissioned are relatively common in the region (Lambrick *et al.* 2009: 310). In some instances, as at Roughground Farm, Lechlade, a Middle Iron Age burial was placed in an earlier ditch. Such rites may have been deliberately about associating the living community with these features, even though they no longer functioned as boundaries (Moore 2007b: 269). It seems possible that these individuals were provided special burial treatment, not out of disrespect or as sacrifices, but because they were esteemed members of the community. Whether such burials were also used to mark, or precipitated, the abandonment of settlements is also worth considering. At Cutham the burial seems to have taken place as part of the closing of the enclosure ditch. Combined, does the evidence imply an individual who was somehow special to the community and either whose death marked a transformation of the site or as the major shift from these enclosures to the *oppidum* activity required her inclusion to mark this momentous change? That the most elaborate burial of similar date to the Cutham internment, at Birdlip, was also female (Staelens 1982: 21), also emphasizes the potential status of females at this time.

The date of the Cutham example and others, such as that from Kingshill North, indicate that isolated inhumation burials continued into the Late Iron Age in the region (Lambrick *et al.* 2009: 318; Moore 2006: 116). This reflects the diversity of treatment of the dead in the Late Iron Age and seen at Bagendon. Other examples of Late Iron Age burials exist, although details on these is relatively limited. Rees' (1932) account of Bagendon includes descriptions of the discovery, in 1931, of two inhumations 'on the inner slope of the rampart' at Cutham Lane, in proximity to Withy Close house (SP019064) (Clifford 1961: 5; Rees 1932: 23). Many of the details concerning these finds are relatively vague and it is possible that some of the finds discussed by Rees were disarticulated remains as they were apparently uncovered in a relatively haphazard way (Rees 1932: 24). It is also not entirely clear from his description whether these were found within the rampart structure or in proximity to it. Such burials might be similar to the remains found at other major Late Iron Age dyke systems, such as the burial from Aves Ditch, Oxfordshire (Sauer 2005). Rees' description of these inhumations as extended north-south is not especially diagnostic and may simply reflect that the rampart here runs roughly north-south. It is worth noting, however, that Skeleton 1 from Area B is likely to be a Late Roman burial, situated in reference to a land division that reflected the earlier roadway, might even indicate that similarly Late Roman burials were placed in relation to land boundaries elsewhere in the area. Cutham dyke was still of course clearly visible in the Roman period and likely represented the boundary to the villa at Black Grove so we cannot assume, on Rees' limited description, that these are Iron Age. From finds associated with these individuals, however, it does seem likely they were of Late Iron Age or early Roman date (Clifford 1961: 5).

It appears that some form of excarnation rite also continued into the Late Iron Age, indicated by a number of disarticulated remains uncovered by Clifford's excavations. These included two disarticulated femurs, part of a tibia and part of a fibula, although the context of these is unknown. In addition, fragments of human skull from an adult male (Brothwell 1961) were found in the upper fills of ditch 4N, likely to date to the AD 40s-50s. Elsewhere within the wider Bagendon complex disarticulated human remains occurred at The Ditches in contexts dating to the early-mid 1st century AD. These included skull fragments from two adult individuals, one of whom appears to have died from sword injuries (Brothwell 1988) as well as skull fragments of a probable adult female from an Iron Age pit dating to the mid-1st century AD (Lorentz and Moore 2009). Somewhat surprising perhaps is the lack of disarticulated human remains from the 1979-81 and 2012-14 excavations.

Unlike south-eastern England (cf. Fitzpatrick 1997), cremation does not appear to have been widely adopted in the region until well after the Roman conquest, although a few possible Late Iron Age examples exist in the upper Thames valley (Lambrick *et al.* 2009: 317) and elsewhere in Severn-Cotswolds (Moore 2006: 123). Rees (1932) also mentions the discovery in 1861 of 'six Belgic inurned cremations', perhaps representing a small cemetery, located '100 yds to the north of the rectory'. This would probably locate it somewhere on the slopes (around SP011068: see Figure 24.8) an area which has witnessed substantial post-medieval and modern disturbance and quarrying (see Chapter 2), although considering two buildings served as rectories in the 19th century, it could be further west close to Bagendon House. It is unclear what date these cremation urns are although Rees (1932) postulates an early Roman date. One possibility is that these were related to the Roman settlements at Black Grove or Bagendon House (see Chapter 5). Considering the limited evidence for cremation burials in the Late Iron Age of the region this would seem likely, although a pre-conquest date cannot be ruled out.

The impression from Bagendon is that in the Late Iron Age treatment of the dead was highly varied, with potentially at least three distinct rites taking place: inhumation, some form of excarnation and possibly cremation. This seems to have been part of a wider diversity of treatment of the dead in the region in the 1st century AD (Moore 2006: 124) with such diversity representing the changing nature of society with status being more clearly marked out in the way the dead were treated.

Most notable from the complex is that, despite the widespread geophysics, there remains no evidence for a high-status burial enclosure comparable to those associated with the *oppida* in eastern England, for example at Folly Lane, *Verulamium* (Niblett 1999) and at Lexden and Stanway, *Camulodunum* (Crummy *et al.* 2007). Bagendon is not alone in this regard, both Silchester and Stanwick do not have closely associated rich-burials. However, in both cases such burials appear to exist in their wider hinterlands (Fulford and Creighton 1998; Haselgrove 2016: 349) so the possibility that examples exist further afield remains. Assessment of the Tar Barrows (Holbrook 2008a) has suggested this might have Late Iron Age origins, but if so its associations with Bagendon are uncertain (see Chapter 24). Other relatively elaborate burials exist in the region. At Birdlip, a cemetery of inhumation burials included a female burial with a rich set of grave goods, dating probable to the early-mid 1st century AD (Staelens 1982). How these relate to activity at Bagendon is intriguing and may suggest the presence of an alternative important high-status settlement somewhere on the north Cotswold escarpment (see Chapter 23). Other relatively rich burials may have existed elsewhere in the region, for example suggested by a Late Iron Age bucket at Rodborough (Moore 2006: 123). Overall, however, the paucity of such burials and of cremation rites, may suggest that Iron Age society in this region was structured somewhat differently than those further east (see Chapter 24).

Treatment of the dead at Roman Bagendon appears equally varied even considering the small assemblage encountered. Although undated, the inhumation from Area B seems likely to be of Late Roman date (Chapter 4). As discussion in Chapter 4 outlines, peripheral inhumation burials of this nature are relatively well known from the Late Roman period and was the dominate practice in the Late Roman period (Smith *et al.* 2018: 219). The placing of Late Roman burials in relation to earlier features has also been noted elsewhere and might be significant (Smith *et al.* 2018: 234) as are inhumations on the fringes of villa estates (Smith *et al.* 2018: 247-8) possibly related to relatively low-status occupants. Lambs associated with inhumations appear more common in the Dorset area (Smith *et al.* 2018: 274) but are also part of a more widespread occasional inclusion of animals in the burial arena. The fragment of human cranium from Black Grove is somewhat more unusual. It derives from a probably 3rd century AD wall trench of the west range. It is possible that this was disturbed from an earlier, Late Iron Age feature of which there are certainly examples in this area. However, this seems unlikely considering its stratigraphic location. Fragments of disarticulated human remains are increasingly being recognized from a variety of Roman contexts and are not necessarily only found in the Late Iron Age/early Roman period meaning it need not be redeposited (Fulford 2001; Smith *et al.* 2018: 277) and such finds occur locally at sites like Kingshill South (Simmonds *et al.* 2018). To what extent this represents some continued form of burial rite using exposure has been the subject of debate but certainly tends to blur the distinction between rites across the Iron Age and Roman periods.

Chapter 16

The Faunal remains

Cameron Clegg
with a contribution by Harry K. Robson

Methods

This report examines the animal bone recovered from the recent excavations from Bagendon at Scrubditch (2012/3) and Cutham (2014), discussed in Chapter 3, and at Black Grove (2015), discussed in Chapter 5. In addition, the animal bone recovered from the 1979-1981 excavations in the valley, discussed in Chapter 4, are presented and explored. Animal bones from all of the 2012-2015 assemblages were hand collected; it is worth recognising that this may have introduced bias towards greater collection of larger elements as well as some post-mortem damage from excavation.

Elements are identified to species, element, side, and diagnostic zone, using the method outlined by Dobney and Rielly (1988). For ease of comparison, rodent species (mouse, rat and vole) have all been combined as 'small mammal' elements. Species and element representation were calculated using the number of identifiable fragments (NISP). Where possible, epiphyseal fusion and mandibular tooth wear are also recorded, with fusion age ranges for all species according to Silver (1969), sheep/goat dentition recorded according to Payne (1973) and cattle and pig dentition recorded according to Grant (1982). For elements with good preservation, measurements were taken according to von den Driesch (1976).

The 1979-81 material was also recovered through hand collection during excavation. Rather than a synthesis of the raw identified fragments, this report is based on original tabulations and analysis completed and provided by Kevin Rielly in 2016. This included the species representation, element distribution, epiphyseal fusion and mandibular tooth wear of identifiable fragments.

Considering the arguments (Chapter 3), that the Scrubditch and Cutham (2012-14) enclosures may have worked as an integrated complex, with both enclosures having a similar sequence of occupation, the assemblages have been combined and separated out by occupation phase in order to view change in animal utilisation over time at the site. Also, Scrubditch and Cutham are briefly compared to assess the differences between the two enclosures. With some phases of occupation producing assemblages too small for analysis or valid comparison, phases 1-3, dating to the Middle Iron Age, have been combined to facilitate comparison with the Late Iron Age, phase 4. The Black Grove (2015) assemblage (dating to the 1st-4th century AD), and the 1979-1981 excavation, from the valley occupation dating to *c.* AD 30s-AD 70s are considered in their entirety.

Occupation in Bagendon valley (1979 – 1981)

From data supplied by Kevin Rielly

A total of 9235 fragments were recovered during the 1979-1981 excavations, with 4960 being identifiable to species, element and side. The representation of the species recovered in the assemblage can be seen in Figure 16.1. Sheep/Goat represent the most prevalent identified species, followed by cattle and pig. Very few other domesticate or wild species were noted within the assemblage.

Sheep/Goat

Sheep/goat are the most prevalent domesticate, consisting of 2265 identifiable fragments. Body part representation (Figure 16.2) shows a limited presence of lower limb and skull/vertebral elements.

Epiphyseal fusion and mandibular tooth wear can help shed light on the utilisation of sheep on site. Very few unfused elements with young (~10 month) fusion ages were recovered, with only 3 proximal scapulae (3.9%) and 3 distal humeri (3.8%) noted as fully unfused. This suggests that, while some infant or juvenile individuals were deposited on site, their presence was severely limited. Based on other elements (Table 16.1), we can see that a mix of more advanced ages are present, with a number of epiphyses within the 2-3 year age range being unfused, but additionally that a significant portion of these elements are fully fused (Figure 16.3). Similar to the epiphyseal fusion, a range of mandibular tooth wear stages are represented within the assemblage, with the notable presence of younger, adult, and older ages. The range of ages present, paired with the absence of neonatal or juvenile individuals, indicates the deposition of animals utilized for multiple products including milk and wool, and that this was meat being transported to the site, likely for consumption either as a primary goal of their strategy, or after their primary utility for secondary products had diminished.

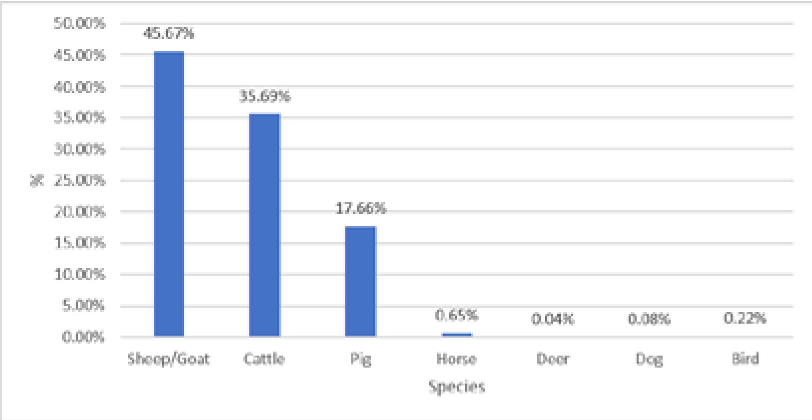

Figure 16.1. The relative species representation of identifiable elements recovered from the 1979-81 excavation.

Table 16.1. The epiphyseal fusion of recovered sheep/goat elements from the 1979-81 excavation.

Element	Age of Fusion	Fused	Unfused	% Fusion
Scapula Proximal	10m	73	3	96.1%
Humerus Proximal	3-3.5yrs	1	3	25.0%
Humerus Distal	10m	76	3	96.2%
Radius Proximal	10m	76		100.0%
Radius Distal	2.5-3yrs	9	23	28.1%
Ulna Proximal	2.5yrs	10	7	58.8%
Metacarpal Distal	1.5-2yrs	8	10	44.4%
Femur Proximal	2.5-3yrs	9	9	50.0%
Femur Distal	3-3.5yrs	4	4	50.0%
Tibia Proximal	3-3.5yrs	8	9	47.1%
Tibia Distal	1.5-2yrs	77	26	74.8%
Calcaneus Proximal	2.5-3yrs	19	9	67.9%
Metatarsal Distal	1.5-2yrs	9	2	81.8%

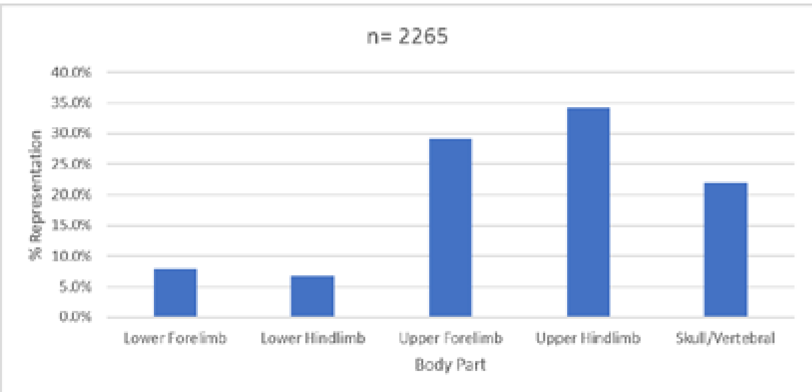

Figure 16.2. The relative body part representation of identifiable sheep/goat elements recovered from the 1979-81 excavation.

Cattle

Cattle follow sheep/goat in prevalence, representing over 35 percent of the identifiable assemblage. A relatively even representation of the major body parts is evident from the assemblage (Figure 16.4). This suggests that animals were butchered, consumed, and deposited on site, and likely transported to site on the hoof.

Both epiphyseal fusion and mandibular tooth wear were analysed to determine age at death of the cattle population. The presence of unfused and semi-fused elements with a later fusion date (Table 16.2), such as proximal calcaneus (68% fusion), distal metacarpal (68% fusion), and distal radii (81% fusion) indicate that a majority of individuals were of an adult age, beyond 2-3.5 years of age. Conversely, limited presence of unfused elements with very early fusion dates such as 1st phalanges and proximal radii indicate the presence of at least some juvenile animals being deposited on site. The mandibular wear largely corroborates the epiphyseal fusion (Figure 16.5) showing a majority of animals aged at 2-3.5 years or older, the general ideal age range for slaughter and consumption. Mandibles of a more advanced state of wear indicate multiple depositional practices taking place on site, introducing the possibility of locally raised cattle.

Pig

Pig are the least prevalent of the major domesticates, representing over 15 percent of the identifiable fragments. The body part distribution (Figure 16.6) shows an interesting relative representation of body parts recovered. The presence of lower limb elements is greatly diminished when compared with that of the upper limbs and skull/vertebral elements.

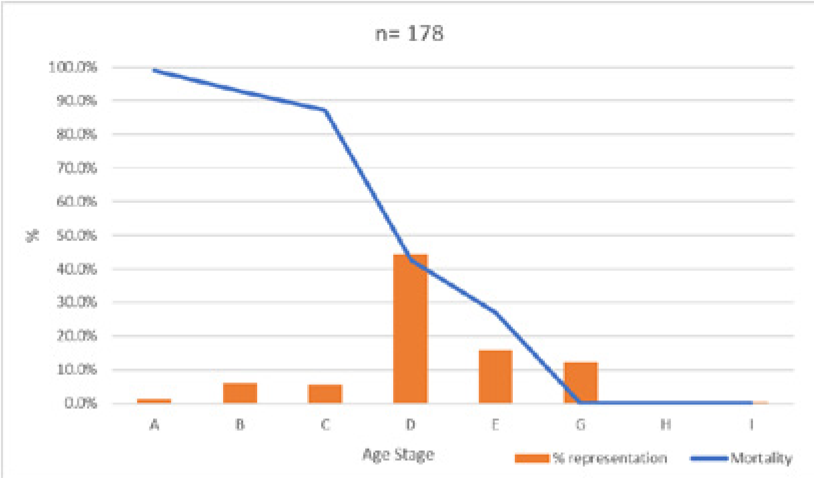

Figure 16.3. The relative representation of different age groups of recovered sheep/goat mandibles from the 1979-81 excavation, as well as the mortality profile of the population.

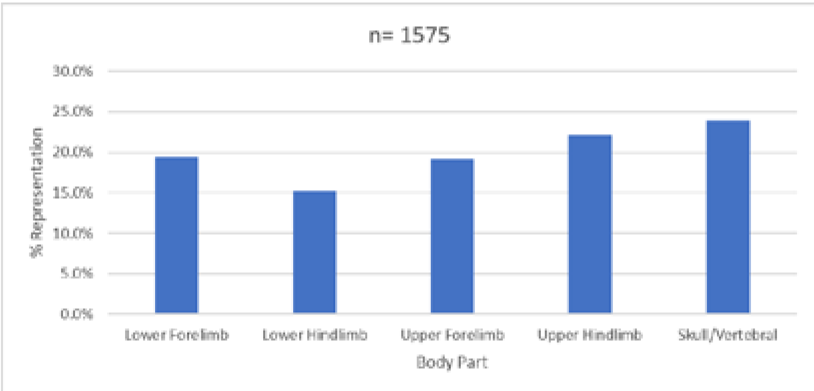

Figure 16.4. The relative Body Part representation of identifiable cattle elements recovered from the 1979-81 excavation.

Table 16.2. The epiphyseal fusion of recovered cattle elements from the 1979-81 excavation.

Element	Age of Fusion	Fused	Unfused	% Fusion
Scapula Proximal	7-10 mo.	38	1	97.4%
Humerus Distal	18m	25		100.0%
Radius Proximal	18m	32	1	97.0%
Radius Distal	3.5-4ys	13	3	81.3%
Ulna Proximal	3.5-4yrs	5		100.0%
Metacarpal Distal	2-2.5yrs	19	9	67.9%
Femur Proximal	3.5yrs	9	3	75.0%
Femur Distal	3.5-4yrs	3	2	60.0%
Tibia Proximal	3.5-4yrs	2	3	40.0%
Tibia Distal	2-2.5yrs	19	2	90.5%
Calcaneus Proximal	3.5yrs	19	9	67.9%
Metatarsal Distal	2-2.5yrs	16	5	76.2%
1st Phalanx Proximal	18m	74	4	94.9%
2nd Phalanx Proximal	18m	41	4	91.1%

Epiphyseal fusion and mandibular wear are assessed to determine age at death of the pig population recovered from the 1979-81 excavation (Table 16.3). Epiphyseal fusion shows a majority of recovered elements aged beyond 1 year, with the majority of recovered scapulae, distal humeri, and proximal radii being fully fused. Conversely, very few fully fused elements of a later fusion age (3.5 years) are noted, with only one distal radius, proximal tibia and a few proximal ulnae being fully fused. Mandibular tooth wear largely corroborates the trends noted through epiphyseal fusion. Infant and elderly examples are exceedingly rare, or absent entirely.

Other Species

Besides the major domesticates, a small proportion of wild and minor domesticate species were recovered. These include deer, bird, horse, and dog. Of these, horse is the most numerous. However, such a small number of fragments were collected that no further analysis of these species is possible.

Scrubditch and Cutham enclosures (2012/13 and 2014)

Combined, the Scrubditch and Cutham produced 7054 animal bone fragments. The condition of recovered bone was poor overall, with 1058 fragments identifiable to species, element, side and diagnostic zone. The vast majority of identifiable fragments belonged to the major domesticate species of cattle, pig and sheep/goat, with small amounts of horse, bird, dog and small mammal.

Scrubditch compared with Cutham

What follows is a brief discussion of noted differences between the Scrubditch and Cutham

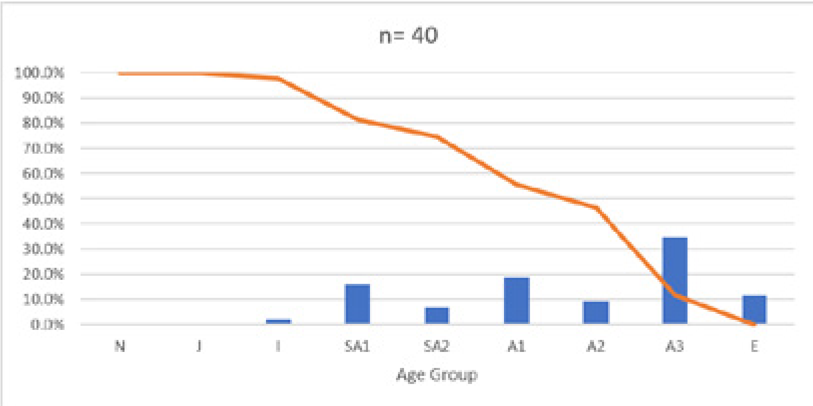

Figure 16.5. The age at death for recovered mandibles from the 1979-81 excavation. Age groupings are according to O'Connor (1991: 250, table 67).

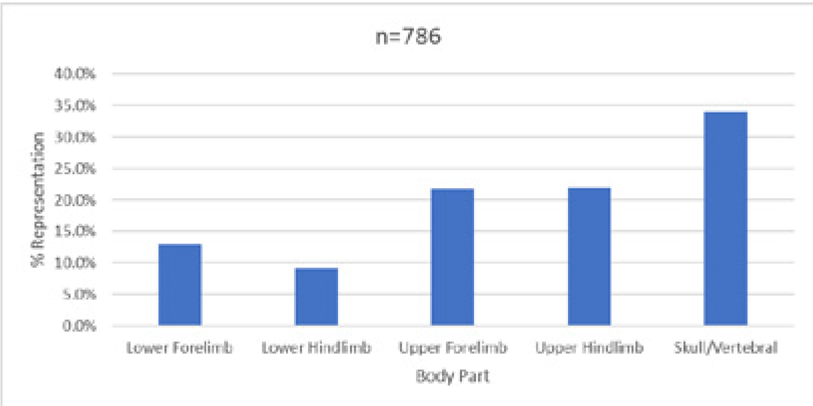

Figure 16.6. The relative body part representation of identifiable pig elements recovered from the 1979-81 excavation.

Table 16.3. The epiphyseal fusion of recovered pig elements from the 1979-81 excavation.

Element	Age of Fusion	Fused	Unfused	% Fusion
Scapula Proximal	1yr	29	5	85.3
Humerus Proximal	3.5yrs		5	0.0
Humerus Distal	1 yr.	12	2	85.7
Radius Proximal	1yr	21		100.0
Radius Distal	3.5yrs	1	5	16.7
Ulna Proximal	3.5yrs	8	3	72.7
Femur Proximal	3.5yrs		4	0.0
Tibia Proximal	3.5yrs	1	5	16.7
Tibia Distal	2-2.5yrs	13	7	65.0
Calcaneus Proximal	2-2.5yrs	2	13	13.3
Metatarsal Distal	2-2.5yrs		53	0.0
1st Phalanx Proximal		15	16	48.4
1st Phalanx Proximal		6	2	75.0

assemblages, as well as an examination of the relative occurrence of the major domesticate species. This is done to elucidate any differences between the two assemblages, and potentially in the use of these two enclosures.

Overall, 3824 fragments (487 identifiable from Phase 1-3, 56 from Phase 4) of bone were collected from Scrubditch (2012/13), and 3230 (350 identifiable from Phases 1-3, 164 from Phase 4) from Cutham (2014). The preservation of the two assemblages is noticeably different, with the Scrubditch assemblage featuring poorer preservation than the Cutham assemblage. From the fragment counts this discrepancy is not evident. This is due to the low rate of survival of bone collected and stored during excavation, much of which, particularly from the Scrubditch excavation, dissolved into unquantifiable bone gravel. Furthermore, this difference in preservation has a marked effect on the presence of measurable elements. While too few measurable elements were recovered to facilitate a metric analysis or comparison between sites, the analysis of age at death of sheep is greatly affected. Only three of the 27 mandibles and third molars used to calculate the mortality profile for the site (Phase 1-3, Figure 16.11), are from the Scrubditch enclosure.

The species representation between the two enclosures can be seen in Figure 16.7 and Figure 16.8. In Phase 1-3, Scrubditch has a higher representation of pig than is seen at Cutham, which features a corresponding increase in cattle and sheep representation. Considering the similarity in size and consistency of pig and sheep/goat bones, it is unlikely that preservation bias is the cause of this discrepancy. This difference in pig representation does not persist into the Phase 4 contexts. Element distribution between the two enclosures does not vary significantly, with all body parts represented in both assemblage across both phase groups.

While some distinct differences are evident between the Scrubditch and Cutham enclosures, the radiocarbon dating from these excavations suggests that they are both part of the same Middle and Late Iron Age complex

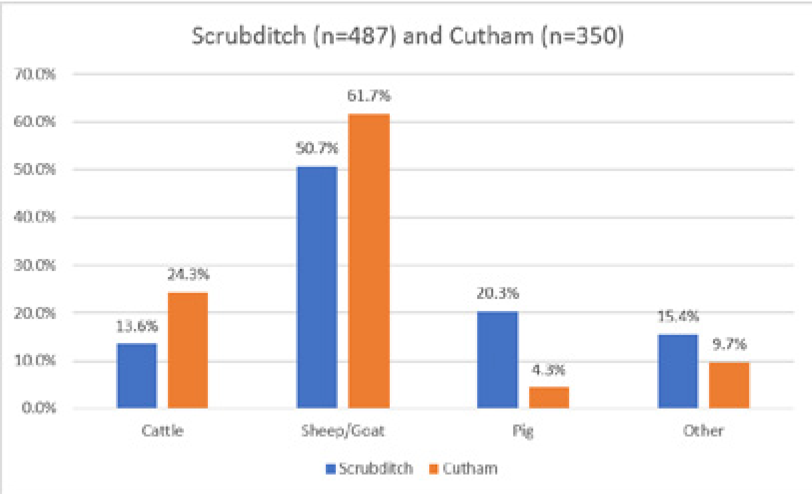

Figure 16.7. The species representation for the Scrubditch and Cutham assemblages, Phase 1-3.

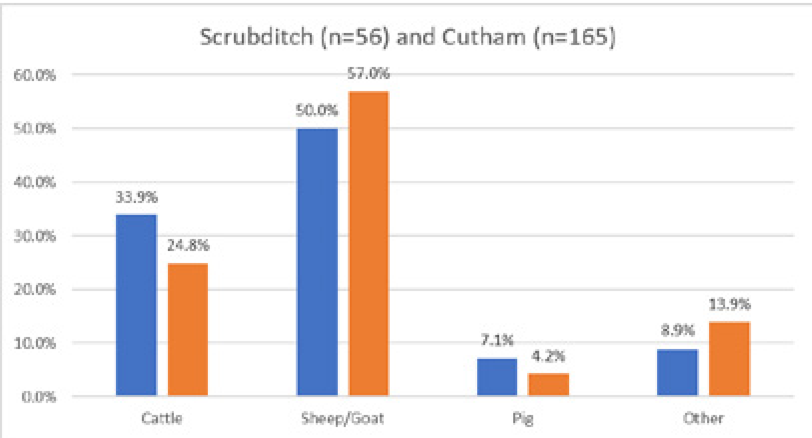

Figure 16.8. The species representation for the Scrubditch and Cutham assemblages, Phase 4.

(See Chapter 3). Thus the two assemblages have been combined here and treated as a single assemblage for comparative and analytical purposes.

Phase 1-3 (Middle Iron Age)

Table 16.4 and Figure 16.9 display the representation of species recovered from phases 1-3. Sheep/goat make up the majority of recovered elements, representing 55% of the total, followed by cattle (18%) and pig (13%). Interestingly, pig and cattle elements see an almost equal representation in the assemblage. Considering the selection bias in favour of larger elements, bones and overall poor preservation of the assemblage, it is likely that the prevalence of sheep/goat and pig bones is not due to a collection bias.

Sheep/Goat

463 fragments of bone were identified as sheep/goat. The element distribution of recovered sheep can be seen in Figure 16.10. Overall there appears to be an even distribution of body parts, suggesting that whole animals were deposited on site, rather than as a waste product due to a specific activity.

Both epiphyseal fusion and mandibular dentition are utilised to create age profiles of the sheep/goat assemblage. Poor preservation makes comprehensive epiphyseal fusion data difficult to surmise; however, some information could be gleaned from recovered elements. Interestingly, a number of neonatal humeri were identified, with an MNI of five neonates within the two assemblages. There are a mix of both early and late fusing elements, with two 1st phalanges, two 2nd phalanges and a pelvis being unfused, as well as a number of distal radii and one distal tibia. This suggests a range of individuals being deposited on site. In addition to the bone fusion, 13 mandibles and 11 mandibular third molars, all but three of which are from the Cutham assemblage, are shown in Figure 16.11. This mortality curve shows animals dying over time at each stage of mandibular wear, indicating a mixed utilisation of sheep. The presence of all wear stages suggests that sheep were being slaughtered throughout the year, rather than adhering to a strictly seasonal pattern of slaughter and deposition. This is not to say that a seasonal ebb and flow of activity didn't occur on site, but rather that there was at least nominal activity and deposition on site year-round. There is an increased age at death of 2-3 years among recovered mandibles.

Table 16.4. The number of identifiable fragments and relative representation of each species recovered from the Scrubditch and Cutham assemblages.

	Sheep/Goat	Cattle	Pig	Horse	Bird	Dog	Small Mammal
#	463	152	114	28	21	8	52
%	55.25%	18.14%	13.60%	3.34%	2.51%	0.95%	6.21%

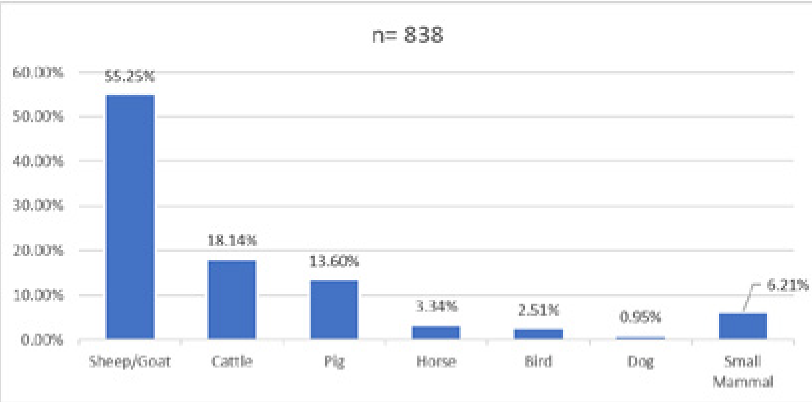

Figure 16.9. The relative representation of each species recovered from Phase 1-3 of the 2012-14 excavations. Percentages are determined from the number of identified fragments.

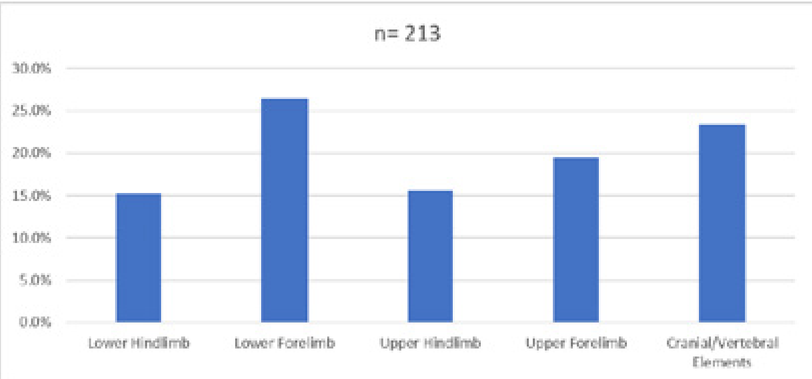

Figure 16.10. The relative representation of different body parts of sheep/goat recovered in Phase 1-3 of the Scrubditch and Cutham excavations

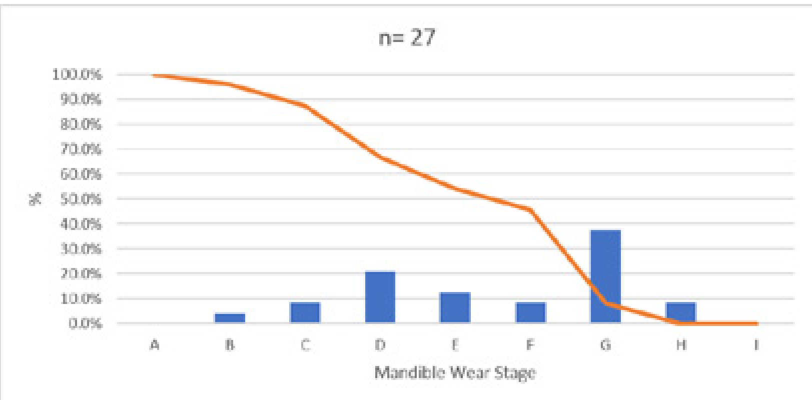

Figure 16.11. The mortality profile for sheep/goat mandibles and loose third molars in Phase 1-3recovered from the Scrubditch and Cutham excavations. The age stages used are according to the method developed by Payne (1973).

Paired with the presence of neonatal bones as well as more geriatric mandibular teeth shows a wide range of sheep/goat age at death, suggesting multiple utilisation strategies.

While some elements were well preserved enough to measure, there were too few to conduct a metric analysis of the recovered sheep bone. This prevents us from attempting to determine the sexual dimorphism of the assemblage, as well as further separating sheep and goat representation. Furthermore, no fully intact long bones were recovered, making the estimation of withers height impossible.

Cattle

Only 152 fragments of cattle bone were recovered. The element distribution of recovered fragments is displayed in Figure 16.12. The assemblage shows a representation of all body parts, suggesting that whole animals were deposited on site. There is an elevated representation of upper forelimb elements. Due to the poor preservation, butchery marks were not readily evident on recovered elements, making it difficult to ascertain if elements were butchered.

Both epiphyseal fusion and dentition were examined to determine the age range of cattle present at Bagendon. Besides the few elements discussed below, all other recovered elements displayed full fusion. All of the discussed epiphyses are later fusing, indicating the lack of any juvenile or immature individuals. The single unfused tibia indicates the presence of one individual under the age of 24-30 months (Silver 1969), with all other recovered elements being fully fused. The radii show more variation, with two (one left and one right) unfused, one semifused and two (both right) fully fused distal epiphyses recovered. From the bone fusion data, it appears that a majority of cattle were aged older than three years of age, with some being older than four. In addition to the bone fusion, although no intact mandibles were recovered, two mandibular third molars were identified, having a wear stage of f and g (Grant 1982). This suggests the presence of older cattle aged between four and five years. From the bone fusion and dentition of recovered cattle, it appears that cattle deposited at this site ranged from

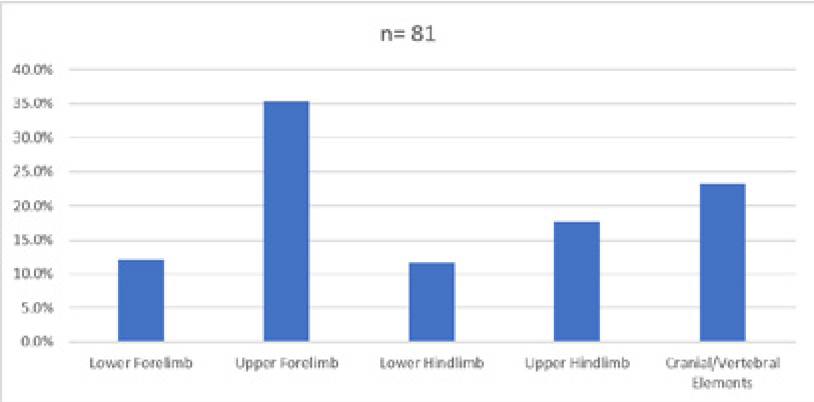

Figure 16.12. The relative representation of different body parts of cattle recovered in Phase 1-3 of the Scrubditch and Cutham excavations.

under 2 years of age, before the prime age of slaughter for meat, to over four years of age, with some possibly exceeding this. The lack of juvenile or neonatal individuals suggests that cattle were not born or kept throughout their lifespans in this area, but rather this deposition is the result of older animals being brought on site, possibly for the purpose of consumption.

Due to poor preservation, very few pathological lesions were recorded. One recovered cattle skull had several lesions on the parietal bone, taking the form of small holes breaching the outer layer of bone into the sinuses. These holes are located in zones 3 and 4, measuring 11.9 mm X 9.0 mm and 19.5mm X 12.5 mm respectively. Additionally, bone near the affected area displayed a large degree of porosity. These lesions has been noted at other sites, and while there have been several interpretations as to how or why these lesions formed, ranging from disease to traction related stresses or even excessive parasitic infection, no consensus on their origin has yet taken root (Dobney *et al.* 1996). While a phenomenon to take note of, it sadly contributes little to our understanding of the site. It is interesting to note that this was the only pathological lesion noticeable with such poorly preserved specimens.

Pig

114 fragments were identified as pig. The element distribution can be seen in Figure 16.13. A large amount of the identifiable fragments were of loose teeth, limiting the overall element count. While a higher representation of forelimb elements was noted, all body parts are present in the assemblage, indicating that whole animals were brought on site and deposited. Additionally, the large number of loose teeth allows us to presume that, due to poor preservation factors, a larger number of skulls may have been deposited on site than were recovered during excavation.

The elevated representation of pig elements recovered on site is of interest. With hand collection and poor preservation, larger elements such as cattle are recovered and identified more easily, resulting in a bias favouring elements from larger animals. The comparable amounts of pig and cattle recovered in spite of these factors indicates the likely presence of a greater amount of pig elements that were not identifiable due to the overall poor preservation.

Due to the poor preservation of recovered elements, bone fusion was obscured. Furthermore, the assemblage was highly fragmented, limiting the number of measurable elements significantly. Finally, the lack of intact mandibles made the estimation of age at death for the pig population impossible. No further analysis of the pig bone was carried out.

Other Species

Besides the major domesticates, small amounts of horse, bird and dog were recovered as well as numerous small mammal elements.

Twenty-eight fragments of bone were identified as horse. These elements consisted mainly of loose teeth, with one mandible with three fixed teeth, a left tibia and radius. From the amount of teeth recovered, the horse elements belong to at least two distinct individuals. All mandibular teeth show a moderate amount of wear,

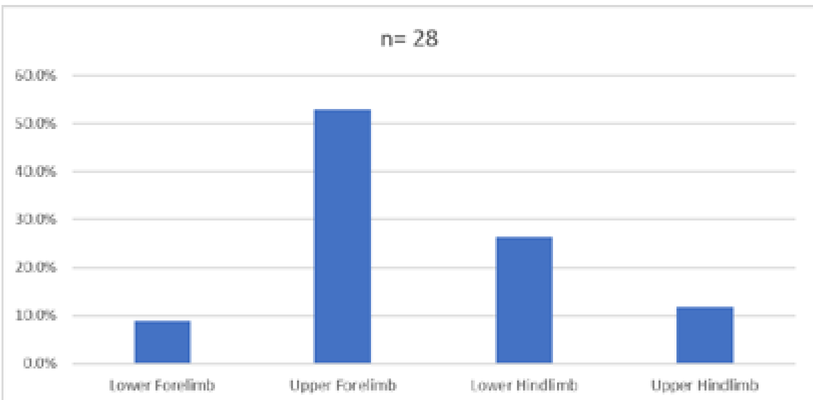

Fig 16.13. The relative representation of different body parts of pig recovered in Phase 1-3 of the Scrubditch and Cutham excavations.

with one deciduous incisor with an oval infundibulum, and an unworn permanent incisor. No signs of butchery or ante mortem damage were noted on the long bones, although this could be a result of poor preservation. However, one mandible fragment was found to be partially carbonized, indicating that the bone had been in close contact with fire, possibly sometime after its deposition. The lack of fire damaged teeth suggest that the bone was devoid of flesh when exposed to flame, likely an incidental rather than deliberate exposure.

Twenty-one bird bones were recovered, with poor preservation preventing a species identification, although they likely belong to various wild species. The size of the elements varied from small to medium, with no identified elements larger than pigeon-sized.

Eight elements identified as dog were recovered, including an unfused proximal humerus and a fragmented metapodial. Due to the poorly preserved and fragmented nature of the bones, no further information could be gleaned.

Fifty-two fragments of bone were identified as small mammal. These most likely belonged to various rodent species, although determining this exactly is challenging due to preservation and the fragmentary nature of the finds. No further information could be gleaned from these fragments, and it is possible that they are the result of later intrusions from burrowing rodents.

Phase 4

A total of 221 identifiable fragments from the Scrubditch and Cutham excavations were from occupation Phase 4. The species representation for these fragments is shown in Table 16.5 and Figure 16.14. Preservation of the bone ranged from medium to poor. The bone was hand collected, introducing a distinct bias towards larger elements as well as some post mortem damage from excavation. The majority of the bone recovered was identified as sheep/goat, with cattle in second. Very few fragments from other domesticated or wild species were recovered. Even when accounting for the bias in favour of recovering and identifying larger cattle elements, it is evident that sheep/goat was of prime importance on site, with some utilisation of cattle and little of other species.

Cattle

A total of 60 cattle bone fragments were identified from the assemblage. The element distribution can be seen in Figure 16.15. An elevated representation of the upper fore- and hind limbs can be seen, although all body parts are represented within the assemblage. This suggests that whole cattle were brought near and deposited on site. Just under four percent of identifiable cattle elements displayed butchery marks. The marks were fine knife marks at or around the articulation of long bones, with some evidence for hide removal with knife marks on carpals and metapodials. The presence of knife marks supports known Iron Age trends, as opposed to chop marks, a hallmark of the Roman Period, which are absent. With the knife marks being fine and shallow in appearance, the variable preservation of the cortex of the recovered bone makes the accurate identification and recording of all butchery marks challenging.

Poor preservation makes the assessment of epiphyseal fusion difficult, however identifiable elements were found to exhibit full fusion, suggesting that the cattle were all aged beyond 3 years. This is corroborated by single mandibular M3 at wear stage f, suggesting an age beyond 2.5 years. Due to poor preservation and the fragmentary nature of the assemblage, only a very small number of measurable elements were recovered. The

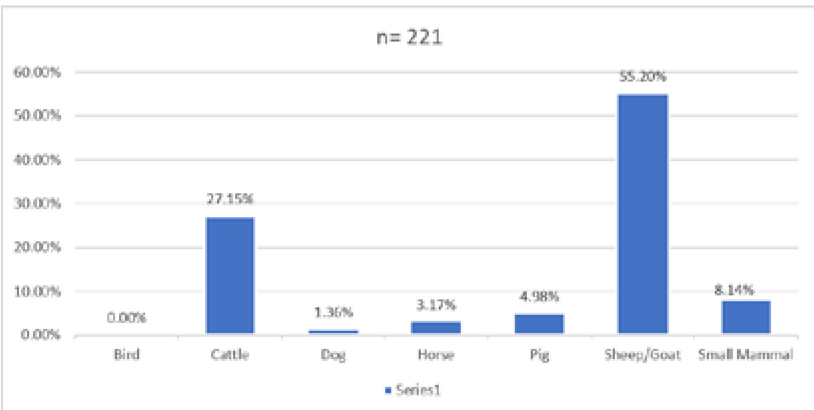

Figure 16.14. The relative representation of each species recovered from phase 4 of the Scrubditch and Cutham excavations. Percentages are determined from the number of identified fragments.

Table 16.5. The number of identifiable fragments and species representation of each species recovered from Phase 4 of the Scrubditch and Cutham excavations

	Bird	Cattle	Dog	Horse	Pig	Sheep/Goat	Small Mammal
Tot. Frag	0	60	1	7	11	122	18
%	0.00%	27.40%	0.46%	3.20%	5.02%	55.71%	8.22%

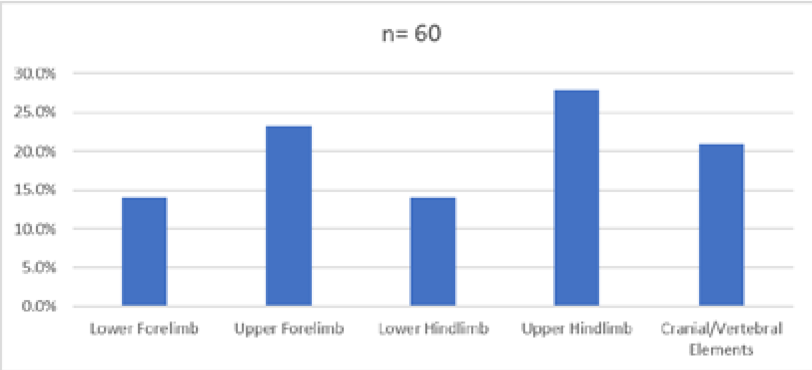

Figure 16.15. The relative representation of different body parts of cattle recovered in phase 4 of the Scrubditch and Cutham excavations.

number of measurable elements was not great enough to ascertain the sexual dimorphism of the cattle present on site. Nor were any complete long bones collected, preventing the estimation of withers heights.

Pig

In contrast to phases 1-3, only 11 fragments were identified as pig. While few in number, elements from all body parts were represented, suggesting that whole animals were brought onto site and butchered. The pig bones were highly fragmented. With the small number of recovered pig elements, further analysis is not feasible.

Sheep/Goat

Representing 55% of the identifiable animal bone, 122 sheep/goat elements were identified. The element distribution can be seen in Figure 16.16. The element distribution shows an increased representation of upper limb elements. No butchery marks were detected, although a high degree of surface erosion may have obscured their presence. All body parts saw representation in the assemblage, indicating that whole animals were deposited on site. The increased representation of larger upper limb elements may be the result of a preservation and selection bias, rather than preferential processing of carcasses.

A low sample size and poor preservation in some contexts results in few elements with visible epiphyseal fusion and only 4 mandibles and loose mandibular third molars to attempt to ascertain age-at-death for the sheep/goat population in Phase 4. There is an absence of neonatal bones within the assemblage, differing from the Phase 1-3 assemblage. The presence of one unfused radius and two of the mandibles being age group C according to Payne (1973), indicates that a portion of the animals were of a younger age, although the limited available information prevents any further analysis. Due to the fragmentary nature of the assemblage, no intact long bones were recovered, preventing the estimation of withers height. The lack of preserved articulations makes the sexual differentiation of the herd unknown, as well as preventing the separation of sheep and goat elements.

Other Species

In addition to the three main domesticates, small numbers of dog, horse and small mammal were recovered. Besides the small mammal fragments, no other wild species were recorded. This indicates that, if hunting wild species was practiced by the occupants of the area, their remains were not deposited within the excavated area. It is interesting to note the complete lack of identified bird remains in this phase of occupation. This is likely due to the small sample size and poor preservation. Nonetheless it marks a diversion from the phase 1-3 assemblage.

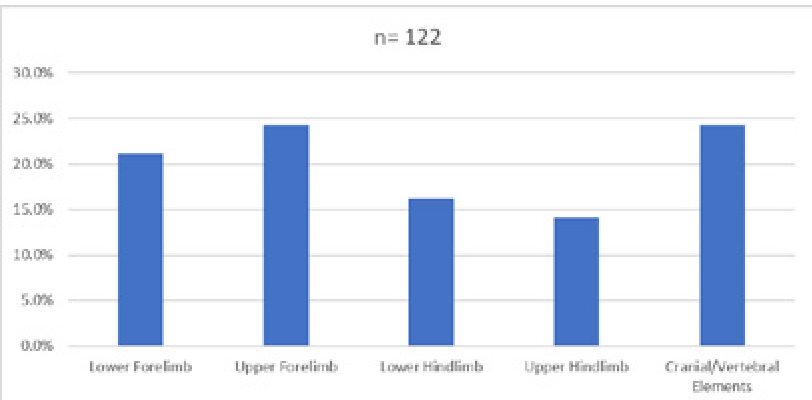

Figure 16.16. The relative representation of different body parts of sheep/goat recovered in phase 4 of the Scrubditch and Cutham excavations.

Seven fragments of recovered bone were identified as horse. The majority of identified fragments were fragmentary teeth, both mandibular and maxillary, likely coming from one individual. No further analysis of these fragments could be attempted.

Three fragments were identified as dog, consisting of one distal tibia, one femur, and one metapodial, possibly from the same individual. Due to poor preservation, no elements were measurable and no further analysis could be performed.

Table 16.6. The identifiable fragments and relative species representation of the animal bone recovered from the Black Grove excavation.

	Bird	Cattle	Dog	Horse	Pig	Sheep/Goat	Small Mammal
Tot. Frag	46	129	4	15	70	186	100
%	8.4%	23.5%	0.7%	2.7%	12.7%	33.8%	18.2%

Eighteen small mammal bones were recovered. The elements likely belong to various rodent species including mouse, vole and rat. Considering the relatively poor preservation noted, it is probable that these elements represent more modern intrusions from burrowing rather than contemporary deposits.

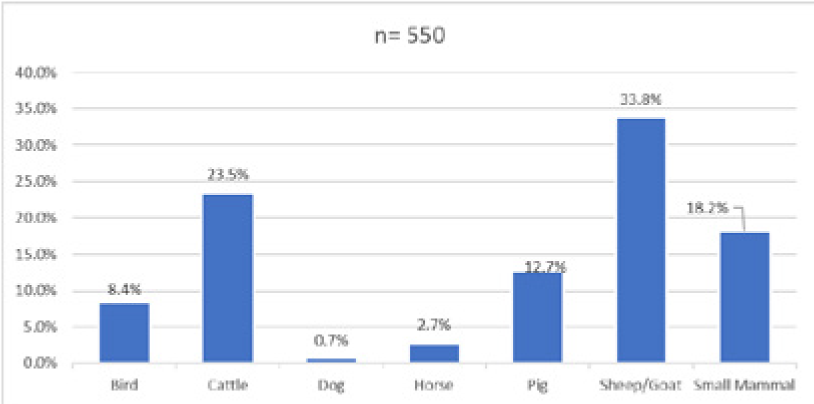

Figure 16.17. The relative species representation of identifiable elements recovered from the Black Grove excavation.

Black Grove (2015)

Differing from the Iron Age deposits excavated in 2012-14, the 2015 Black Grove excavation recovered materials of a Roman date, spanning from the 1st-4th centuries AD. Thus, the assemblage is considered separately from the other excavations. A total of 2264 fragments were recovered, with 550 of these being identifiable to species, element, side and zone (Table 16.6). Preservation of the bone ranged from good to medium. The bone was hand collected, introducing bias towards larger elements as well as some post mortem damage from excavation. The representation of the species recovered in the assemblage can be seen in Figure 16.17. The majority of the bone recovered was identified as sheep/goat, with cattle in second, pig in third and few wild or other domesticated species. Small mammal bones represent a significant proportion of the recovered identifiable total, although it is likely that at least a portion of these elements represent modern intrusions into these layers rather than contemporary deposits.

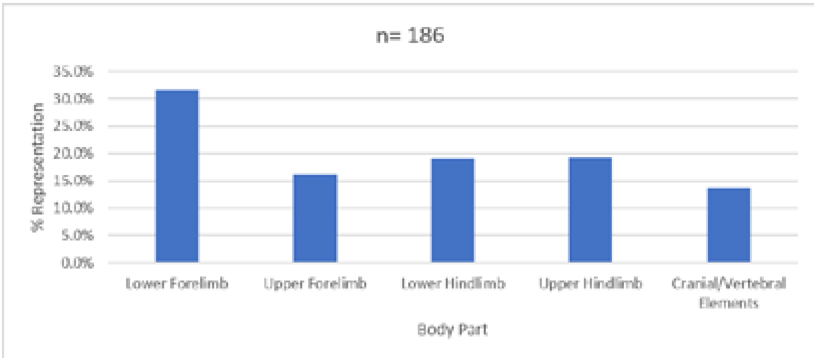

Figure 16.18. The relative body part representation of identifiable Sheep/Goat elements recovered from the Black Grove excavation.

Sheep/Goat

Within the assemblage, 186 bone fragments were identified as sheep/goat, representing the largest proportion of any species present. Element Representation can be seen in Figure 16.18, showing a slightly elevated representation of lower hindlimb elements, likely representing butchery waste. However, the presence of all body parts suggests that whole animals were butchered, processed, and consumed on site.

Recovery and preservation of intact mandibles was low, but with the inclusion of loose M3 teeth 13 ages could be calculated, although this adds bias in favour of older individuals. Ten of the 13 ageable individuals were age group G, with only one mandible (age group C) of a juvenile age. This suggests that a majority of animals were older individuals aged 4-6 years. In addition to mandibles, a number of unfused and neonatal elements were identified, including several unfused 1st phalanges, as well as a neonatal 1st and 2nd phalanx. Although too few were recovered for accurate comparison within the assemblage, their presence indicates the presence of both newborns as well as pregnant females on site. The presence of unfused long bones (two radii, two femurs, and one unfused tibia) further indicate the deposition of individuals of a more intermediate age.

Cattle

Making up the second most prevalent species, 129 fragments were identified as cattle. The body part representation (Figure 16.19) shows an elevated representation of lower limb elements. Both epiphyseal fusion and tooth wear are considered in the analysis of cattle age-at-death. However, exceedingly few mandibles or unfused or semifused bones were recovered. One intact mandible was recovered with an entirely unworn dp4, likely of neonatal or perinatal age. Additionally, three permanent M3 were recovered at wear stage C, indicating a likely age of 2 – 3.5 years. The presence of an unfused distal tibia and radius support the presence of younger cattle. The epiphyseal fusion and tooth wear indicate an age range from neo- or perinatal to young adult.

Pig

Of the recovered domesticate species, pig was the least common, with only 70 identified fragments, roughly twelve percent of the total. Considering the prevalence of sheep/goat and small mammal fragments, this discrepancy is not likely to be the result of collection or preservation bias. The body part representation (Figure 16.20) shows a similar representation of all body parts, indicating that whole animals were butchered, consumed and deposited on site. No ageable mandibles were recovered, although the presence of an unfused proximal and distal femur, as well as two unfused 1st phalanges, indicate the presence of younger individuals on site. Considering the small number of identifiable elements and the fragmentary nature of the assemblage, no further analysis is possible.

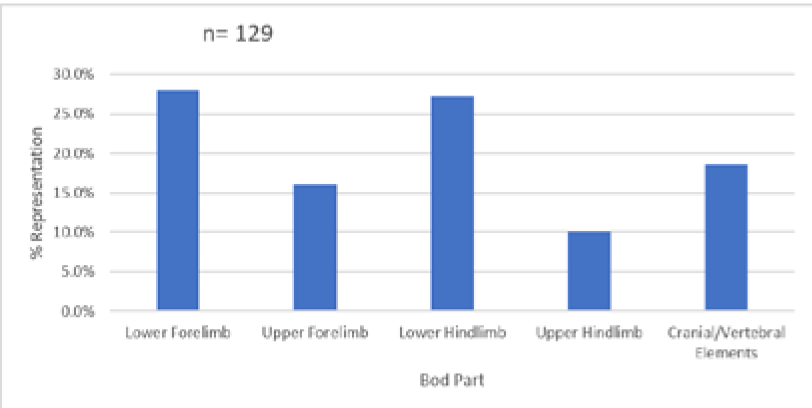

Figure 16.19. The relative body part representation of identifiable cattle elements recovered from the Black Grove excavation.

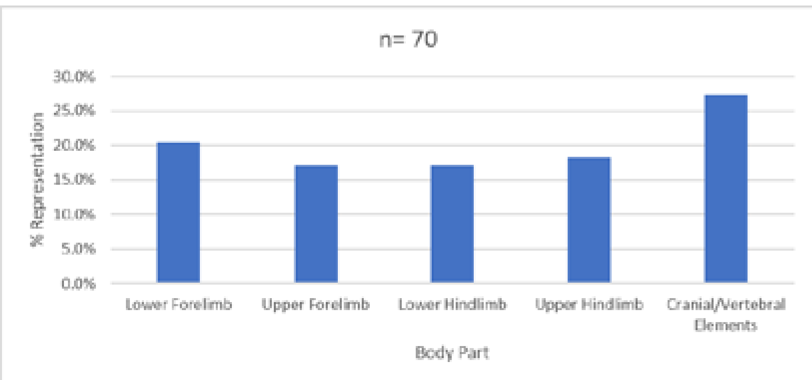

Figure 16.20. The relative body part representation of identifiable pig elements recovered from the Black Grove excavation.

Other Species

Small amounts of other domesticates, such as dog and horse, were recovered. In addition, wild species were also recovered, consisting entirely of smaller mammals and bird bones. The bird bones vary in size, belonging to both small and larger species, suggesting some utilization of local wild resources. Additionally, a large proportion of small mammal bones were recovered, making up a significant amount of the total assemblage. While it is likely that some of these elements belong to contemporary animals, a large amount of the recovered bone exhibits an extraordinarily high level of preservation and is mostly intact, including several rodent skulls. This indicates that a large amount of the recovered small mammals is likely the result of more modern burrowing and deposition. Due to the small number of identifiable elements, no further analysis of the recovered other species could be conducted.

Discussion

As is commonly the case, the Iron Age faunal assemblage from the Scrubditch and Cutham (2012-14) excavations ranges from moderate to poor preservation, preventing full identification of a large amount of the assemblage. Furthermore, the poor preservation limits the number of measurable elements recovered, hindering our ability to compare the domesticate populations over time or between sites. The 1979-81 excavation, on the other hand, provides a large amount of relatively well preserved Late Iron Age material. With a large sample size, it is possible to gain a generalised view of the occupation of the site and exploitation of domesticate species. Despite these issues, the Scrubditch and Cutham excavations give us a glimpse into changing practices at Bagendon throughout the Iron Age. Finally, the Black Grove assemblage (2015) provides insights into Roman occupation of the area. The major domesticates from these assemblages will be explored individually, followed by a more generalized discussion of the overall character and strategies of animal utilisation employed at Bagendon during the Middle and Late Iron Age, into the Roman Period. The interpretations gleaned from the above analysis will be examined against a suite of comparative sites to characterize the site of Bagendon within a greater regional and chronological context.

Iron Age Sheep/Goat

Typically of prime importance at Iron Age British sites, sheep/goat are a versatile resource, providing wool, manure and milk in life, and meat, fat, horn, skin and bone in death. Different exploitative foci lead to differing patterns of mortality within a population, which is viewed through the analysis of epiphyseal fusion and mandibular tooth wear. In the Iron Age, it is common for multiple exploitative strategies to be employed towards a single population, with some animals being kept for wool, milk or as breeding stock, and others being culled for meat or secondary products (Albarella 2007; Hambleton 1999: 115). This can result in the muddling of the mortality profiles of a zooarchaeological assemblage, making accurate interpretation challenging.

Sheep/goat represent the majority of identifiable fragments from the Scrubditch/Cutham and 1979-81 assemblages. All major elements are represented in both assemblages, indicating that whole animals were processed and deposited on site. A slightly higher representation of upper limb bones is evident in the 1979-81 assemblage, and to a lesser degree in the Scrubditch/Cutham assemblage. This could indicate increased consumption waste, although the rate of survival of extremities in archaeological contexts is lower than that of larger limb bones. Many nearby sites show a similar element representation, suggesting that the processing and deposition of whole animals on site was a common practice (Poole 2009; Powell *et al.* 2010; Sykes 2007). The hand collection of faunal remains as well as the preservation biases detailed previously are known to result in the diminished representation of smaller or more fragile bones, possibly contributing to the lower identification of butchery waste within the assemblages (Hamilton 2000; Powell 1999).

Mandibles and epiphyseal fusion give indication of a range of ages within the Scrubditch/Cutham and 1979-81 assemblages, with a majority of animals being of ideal age for meat procurement or older. Neonatal bones from both assemblages are indicative of at least nominal husbandry of sheep/goat in the vicinity of the site, as the deposition of these remains is unlikely to have occurred at too great a distance from where the animal was born or perished. The Scrubditch/Cutham and 1979-81 assemblage both show a spike at 2-3 years of age, with an increased representation of older individuals (4-6 years). The younger animals see diminished representation in the Bagendon assemblages, although this could be due to a preservation bias, with younger mandibles not surviving, and mandibles under a year in age are difficult to determine from loose teeth. Furthermore, the inclusion of loose third molars may bias the mortality profile in favour of older animals. This appears to be the case at Bagendon, with mortality profiles not matching any single utilisation pattern. While some seasonal ebb and flow in activity is possible or even likely, the admittedly limited mandibular tooth wear from the Scrubditch and, mainly, Cutham assemblage as well as the 1979-81 assemblage suggest at least a nominal year-round presence with some subsistence level husbandry of livestock.

The patterns noted at Bagendon are similar to those noted at other nearby sites. Neonatal bones were found at the Cotswold Community Site, and in greater numbers at Latton Lands and Claydon Pike, Warrens Field (Poole 2009; Sykes 2007). This was interpreted as evidence for the deliberate culling of young or infant animals for meat or dairying purposes. However, it may be the result of natural mortality. Mandibular tooth wear suggests the slaughter of animals between 6 months and 3-4 years of age at these sites (Poole 2009; Sykes 2007). Middle Duntisbourne and Duntisbourne Grove show an increased exploitation of sheep/goat for meat resources, with both assemblages displaying a majority of recovered mandibles within the 2-3 year range (Powell 1999). Two peaks of mortality are evident at Late Iron Age Silchester, with 34% of aged mandibles within the 1-2 year range, and another 34% aged 3-4 years (Ingrem and Clark 2018). At Nettlebank Copse (Hamilton 2000) the sheep from the Early Iron Age settlement mirrors that of the Late Iron Age banjo enclosure, with both groups featuring 50% survival beyond two years of age. Similarly, the Ditches site assemblage, classified as a rural production site, features a majority of adult sheep/goat, interpreted as a mixed meat and secondary products emphasis at the site (Rielly 2009). The presence of a range of ages suggests the practice of multiple exploitation strategies during both periods of occupation. The high rate of survival of sheep/goat beyond two years of age, and some far beyond, indicates the importance of the animal as a food resource, as well as for secondary products such as wool or dairy, although it is challenging to determine dairying in a mixed activity population.

The Bagendon assemblages, displaying a great deal of similarity between each other, show a consistent utilisation of sheep/goat for multiple exploitative strategies. With only limited evidence for year-round husbandry of animals within the site vicinity, most animals were likely imported to the site. Some animals were culled for meat at ideal slaughter ages, while others were kept alive, most likely as breeding stock or for wool or possibly dairy production. After their utility for secondary products or as breeding stock diminished, these older animals were transported to and consumed on site as well.

Iron Age Cattle

Similar to sheep/goat, cattle are often well represented at Iron Age sites, and can be utilised for a variety of secondary products such as hide, horn, or traction in addition to meat or dairy. Cattle bones have a much higher survivability than smaller sheep/goat or pig, inflating their overall representation within an assemblage (Albarella 2007). While often present in lower numbers than sheep/goat in Iron Age Britain, their size and utility as beasts of burden make them a valuable source of food, traction and secondary products.

The body part representation of cattle remains from the Bagendon assemblages indicates the processing and consumption of whole animals on site. Cattle elements were largely consistent between the two phase groupings of the Scrubditch/Cutham assemblage, showing little change over time in the representation of body parts. Epiphyseal fusion and mandibular tooth wear show that a majority of animals were aged 3.5 – 4.5 years of age, with the presence of neonatal and immature animals, as well as those of a more advanced age. This suggests the limited presence of cattle husbandry within the vicinity of the site, although a majority of the population was likely transported on site for consumption after their utility for secondary products had diminished. A limited representation of neonatal cattle within the 1979-81 assemblage is noted as well, reinforcing the interpretations of the smaller Scrubditch/Cutham assemblage. Butchery marks were noted within the Cutham and 1979-81 assemblages, but not at Scrubditch. This is likely due to the superior preservation of animal bones rather than being evidence of different practices. Mandibular tooth wear shows a notable representation of mandibles aged 2-3.5 years of age, considered an ideal age for meat procurement. This data indicates that cattle were a source of food, traction, and secondary products at Bagendon, with the majority of animals being transported on site for processing and consumption, while some nominal cattle rearing is seen to take place in the vicinity of the site.

Cattle from nearby sites appear to have been utilised along similar lines, providing meat and other secondary products such as traction or dairy. The trends noted at Bagendon largely correspond to those noted at Middle Duntisbourne and Duntisbourne Grove, where the majority of cattle elements and mandibles were aged to 2-3.5 years of age, with the presence of older individuals interpreted as breeding stock or, in the case of Middle Duntisbourne, possible evidence of limited dairying taking place. Latton Lands and Claydon Pike, Warrens Field match this trend, with mortality peaking between 18-36 months of age (Poole 2009; Sykes 2007). At Nettlebank Copse, Early and Late Iron Age cattle display a similar mortality profile, with 10% of recovered mandibles being under one year of age, while a majority of individuals were aged between one and four years of age (50%), and over four years (40%). This suggests the utilisation of cattle for meat, with older animals representing breeding stock (Hamilton 2000). The presence of elderly mandibles from the Duntisbourne and Nettlebank assemblages is tentatively interpreted as possible limited dairying, although both authors acknowledge the difficulty in accurately identifying this practice in a mixed activity population (Hamilton 2000; Powell 1999). The cattle elements from the Ditches site (Rielly 2009), show a majority of adult animals, suggesting an emphasis on meat production as well as secondary products. Further, the presence of neonatal and juvenile cattle is seen as evidence of nearby husbandry of cattle (Rielly 2009).

The Middle and Late Iron Age cattle from Bagendon show a consistent utilisation of cattle for meat and traction, with some evidence supporting local rearing of cattle, although in a limited capacity. Whole animals were imported to the site for butchery and consumption by its occupants.

Iron Age Pig

While sheep/goat and cattle can be exploited for a myriad of secondary products, pig populations serve solely to produce meat and more pigs. With their limited utility, pig is often considered a higher status or elite food resource. However, it is also important to consider that pig are voracious consumers, and can forage effectively in wooded environments that are less suitable to ungulate grazing. Thus, the presence of large pig populations can be interpreted as high status occupation, but may also indicate adaptation to a wooded environment.

Element representation of pig in the Scrubditch/Cutham and 1979-81 assemblages suggests that whole animals were consumed on site, with the possibility of imported joints of butchered meat as well, although the lower representation of butchery evidence may be due to preservation bias rather than a difference in practice. Mandibular tooth wear and epiphyseal fusion indicate that animals were of an age range expected for consumption. The lack of neonatal or geriatric elements within the 1979-81 assemblage further reinforces the interpretation that breeding and husbandry of pig populations occurred elsewhere. The Middle Iron Age Scrubditch/Cutham assemblage contains limited neonatal pig bones, suggesting limited local husbandry of pig in the vicinity, or the import of younger animals for meat. Beyond the discrepancy in the overall prevalence of identifiable pig elements (Explored further in the Species Representation section below), further investigation into change over time of the pig population at Bagendon through the Scrubditch and Cutham phases is hampered by the very low number of identified pig elements from phase 4.

Serving as a meat resource, it is unsurprising that pig remains at comparative sites indicate their consumption and deposition on site. Silchester, Nettlebank Copse, the Duntisbourne assemblages and the Ditches site all show similar element representations indicating that animals were transported to the site 'on the trotter', whereupon they were slaughtered, butchered, consumed and deposited on site (Hamilton 2000; Ingrem and Clark 2018; Powell 1999; Rielly 2009). Discrepancies between consumption and butchery waste are usually interpreted as a collection/preservation bias, with the smaller butchery waste elements featuring a lower survival than the larger meat bearing upper limbs (Hamilton 2000; Ingrem and Clark 2018; Powell 1999). Rielly (2009) argues that the majority of young pig bone at the Ditches site suggests an intensive focus on the procurement of meat at the site, representing higher status preference.

The Middle and Late Iron Age Bagendon pig assemblages from the Scrubditch/Cutham and 1979-81 assemblages closely correlate to the utilisation pattern noted at comparative sites. Pigs were slaughtered for consumption after being provisioned for the site. The limited presence of neonates in the Scrubditch/Cutham assemblage may suggest some small-scale pig husbandry in the vicinity.

Black Grove: Roman Deposits

The Black Grove excavation (201; chapter 5) produced a moderate assemblage of moderate to poorly preserved bone. Despite the small assemblage, some insights into consumption and farming practices at Roman Bagendon can be discerned. From this assemblage, it is apparent that Iron Age subsistence strategies persisted at Bagendon, with a continued reliance on sheep/goat, although there is evidence of an increase in cattle elements reflecting the general increase in the representation of cattle seen in Roman Britain (Albarella *et al.* 2000). While this picture appears anomalous for Roman Britain generally, the continued focus on sheep/goat resources in this time period and in this region is not unheard of (e.g. Baxter 2003). Some sites see persistence in Iron Age practices into the Roman period, reflecting either tenacity of cultural preference or, more likely, suitability of the landscape for a particular domesticate (Baxter 2003: 120). It is important to consider deposition and collection biases when considering a smaller assemblage such as this. As discussed previously, a correlation between ditch features and a higher prevalence of cattle bone has been noted at other excavations (Ingrem and Clark 2018; Maltby 1985; Powell 1999).

Sheep/goat are the most prevalent domesticate in the assemblage, with a relatively even representation of body parts. This suggests that animals were butchered and consumed on site. While epiphyseal fusion data was limited, mandibular tooth wear indicates the presence of older animals, suggesting multiple utilisation practices for sheep/goat in the area, including meat milk and dairy.

The cattle assemblage offers limited information. A slightly higher representation of butchery waste is evident, although this may be a selection bias due to the small sample size. The presence of all major body parts indicates both butchery and consumption deposition on site.

Pig elements were the third most prevalent, showing a relatively even representation of body parts, indicating butchery and consumption on site. The recovery of unfused 1st phalanges suggests either the consumption of very young, and thus higher status, meat, or the localised presence of pig husbandry into the Roman Period.

The presence of bird bones within the assemblage suggests some utilisation of wild resources, although the poor preservation of the assemblage prevents further analysis. Too few minor domesticate elements were identified to conduct any meaningful analysis.

Overall the Black Grove assemblage shows animals transported on site for butchery and consumption, likely represented imported animals rather than locally raised individuals, although some evidence for local animal husbandry is present as well.

Species Representation

Taken as a whole, Iron Age Britain is generally dominated by sheep/goat utilisation. Cattle is normally second in representation, with overall pig representation remaining low in the middle and late Iron Age (Albarella 2007). While pig representation is normally third on British sites, this is not the case in continental European Iron Age sites, with pig representing the majority on

Italian sites and Cattle seeing dominance elsewhere in Europe (Grant 1984a; Hambleton 1999).

The overall trends, indicated by the 1979-81 excavation, is that Late Iron Age Bagendon consisted of a domesticate economy dominated by sheep/goat utilisation, followed by cattle and pig; other domesticates are only minimally represented. It should be noted that the 1979-81 excavation consisted largely of pits and surfaces (see Chapter 4). Excavations at Iron Age sites have noted a correlation between the type of feature and the animal bone contents, most notably that cattle are more commonly found in ditch features, particularly on the outskirts of sites, with sheep/goat and pig being more common in pits and surfaces towards the interior of sites (Maltby 1981; 1985; Powell *et al.* 2010; Wilson 1996). This is thought to be due to the relative size of individual animals, with cattle, larger and more difficult to manoeuvre, being butchered, processed and deposited in the outer ditches, while smaller domesticates are processed towards the interior. This may contribute to the 1984-85 excavations of the ditch features (Rielly 2009: 139; Rielly and Trow 1988a) containing a higher prevalence of cattle remains. The pig representation in this assemblage is higher than would be expected possibly indicating higher status or elite consumption on site, although it is also possible that the locale favours the rearing of pig, which can forage more successfully in wooded environments than ungulates.

While the Late Iron Age, Phase 4, assemblage is less robust than the Middle Iron Age, Phase 1-3, assemblage, it reveals both aspects of similarity, and of striking divergence. Both phase groupings show a robust presence of sheep/goat, representing the clear majority of identifiable fragments, which corresponds with national averages for Iron Age Britain (Albarella 2007). Similarly, cattle representation between phases 1-3 and 4 also remained largely constant as well. The most striking difference between these phases lies in the proportion of pig elements. Pigs represent 13% of identifiable fragments in the Phase 1-3 assemblage and drop to 5% in Phase 4. Due to the small number of recovered elements within a small area of excavation, it is also possible that the species representation is biased due to a preferential deposition of smaller animal remains in the area, rather than representing trends for the overall site. The latter seems perhaps most likely and may be supported by both the palaeoenviromantal evidence (Chapter 18) and the isotope results from some of the pigs which infer a pannage diet (Chapter 17). Furthermore, the 1979-81 Late Iron Age assemblage at Bagendon features a high representation of pig elements as well (17%). Coming from a larger, more centrally located area within the site, it is thus more likely that the dearth of pig elements from Phase 4 of the Scrubditch/Cutham represents a shift in the location of pig deposition rather than a change in practice, possibly reflecting the semi-abandoned nature of these areas in the Late Iron Age. Also of interest, as noted previously, is that the pig representation in Phase 1-3 derives almost entirely from the Scrubditch excavation, indicating that this enclosure in particular was no longer serving the same purpose in the Late Iron Age that it had during the Middle Iron Age.

The relative species representation from the Scrubditch/Cutham and 1979-81 assemblages is shown alongside a suite of comparative sites in Figure 16.21. Despite the noted national trends, sites within the vicinity of Bagendon have shown a marked variance in species representation. Some sites, such as Danebury (Grant 1984b), and Nettlebank Copse (Hamilton 2000), bear a greater similarity with the Bagendon assemblages in their display of a majority of sheep. Others, such as Duntisbourne Grove (Powell 1999), the Insula IX at Silchester (Ingrem and Clark 2018), Birdlip (Ayres and Clark 1999) and the Ditches site (Rielly 2009), show a majority of cattle. Rielly (1988; 2009) has argued that the elevated presence of cattle in Late Iron Age assemblages reflects an increase in Romanising influence on site occupants. However, while the D + Q assemblage, coming from a large ditch and quarry feature at Ditches Late Iron Age enclosure, dating to the mid-1st century AD, is viewed to have a higher degree of Romanised influence due to the heightened cattle representation, the P + L assemblage from Ditches, which was contemporaneous with D + Q or very slight earlier in date, consisting of pits and surface features, lacks the predominance of cattle, reflecting more typical Iron Age sites elsewhere. Rielly (2009) acknowledges that differential deposition of different species may account for this discrepancy. However, he also argues that the D + Q assemblage, consisting of 1945 identified fragments, is a better representation of species frequency on site than P + L, which only consists of 228 identified fragments, and that heightened cattle representation is indicative of Romanising influence. If Rielly's (1988; 2009) ideas hold true, then the Bagendon assemblages' sheep/goat dominance indicates a lack of, or resistance to, Romanising influences. Indeed, it has been recognised that aspects of the landscape around Bagendon, such as the nearby well-watered Churn valley, would have been ideally suited for cattle-rearing (Rielly and Trow 1988: 81; see Chapter 24). Instead, the Middle and Late Iron Age assemblages, as well as the Early Roman deposits, all maintain a characteristically Iron Age sheep/goat dominance and secondary cattle representation.

While Rielly (Rielly and Trow 1988; 2009) is quick to dismiss preferential deposition as the cause of the discrepancy between the two assemblages at the Ditches. Other authors, as detailed above, have acknowledged a correlation between the deposition of

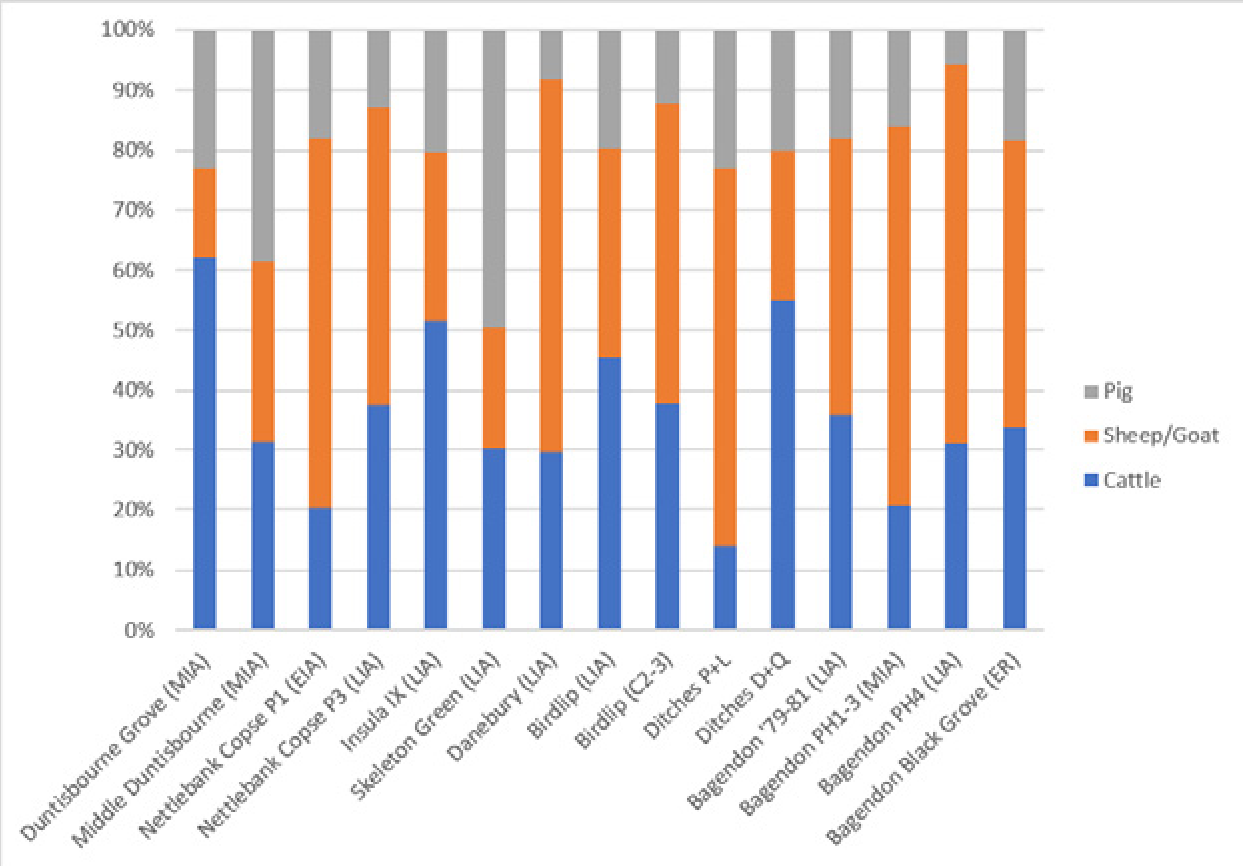

Figure 16.21. Domesticate species representation of the Bagendon assemblages and comparative sites.

more cattle remains in exterior ditch features and more pig and sheep/goat in interior pit and surface features (Hamilton 2000; Ingrem and Clark 2018; Maltby 1985; Powell 1999). This could account for the wide degree of inter- and intra- site variance in sheep/goat and cattle representation at different sites.

Also of note is the variance in pig representation across comparative sites. Associated with higher status consumption and meat procurement, the Bagendon assemblages, save the Phase 4 Scrubditch/ Cutham assemblage, show a higher than expected representation of pig. With the exception of Late Iron Age Nettlebank Copse, Danebury and Roman Birdlip, this elevated pig representation is seen across other comparative sites, with Middle Duntisbourne and the Skeleton Green Oppidum as clear outliers with much higher than average pig representation. Powell (1999: 448) points to molluscan evidence at Duntisbourne to indicate that the surrounding area was likely woodland, and thus ideal foraging ground for pigs, and less ideal for ungulate livestock, thus accounting for the increased representation of pig. Alternatively, Skeleton Green (Ashdown and Evans 1981) argue that the large presence of pig is evidence of elite status or feasting, indicating the importance of Iron Age Oppida compared to rural sites and settlements, although this is not replicated to such an extent at other Oppida such as the Insula IX at Silchester (Ashdown and Evans 1981; Ingrem and Clark 2018). As noted earlier, the paleoenvironmental and isotopic findings (Chapters 17 and 18) may support the suitability of the surrounding environs for pig foraging in the Middle and Late Iron Age, resulting in a higher representation within the Bagendon assemblages.

The species representation of the Bagendon assemblages feature a sheep/goat dominant economy, with cattle being of secondary importance and pig being tertiary, although a greater representation of pig indicates the presence of higher status procurement at the site, or alternatively the suitability of the area for pig husbandry. The assemblages fall well within noted national trends, and bear similarity with the Iron Age assemblages at Danebury and Nettlebank Copse. In addition, the elevated pig frequency is similar to the Insula IX site at Silchester and Duntisbourne Grove, although not as extreme as Middle Duntisbourne or Skeleton Green. Bagendon bears a striking dissimilarity with the Ditches site, where heightened cattle representation is interpreted as a response to increased Romanising influences. Thus, the Bagendon assemblages can be seen as a persistence of Iron Age practices, with little deviation in species representation from Middle to Late Iron Age, and into the Roman Period.

Conclusions

The Bagendon Scrubditch/Cutham, Black Grove, and 1979-81 assemblages bear a great degree of similarity, suggesting continuity of animal exploitation strategies from the Middle Iron Age into the Roman Period. Across all major domesticates, animals were transported onto site for butchery and consumption. The presence of a small number of neonatal elements suggests the nominal presence of animal rearing and husbandry in the surrounding area, although a majority of animals would have been imported to the site. Sheep/goat are of primary importance, being utilised as a source of meat as well as secondary products such as wool and possibly dairy. Similarly, cattle provided traction and possibly dairy in life, and meat and other secondary products in death. Pig representation at Bagendon is higher than national averages, a trend that persists from the Middle Iron Age into the Late Iron Age and Roman Period. This elevated representation is seen at a number of contemporary and nearby sites, although some examples feature a markedly diminished, or exceedingly large representation of pig. This could indicate the presence of higher status consumption on site, or possibly the suitability of the area for pig husbandry.

Fish remains

Harry K. Robson

Introduction and methods

A small number of fish remains were retrieved from bulk soil samples from the excavations in 2014, 2015 and from the 1981 samples. These were sorted and selected by Charlotte O'Brien when the flots were processed for environmental remains and sent for further analysis. All of the fish remains were examined under a stereomicroscope (between 5.0-45.0 x magnifications) or by the naked eye. They were identified by comparison with modern skeletons of known taxa, which are housed at the University of York.

Quantification included counting the total Number of Identified Specimens (NISP) of each taxon. The Minimum Number of Individuals (MNI) was not calculated since there are many issues associated with it (Wheeler and Jones 2009). In addition, the material was not weighed due to the potential for intra-site variation (Noe-Nygaard 1987). Lastly, all fragments regardless of their ability to be identified to the species or genus levels were counted (see Gron *et al.* 2015).

Results

NISP and NF

The identified fish taxa are listed in Table 16.7. A total of 39 fish remains were analysed. Of these, 21 (53.8%) could be identified to the family level or species taxonomic levels. The majority of the fish remains were derived from the 1981 excavation campaign at the site (NISP = 12; 57.1% of NISP), which was followed by the 2015 (NISP = 7; 33.3% of NISP) and 2014 excavations campaigns (NISP = 2; 9.5% of NISP). Postcranial elements constituted 76.2% (NISP = 16) of the assemblage with 23.8% (NISP = 5) consisting of cranial elements.

The assemblage was dominated by *Cyprinids* (carps and minnows), which constituted 42.9% of the total NISP. Next in frequency was the European eel (*Anguilla anguilla*), at 38.1%, followed by the three-spined stickleback (*Gasterosteus aculeatus*) at 14.3% and the European perch (*Perca fluviatilis*) at 4.8%.

Fish taxa and their relative frequencies

Three fish species from three families were represented in the material. Whilst identification to the lower genus and species taxonomic levels was attempted, nine specimens from the Cyprinidae family could not be further identified (Table 16.8). The species spectrum consisted primarily of freshwater and migratory fish. Although Cyprinidae and European perch are generally considered stationary freshwater fish, they can also reside in weakly brackish water. Anadromous taxa are fish that migrate from marine waters to freshwater environments in order to spawn. One of the identified species in the material is anadromous, the three-spined stickleback. On the other hand, catadromous taxa are fish that migrate from fresh- or brackish waters to marine environments in order to spawn. Likewise, one of the identified species in the assemblage is catadromous, the European eel.

Table 16.7. Identified fish species with data on habitat use and life history (Froese and Pauly 2017).

Family	Genus and species	Common name	Habitat use and life history
Anguillidae	*Anguilla anguilla*	European eel	Marine; freshwater; brackish; demersal; catadromous
Gasterosteidae	*Gasterosteus aculeatus*	Three-spined stickleback	Marine; freshwater; brackish; benthopelagic; anadromous
Percidae	*Perca fluviatilis*	European perch	Freshwater; brackish; demersal

Table 16.8. Fish identified in the material with quantification.

Taxon	Context								
	3148	**5018**	**5035**	**6011**	**6017**	**81-38**	**81-2**	**ND. (B4 1)**	**Total**
Anguilla anguilla	2		1	2	1		1	1	**8**
Cyprinidae						2	2	5	**9**
Gasterosteus aculeatus		1		1				1	**3**
Perca fluviatilis					1				**1**
NISP	2	1	1	3	2	2	3	7	**21**
Unidentifiable		1		1		4	3	9	**18**
Totals	**2**	**2**	**1**	**4**	**2**	**6**	**6**	**16**	**39**

Size classes

An estimation of Total Length (TL) was attempted for all species that were identified to the species and genus levels by comparison with modern skeletons of known taxa. All of the European eel remains and one *Cyprinid* caudal vertebra were derived from small individuals (15-30 cm in TL). The remaining specimens (Cyprinidae, three-spined stickleback and European perch) were derived from tiny individuals (0-15 cm in TL).

Summary

The fish remains found at Bagendon were most likely derived from the River Churn, located nearby. Since fish were present in at least eight different contexts their procurement was not restricted to one phase of occupation. However, given their low abundance, fishing was probably of minor importance to the diets of the sites' inhabitants, and may have been seasonally procured perhaps as a delicacy.

Oysters

Tom Moore

A small number of oyster shells were recovered from the 1979-1981 excavations, noted in the table below (Table 16.9). These correlate with evidence of oysters from The Ditches in mid-1st century AD contexts (Trow and Moore 2009b), emphasising the early consumption of shellfish at the Bagendon complex.

Table 16.9. Oyster shells (by weight) from the 1979-1981 excavations.

Site	Context	Weight (g)
Area A	79-17	14
Area A	79-18 (Pit AA)	114
Area A	79-27	35
Area A	79-6	32
Area B	80-1	12

Chapter 17

Isotopic analysis of human and animal remains

Mandy Jay

with contributions from Sally Kellett, Janet Montgomery, Tina Jakob, Geoff Nowell and Chris Ottley

Introduction

Two teeth were analysed from the Iron Age older woman revealed in the boundary ditch from the Cutham enclosure (Chapter 3). A radiocarbon date from her was 50 cal BC to cal AD 68 (95% probability), and her deposition appears to have been related to the abandonment of the site. Strontium and oxygen isotope analysis was undertaken on the enamel of both a canine and a third molar, along with carbon and nitrogen isotope analysis of a rib sample and incremental dentine samples from both teeth. The rib was also analysed for sulphur isotope composition.

Carbon and nitrogen isotope data were also obtained from the incremental dentine of five teeth from four pigs, along with bone samples from three of these. An additional pig bone sample was analysed without associated dentine, so that a total of five individual pigs were included in the study, along with bone samples from three cattle. Strontium isotope analysis was undertaken on teeth from three of the pigs and from three horses. The animals were obtained from a range of contexts within the Scrubditch and Cutham enclosures, dating to the Middle-Late Iron Age (see Table 17.1; Chapter 3); one of the pigs was directly dated to 370–180 cal BC (SUERC 82678; 95% probability).

The purpose of the analysis was to investigate mobility, diet and the subsistence environment of the later Iron Age woman and to consider how the faunal remains might reflect animal management strategies and the nature, role and significance of the enclosures at the site.

The strontium isotope analysis of the woman produced values which were inconsistent with Bagendon, suggesting a non-local origin. One of the pigs and all three of the horses also fell outside the range expected for the site, again suggesting non-local origins. The carbon isotope data from the pigs and cattle suggested an unusual animal management regime for both species in the context of other British Iron Age material. This may reflect a wooded local environment in which they were left to forage and graze, although other interpretations are possible. The non-local pig had a carbon isotope ratio which was distinctly different from the two which were likely to have been local, again suggesting that the site itself was distinctive in terms of animal management.

The basics of isotope analysis

Strontium isotope analysis of tooth enamel

Strontium isotope analysis is mainly used to provide evidence for mobility. The strontium present in food and drink is incorporated into bones and teeth during tissue formation so that the isotope ratios present in these resources are reflected in the skeletal samples. The ratios vary geographically because most bioavailable strontium originates in the underlying rocks of the places where crops are grown, animals graze and drinking water is obtained. Regions which are close to the sea must also take into account the effect of rainwater, which derives from seawater, along with marine salt deposition in coastal areas. Interpretation of archaeological data usually assumes that the bulk of dietary resources were sourced close to where people were living at the time, so that comparing the isotope ratio from a sample with the range of values expected for the site location can suggest either that the sample was likely to be from a local person or animal, or that they originated elsewhere.

The data obtained for this report are from the analysis of tooth enamel, which is highly resistant to diagenetic alteration (see Appendix 3 for methods used). This is why it is preferred to bone or dentine. Enamel forms during childhood, with the precise formation period depending on the particular tooth. The isotope ratio of the strontium incorporated at this time does not then change over the individual's life, so that the value obtained reflects childhood diet and gives an indication of where they lived as a child. This study includes tooth enamel samples from pigs, which are generally thought more likely to be subject to diagenetic alteration than those from other species due to a lower mineral content (Evans *et al.* 2009; Kirkham *et al.* 1988). Recent experimental research suggests that archaeological and modern samples of animal enamel (cattle and pig) react differently to relatively aggressive laboratory conditions, with modern pig samples taking up more strontium from the external environment than either the archaeological samples or the modern cattle samples (Madgwick *et al.* 2012a). This research concluded that archaeological samples of both cattle and pigs are resistant to diagenetic change in normal burial conditions.

Interpretation of data is not always straightforward and there are many confounding factors. For example, an individual who moved after childhood and then returned later in life cannot be identified as mobile from the enamel signal. Similarly, an individual who moved between locations with similar geology is unlikely to be identified as mobile using this technique. Movement across different regions over a long period during childhood tooth formation, as is likely for a long journey in prehistory, will lead to an isotope ratio which reflects an average for different locations throughout that journey. It is also generally assumed, for archaeological samples, that people and animals ate and drank resources which came from close to home. Plants are the dominant dietary source of strontium, so if these were obtained from sources outside the region, such as where crops were being traded or transhumance was practiced, then this will affect interpretation. Enamel isotope ratios can be used as evidence to rule out a local origin for consumed resources, but they cannot be used either to definitively confirm that someone did not move, or to conclusively identify the source location when they are likely to have been mobile. This is often misunderstood, with media reports identifying origin locations without qualifying the interpretation as only likely or possible.

Strontium isotope ratios are given as $^{87}Sr/^{86}Sr$ values. Suggested sources for more detailed information about analytical techniques and data interpretation are Montgomery (2010), Evans *et al.* (2010; 2012) and Bentley (2006). The data included in this report were produced at the Durham Geochemistry Centre in the Durham University Earth Sciences Department.

Oxygen and carbon isotope analysis of tooth enamel

Oxygen isotope data ($\delta^{18}O$ values) from tooth enamel are also generally used for interpreting mobility. In this case the main source is water, which may come mainly from drinking water originating as rain or groundwater, but also from food and other drinks, such as milk, blood, processed alcoholic beverages, cooked stews and soups. There are many variables and error sources which can affect these values and they can be more difficult to interpret than other isotope data.

Rainwater isotope composition is affected by a range of environmental variables, including latitude, altitude, distance from the coast, levels of precipitation, air temperature and season. At higher latitudes, the effect of surface air temperature is particularly important when observing geographical variation. Differences between the $\delta^{18}O$ values in precipitation and those obtained from groundwater sources can be caused by a further range of factors which include evaporation of surface water and recharge from rivers which contains water from higher altitude precipitation. Processing of food and drink, such as where alcoholic drinks are produced or food is stewed or boiled, can also alter the isotopic composition before it is incorporated into the tooth enamel.

There is a species-specific relationship between the $\delta^{18}O$ values obtained from the tooth enamel and the isotope composition of the water consumed, with fractionation incorporated into the system. In addition to this relationship being affected by the types of food and drinks consumed, physiological factors such as disease and activity level can have an effect. As with all isotope data, dietary resources obtained from a different region will also have an effect on interpretation.

Many older publications show skeletal $\delta^{18}O$ values which have been converted to environmental water values ($\delta^{18}O_w$) using regression equations for the particular species analysed. This is to allow the data to be directly compared with regional maps of water values. There are a number of different regression equations which can be used for humans and their application can lead to an additional level of significant error being introduced into the data set over and above that relating to analytical precision and calibration. For this reason, more recent studies of British archaeological material have preferred to use the original, unconverted, values and to compare them with empirical data sets available for the regions and time periods being considered (e.g. Evans *et al.* 2012; Pellegrini *et al.* 2016). This report provides converted drinking water values for reference purposes, but interprets the data in their original form and in the context of empirical data rather than relying on drinking water mapping.

The enamel oxygen isotope analysis for this study has been undertaken on the carbonate fraction, rather than phosphate. This allows for carbon isotope data to be obtained from the same sample. The pre-treatment for carbonate is technically less difficult than for phosphate, which also makes it faster and less expensive. Where published data have been obtained from phosphate it is possible to compare them using conversion equations; calculated phosphate values have been provided in this report for this purpose. The $\delta^{13}C$ values obtained from the carbonate fraction of the tooth enamel provide a different reflection of diet to those obtained from collagen (see below) because they reflect whole diet (protein, carbohydrate and lipids) rather than just the protein which is utilized for collagen formation under normal dietary circumstances where protein consumption is not in short supply. There are also differences in formation period; the enamel forms during childhood, as does dentine collagen, while the human rib collagen from this study is weighted towards later life and the cortical mandible collagen from animal bone will reflect an averaged tissue turnover over a lifetime.

Suggested sources for more detailed information about the analysis and interpretation of $\delta^{18}O$ and $\delta^{13}C_{carbonate}$ data are Evans *et al.* (2012), Lee-Thorp (2008), Lightfoot and O'Connell (2016), Pellegrini *et al*. (2016) and Pollard *et al.* (2011). The data included in this report were produced at the NERC Isotope Geosciences Laboratory (NIGL) in Nottingham**.**

Carbon and nitrogen isotope analysis of collagen

The isotope compositions of collagen are directly related to those of protein from food. Carbon and nitrogen stable isotope ratios are generally used to reconstruct dietary patterns, although they can also be used to consider an individual's connection with their local environment because the food traces back to the plants at the base of the food chain and these are affected by environmental factors. Basic summaries discussing these stable isotope systems can be found in many publications and suggestions for further reading are Lee-Thorp (2008) and Makarewicz and Sealy (2015). Some fractionation occurs, which means that one of the 2 isotopes being compared for each element is often taken up preferentially, so that the value obtained from a bone sample will not match exactly with that obtained from the food consumed, but there will be a known relationship. It is usually appropriate to interpret human data alongside herbivores (often domesticated cattle and sheep, for instance) from the same site and time period, so that an understanding of the local signal from their plant diets is available for comparison.

Dietary information which can be obtained in this way relates to the amount of animal protein consumed (trophic level), whether aquatic resources were included (particularly marine foods) and whether plants with the C_4 photosynthetic pathway have been included in the food chain. Moving through the food chain, fractionation causes quantifiable differences in the nitrogen isotope composition between trophic levels of around 3 to 5‰ in the $\delta^{15}N$ values (although see O'Connell *et al.* 2012 for flexibility in this range) and $\delta^{13}C$ values may increase by around 1‰. Where there are high levels of marine resources in the diet, both $\delta^{15}N$ and $\delta^{13}C$ values are higher than would be seen for individuals consuming only terrestrial resources. It is also true to say that there are factors other than diet, such as starvation and other forms of nutritional and physiological stress, which will affect the values.

Plants in the food chain can be differentiated according to their photosynthetic pathway using $\delta^{13}C$ values; those identified as C_3 produce lower values than C_4 plants. It is the former group which are the main indigenous plant resources available in northern Europe, with C_4 plants more usually found in warmer environments. In prehistoric Britain, small amounts of C_4 halophytes may have been present in salt-marsh environments, but this group of plants would not have been available in quantities sufficient to significantly affect the $\delta^{13}C$ values seen in domesticated animals or humans at this time. Millet, which is a C_4 plant, started to show a presence in continental food chains from the late Neolithic onwards, so that a C_4 signal in early Britain may indicate an immigrant from mainland Europe. Under normal circumstances, most of the carbon present in collagen is taken up from the protein consumed, so that an omnivorous diet will generally produce a signal which is weighted towards the animal part of the diet because it contains more protein. Very small quantities of C_4 plant foods directly present in human food resources are therefore unlikely to be visible in the isotope composition of the consumer's bone collagen. Where they are eaten by animals, particularly where millet or C_4 halophytes are consumed by domesticated herbivores, the signal may be easier to see in those animals.

Both the carbon and the nitrogen isotope compositions of plants are affected by environmental conditions, which in turn affect the skeletal collagen values throughout the food chain. Factors such as woodland cover, climate, salinity, local geology and manuring practices can all have an effect on the $\delta^{13}C$ and $\delta^{15}N$ values. Variation is therefore present both through time and space; two individuals eating exactly the same resources from different places or at different times will not necessarily produce the same values. A 'baseline' for the local environment at any particular time or place is important in order to improve interpretation of the data and this is usually obtained by analysing herbivores, who are assumed to be eating plants from the local region, alongside humans and other animals from the same site and time period. This 'locates' the herbivores in time and space and allows the data from the rest of the food chain to be considered relative to these. For this report, pig and cattle data are available from the site and these are considered alongside existing published comparative data from other sites for both humans and animals.

Different samples from the same individual will provide data from throughout their lifetime. Collagen from cortical long bone is formed over a long period of time and has a slow turnover period as newly formed molecules replace older ones through time. It is likely that such a sample from a mature adult will still retain a significant part of the collagen formed during adolescence, so that it reflects an averaged diet over many years (Hedges *et al.* 2007). Bone turnover is much slower in adults than it would be in growing children. Rib has a faster turnover than long bone and will reflect diet more towards the end of life, so that the bone sample from the Bagendon woman included in this report is likely to be relevant more to her later years than her earlier life. The cortical mandible sampled from animals covered by this report is likely to reflect a long-term picture of their lifetime, averaged diet.

In a multi-isotope study where bone collagen data are interpreted alongside those from tooth enamel, there will be timing differences between the samples. If an immigrant is identified from tooth enamel (childhood signal), bone collagen might have had time to equilibrate to the local dietary signal of the burial site if the person had lived for a long time in the region, but a recent immigrant might have bone values which still reflect their origin. Where dentine collagen has been analysed, this will reflect the tooth formation period. For this report the human third molar formation period extends into early adulthood, while the canine commences soon after birth, so that a picture can be built up from the incremental dentine data which covers childhood through to the early 20s. The values obtained are from 'slices' across the root and crown dentine, going down the length of the tooth, which are allocated approximate formation times according to their position. The approximate age of formation for each 'slice' is based on the work done by AlQahtani *et al.* (2010). For the pigs, the formation periods are much less well understood and those from Tonge and McCance (1973) are considered in the text.

The collagen data included in this report were produced at the Stable Isotope Biogeochemistry Laboratory (SIBL) at Durham University under the direction of Darren Gröcke.

Sulphur isotope analysis of collagen

There is a less developed understanding of how sulphur isotope ratios should be interpreted than there is for carbon and nitrogen. The research is at an earlier stage and there are contentious issues to be resolved, such as whether lower values obtained from archaeological samples have been affected by diagenesis and modern pollution (e.g. Bocherens *et al.* 2011; Nehlich and Richards 2009). Collagen contains only a small amount of sulphur so that the analysis has been technically more difficult in comparison to carbon or nitrogen, with the analytical error being much larger and inter-laboratory comparison more difficult. While technical issues are being overcome with time, larger data sets for comparative purposes are still in relatively short supply, but as more data become available our understanding of the variation to be expected across different geology, environments and diets is evolving. For Britain, the large data set obtained from the Beaker People project is particularly helpful (Jay *et al.* 2019).

Sulphur isotopic data reflect both diet and environment, with δ^{34}S values contributing to the identification of aquatic resource consumption (both marine and freshwater) and also to the identification of mobility. Where plants at the base of the food chain have grown close to the coast, a 'sea spray' effect from marine sulphates is expected to be present in dietary resources and the local geology is also expected to affect the values (Nehlich 2015; Richards *et al.* 2001; Richards *et al.* 2003). The data are particularly useful as part of a study which includes other isotopic data and also the analysis of different skeletal fractions from a single individual; for instance, combined with carbon and nitrogen data from collagen, they help with identifying aquatic components in the diet, while comparing sulphur values from tissues which have formed at different times can aid in the identification of mobility, particularly where strontium or oxygen data are also available from tooth enamel. As with carbon and nitrogen analyses, a 'baseline' signature for the local environment can be obtained using data from herbivores and other animals. The δ^{34}S values from human samples will be expected to be very close to these animals if their diet was from local resources, because the trophic level effect in this case is small (Webb *et al.* 2017); significant differences between local animals and humans are therefore suggestive of mobility.

The collagen sulphur data included in this report were produced at the Stable Isotope Biogeochemistry Laboratory (SIBL) at Durham University under the direction of Darren Gröcke.

Results and discussion

Sample details are provided in Table 17.1, with the bulk enamel and collagen sample analysis results presented in Tables 17.2 and 17.3 respectively and the incremental dentine data in Table 17.4.

The ^{87}Sr/^{86}Sr values for the woman are 0.7120 for the canine (formation period *c.* 6 months to 6 years) and 0.7111 for the third molar (formation period *c.* 9 to 15 years). Neither of these values is consistent with Bagendon; such ratios are too high for any area of green, blue or lilac indicated in Figure 17.1. The site is located in a region of sandstones, limestones and argillaceous rocks of the Great Oolite group. There are no recorded superficial deposits around Bagendon itself, but alluvium is found in the valley of the River

Table 17.1. Sample information

	Sample ID	Laboratory codes	Samples[1]	Sex	Age	Further information
Site phase/date	***Human***					
Cutham, Phase 4; Late Iron Age	Bagendon woman (Cutham, 3125/3148)	369 370 1813	Maxillary Canine Mandibular M3 Rib	Female	45+	Root apices closed, occlusal wear not excessive, but consistent with age. SUERC-64216: 1996 ±28; 50BC-68AD (95%)
	Animal (identified by context)					
Scrubditch, Phase 3, MIA	Pig 1021	1801 / 3171 / A153.4 1806	Right mandibular M2 Mandible		1 to 3 years	Root formation 3/4
Scrubditch, Phase 3, MIA	Pig 1023	1802 / 3172 / A153.5 1803 1807	Right mandibular M2 Right mandibular M3 Mandible		1 to 3 years	Root formation 1/2 Root formation <1/4 SUERC-82678: 2197 ± 30; 365 – 184 BC (95%)
Scrubditch, Phase 3, MIA	Pig 1036	1804	Right mandibular M3		Younger animal	Root formation <1/4, no tooth wear
Scrubditch, Phase 3 or 4, M-LIA	Pig 1045	1805 / 3173 / A153.6 1808	Left mandibular M3 Mandible		1 to 3 years	Root almost closed
Cutham, Phase 3, M-LIA	Pig 3122	1809	Mandible		Probably elderly	Considerable tooth wear
Scrubditch, Phase 3, MIA	Cattle 1036	1810	Mandible			
Scrubditch, Phase 3 or 4, M-LIA	Cattle 1045	1811	Mandible			
Scrubditch, Phase 4, LIA	Cattle 1173	1812	Mandible			
Scrubditch, Phase 3, MIA	Horse 1023	3174 / A153.7	Cheek tooth			
Scrubditch, Phase 3, MIA	Horse 1036	3175 / A153.8	Cheek tooth			
Scrubditch, Phase 3 or 4, M-LIA	Horse 1045	3176 / A153.9	Cheek tooth			

Notes:
1. The animals are identified from the context and are different individuals based on having different tooth eruption and wear stages, as well as different contexts.

Churn, with Quaternary sands and gravels to the south and north. These are, however, unlikely to account for the high strontium isotope ratios in the tooth enamel. The most likely origin for values in this range are indicated by the orange areas on the map, i.e. regions of Palaeozoic rocks which are found to the north, west and southwest of the site.

Figure 17.2 shows the areas where British environmental data have value ranges which support those from the Bagendon woman's teeth (Evans *et al.* 2018). The areas marked in yellow have produced ranges which would support both the canine and the molar, whilst the pink and blue reflect the values for the canine or molar alone. If the woman had been mobile across the formation periods of the two teeth, then the individual enamel values may not relate to a specific region because a mixing effect between areas may operate, i.e. it is not necessarily the case that she would originate in a yellow area on this map in order to support the values from both teeth, but she may have originated in a region where the values are relatively high (pink or yellow on the map) and then moved towards a region where they were lower (blue on the map) to support the molar value, or the Bagendon area towards the end of the formation period for that tooth. This map should be used carefully and with an understanding of its limitations; it is based on available data for Britain, but not all regions and geology types are equally represented in the data set and the ranges suggested as supporting a particular $^{87}Sr/^{86}Sr$ value from a sample

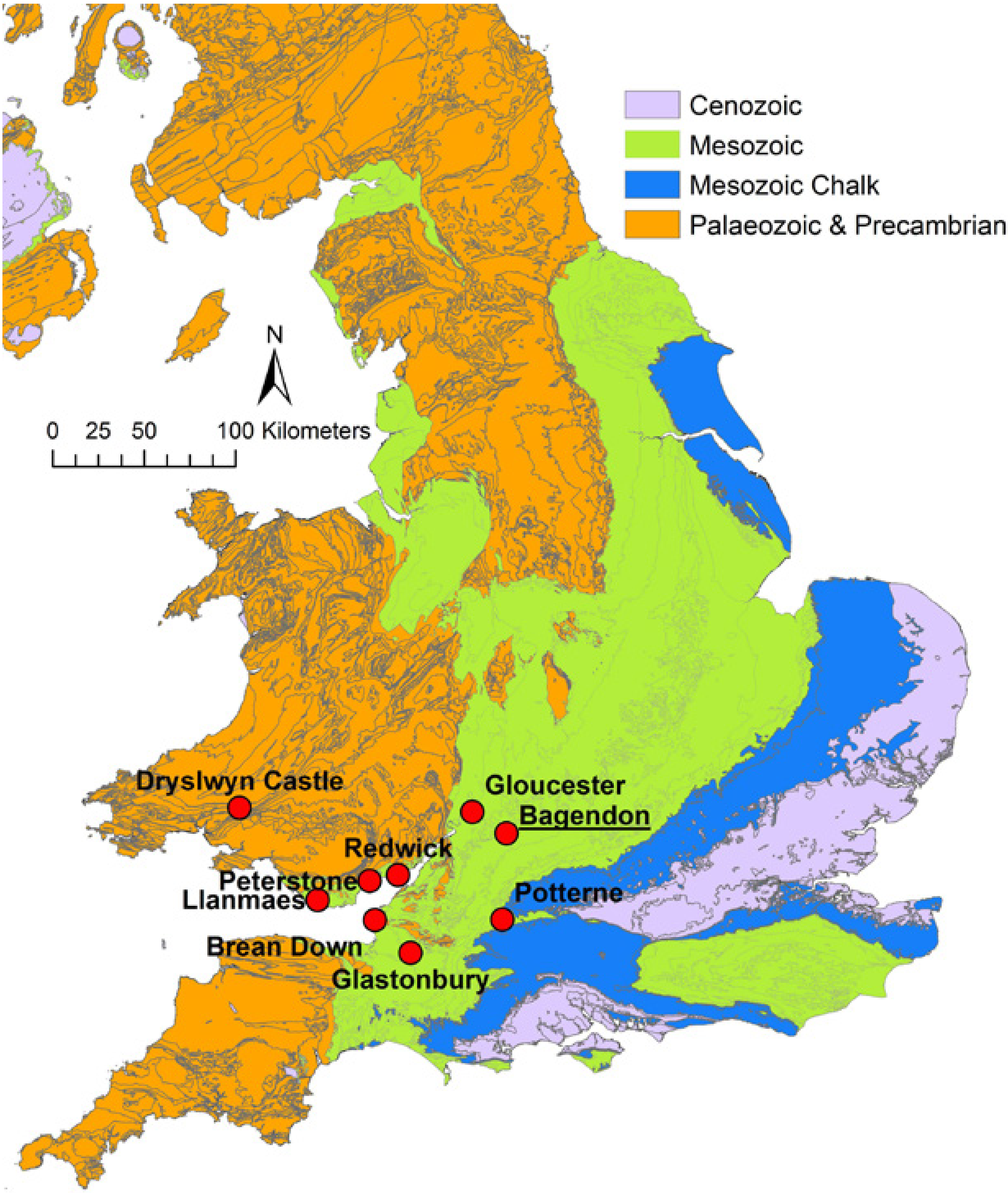

Figure 17.1. Map showing the basic bedrock geology of Britain. The regions of older rock, indicated in orange to the west and north, are likely origins for the strontium isotope ratios obtained from the Bagendon woman's tooth enamel.

are based on the interquartile range for a particular part of the data set.

The trace element concentrations are consistent between both teeth (Table 17.2). The lead level is very low as would be expected in an Iron Age individual and indicates negligible childhood exposure to anthropogenic pollution in line with other prehistoric people in Britain (Montgomery *et al.* 2014). The strontium concentrations are amongst the lowest found in British populations (Evans *et al.* 2012; Montgomery 2010). Low strontium concentrations can indicate a diet high in animal protein and calcium (e.g. meat and milk) and are often seen in individuals living in regions of chalk and limestone, but the latter cannot be the case for the Bagendon lady as her strontium isotope ratios

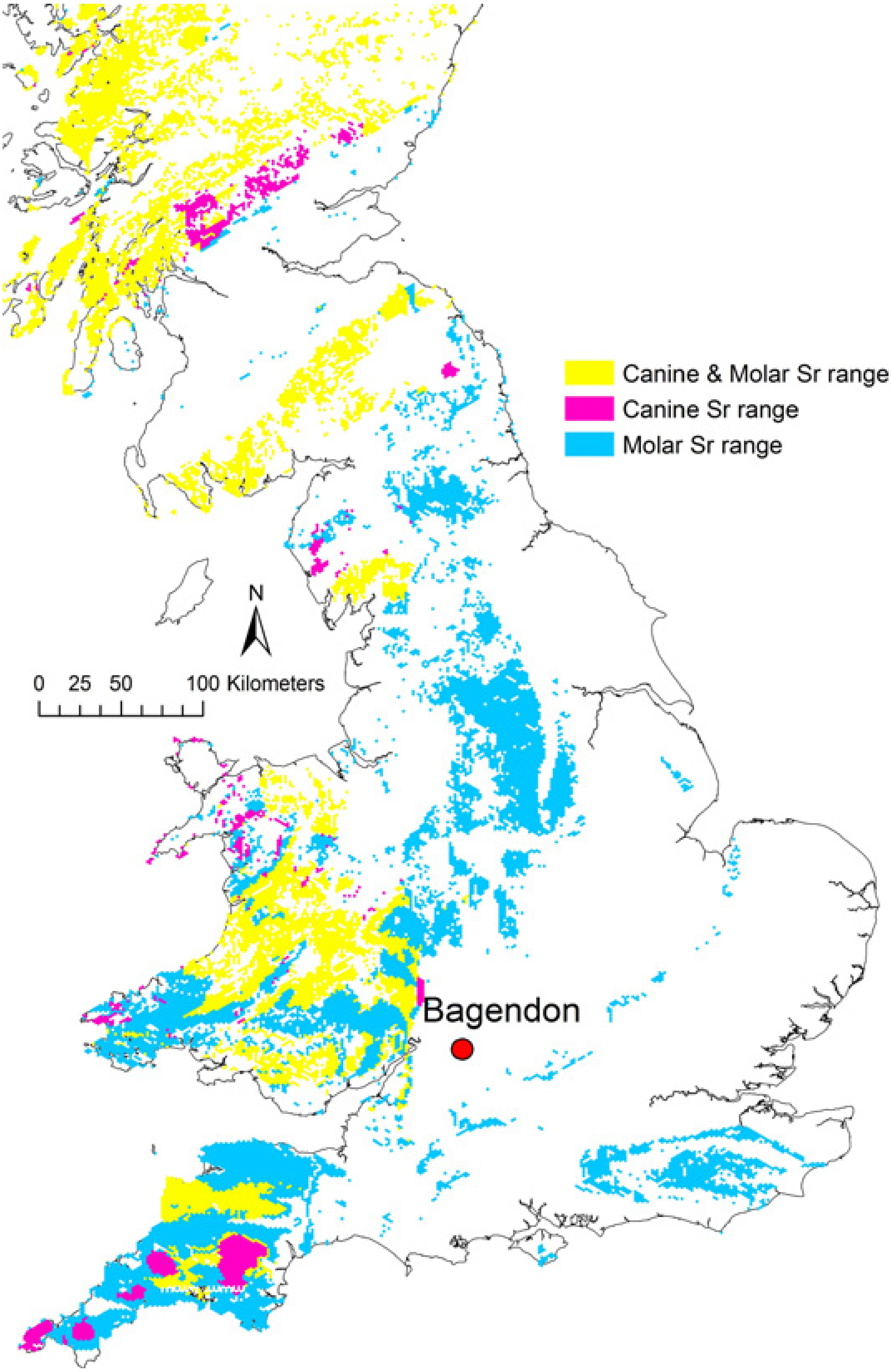

Figure 17.2. Map showing the regions where existing environmental data suggest that the canine and molar enamel strontium isotope ratios from the Bagendon woman are most likely supported. The map is based on the Biosphere Isotope Domains GB online resource and is reproduced with the permission of the British Geological Survey ©UKRI. All rights Reserved. The data fields are based on the interquartile range of the strontium isotope data obtained for these regions and further information and references can be obtained from the User Guide and Portal for the V1 dataset (NERC Isotope Geosciences Laboratories 2018). This map should not be used for identifying origin without consulting the text of this report.

Table 17.2. Strontium, oxygen and carbon isotope and trace element data from tooth enamel

Tooth enamel:	Pb ppm	Ba ppm	Sr ppm	$^{87}Sr/^{86}Sr$	$^{87}Sr/^{86}Sr$ 2SE	$\delta^{13}C_{carbonate}$ VPDB (‰)	$\delta^{18}O_{carbonate}$ VSMOW (‰)	$\delta^{18}O_{phosphate}$ (‰)[1]	$\delta^{18}O_{dw}$ (‰)[2]
Human, Bagendon woman:									
Maxillary canine	0.06	0.96	16.7	0.711966	0.000012	-14.0	25.7	16.8	-7.8
Mandibular M3	0.05	1.25	18.4	0.711123	0.000014	-14.9	27.0	18.2	-5.7
Animals:									
Pig 1021: M2				0.709563	0.000009				
Pig 1023: M2				0.708334	0.000007				
Pig 1045: M3				0.708312	0.000010				
Horse 1023				0.709087	0.000008				
Horse 1036				0.710704	0.000011				
Horse 1045				0.711893	0.000010				

Notes:

1. Samples for oxygen analysis were undertaken on the carbonate fraction. The $\delta^{18}O_{phosphate}$ values have been calculated using the equation from Chenery *et al.* 2012 to convert from the measured carbonate values. These data are provided for the purpose of comparison with other published data sets.
2. The calculated $\delta^{18}O_{dw}$ values use equation 6 from Chenery *et al.* 2012 (based on Daux *et al.* 2008) to convert from the measured carbonate values. These data are provided for the purpose of comparison with other published data sets, but care should be taken in using them with environmental water value maps (Pollard *et al.* 2011).

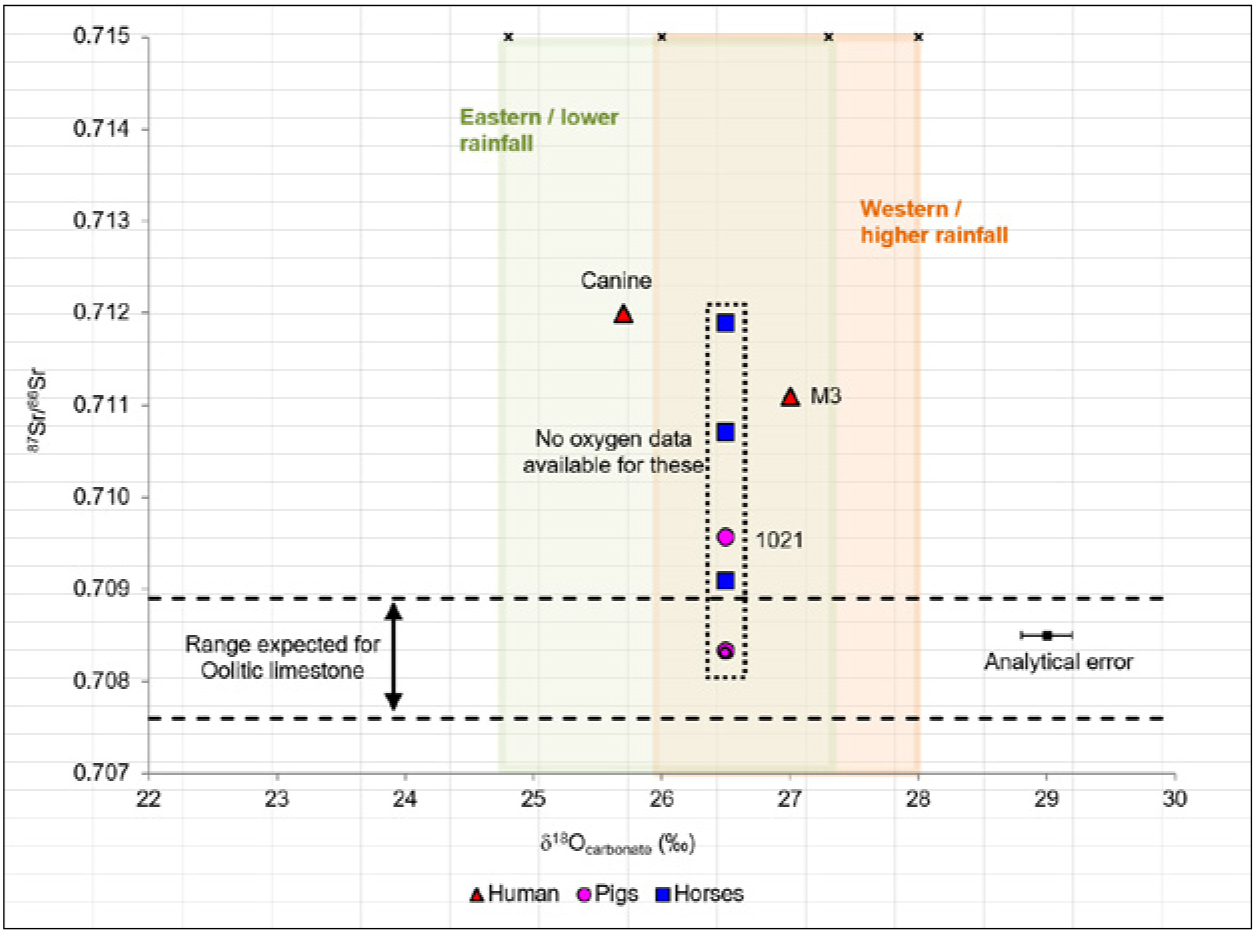

Figure 17.3. $87^{Sr}/86^{Sr}$ and $\delta 18O_{carbonate}$ values for the Bagendon woman alongside the strontium isotope ratios for the animals. There are no oxygen data for the latter, which have been plotted centrally on the chart. The vertical coloured fields indicate the range of oxygen isotope ratios expected generally for Britain, with a 'lower rainfall' range to the left and a 'higher rainfall' range to the right, and some area of overlap. These ranges are plotted to 2 sd and taken from Evans *et al.* 2012. The range used by the NERC online Biosphere Isotope Domains mapping is only 1 sd (see Figure 17.4). Analytical error for the strontium isotope ratios is within symbol and the expected range for the Bagendon area is indicated as that for Oolitic limestone.

are too high. Conversely, high concentrations may indicate a calcium-deficient, plant-based diet or that the individual was living near the coast (Montgomery 2010). It may be noteworthy that the formation times of the enamel of these two teeth coincide approximately with the first two peaks in $\delta^{15}N$ from the incremental dentine after birth and at around 12 years (see below), bearing in mind that the enamel analyses were from bulk samples.

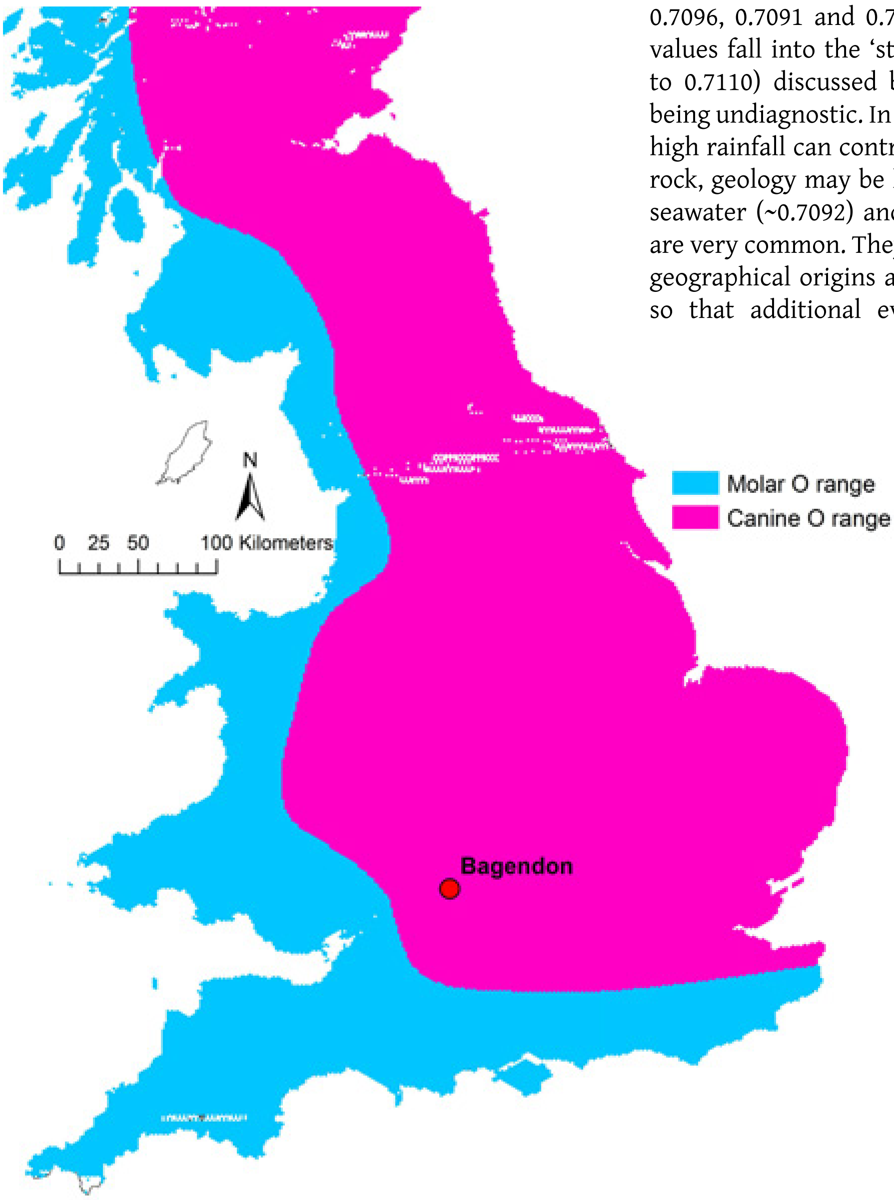

Figure 17.4. Map showing the regions where existing archaeological data suggest that the canine and molar enamel oxygen isotope ratios from the Bagendon woman are most likely supported. The map is based on the Biosphere Isotope Domains GB online resource and is reproduced with the permission of the British Geological Survey ©UKRI. All rights Reserved. The data fields are based on the range of phosphate measurements from human tooth enamel that define the domain and are shown to 1 sd. The $\delta^{18}O_{phosphate}$ values have been calculated using the equation from Chenery *et al.* 2012 to convert from the measured carbonate values. Further information and references can be obtained from the User Guide and Portal for the V1 dataset (NERC Isotope Geosciences Laboratories 2018). This map should not be used for identifying origin without consulting the text of this report.

The $^{87}Sr/^{86}Sr$ values for all three of the horses and one of the pigs also fall above the range which might be expected for Bagendon. Two of the pigs fall within that range, suggesting that they were raised locally. Figure 17.3 shows the strontium and oxygen isotope ratios for the woman alongside the strontium data for the animals; there are no oxygen data available for the latter. Horse 1045 has a $^{87}Sr/^{86}Sr$ value which is similar to the woman's canine (0.7119), while the pig 1021 and the other 2 horses have lower values at 0.7096, 0.7091 and 0.7107 respectively. These latter 3 values fall into the 'strontium of doom' range (0.7090 to 0.7110) discussed by Montgomery *et al.* (2014) as being undiagnostic. In coastal regions, where the sea or high rainfall can contribute to the signal derived from rock, geology may be less important than the value of seawater (~0.7092) and in Britain values in this range are very common. They can result from a wide range of geographical origins and environmental backgrounds, so that additional evidence is usually required to improve interpretation. For this reason, although the lowest of these 3 values (for horse 1023) does fall above the range marked in Figure 17.3 as expected for Bagendon, it cannot clearly be excluded as being local since it is below the seawater value. With a south westerly weighted wind direction, the effect of water coming in from the Severn Estuary may well be relevant for this site.

The supply of horses in the British Iron Age has been the subject of discussion; were they breeding fully domesticated animals or catching and training them from freely roaming herds, and in either case, was this done from centralised locations or at settlement sites? At least 2 of the Bagendon horses are not local to the site. It is possible that they come from the same original location, but this is not definitive. A study by Bendrey *et al.* (2009) of 2 Iron Age horses from different sites on the Hampshire chalk suggested that one of the animals analysed was probably local, but that the other, from Rooksdown (a middle Iron Age occupation site), was likely an incomer from Wales, Scotland or the Continent with strontium isotope ratios ranging from 0.7118 to 0.7122 from a number of samples from three separate teeth. These are very similar to the Bagendon horse 1045.

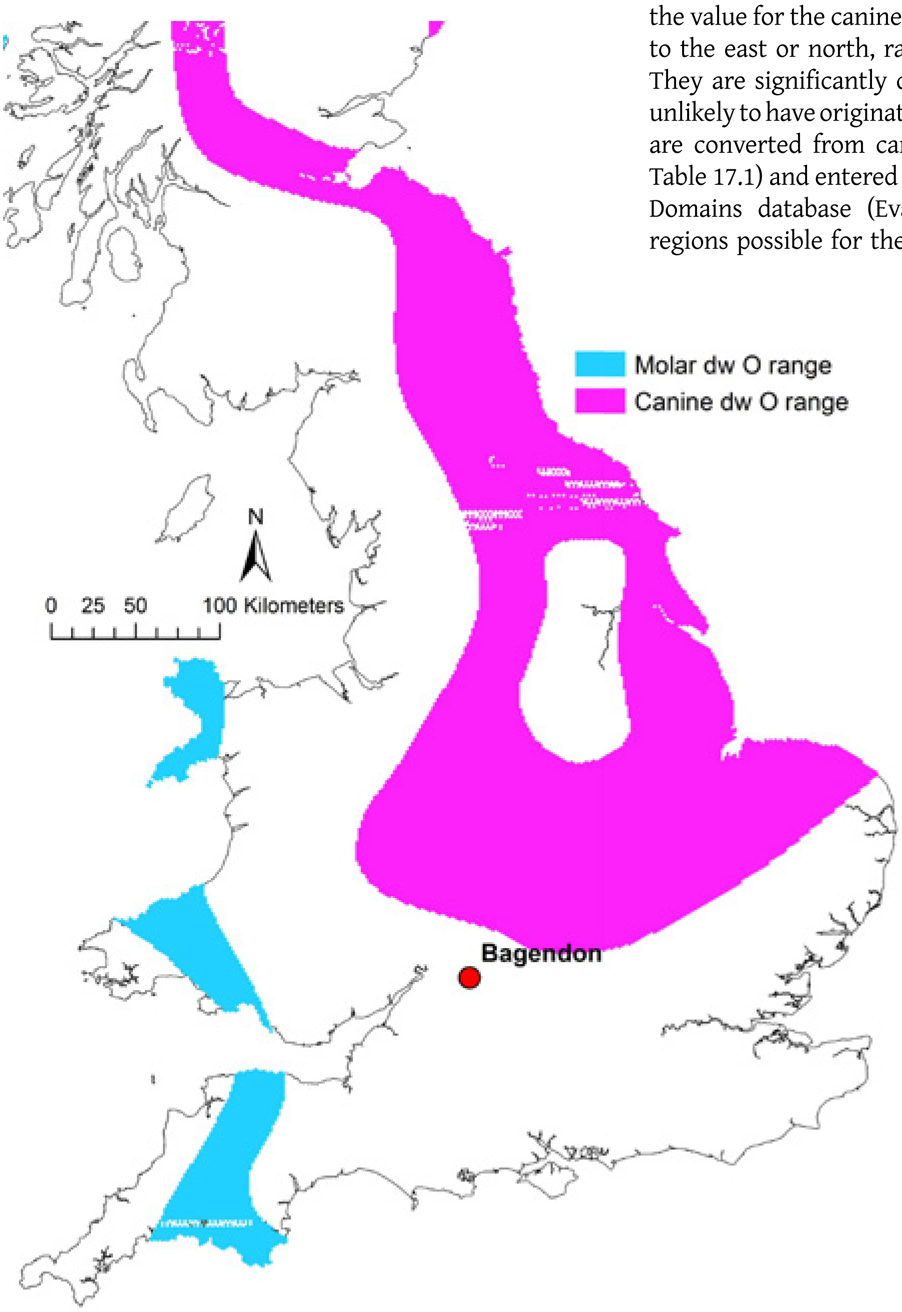

Figure 17.5. Map showing the regions where existing archaeological data suggest that the canine and molar enamel oxygen isotope ratios from the Bagendon woman are most likely supported. The map is based on the Biosphere Isotope Domains GB online resource and is reproduced with the permission of the British Geological Survey ©UKRI. All rights Reserved. The data fields are based on the analysis of groundwater samples from across Britain after Darling *et al.* 2003. The calculated $\delta^{18}O_{dw}$ values for Bagendon use equation 6 from Chenery *et al.* 2012 (based on Daux *et al.* 2008) to convert from the measured carbonate values. Further information and references can be obtained from the User Guide and Portal for the V1 dataset (NERC Isotope Geosciences Laboratories 2018). This map should not be used for identifying origin without consulting the text of this report.

The 2 human teeth had measured $\delta^{18}O_{carbonate}$ values of 25.7‰ (canine) and 27.0‰ (third molar). These are shown in Figure 17.3, alongside the strontium isotope ratios. The oxygen values are within the range of individuals from Britain and Ireland. They are relatively central within that expected range and are not diagnostic for identifying a specific source region with precision, but the value for the canine is more likely to have originated to the east or north, rather than to the south or west. They are significantly different, so that the signals are unlikely to have originated in the same place. If the values are converted from carbonate to phosphate data (see Table 17.1) and entered into the NERC Biosphere Isotope Domains database (Evans *et al.* 2018) the suggested regions possible for the two teeth do not show overlap (Figure 17.4). Again, this kind of mapping must be used with care. In this case the database plots a regional map based on available oxygen isotope values that are within 1 SD of the range of measurements defining the domain and so are only mapping 68% of that range. Figure 17.4 has been produced in order to illustrate that the 2 values are different enough that the teeth are unlikely to have formed in the same environment, rather than to produce a precision indication of possible origin. Figure 17.3 shows that, if 2 SD is used to indicate the overlap between the eastern 'lower rainfall' and the western 'higher rainfall' regions, the molar falls into that overlap region on the chart.

The Domains database can be used to enter drinking water values which have been converted from the carbonate/phosphate data (see Table 17.2). A variety of equations can be used to calculate these values, the preferred one for this report being Equation 6 from Daux *et al.* (2008). Figure 17.5 shows the maps produced if this is done, but once more care must be taken in interpreting these. They use the contour ranges from Darling *et al.* (2003) and rely on a number of conversion equations which amplify error (Pollard *et al.* 2011), so that the level of precision perhaps implied by the mapping is not straightforward. Most archaeological researchers currently prefer not to use the drinking water values, but to work with existing databases of carbonate and phosphate values to estimate probable ranges. Figure 17.5 simply reinforces the fact that the two teeth are not likely to have formed in the same environment and that the canine represents values more likely to be found in the north and east, while the molar may represent a more westerly value, thus suggesting that the Bagendon woman was mobile over the period of the formation of these two teeth. This is consistent with the strontium isotope ratios, which also differ, although there are limited regions where the earlier forming canine values coincide for both oxygen and strontium when considering Figures 17.2, 17.4 and 17.5. Central Wales may be the most likely option for Britain.

The human incremental dentine data are shown in Figure 17.6. The averaged values for the dentine are -20.5‰ and -20.3‰ for the canine and molar respectively ($\delta^{13}C$) and 10.7‰ for both teeth ($\delta^{15}N$). The formation age for each increment is based on AlQahtani *et al.* (2010) as tabulated in Beaumont and Montgomery (2015), but this has been adjusted to allow the peak in $\delta^{15}N$ values shown here at around the age of twelve years to match in the overlap period for the 2 teeth to allow for variation in formation periods for this particular individual (e.g. Scharlotta *et al.* 2018). The adjustment is within 2 sd of the age precision expected, but this is in opposite directions, so that the canine is shown as forming earlier than the average expected and the molar as forming later.

Figure 17.6 shows that there is a period at the beginning of the age sequence where the $\delta^{15}N$ values fall from 11.8‰ to 10.0‰ between the first few months of life up to around 4.5 years. During this period the $\delta^{13}C$ values

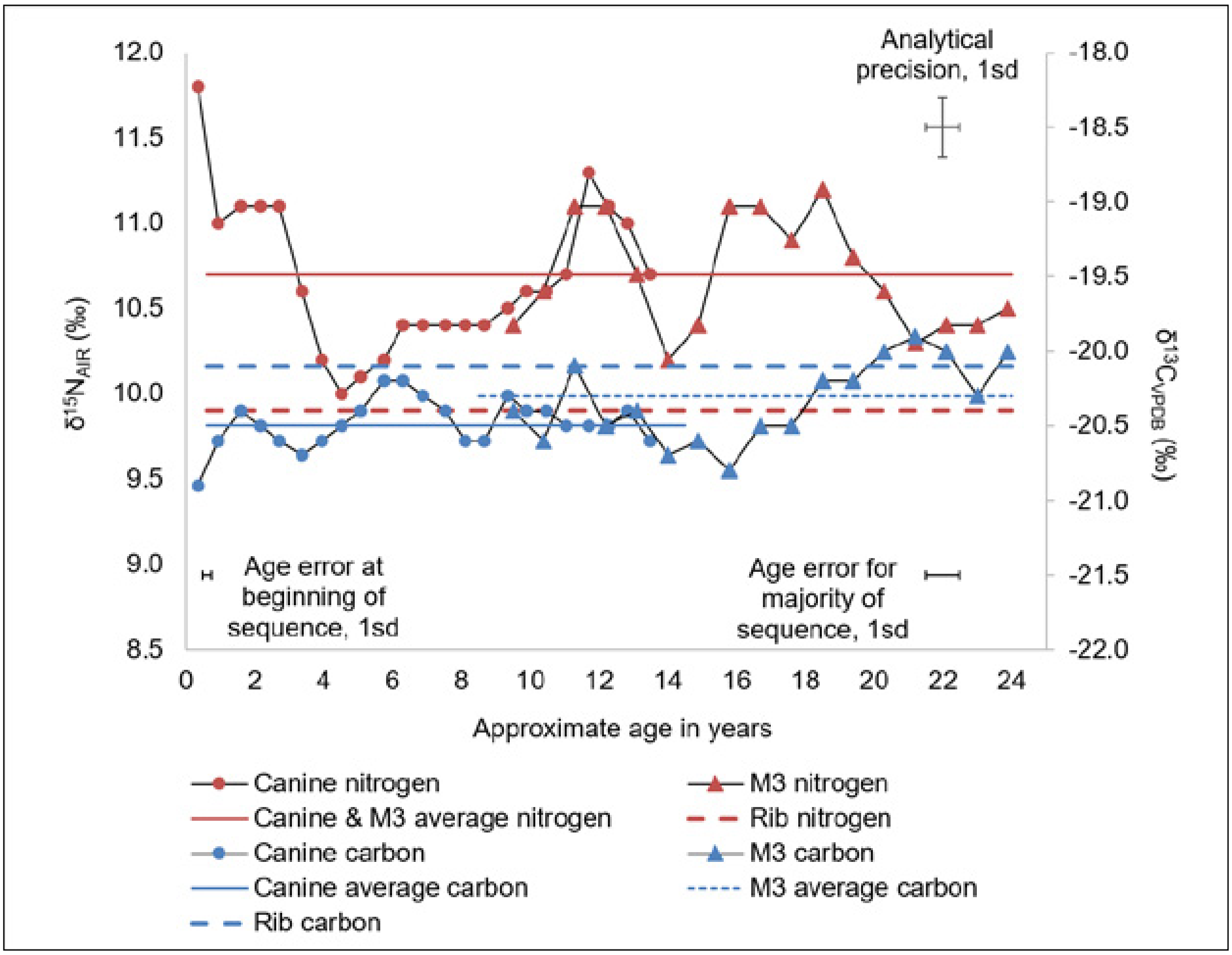

Figure 17.6. Incremental dentine carbon and nitrogen isotope data for the Bagendon woman. The formation period for each tooth is based on AlQahtani *et al.* (2010) as shown in Beaumont & Montgomery (2015: Table 1), but adjusted here to allow the peak in the nitrogen values at around the age of 12 years to match for both teeth. This adjustment is within 2 sd of the formation points given, but in opposite directions, so that the canine is shown as forming earlier and the M3 as forming later. The ageing error for the earliest increments is smaller than that for the later ones, as shown by the error bars on the chart. The rib collagen data represent diet from later life (age at death, 45+ years).

are relatively stable, with the slight changes not being far from what is within expected error ranges. The drop in the nitrogen values between the first and second increments may indicate stress at birth which eases over the first year of life. Physiological and nutritional stress can lead to raised $\delta^{15}N$ values and it is possible for this to be reflected where that stress is present this early in either the mother or child, since the mother's signal will be reflected in the child whilst *in utero* and can also be passed on through breastfeeding after birth.

After the second increment, there is a stable period where the $\delta^{15}N$ values are just over 11‰ for around 2 years, which may be a period of breastfeeding, with a weaning period commencing after 2.5 years. With that interpretation, breastfeeding ceases by around the age of around 4.5 years. There are peaks and troughs in the $\delta^{15}N$ sequence between the age of 9 and 21 years which suggest that there may well have been changes in diet and/or environment during this period. There is a peak at around eleven and a half years (11.1‰ / 11.3‰ for canine / molar), a trough at fourteen years (10.2‰), another peak starting at sixteen years (11.1‰) and the values come back down to 10.3‰ at 21 years. The $\delta^{13}C$ values are relatively stable up until around eighteen years, when they start to increase a little more than is seen previously in the sequence.

The $\delta^{13}C$ and $\delta^{15}N$ values from the rib are also shown in Figure 17.6. These reflect an averaged dietary input from a period closer to the end of life. The woman was aged over forty five years at death, so that if she had lived in the Bagendon area for any significant period the rib is likely to have at least begun to reflect the local signature, if not fully equilibrated. The $\delta^{13}C$ value for the rib is similar to values obtained from the incremental dentine after the age of eighteen years; the $\delta^{15}N$ value is lower than is seen throughout most of the dentine sequence, but the final increments (in her early twenties) go down to 10.3‰, while the rib value is 9.9‰. The difference of 0.4‰ is within 2 sd of analytical error, so that at this point, they are not significantly different.

The nitrogen isotope 'baseline' can change with both diet and environment, in the latter case over relatively small distances. Mobility can be indicated both by changing environments at the base of the food chain and by an alteration in diet, the latter perhaps driven by necessity if the new environment means a change in available resources, or it might be driven by other factors such as cultural differences between origin and destination social groups. Carbon isotope values across mainland Britain are relatively stable at the 'baseline' level for any particular period in time, so that mobility won't necessarily alter these unless dietary change is necessitated which involves the consumption of very different types of resources. In the case of the Bagendon woman, the general stability of the $\delta^{13}C$ values alongside the changes in the $\delta^{15}N$ values suggest dietary change or mobility, perhaps more than once, after the age of 9 years, but probably within Britain rather than as an immigrant. The low strontium concentrations in the tooth enamel may indicate that the diet was particularly rich in animal protein and calcium during the formation periods, which are roughly equivalent to the peaks in $\delta^{15}N$ values at the beginning of the sequence and at around eleven and a half years. If she was mobile, she may well have been living in the region by the end of the sequence, based on the rib data and the end of the incremental sequence, but it should be noted in this case that she was probably not consuming significant amounts of protein from animals similar to those analysed from Bagendon, since the difference between the rib $\delta^{13}C$ and mean animal bone values is 2.2‰ which is significantly more than would be expected for 1 trophic level. There is no indication of either the consumption of marine resources or the inclusion of C_4 plants in the food chain.

Figure 17.7 shows the mean dentine and rib $\delta^{13}C$ and $\delta^{15}N$ values for the Bagendon woman alongside those for the pigs, the bone values for the pigs and cattle, and a variety of pig and cattle comparative data from other sites in the general region (see Figure 17.1 for locations). Given that the woman was probably mobile during the period of the dentine formation, a direct comparison of her tooth collagen data with the Bagendon animals for the purpose of interpreting diet and trophic level is not appropriate. They are likely to originate in different locations and the animals are also probably earlier in date. It is, however, possible to consider the overall group of animals shown in Figure 17.7 to obtain a general picture of diet, and if she had lived in the region for any length of time before death then the rib data may be more comparable, although the timing issue is still relevant. The dentine $\delta^{15}N$ values are higher than all of the fauna shown and the $\delta^{13}C$ values are higher than the majority of them, with the rib $\delta^{15}N$ value being 4.4‰ higher than the mean of the 3 cattle. This picture, together with the absolute human values, is consistent with an omnivorous individual, with a relatively high level of animal protein in the diet and no indication of aquatic (either marine or freshwater) or C_4 resources in the food chain which concurs with the enamel strontium concentration data. The values for the woman are consistent in these respects with other Iron Age human data from Britain and a later life $\Delta^{15}N_{human\text{-}herbivore}$ value of 4.4‰ would also be consistent with equilibration to the regional values (Jay and Richards 2007).

The rib sample from the woman was also analysed for sulphur isotope composition, although this was not done for any of the other samples, so no comparative data from Bagendon are available. The data in Table 17.3 show that the collagen quality indicators for this analysis are just outside suggested acceptable ranges (Nehlich and Richards 2009), so that the value (5.0‰)

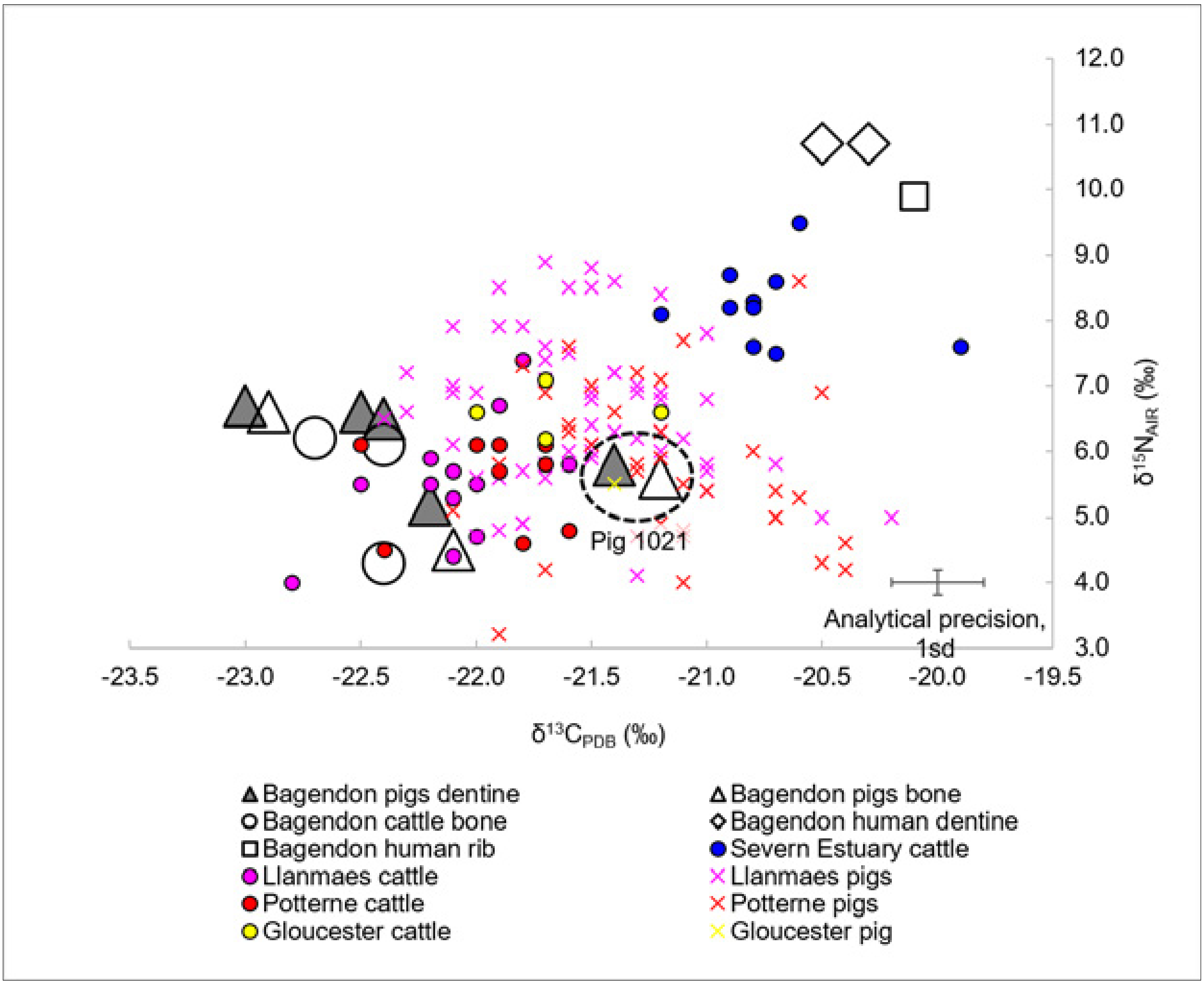

Figure 17.7. δ13C and δ15N values for Bagendon and for other prehistoric sites in the general region (see Figure 17.1 for locations of sites mentioned). Pig 1021, with similar dentine and bone values, is highlighted as being differentiated from the rest of the Bagendon animals in the carbon axis. Comparative data are Middle Bronze Age to Early Iron Age (Severn Estuary, Llanmaes and Potterne; Britton *et al.* (2008) and Madgwick *et al.* (2012)) and Roman (Gloucester; Chenery *et al.* (2010)).

must be considered with caution. Figure 17.8 shows the δ^{34}S and δ^{15}N values in the context of some regional data from other sites shown on the map in Figure 17.9. These comparative data are Medieval, Roman and Early Bronze Age, but the dating is not currently believed to make a significant difference. The Roman samples from Queenford Farm are interpreted as having low δ^{34}S values because they were consuming fish and resources from a floodplain affected by water running through lithology which brought the values down, with the Radley herbivores similarly affected by floodplain grazing (Nehlich *et al.* 2011). The river system involved is that of the Thames, and Bagendon is located close to a tributary of that system. It is possible that low values can similarly be expected from here, but in any case the value from the woman is similar to other regional published and unpublished data, including from south Wales, the Severn estuary region and Glastonbury (Hemer *et al.* 2016; Jay *et al.* 2019; Jay unpublished data). Although the issue of data quality must be considered, the rib δ^{34}S value from the Bagendon woman appears consistent with the location and a suggestion that she may have been living in the region for a while before death.

The pig and cattle data in Figure 17.7 show a wide range of values in the regional context. The majority of comparatives shown are prehistoric in date (Middle Bronze Age to Early Iron Age), with those from Gloucester being Roman. Figure 17.10 shows the animals compared with mean values from sites across Britain which are of Middle Iron Age date and so of a similar period to the Bagendon animals, while Figure 17.11 shows them compared with Medieval samples from south Wales, York, north Yorkshire and Cheshire. The published δ^{13}C values in Figures 17.10 and 17.11 (excluding Suddern Farm and Danebury for the former and Dryslwyn Castle data for the latter) have been adjusted by -0.2‰ in the chart to take account of the fact that they are known to have been analysed using IAEA-CH-7 as a calibration standard, the internationally

Table 17.3. Bulk collagen isotope data from bone and dentine

Sample ID	δ13C (‰)[1]	δ15N (‰)[1]	C:N (atomic)[2]	C%[2]	N%[2]
Human, Bagendon woman:					
Dentine, crown[3]:					
Maxillary canine	-20.5	10.7	3.2	44.3	16.0
Mandibular M3	-20.5	10.6	3.2	44.2	16.3
Dentine, root[3]:					
Maxillary canine	-20.4	10.7	3.3	44.6	16.0
Mandibular root	-20.2	10.7	3.2	44.0	16.0
Rib	-20.1	9.9	3.2	34.4	12.7
Animals[4]:					
Pig 1021:					
M2 root	-21.4	5.8	3.1	40.2	15.1
Mandible	-21.2	5.6	3.3	44.6	15.5
Pig 1023:					
M2 root	-22.5	6.6	3.3	43.5	15.6
M3 root	-23.0	6.7	3.2	43.2	15.8
Mandible	-22.9	6.6	3.4	44.7	15.2
Pig 1036:					
M3 root	-22.2	5.2	3.3	45.3	15.8
Pig 1045:					
M3 root	-22.4	6.5	3.3	45.3	15.9
Mandible[2]	*-22.6*	*6.9*	*2.8*	*37.6*	*15.9*
Pig 3122: Mandible	-22.1	4.5	2.9	40.2	15.9
Cattle 1036: Mandible	-22.4	4.3	3.4	43.1	14.8
Cattle 1045: Mandible	-22.7	6.2	3.0	38.9	15.3
Cattle 1173: Mandible	-22.4	6.1	3.1	39.6	14.9
Human, Bagendon woman:					
	δ34S (‰)[1]	**C:S (atomic)[2]**	**N:S (atomic)[2]**	**S%**	
Rib[2]	*5.0*	*296*	*94*	*0.31*	

Notes:

1. Bone collagen samples at Durham were analysed for carbon and nitrogen as duplicates and the means of these are presented here. Bone collagen analysed for sulphur and incremental dentine samples were analysed as singles.
2. All collagen quality indicators fall into the accepted ranges for carbon and nitrogen, except for the Pig 1045 mandible which has a C:N ratio of 2.8, so that the data shown in italics have not been included in the report interpretation and are included here for reference only. The woman's rib was the only sample analysed for sulphur; the C:S and N:S ratios for this fall slightly below the suggested quality ranges (300 to 900 and 100 to 300 respectively, Nehlich & Richards 2009).
3. The crown and root dentine data for the Bagendon woman are the means of the values from the relevant sections of the incremental dentine analyses. They are based on the formation periods adjusted to allow the overlap period for the canine and molar to match for the δ15N value peak at around the age of 12 years. The increments used for the calculation are marked in Table 4.
4. The root dentine data for the animals are the means of all increments. Where collagen quality data for an individual increment was outside the acceptable ranges, the data have been excluded from the calculated means.

accepted value for which changed in 2006 (Coplen *et al.* 2006); the adjustment makes the comparison with the Bagendon data more precise in this case, but it should be noted that comparisons of data sets from different laboratories and at different times cannot always be adjusted to take account of small analytical differences which may occur and this must be considered when interpreting them.

The Bagendon cattle and three of the pigs have δ13C values which are lower than the majority of other prehistoric data shown in Figures 17.7 and 17.10. These animals (other than the pig 1021) have unusually low δ13C values in the context of prehistoric British comparatives. The Medieval samples, however, have δ13C values which are more similar, particularly for York and Dryslwyn Castle in south Wales.

The cattle are expected to be herbivores, but pigs are omnivorous and can show differing levels of animal protein consumption depending on their management by humans or their local environment and available resources. For Bagendon, the comparison with the cattle suggest that these particular pigs are largely

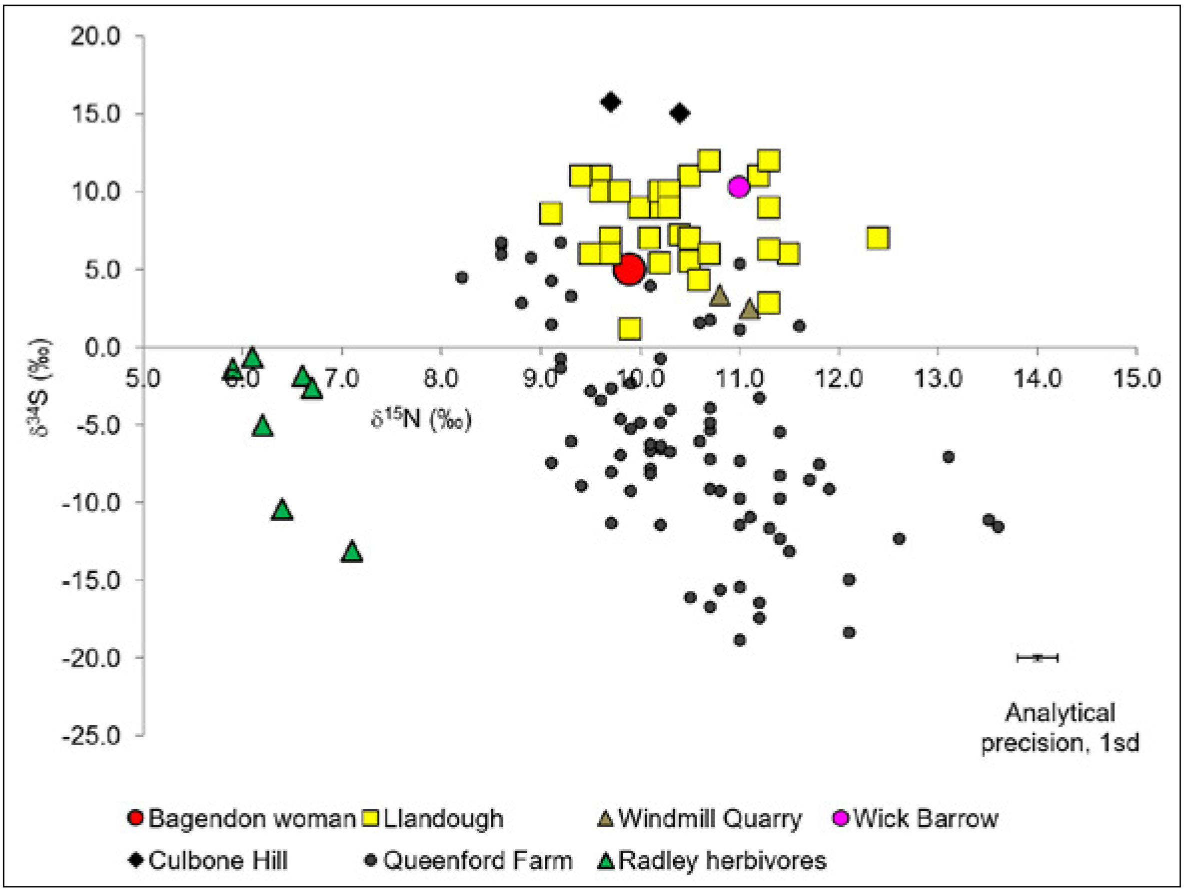

Figure 17.8. $\delta^{15}N$ and $\delta^{34}S$ values for the Bagendon woman, alongside regional comparatives. All comparative data are from humans, except for the Radley herbivores. The Llandough data are medieval (Hemer *et al.* 2016), Windmill Quarry, Wick Barrow and Culbone Hill are Early Bronze Age (Jay et al. 2019) Queenford Farm are Roman and Radley are Romano-British (Nehlich *et al.* 2011).

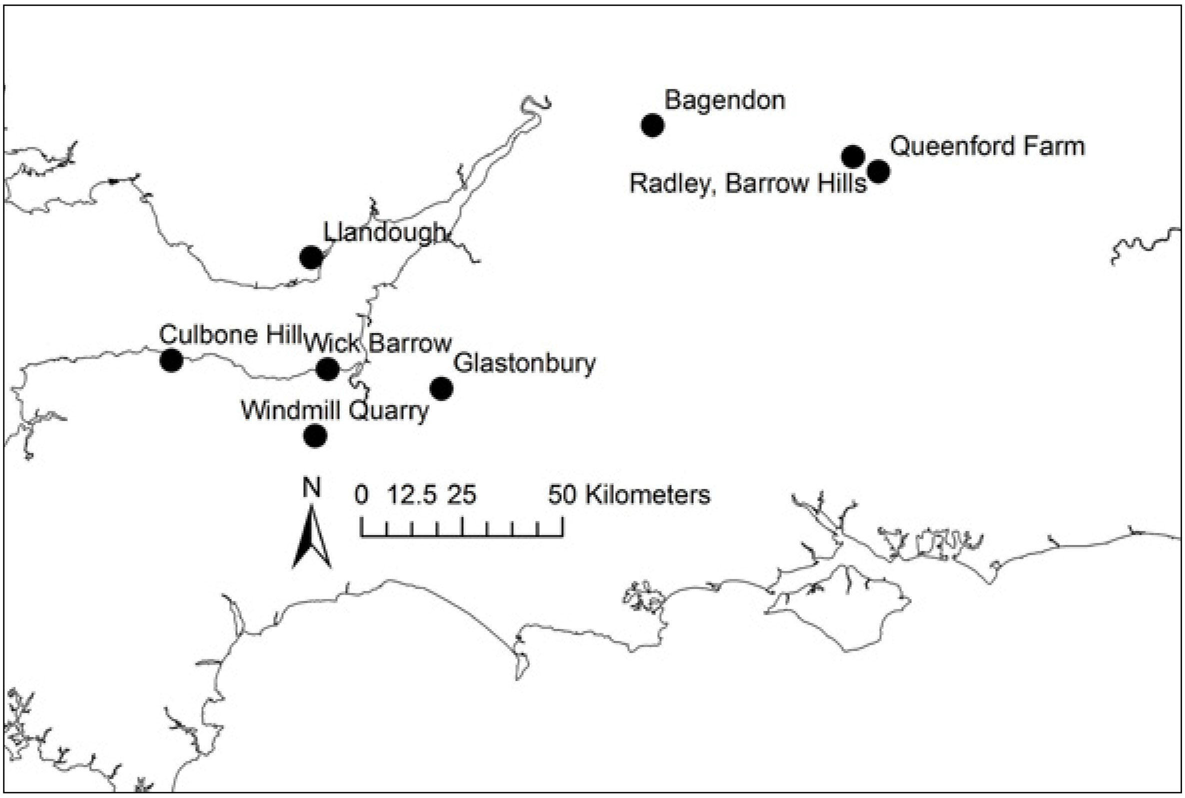

Figure 17.9. Map showing sites relevant to comparative $\delta^{34}S$ values shown in Figure 17.8.

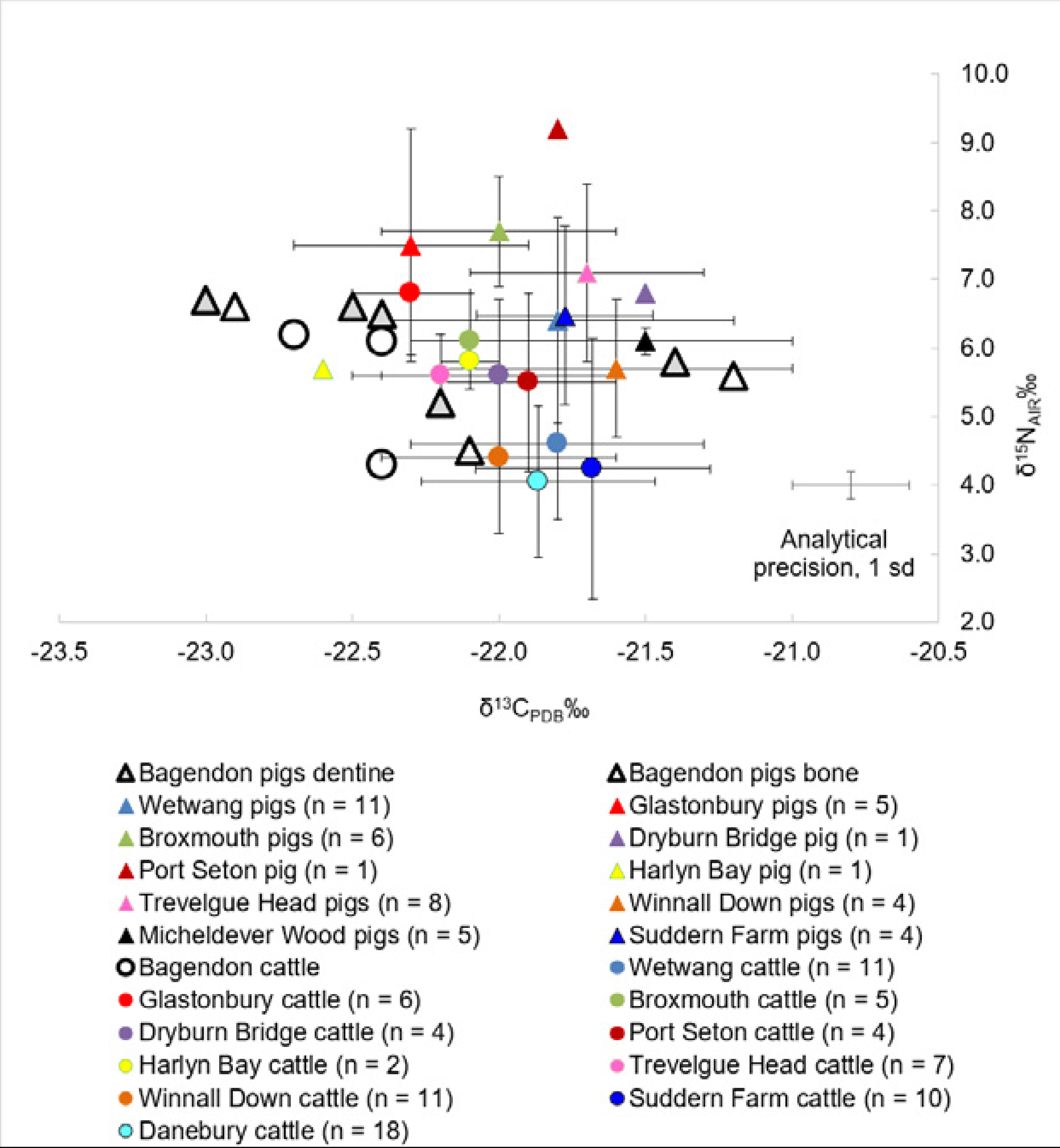

Figure 17.10. $\delta^{13}C$ and $\delta^{15}N$ values for Bagendon alongside means for other pigs and cattle from Middle Iron Age sites from across England and southern Scotland. Comparative data are from Jay & Richards (2006, 2007), Jay (2008) and Hamilton *et al.* (2019) and are all from bone samples, except for Suddern Farm and Danebury which are from both bone and dentine. Error bars show 1 sd. The published $\delta^{13}C$ values from the data processed by Jay have been adjusted by -0.2‰ to account for a change in the internationally accepted value of a carbon standard used for normalisation of the data which was implemented after analysis of these samples (see text for further detail).

herbivorous. Both the $\delta^{15}N$ and $\delta^{13}C$ values are relatively low and similar to the cattle. As animal protein is added to the diet, both of these values tend to increase, so that if the pigs had been significantly omnivorous, they would be expected to have higher values compared to the cattle. As an example of this, the Medieval York pigs in Figure 17.11 generally show higher values for both carbon and nitrogen, but those few which are similar to the Bagendon pigs are also more similar to the cattle from York, with lower values for both. So, the York pigs are showing varying levels of omnivory, whilst the Bagendon pigs do not.

The likely reason for differences in $\delta^{13}C$ values for herbivores between sites and periods is that the animals were consuming different types of plant resources or

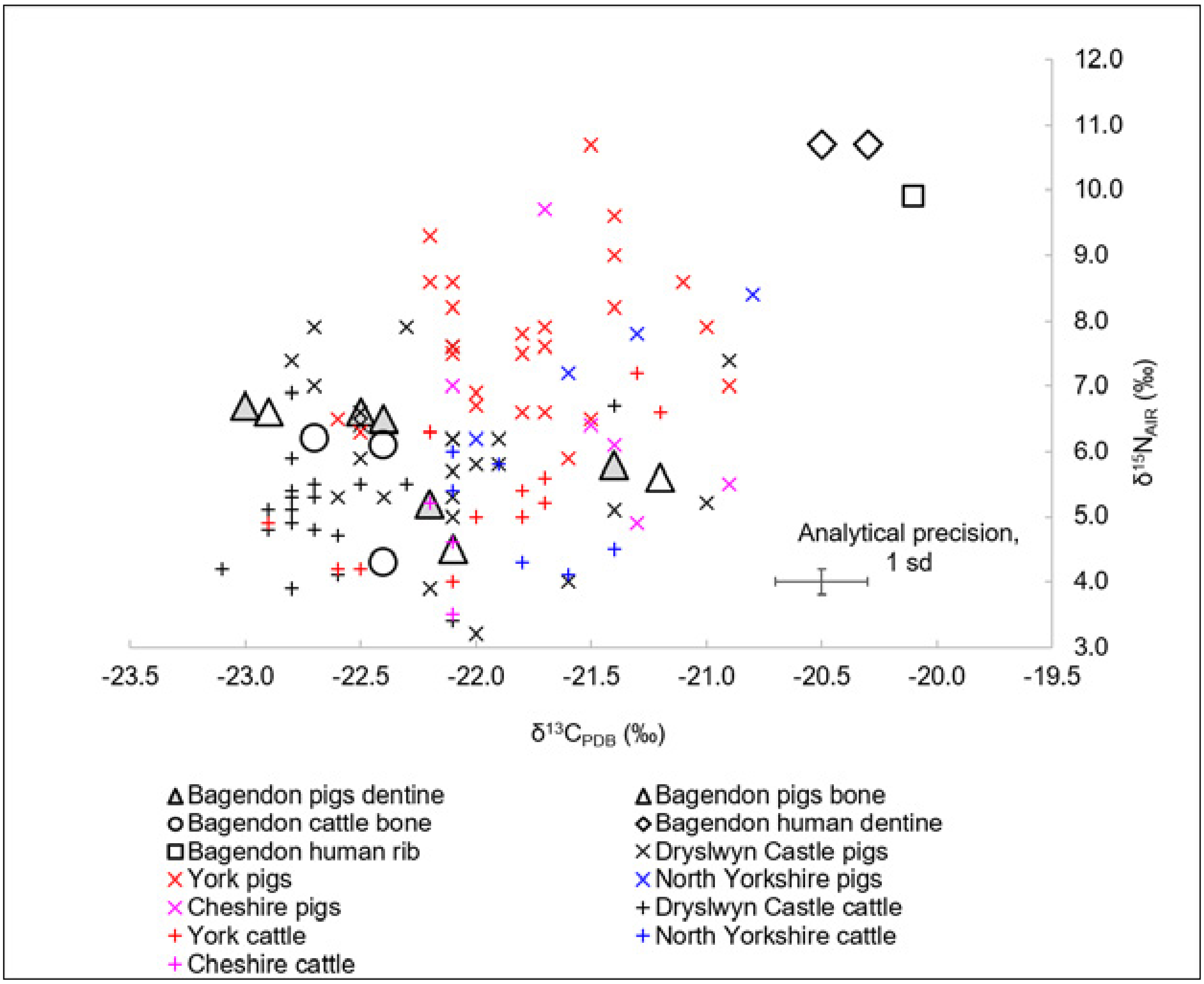

Figure 17.11. $\delta^{13}C$ and $\delta^{15}N$ values for Bagendon alongside data for other pigs and cattle from Medieval sites from England and southern Wales. Comparative data are from Müldner and Richards (2005, 2007) and Millard *et al.* (2013) and are all from bone samples. Subadult animals are excluded. The published $\delta^{13}C$ values for the Müldner and Richards data have been adjusted by -0.2‰ to account for a change in the internationally accepted value of a carbon standard used for normalisation of the data which was implemented after analysis of these samples (see text for further detail).

resources from different environments. This might be because they were being provided particular resources by humans (e.g. winter foddering of particular plant types), or because they were obtaining these foods from different environments or from agricultural land which had been affected by humans (e.g. woodland, water meadows, fields treated with manure). Particular effects seen might include:

- the 'canopy' effect on $\delta^{13}C$ values in which woodland understorey plants show lower values than those in open landscapes (Bonafini *et al.* 2013; Drucker *et al.* 2008; van der Merwe and Medina 1991);
- differences between types of plant, such as legumes and grasses where legumes have lower $\delta^{15}N$ values and possibly different $\delta^{13}C$ values, or naturally available browse *versus* deliberately fed hay (e.g. Bogaard 2015; Codron *et al.* 2012; D'Annibale *et al.* 2017; Fraser *et al.* 2013);
- differences in water availability (e.g. due to irrigation or the use of water meadows) which may lead to lower $\delta^{13}C$ values where water was more abundant (Ferrio *et al.* 2005; Stewart *et al.* 1995);
- differences in the part of a plant consumed by an animal (e.g. leaf, fruit, grain, stem, bulk of several parts), since these can produce different isotope values within a particular plant (e.g. Dungait *et al.* 2008; Treasure *et al.* 2016);
- differences in dietary proportions of more digestible plants because this will affect from which plants nutrients are taken (Codron *et al.* 2011);
- the effect of manuring land on which the plants consumed are grown (Bogaard *et al.* 2013; Bogaard 2015; Fraser *et al.* 2011);
- where animals are relatively young at death, there can be a weighting effect from resources consumed during different seasons, since there can be a seasonal effect on $\delta^{13}C$ values from a

single resource (e.g. Dungait *et al.* 2010), i.e., an animal which lived over 2 summers and 1 winter might show a different signal to one which lived over 2 winters and 1 summer, even if they both ate the same resources from the same location.

This list relates to differences in the plant resources consumed or the environments from which those resources were obtained. Another factor which is important is the herbivore's digestive system. Cattle are ruminants while pigs have non-ruminant, monogastric systems which are similar to humans. The differences which this might make are not quantified, but it is suggested from empirical data that the digestive system will have an effect. For instance horses, rabbits and hares are all non-ruminants, similar to a human, but have an active cecum (where bacteria help to break down the cellulose in herbivores), while humans have a cecum which is redundant in this respect. Most carbon isotope studies of herbivores show that horses, rabbits and hares have lower $\delta^{13}C$ values than cattle or sheep from the same locations (e.g. Jay and Richards 2007; Lightfoot *et al.* 2009; Stevens *et al.* 2010; Villalba-Mouco *et al.* 2018). Whilst some part of this may relate to the resources consumed by the different species (as in the list above), digestion is also likely to play a part (e.g. Codron *et al.* 2011). If this is the case, then pig $\delta^{13}C$ values in animals which are hypothetically purely herbivorous might be expected to be lower than cattle if the diets were equivalent.

Overall, the low $\delta^{13}C$ values in the Bagendon animals may relate to a combination of factors, but woodland cover may be particularly indicated (as suggested for the Medieval samples at Dryslwyn Castle; Millard *et al.* 2013). There may also be an indication that the southwest of England and south Wales are producing lower 'baseline' $\delta^{13}C$ values for these animals for climate reasons (e.g. higher rainfall). Differences in such 'baseline' values for mainland Britain have not previously been generally noted, but visibility of such distinctions can depend on subtle differences which are often not possible to compare between published data from different laboratories. A comparison of Iron Age animals from a variety of British locations, including Cornwall, did not show statistical differences in the carbon isotope ratios (Jay and Richards 2007), but it is perhaps notable that the lowest values seen in the comparative data presented here are mostly from Welsh or southwestern English sites, although York also has some low values.

Distinctions between $\delta^{13}C$ values for British Neolithic and Iron Age pigs have been postulated by Hamilton *et al*. (2009) to be related to deforestation between these periods, so that the more negative values seen in Neolithic pigs (when compared to the values seen at the same sites for herbivores) are indicative of animals rooting in wildwood and consuming fungus, while the more positive values in the Iron Age (again when compared to herbivores from the same sites) suggest a reduced level of woodland usage for these animals. If the Bagendon site was close to accessible woodland and the Iron Age pigs here were using it to a larger extent than seen elsewhere at British Iron Age sites, this may well explain the pig values seen here. However, it should be noted that the cattle samples at Bagendon are also more negative than normally seen for Britain in the Iron Age, which would be contrary to the picture seen in the Neolithic animals discussed by Hamilton; her model suggests that pigs were using woodland, but cattle and sheep were not. At Bagendon, the suggestion would be that the cattle were also using the woodland, if this is the explanation for the lower values overall.

Another explanation for the lower cattle values may be the use of water meadows, which are likely to have been present along the River Churn. This may be an unlikely environment for pigs, so it is possible that the combination of low values for the two species is indicative of 2 separate environments; cattle grazing in water meadows and pigs in woodland.

Figure 17.12 shows the incremental dentine $\delta^{13}C$ and $\delta^{15}N$ values for 4 of the pigs, with 2 teeth (an M2 and an M3) shown for 1023. The formation timing for pig root dentine is much less precisely understood than that for humans and the root completion stage for each of these teeth, and thus age at death, differed; for these reasons age approximation for the increments has not been attempted here. The root formation level for each tooth has been indicated on each of the charts. If the data from Tonge and McCance (1973) are used as a starting point for the formation periods, this suggests a period of 4 to thirty months for a fully formed M2, and 8 to thirty months for an M3. Those periods are based on the timing in a modern breed ('Large White'), while tooth emergence in wild boar, which may be closer to Iron Age pigs, is probably later, both in the wild and in captivity (Matschke 1967; Rolett and Chiu 1994), which may also mean that dentine formation periods are later. The M3 root for pig 1045 was almost complete and the sequence therefore probably covers most of the formation period, while the other teeth were likely from younger animals. The M2 for pig 1021 would have started at 4 months, except that the collagen quality for the first increment was poor and the data shown in italics in Table 17.4 for that reason have been excluded from the plot and the first data point shown is at increment 2. For pig 1023, 2 teeth have been analysed. The M3 root was incomplete and in the early part of formation, whilst the M2 was also incomplete and fragmented. The final increment for the M3 was also of poor collagen quality. The start of the M3 sequence has been plotted to match the $\delta^{15}N$

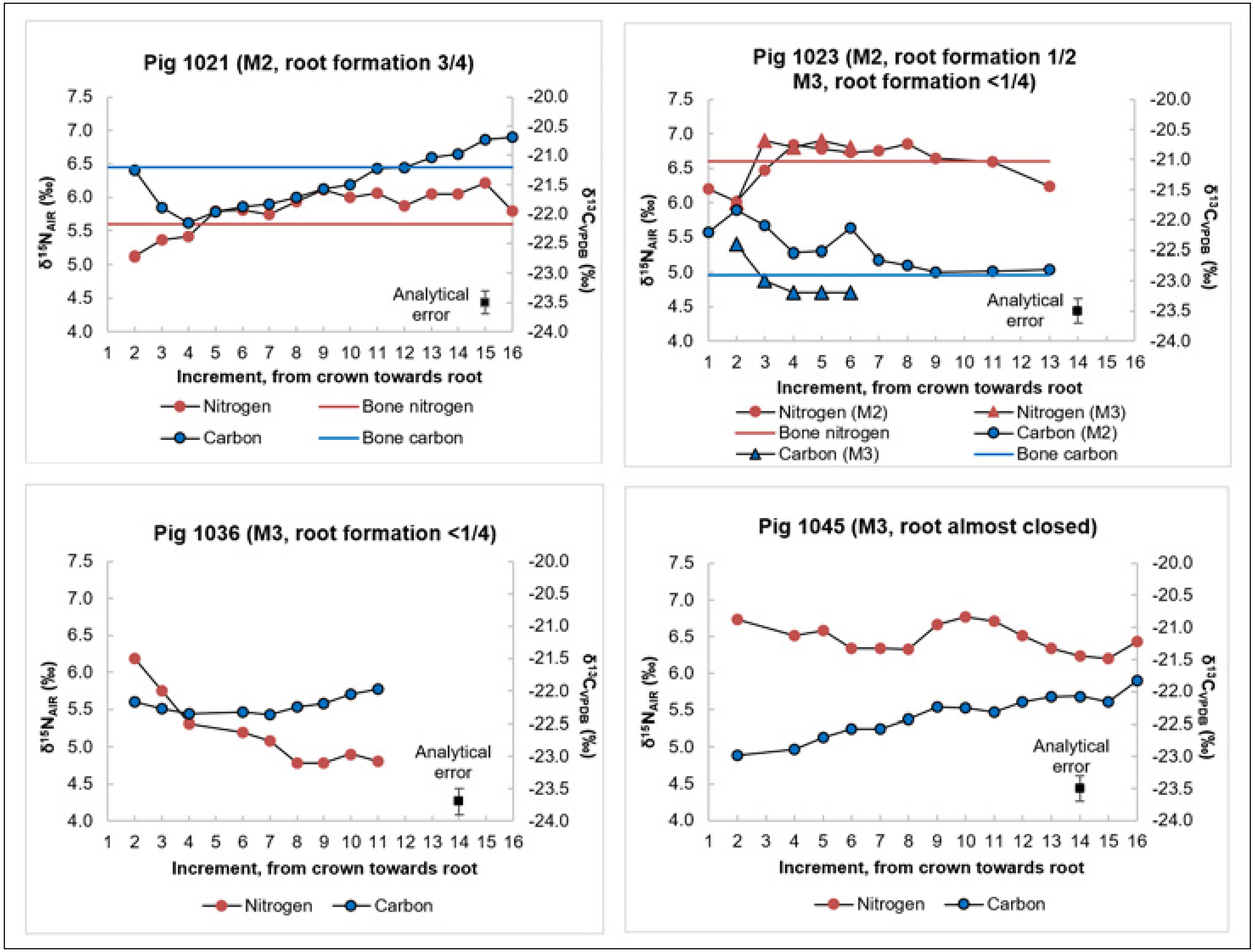

Figure 17.12. Incremental dentine carbon and nitrogen isotope data for four of the pigs. The level of root formation is indicated on the individual charts. Where collagen quality was poor (data in italics in Table 17.4), the increments have not been plotted as data points here and this is why 1021 starts from increment 2. For 1023 the commencement of the M3 has been plotted from increment 2 in order to align the pattern of data from the two teeth. The other two M3s have also been plotted from increment 2 in order to make them equivalent to 1023.

Table 17.4. Incremental dentine isotope data from dentine

Sample ID	**$\delta^{13}C$ (‰)**	**$\delta^{15}N$ (‰)**	**C:N (atomic)[2]**	**C%[2]**	**N%[2]**
Bagendon woman canine					
369-1	-20.9	11.8	3.2	44.3	16.1
369-2	-20.6	11.0	3.2	44.1	16.0
369-3	-20.4	11.1	3.2	44.4	16.3
369-4	-20.5	11.1	3.2	45.0	16.2
369-5	-20.6	11.1	3.2	43.7	15.7
369-6	-20.7	10.6	3.3	44.8	16.1
369-7	-20.6	10.2	3.3	44.9	16.1
369-8	-20.5	10.0	3.2	44.3	16.0
369-9	-20.4	10.1	3.2	43.7	15.7
369-10 Crown to here[3]	-20.2	10.2	3.2	43.4	15.8
369-11 Root from here[3]	-20.2	10.4	3.2	44.2	16.1
369-12	-20.3	10.4	3.3	44.8	15.9
369-13	-20.4	10.4	3.3	44.2	15.9
369-14	-20.6	10.4	3.3	44.1	15.8
369-15	-20.6	10.4	3.2	44.0	15.8
369-16	-20.3	10.5	3.3	45.0	15.8
369-17	-20.4	10.6	3.3	45.0	16.1
369-18	-20.4	10.6	3.2	49.2	18.0
369-19	-20.5	10.7	3.1	42.0	15.6
369-20	-20.5	11.3	3.3	43.8	15.6
369-21	-20.5	11.1	3.3	43.8	15.4
369-22	-20.4	11.0	3.4	44.7	15.5
369-23	-20.6	10.7	3.2	44.3	15.9
Range: min	**-20.9**	**10.0**			
Range: max	**-20.2**	**11.8**			
Mean	**-20.5**	**10.7**			
SD	**0.2**	**0.4**			
Bagendon woman M3					
370-1	-20.4	10.4	3.2	43.5	16.1
370-2	-20.6	10.6	3.2	44.1	16.2
370-3	-20.1	11.1	3.2	44.9	16.4
370-4	-20.5	11.1	3.2	44.1	16.2
370-5	-20.4	10.7	3.2	44.5	16.3
370-6	-20.7	10.2	3.2	45.4	16.4
370-7 Crown to here[3]	-20.6	10.4	3.2	44.5	16.3
370-8 Root from here[3]	-20.8	11.1	3.1	43.7	16.3
370-9	-20.5	11.1	3.2	44.7	16.2
370-10	-20.5	10.9	3.2	43.9	16.0
370-11	-20.2	11.2	3.2	45.2	16.3
370-12	-20.2	10.8	3.3	44.1	15.7
370-13	-20.0	10.6	3.2	44.2	15.9
370-14	-19.9	10.3	3.2	43.6	16.0
370-15	-20.0	10.4	3.3	44.5	15.9
370-16	-20.3	10.4	3.2	42.9	15.8
370-17	-20.0	10.5	3.2	43.2	15.6
Range: min	**-20.8**	**10.2**			
Range: max	**-19.9**	**11.2**			
Mean	**-20.3**	**10.7**			
SD	**0.3**	**0.3**			

Pig 1021 (lab code 1801) M2					
1801-1[2]	*-20.7*	*5.4*	*2.7*	*35.3*	*15.4*
1801-2	-21.3	5.1	2.9	39.2	15.5
1801-3	-21.9	5.4	3.2	41.9	15.3
1801-4	-22.1	5.4	2.9	38.7	15.4
1801-5	-22.0	5.8	2.9	39.1	15.5
1801-6	-21.9	5.8	3.2	42.2	15.4
1801-7	-21.8	5.7	3.1	40.8	15.2
1801-8	-21.7	5.9	2.9	37.1	15.1
1801-9	-21.6	6.1	3.2	42.4	15.5
1801-10	-21.5	6.0	3.1	38.7	14.8
1801-11	-21.2	6.1	3.3	42.3	15.0
1801-12	-21.2	5.9	3.2	40.2	14.9
1801-13	-21.0	6.0	3.1	36.6	13.6
1801-14	-21.0	6.0	3.3	42.2	14.9
1801-15	-20.7	6.2	3.1	39.4	14.9
1801-16	-20.7	5.8	3.3	42.6	14.9
Range: min	**-22.1**	**5.1**			
Range: max	**-20.7**	**6.2**			
Mean	**-21.4**	**5.8**			
SD	**0.5**	**0.3**			
Pig 1023 M2 (lab code 1802)					
1802-1	-22.2	6.2	3.0	40.2	15.7
1802-2	-21.8	6.0	3.3	42.3	15.0
1802-3	-22.1	6.5	3.0	39.5	15.6
1802-4	-22.5	6.8	3.2	43.4	15.8
1802-5	-22.5	6.8	3.2	43.2	15.7
1802-6	-22.1	6.7	3.4	45.6	15.8
1802-7	-22.7	6.8	3.0	40.6	16.0
1802-8	-22.7	6.9	3.5	47.8	16.0
1802-9	-22.9	6.6	3.4	45.8	15.8
1802-10[2]	*-22.8*	*6.9*	*3.8*	*51.0*	*15.6*
1802-11	-22.8	6.6	3.5	46.1	15.4
1802-12[2]	*-22.9*	*6.6*	*4.0*	*52.2*	*15.2*
1802-13	-22.8	6.2	3.5	43.8	14.7
Range: min	**-22.9**	**6.0**			
Range: max	**-21.8**	**6.9**			
Mean	**-22.5**	**6.6**			
SD	**0.4**	**0.3**			
Pig 1023 M3 (lab code 1803)					
1803-1	-22.4	6.0	3.4	45.4	15.4
1803-2	-23.0	6.9	3.2	42.0	15.5
1803-3	-23.2	6.8	3.3	45.6	15.9
1803-4	-23.2	6.9	3.1	42.1	16.1
1803-5	-23.2	6.8	3.0	41.1	16.2
1803-6[2]	*-23.0*	*6.9*	*3.9*	*52.7*	*15.9*
Range: min	**-23.2**	**6.0**			
Range: max	**-22.4**	**6.9**			
Mean	**-23.0**	**6.7**			
SD	**0.4**	**0.4**			

Pig 1036 M3 (lab code 1804)					
1804-1	-22.2	6.2	3.2	42.6	15.6
1804-2	-22.3	5.7	3.4	46.0	15.8
1804-3	-22.4	5.3	3.5	48.2	16.2
1804-4[2]	*-22.4*	*5.2*	*3.9*	*53.3*	*16.0*
1804-5	-22.3	5.2	3.4	45.8	15.7
1804-6	-22.4	5.1	3.3	45.6	15.9
1804-7	-22.2	4.8	3.3	44.8	15.7
1804-8	-22.2	4.8	3.2	44.2	16.0
1804-9	-22.1	4.9	3.2	41.8	15.4
1804-10	-22.0	4.8	3.6	48.9	15.8
Range: min	**-22.4**	**4.8**			
Range: max	**-22.0**	**6.2**			
Mean	**-22.2**	**5.2**			
SD	**0.1**	**0.5**			
Pig 1045 M3 (lab code 1805)					
1805-1	-23.0	6.7	3.6	52.4	17.0
1805-2[2]	*-22.7*	*6.5*	*3.7*	*49.5*	*15.5*
1805-3	-22.9	6.5	3.1	42.6	16.3
1805-4	-22.7	6.6	3.6	50.3	16.1
1805-5	-22.6	6.3	3.6	50.0	16.1
1805-6	-22.6	6.3	3.3	46.3	16.2
1805-7	-22.4	6.3	3.6	49.9	16.0
1805-8	-22.2	6.7	3.3	44.9	15.8
1805-9	-22.3	6.8	3.3	44.0	15.7
1805-10	-22.3	6.7	3.3	43.5	15.6
1805-11	-22.2	6.5	3.1	43.1	16.1
1805-12	-22.1	6.3	3.2	42.6	15.6
1805-13	-22.1	6.2	3.5	46.0	15.5
1805-14	-22.2	6.2	2.9	37.9	15.5
1805-15	-21.8	6.4	3.2	40.9	14.9
Range: min	**-23.0**	**6.2**			
Range: max	**-21.8**	**6.8**			
Mean	**-22.4**	**6.5**			
SD	**0.3**	**0.2**			

Notes:
1. All data are from single analyses.
2. All collagen quality indicators fall into the accepted ranges except where they are shown in italics. In that case, they have been shown for reference only and are not included in summary data, charts or interpretation within the report.
3. The crown and root dentine mean values for the Bagendon woman shown in Table 3 are the means of the values from the relevant sections of the incremental dentine analyses. They are based on the formation periods adjusted to allow the overlap period for the canine and molar to match for the $\delta^{15}N$ value peak at around the age of 12 years. The increments used for the calculation are marked above.

values to the M2 plot at the beginning of the sequence. This may not be accurate, but gives the best picture achievable with the information currently available.

Pig 1021 is the one which appears anomalous in the context of the other animal data from Bagendon. The averaged dentine and the bone values are very similar, suggesting little change in subsistence over the life of this animal, yet the incremental $\delta^{13}C$ values range from -20.7 to -22.1‰ (1.4‰) which is the highest range seen in those values for the teeth sampled. The profile suggests a change in subsistence in the earliest increments with variation which may include weaning in the overall resource mix although the timing of the earliest increments may mitigate against this (see below) and the substantial drop in $\delta^{13}C$ values of 1‰ alongside a slight increase in $\delta^{15}N$ values is not what might be expected for weaning. There are, however, currently very few incremental dentine data from pigs available to allow empirical comparison. It may be an issue of seasonal variation, with pigs likely born in spring so that the beginning of the sequence on the chart for pig 1021 as it stands suggests the drop in $\delta^{13}C$ values starting in the autumn and continuing into the winter. This decline is followed by a gradual increase in both $\delta^{13}C$ and $\delta^{15}N$ values, rather than any abrupt change during the later sequence. The $\delta^{13}C$ values following the drop at the beginning of the sequence are at the same level as for the other animals in Figure 17.7; it is the end of the gradual sequence which brings the values out of that range.

If the early variation in pig 1021 involves weaning, then it shows as finishing over the first 4 increments, bearing in mind that the first increment analysed for this animal is not plotted due to poor quality collagen data. If the root started formation at 4 months, this would be very late weaning compared with that of wild boar in Britain which occurs at around the age of 8 to twelve weeks (Goulding 2011; Horrell 1997). Alternatively, it may suggest that the low $\delta^{15}N$ values seen at the beginning of the sequence is not a weaning indicator. Although weaning may have finished at 2 or 3 months, a delay may also need to be considered for buffering of the dentine data due to a physiological reservoir effect in the body or to the formation processes of pigs' teeth (e.g. Guiry *et al.* 2016).

The M3 from pig 1045 shows a similar gradual increase in the $\delta^{13}C$ values, without the drop at the beginning of the sequence. If the drop at the beginning of the sequence for 1021 *is* weaning, then this is consistent with both the sequences for the M3s for both 1045 and 1036, neither of which show this change and both of which start the sequence later because they are third molars rather than the second molar analysed for 1021. The range in $\delta^{13}C$ values for 1045 is only slightly lower than that for 1021 (1.2‰), but the absolute values are lower (-21.8 to -23.0‰). There is a little variation in the $\delta^{15}N$ values, but the sequence is relatively stable, particularly if analytical precision is taken into account.

For pig 1036, the M3 shows stable $\delta^{13}C$ values over the sequence (averaging -22.2‰), with $\delta^{15}N$ values falling from 6.2 to 4.8‰. There are only ten increments for this M3, compared to fifteen for pig 1045, and the root formation was less than 1/4 compared with the almost complete root from 1045, so 1036 is a much younger animal at death.

The timing of the overlap for the 2 teeth from pig 1023 is unreliable, but there was certainly at least 1 sudden increase in the $\delta^{15}N$ values by 0.8‰ near the beginning of the M2 sequence and this coincides with a drop in $\delta^{13}C$ values by 0.7‰. Increasing $\delta^{15}N$ values alongside decreasing $\delta^{13}C$ values may indicate nutritional or other stress factors (e.g. Beaumont and Montgomery 2016).

The data from 1021 and 1045 represent fifteen dentine increments which probably reflect a period approaching 2 years for each pig, although it is likely to be less for 1021 (M2 root completion around 3/4) than 1045 (M3 apex almost closed). The $\delta^{13}C$ values for both increase gradually over most of this period, which suggests that the variation is not seasonal. It would appear that changes in animal management, subsistence strategy or environment were, therefore, gradually implemented over a prolonged period for at least these 2 animals, rather than that sudden or seasonal changes were involved. For 1021, this may be difficult to understand since this animal had a strontium isotope ratio which suggests that it did not originate at the site, alongside bulk $\delta^{13}C$ values suggesting a subsistence strategy which was perhaps different to the other animals analysed (both cattle and pigs). If this animal had been brought into the site during its lifetime, the gradual changes might have been interrupted and the absolute level of the increasing $\delta^{13}C$ values might be expected to be higher. It is possible that it was brought into the site at the end of its life, or after death.

If the low $\delta^{13}C$ values for pigs 1036 and 1045 are indicative of the consumption of resources from beneath woodland canopy, then the gradual increase in the values for 1045 might mean a gradually reducing access to these resources, rather than any sudden changes in the use of woodland. Other gradual environmental changes might also be indicated, such as a period where conditions became gradually drier over time.

Conclusions

The woman from Bagendon originated from outside of the area, although it is likely that she was British. The 2 teeth analysed, with different formation periods, reflect different strontium isotope ratios, which suggests that she may have moved more than once, or been travelling regularly during childhood. Regions to the west, particularly central Wales, would support the values from both teeth, as would some areas of Scotland. The later forming molar values would support some of central northern England, in the region of the Pennines, but given the site location and the oxygen values, central Wales might be considered the most likely origin.

Her childhood and young adult diet, based on her dentine collagen data, is similar to Iron Age humans generally, in that there is no indication of significant levels of aquatic resource consumption and animal protein levels were probably high. Her incremental dentine profiles show variability over the first twenty-four years of her life which is likely to reflect her mobility. Before the age of 4 years, breastfeeding and weaning may contribute to this, but peaks and troughs in both nitrogen and carbon data at a number of ages after this, particularly around twelve, fourteen, eighteen and twenty one years might suggest regular travelling during life, resulting in changes in available dietary resources and environments. Her later life rib data suggest the possibility that she had lived in the Bagendon region for some years before her death, which occurred as an older woman of over forty five years, although if she had been living at the site, she was not consuming significant levels of protein from animals similar to those analysed in this report, since her $\delta^{13}C$ value is not consistent with the more negative values found in those animals. The difference in timing should, however, be noted; the animals are earlier in date than the woman.

Of the horses, 2 originated away from Bagendon, as did 1 of the pigs, based on the strontium isotope ratios, while the data for the third horse are not definitive. One of the horses has a value which is similar to the woman's early forming canine and this might suggest that central Wales is again a likely origin, although no other data are available from the horses to contribute to the interpretation. For the others, the values could have been obtained from a wide range of British environments. It may be important that the highest horse value is similar to the Hampshire horse from Rooksdown analysed by Bendrey *et al.* (2009) if an argument is to be made for Iron Age horses being obtained from centralised locations rather than bred locally.

The majority of the $\delta^{13}C$ values for the pigs and cattle are lower than is usually seen in British Iron Age animals although the cattle in particular are similar to Early Iron Age animals from Llanmaes in south Wales and the pigs are similar to Medieval samples from Dryslwyn Castle, again in south Wales. This may indicate that the Bagendon animals were affected by animal management practices which involved woodland cover, particularly for the pigs, while the cattle may well have grazed water meadows. It might also suggest that sites in the south west of England and in Wales produce 'baseline' $\delta^{13}C$ values which are lower than seen elsewhere in Britain as a result of climate factors such as higher rainfall.

Pig 1021, which was the one which did not originate from Bagendon based on the strontium isotope ratio, has bone and averaged dentine $\delta^{13}C$ values which are more similar to other British Iron Age pigs. For the 2 animals for which the incremental dentine sequences were longest (1021 and 1045), changes in values were gradual and this included increasing $\delta^{13}C$ values which exceeded 1‰, so that the early life values were actually significantly lower for both of them than the averaged values. This suggests that changes in animal subsistence, management or environment were not sudden or seasonal, but a gradual alteration over the pigs' lives and that this was true both for both a local and a non-local animal.

Chapter 18

The plant and invertebrate remains

Charlotte E. O'Brien and Lorne Elliott

Introduction

Excavations at Bagendon have produced a considerable number of bulk samples representing the site as a whole. This body of evidence includes material from the Middle-Late Iron Age banjo enclosures at Scrubditch and Cutham, and deposits from the Roman occupation at Black Grove. Additional material comprises samples from the Late Iron Age activity within the Bagendon valley, taken during excavations in 1979-1981 and more recently in 2017. Analysis of the plant macrofossil, charcoal and snail assemblages recovered from the samples offers a significant opportunity to discuss the economic and environmental aspects of the oppidum.

Plant macrofossils

Methods

All contexts excavated between 2012-2017 were sampled, apart from upper contexts likely to have been highly disturbed, usually representing about 10% of the context excavated. The resulting 128 bulk samples were manually floated at the Palaeoenvironmental Laboratory at Archaeological Services Durham University, with both flot and residue sieved over a 500µm mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope. Identification of these was undertaken by comparison with modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (2010). Habitat classification follows Preston *et al.* (2002).

Preservation of the plant remains was predominantly through charring, with no evidence for waterlogging. Total counts of charred remains and results standardised to per litre of sediment are presented in Tables 18.1 to 18.6. A few uncharred elderberry fruitstones were noted at Scrubditch, in (1026) and (1089); Cutham, in (3148) and (4009); and Black Grove, in (5027), (6011) and (6015). It is possible that these woody, more decay-resistant remains were preserved despite the absence of permanent waterlogging, although they may be modern contaminants, which is considered to be the case for the few other uncharred remains recorded.

Proportions of cereal grain and chaff are presented in Table 18.7-18.12. For examination of the ratios of grain to chaff in selected macrofossil-rich samples, spikelet forks were taken to represent two glume bases, and the glume bases are assumed to predominantly derive from spelt wheat given the extremely limited evidence for emmer wheat at any of the sites (Table 18.13-18.14).

Results and interpretation

Scrubditch Enclosure (2012-2013)

Seventy eight samples were analysed from Scrubditch. In general, the numbers of charred plant remains are low, with 88% of the samples containing <2 items per litre of soil. Remains are predominantly from the fills of the main enclosure ditches F1, F2 and F4, with those ascribed to Phase 3 containing the highest concentrations of remains (up to 34.2 items/litre in the case of context 1042). The upper fill (context 1026 – Phase 3) of pit F10 contains a concentration of charred macrofossils, probably representing a dump of domestic waste, although other pits on the site produced only low numbers. Macrofossils are largely absent from antenna ditches F8 and F9, and other features generally comprise few charred remains.

As is typical for charred archaeobotanical assemblages, cereals form a large proportion of the macrofossil remains. The grains are in a poor condition with pitting and damage preventing identification in many cases. Such damage has been attributed to intense heat, rapid combustion or exposure to repeated burning (Boardman and Jones 1990) and is often characteristic of domestic hearth waste. The identifiable remains indicate that spelt wheat and hulled 6-row barley were the crops in use, which is consistent with other Mid-Late Iron Age sites in much of southern Britain. Although a single glume base (ditch fill 1055) and two grains (ditch fills 1042 and 1045) had morphological characteristics of emmer wheat, the identifications are uncertain due to the variability of wheat remains. Such low occurrences suggest that, if present, emmer was a minor component of the wheat crop. A single broken fragment of rachis in upper pit fill (1083) may be from bread wheat (*Triticum aestivum*), however its damaged condition prevents a firm identification. No other bread wheat remains were identified at Scrubditch or Cutham. A few large grass caryopses were identified as the oat genus (*Avena*). These are of a slender form, and are almost certainly from wild oats (*Avena fatua*), although diagnostic chaff is absent.

The cereal chaff assemblage is almost entirely made up of wheat remains (glume bases and spikelet forks), with barley rachis fragments comprising only 0.5% (Table 18.8). As the chaff of free-threshing cereals like barley is removed at an early stage of the processing sequence, and often off-site (van der Veen and Jones 2006), the low frequency of barley chaff is not an accurate reflection of the relative importance of the crop. The proportions of identified grains suggest that wheat (predominantly, if not entirely, spelt wheat) was only slightly more well represented than barley on the site (Table 18.7), although the large quantity of indeterminate grains (approximately 50%) prevents a precise determination of the relative proportions.

Chaff and weed seeds are a common feature throughout the plant macrofossil assemblages, reflecting the burning of crop processing waste as fuel, or representing fodder subsequently burnt as dung or stable manure via a regime of maintenance. The characteristic by-products of threshing, winnowing and sieving also have the potential to provide valuable information about crop processing activities (Hillman 1981; Jones 1984). The relative proportions of chaff/weeds to grain were examined for samples containing in total more than 100 wheat or barley grains and chaff (ditch fill 1042 and pit fill 1026) (Table 18.13). The results suggest there is little evidence for the early stages of processing (signified by barley rachises and culm nodes), a pattern which is reflected throughout the samples on the site. There is a high proportion of wheat glume bases relative to wheat grains, despite the fact that chaff is disproportionately lost during charring compared to grain (Boardman and Jones 1990). As hulled wheats (spelt and emmer) are typically stored in spikelet form, the remains probably represent waste from the routine processing of crops, taken from storage on a day-to-day basis as required (Hillman 1981; Stevens 2003).

The arable weeds from Scrubditch are dominated by large-seeded species, with caryopses of bromes (*Bromus*) being the most numerous. Large weed seeds would be difficult to separate from the grains by sieving, but may be picked out later by hand before use of the clean grain. Brome grass is frequently associated with spelt wheat, and was probably brought to Britain with imported spelt (Godwin 1975). Other large seeded arable weeds occasionally recorded are oats and black-bindweed (*Fallopia convolvulus*). Cleavers (*Galium aparine*), common/bifid hemp-nettles (*Galeopsis tetrahit/bifida*) and vetches (*Vicia* sp), although not categorised here as arable weeds, can be found on cultivated ground amongst other habitats (Preston *et al.* 2002). Cleavers, in particular, has been associated with autumn-sown crops (Robinson 2007: 358).

The only small-seeded arable weeds are a single occurrence of black nightshade (*Solanum nigrum*) in ditch fill (1036) and narrow-fruited cornsalad (*Valerianella dentata*) in ditch fill (1025). Black nightshade, like cleavers, favours nutrient-rich soils, possibly reflecting manured fields. Narrow-fruited cornsalad is most frequently found in spring-sown crops (Preston *et al.* 2002) and is therefore more likely to have been growing with barley rather than spelt, which is best suited to an autumn sowing regime (Jones 1981). This arable weed especially occurs on chalky soils or calcareous clay, usually along field edges away from intensive management (Preston *et al.* 2002).

Several models have been proposed to interpret patterns of macrofossil assemblages from Iron Age sites in Britain, with some purporting to distinguish between arable producer and consumer sites based on whether sites were grain-rich or weed-/chaff-rich (Hillman 1981; 1984; Jones 1985). The absence or low frequency of culm nodes, small seeds and rachis fragments suggest that early stages of crop processing are not represented at Scrubditch, which may be expected if crops were brought to the site for storage as hulled grain (barley) or spikelets (spelt wheat). However, problems have been identified with these models (Stevens 2003; Van der Veen 1991; 1992) and it has been argued that these categories are more likely to represent the scale of production and consumption. Sites with a lack of grain-rich samples, have been interpreted as having little emphasis on arable production, or were occupied for a short period of time only (van der Veen and Jones 2006), which may be the case for Scrubditch. Campbell (2000) has argued that a high proportion of charred chaff/weeds relative to grain indicates plentiful fodder, with the chaff being burnt as fuel rather than used as animal feed. However, the overall low concentration of charred plant macrofossils at Scrubditch may reflect the use of cereals and/or crop processing waste as fodder, with only a small proportion of the plant material ending up in the charred assemblages.

Charred hazel nutshells and fruitstones of hawthorns, sloes and elderberries reflect the availability of wild food resources. These small trees and thorny shrubs typically occur as an understorey in open woodlands, in scrub and woodland borders, or growing in hedgerows used to either contain or exclude livestock or provide a source of fuel and fodder. Cleavers, common/bifid

Table 18.1. Scrubditch (BAG12)

							Phase 2						
Trench		1	1	1	1	1	1	1	1	1	2	2	1
Phase		2	2	2	2	2	2	2	2	2	2	2	3
Sample		2	20	23	26	27	28	15	19	25	18	21	1
Context		1006	1055	1061	1062	1060	1061	1048	1053	1063	2014	2015	1004
Feature number		1	4	4	4	4	4	2	2	2	8	8	1
Feature		D	D	D	D	D	D	D	D	D	AD	AD	D
Feature number		1011	1031	1032	1032	1031	1032	1007	1007	1007			1011
Material available for radiocarbon dating		y	y	(y)	y	y	n	(y)	y	y	n	n	Y
Volume processed (l)		18	18	13	8	4	5	8	15	14	9	14	28
Volume of flot (ml)		60	200	50	90	20	10	30	180	150	10	80	170
Flot matrix													
Beetle		-	-	-	-	-	-	(+)	-	-	-	-	-
Bone (burnt / calcined)		-	-	-	-	-	-	-	-	+	-	-	-
Bone (unburnt)		(+)	+	-	-	-	-	-	+	+	-	-	+
Charcoal		++	+++	++	++	++	+	++	+++	+++	+	(+)	+++
Clinker / cinder		-	(+)	-	-	-	(+)	-	-	-	-	-	-
Coal		-	(+)	(+)	-	-	+	-	-	+	-	-	(+)
Earthworm egg case		-	-	-	-	-	-	-	-	-	-	-	-
Globular nodules		-	(+)	-	-	-	-	-	-	-	-	-	(+)
Monocot stems (charred)		-	(+)	-	-	-	-	-	-	-	-	-	-
Snails (terrestrial)		++	+++	+++	+++	++	++	+++	+++	++++	++	+++	+++
Tuber / rhizome (charred)		-	-	-	-	-	-	-	-	-	-	-	-
Uncharred seeds		(+)	(+)	(+)	-	-	-	-	-	-	-	(+)	-
Charred remains (total count)													
(a) *Avena* sp (Oat species)	caryopsis	-	-	-	-	-	-	-	1	-	-	-	-
(a) *Avena / Bromus* type (Oat / Bromes)	4-5mm caryopsis	3	-	-	-	-	-	-	-	-	-	-	-
(a) *Bromus* sp (Bromes)	caryopsis	-	-	-	-	-	-	-	-	-	-	-	7
(a) *Fallopia convolvulus* (Black bindweed)	nutlet	-	-	-	-	-	-	-	-	-	-	-	-
(a) *Solanum nigrum* (Black Nightshade)	seed	-	-	-	-	-	-	-	-	-	-	-	-
(a) *Valerianella dentata* (Narrow-fruited Cornsalad)	fruit	-	-	-	-	-	-	-	-	-	-	-	-
(c) Cerealia indeterminate	grain	7	6	-	-	-	-	1	-	-	-	-	17
(c) *Hordeum* sp (Barley species)	grain	-	3	-	-	-	-	-	-	-	-	-	7
(c) *Hordeum* sp (Barley species)	straight grain	-	-	-	-	-	-	-	-	-	-	-	-
(c) *Hordeum* sp (Barley species)	straight hulled grain	-	-	-	-	-	-	-	-	-	-	-	-
(c) *Hordeum* sp (Barley species)	rachis frag.	-	-	-	-	-	-	-	-	-	-	-	1
(c) *Hordeum vulgare* (6-row Barley)	twisted grain	-	-	-	-	-	-	-	-	-	-	-	3
(c) *Hordeum vulgare* (6-row Barley)	twisted hulled grain	-	-	-	-	-	-	-	-	-	-	-	2
(c) *Triticum cf. dicoccum* (cf. Emmer Wheat)	grain	-	-	-	-	-	-	-	-	-	-	-	-
(c) *Triticum cf. dicoccum* (cf. Emmer Wheat)	glume base	-	1	-	-	-	-	-	-	-	-	-	-
(c) *Triticum spelta* (Spelt Wheat)	glume base	3	1	1	-	1	-	-	-	-	-	1	6
(c) *Triticum spelta* (Spelt Wheat)	spikelet fork	-	-	-	-	-	-	-	-	-	-	-	-
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	-	1	-	-	-	-	-	2	1	-	-	6
(c) *Triticum* sp (Wheat species)	glume base	2	2	-	-	-	-	-	-	-	-	-	-
(c) *Triticum* sp (Wheat species)	spikelet fork	-	2	-	-	-	-	-	-	-	-	-	-
(c) *Triticum* sp (Wheat species)	grain	-	1	-	-	-	-	1	-	-	-	-	-
(g) *Arrhenatherum elatius* ssp. *bulbosum* (False Oat-grass)	tuber	-	-	-	-	-	-	-	-	-	-	-	-
(g) *Galium* cf. *mollugo* (cf. Hedge Bedstraw)	seed	-	-	-	-	-	-	-	-	-	-	-	-
(g) *Phleum / Poa* type (Cat's-tail / Meadow-grass)	1-1.5mm caryopsis	5	2	-	-	-	-	-	-	-	-	-	1
(g) *Lolium / Festuca* type (Rye-grass / Fescue)	2-3.5mm caryopsis	-	-	-	-	-	-	-	-	-	-	-	-
(r) *Galeopsis tetrahit / bifida* (Common / Bifid Hemp-nettle)	nutlet	-	-	-	-	-	-	-	1	-	-	-	-
(r) *Galium aparine* (Cleavers)	seed	-	-	-	-	-	-	-	-	-	-	-	1
(r) *Plantago lanceolata* (Ribwort Plantain)	seed	-	-	-	-	-	-	-	-	-	-	-	-
(t) *Corylus avellana* (Hazel)	nutshell frag.	3	3	-	-	-	-	-	12	1	-	-	2
(t) *Crataegus* sp (Hawthorns)	fruitstone	-	1	-	-	-	-	-	-	-	-	-	-
(t) *Crataegus* sp (Hawthorns)	fruitstone frag.	-	-	-	-	-	-	1	5	-	-	-	2
(t) *Prunus spinosa* (Sloe)	fruitstone frag.	-	1	-	-	-	-	-	-	-	-	-	1
(t) *Prunus spinosa* (Sloe)	thorn	-	1	-	-	-	-	-	2	-	-	-	-
(t) *Prunus spinosa / Crataegus* (Sloe / Hawthorn)	thorn	-	2	-	-	-	-	-	5	-	-	-	-
(t) *Rosa / Rubus* sp (Rose / Bramble)	prickle	-	-	-	-	-	-	-	-	-	-	-	-
(t) *Sambucus nigra* (Elder)	fruitstone	-	-	-	-	-	-	-	-	-	-	-	-
(x) Fabaceae undiff. (Pea family)	seed	-	-	-	-	-	-	-	-	-	-	-	-
(x) cf. *Potentilla* sp (cf. Cinquefoils)	achene	-	-	-	-	-	-	-	-	-	-	-	-
(x) *Vicia* sp (Vetches)	seed	-	-	-	-	-	-	-	-	-	-	-	-
y = material available for C14	D=Ditch												
(y) = material possibly available for C14	AD=Antenna ditch												
n = material not available for C14	PH=Posthole												
	P=Pit												
Total number of charred remains		23	27	1	0	1	0	3	20	2	0	1	56
Number of CPR per litre sediment		1.3	1.5	0.1	0.0	0.3	0.0	0.4	1.9	0.1	0.0	0.1	2.0

a: arable; c: cultivated; g: grassland; r: ruderal; t: tree/shrub; x: wide niche
(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant

Plant macrofossil data

Phase 3															Phase 4					U	
1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	1	
3	3	3	3	3	3?	3	3	3?	3?	3?	3?	3	3	3	4	4	4	4	4	U	
5	12	16	9	10	14	17	24	3	8	22	4	30	31	13	6	11	29	32	33	7	
1021	1042	1049	1035	1030	1045	1036	1036	1023	1026	1026	2002	2011	2012	2013	1025	1039	2007	2009	2004	1015	
2	2	2	4	4	4	4	4	7	10	10	6	9	9	8	2	2	9	8	8	3 or 5	
D	D	D	D	D	D	D	D	P	P	P	D	AD	AD	AD	D	D	D	AD	AD	PH	
1007	1007	1009	1032	1031	1031	1032	1032	1027	1043	1043	2001				1009	1007	2006			1012	
y	y	y	y	y	y	y	y	y	y	y	n	(y)	n	n	(y)	y	(y)	n	n	n	
28	13	10	9	15	17	15	5	9	16	18	9	8	7	15	16	3	7	7	7	6	
30	120	150	10	100	120	120	50	25	40	100	20	20	15	300	30	25	25	100	50	2	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	(+)	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	(+)	-	-	+	+	-	-	-	-	-	+	-	-	-	-	
++	+++	+++	+	++	+++	+++	++	++	++	++	++	(+)	+	-	(+)	+	+	+	(+)	(+)	
-	-	-	-	(+)	+	-	-	-	(+)	+	-	-	(+)	(+)	(+)	-	++	+	++	(+)	
(+)	-	-	-	-	(+)	-	(+)	(+)	(+)	+	(+)	-	-	-	-	+	++	+	++	(+)	
(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	(+)	++	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
-	(+)	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	
++	++	+++	++	++	+++	+++	++	+	++	++	(+)	+++	++	++++	+++	++	++	+++	+++	+	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	(+)	
(+)	-	-	-	(+)	-	-	-	(+)	(+)	(+)	(+)	-	-	-	(+)	-	(+)	-	-	+	
-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	
2	113	-	-	-	-	1	-	1	12	-	-	-	-	-	-	-	-	-	-	-	
22	63	16	2	15	8	-	-	1	3	6	-	-	-	-	-	-	-	-	-	-	
1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
8	19	10	-	11	15	5	-	3	24	24	-	-	-	-	-	-	-	-	-	-	
-	0	1	2	5	6	1	1	1	10	10	-	-	-	-	-	-	-	-	-	1	
-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	106	2	-	10	2	2	2	-	45	40	-	-	-	-	-	-	-	-	-	-	
-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	12	5	-	1	6	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	
1	78	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	
1	7	-	-	1	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	
4	15	-	1	3	3	-	-	1	3	8	-	-	-	-	-	-	1	-	-	-	
-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
-	1	-	-	7	-	-	-	-	3	5	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0	1	-	-	1	-	-	-	-	4	1	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40	19	0	-	0	2	5	-	-	2	0	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	
106	445	37	5	50	45	16	5	7	104	112	0	0	0	0	1	0	1	0	0	1	
3.8	34.2	3.7	0.6	3.9	2.6	1.1	1.0	0.8	8.4	6.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2	74.2

Table 18.2. Scrubditch (BAG13)

		Phase 2												Phase 3						
Trench		1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	2	2	2
Phase		2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Sample		21	35	26	30	34	36	37	42	17	27	38	41	7	8	10	14	24	39	40
Context		1146	1180	1151	1155	1177	1181	1182	1189	1138	2027	2030	2031	1083	1136	1104	1127	2025	2025	2028
Feature number		4:21	1	16	16	16	16	16	16	4:21	8	8	22	16	4:21	4:21	4:21	22	22	22
Feature		D	D	P	P	P	P	P	P	D	AD	D	D	P	D	D	D	D	D	D
Feature number		1109	1171	1002	1002	1002	1002	1002	1002	1109	2019	2019	2021		1097	1097	1109	2021	2021	2021
Material available for radiocarbon dating		y	y	y	n	(y)	n	n	n	y	(y)	(y)	n	y	y	y	y	y	y	y
Volume processed (l)		11	9	7	5	16	7	7	7	10	7	15	11	9	3	4	21	8	17	12
Volume of flot (ml)		60	70	15	20	30	20	15	10	120	30	50	40	40	40	40	160	40	200	50
Flot matrix																				
Beetle		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Bone (burnt / calcined)		-	-	-	-	-	-	-	-	-	-	-	-	+	-	(+)	-	-	-	-
Bone (unburnt)		-	-	-	(+)	-	-	-	+	-	-	-	(+)	(+)	-	-	-	-	-	-
Charcoal		++	++	+	(+)	++	+	+	(+)	+	+	+	+	++	++	++	+	+	+++	+++
Clinker / cinder		-	-	-	(+)	+	(+)	-	-	-	(+)	-	-	+	-	-	-	-	-	+
Coal		(+)	-	(+)	+	+	+	-	(+)	(+)	(+)	(+)	-	++	(+)	-	(+)	-	-	+
Globular nodules		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	++	-
Moss (uncharred)		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Puparia		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)
Roots (modern)		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Snails (terrestrial)		+++	+++	++	++	+++	++	++	++	++++	++	++	++++	-	++	+++	++++	-	++	++
Tuber / rhizome (charred)		-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	(+)	-
Uncharred seeds		-	-	-	-	-	-	-	-	(+)	-	-	-	(+)	-	-	(+)	(+)	-	-
Charred remains (total count)																				
(a) *Avena / Bromus* type (Oat / Bromes)	4-5mm caryopsis	2	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-
(a) *Bromus* sp (Bromes)	caryopsis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
(a) *Fallopia convolvulus* (Black-bindweed)	nutlet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(c) Cerealia indeterminate	grain	-	-	1	-	-	-	-	-	1	1	-	1	2	1	4	-	2	2	2
(c) *Hordeum* sp (Barley species)	grain	-	-	-	-	-	-	-	-	3	-	-	-	1	-	2	-	-	1	-
(c) *Hordeum* sp (Barley species)	rachis frag.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(c) cf. *Triticum aestivum* (cf. Bread Wheat)	rachis frag.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
(c) *Triticum spelta* (Spelt Wheat)	glume base	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	2	4
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	5	2
(c) *Triticum* sp (Wheat species)	glume base	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
(c) *Triticum* sp (Wheat species)	spikelet fork	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
(c) *Triticum* sp (Wheat species)	grain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	2
(g) *Phleum / Poa* type (Cat's-tail / Meadow-g	1-1.5mm caryopsis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
(g) *Lolium / Festuca* type (Rye-grass / Fesc	2-3.5mm caryopsis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
(r) *Galium aparine* (Cleavers)	seed	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(t) *Corylus avellana* (Hazel)	nutshell frag.	1	-	-	-	2	-	-	-	1	-	2	-	4	-	1	2	3	4	3
(t) *Crataegus* sp (Hawthorns)	fruitstone frag.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
(t) cf. *Crataegus* sp (cf. Hawthorns)	fruitstone frag.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
(t) cf. *Prunus spinosa* (cf. Sloe)	fruitstone frag.	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
y = material available for C14	D=Ditch																			
(y) = material possibly available for C14	AD=Antenna ditch																			
n = material not available for C14	PH=Posthole																			
	P=Pit																			
Total number of charred remains		6	0	4	0	6	0	0	0	9	1	2	2	8	1	7	3	10	22	17
Number of CPR per litre sediment		0.5	0.0	0.6	0.0	0.4	0.0	0.0	0.0	0.9	0.1	0.1	0.2	0.9	0.3	1.8	0.1	1.3	1.3	1.4

a: arable; c: cultivated; g: grassland; r: ruderal; t: tree/shrub
(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant

Plant macrofossil data

Phase 4					Unphased																					
1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4	4	4	4	4a	U	U	U	U	U	U	U	U	U	U	U	?	U	U	U	U	U	U	U	U	U	
16	33	22	23	45	2	4	5	12	13	15	18	19	28	31	3	20	9	43	1	6	11	25	29	32	44	
1098	1173	2020	2022	2029	1077	1075	1091	1119	1112	1103	1137	1124	1153	1156	1087	1101	1094	1188	1069	1089	1089	1142	1168	1133	1161	
4:21	1	8	22	22	12	12	12	12	12	12	12	12	12	12	19	?	?	11:15	15:18	15:18	15:18	NA	NA	NA	NA	
D	D	AD	D	D	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	D	P	PH	PH	PH	
1097	1171	2019	2021	2021				1090		1102	1123	1123	1152	1152		1100		1107			1080	1141	1167	1132	1160	
(y)	y	n	y	(y)	y	n	y	y	y	y	y	y	y	n	(y)	n	n	n	(y)	n	n	n	n	y	n	
6	20	9	7	12	11	2	8	5	10	8	2	5	4	4	10	10	9	6	6	4	5	7	7	8	3	
40	225	20	60	70	40	3	30	45	50	30	20	15	30	30	30	10	30	20	10	5	10	2	50	30	20	
-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	(+)	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	
-	+	-	+	-	+	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
+	+++	-	+	++	+	(+)	+	+	++	+	+	+	++	+	-	(+)	(+)	+	(+)	-	-	(+)	(+)	+	+	
-	(+)	(+)	-	-	(+)	(+)	(+)	-	-	-	-	(+)	+	+	(+)	(+)	(+)	+	(+)	(+)	(+)	-	(+)	++	(+)	
(+)	-	(+)	-	(+)	(+)	(+)	(+)	(+)	(+)	-	-	(+)	+	+	(+)	(+)	(+)	+	(+)	-	(+)	(+)	+	+	(+)	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	(+)	-	-	-	
++	+++	++	++	+++	++	(+)	-	+	++	++	+	+	++	++	+	-	+	++	+	+	(+)	+	++	++	+	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	
-	-	(+)	-	-	+	(+)	(+)	(+)	+	(+)	-	(+)	-	-	+	(+)	+	-	(+)	(+)	(+)	(+)	-	-	-	
-	2	-	1	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	1	-	
-	6	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	1	-	1	-	-	-	-	-	1	1	2	2	-	-	-	1	-	-	-	-	-	-	-	3	-	
-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	2	-	-	-	-	-	-	-	1	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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-	-	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	2	-	3	-	-	-	-	-	1	1	-	19	-	-	-	-	-	-	1	-	-	-	-	-	-	
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1	13	0	7	0	2	0	0	0	4	6	3	30	0	0	0	1	0	0	1	0	0	0	0	6	0	
0.2	0.7	0.0	1.0	0.0	0.2	0.0	0.0	0.0	0.4	0.8	1.5	6.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.8	0.0	21.6

Table 18.3. Cutham (BAG14)

		Phase 1			Phase 2							
Trench		3	3	4	3	3	3	3	3	3	3	3
Phase		1?	1?	1	2	2	2	2	2	2	2	3
Sample		9	19	20	23	29	30	21	17	27	33	22
Context		3044	3072	4019	3081	3152	3153	3059	3060	3102	3135	3083
Feature number		32	32	24	23	23	23	24	24	27	29	27
Feature		P	PH	D	D	P	D	D	D	P	P	P
Feature number		3036	3073	4004	3019	3138	3070	3003	3003	3061	3084	3061
Material available for radiocarbon dating		y	y	y	(y)	(y)	y	(y)	y	n	y	y
Volume processed (l)		6	9	7	21	8	13	6	5	9	12	18
Volume of flot (ml)		30	30	5	40	30	40	20	40	20	15	120
Flot matrix												
Beetle		-	-	-	-	-	-	-	-	-	-	-
Bone (burnt / calcined)		-	-	-	-	-	-	-	-	-	-	+
Bone (unburnt)		-	-	(+)	-	-	+	-	-	-	(+)	++
Charcoal		++	++	+	+	++	+	+	+	(+)	(+)	+++
Clinker / cinder		-	-	-	-	-	-	-	(+)	-	-	-
Coal		-	-	-	-	-	-	-	-	-	-	+
Fuel waste (semi-vitrified)		-	-	-	-	-	-	-	-	-	-	-
Globular nodules		-	-	-	-	-	-	-	-	-	-	-
Monocot stems (charred)		-	-	-	-	-	-	-	-	-	-	-
Puparia		-	-	-	-	-	-	-	-	-	-	-
Roots (modern)		+	++	(+)	-	-	(+)	-	+	+	(+)	+
Snails (terrestrial)		++	+	++	++	++	+++	++	+++	(+)	++	+++
Tuber / rhizome (charred)		(+)	-	-	-	-	-	-	-	-	-	-
Uncharred seeds		(+)	(+)	-	-	-	(+)	-	-	-	-	(+)
Charred remains (total count)												
(a) *Avena / Bromus* type (Oat / Bromes)	4-5mm caryopsis	-	-	-	-	4	-	-	-	-	-	4
(a) *Bromus* sp (Bromes)	caryopsis	1	-	-	-	2	-	-	-	-	-	-
(a) *Fallopia convolvulus* (Black bindweed)	nutlet	-	-	-	-	-	-	-	-	-	-	-
(c) Cerealia indeterminate	grain	-	1	-	-	-	-	-	-	1	-	1
(c) *Hordeum* sp (Barley species)	grain	5	1	-	-	-	1	-	1	-	1	2
(c) *Hordeum* sp (Barley species)	rachis frag.	-	-	-	-	1	-	-	-	-	-	1
(c) Hordeum vulgare (6-row Barley)	twisted hulled grain	-	-	-	-	-	-	-	-	-	-	-
(c) *Triticum spelta* (Spelt Wheat)	glume base	1	-	-	-	5	1	4	1	-	-	7
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	1	-	-	-	1	-	-	2	-	-	1
(c) *Triticum* sp (Wheat species)	grain	-	-	-	-	-	-	-	-	1	1	-
(g) *Asperula cynanchica* (Squinancywort)	seed	-	-	-	-	-	-	-	-	-	-	-
(g) *Lolium perenne* (Perennial Rye-grass)	2-3.5mm caryopsis	-	-	-	-	-	-	-	-	-	-	-
(g) *Lolium / Festuca* type (Rye-grass / Fescue)	2-3.5mm caryopsis	-	-	-	-	-	-	-	-	-	-	-
(g) *Pimpinella* cf. *saxifraga* (cf. Burnet saxifrage)	seed	-	-	-	-	-	-	-	-	-	-	-
(g) *Phleum / Poa* type (Cat's-tail / Meadow-grass)	1-1.5mm caryopsis	-	-	-	-	-	-	1	-	-	-	-
(r) *Galium aparine* (Cleavers)	seed	-	-	-	-	-	-	-	-	-	-	1
(r) *Plantago lanceolata* (Ribwort Plantain)	seed	-	-	-	-	-	-	1	-	-	-	-
(r) Polygonaceae undiff. (Knotgrass family)	nutlet	-	-	-	-	-	-	-	-	-	-	-
(t) *Corylus avellana* (Hazel)	nutshell frag.	2	3	-	-	2	-	-	-	-	1	-
(t) *Crataegus* sp (Hawthorns)	fruitstone frag.	1	-	-	-	-	-	-	-	-	-	-
(t) *Malus sylvestris* (Crab Apple)	pip	-	-	-	-	-	-	-	-	-	-	-
(t) cf. *Sorbus aucuparia* (cf. Rowan)	fruitstone frag.	-	-	-	-	-	-	-	-	-	-	-
(w) *Carex* sp (Sedges)	biconvex nutlet	-	-	-	-	-	-	-	-	-	-	-
(w) *Eleocharis palustris* (Common Spike-rush)	nutlet	-	-	-	-	-	-	-	-	-	-	-
(x) *Chenopodium* sp (Goosefoots)	seed	-	-	-	-	-	-	-	-	-	-	3
(x) Fabaceae undiff. (Pea family)	seed	-	-	-	-	-	-	-	-	-	-	-
(x) *Rumex* sp (Docks)	nutlet	-	-	-	-	-	-	-	-	-	-	-
(x) Indeterminate	small seed	-	-	-	-	-	-	-	-	-	-	-
Total number of charred remains		11	5	0	0	11	2	6	4	2	3	16
Number of CPR per litre sediment		1.8	0.6	0.0	0.0	1.4	0.2	1.0	0.8	0.2	0.3	0.9

y = material available for C14 — PH=Posthole
(y) = material possibly available for C14 — D=Ditch
n = material not available for C14 — P=Pit

a: arable; c:cultivated; g: grassland; r: ruderal; t: tree/shrub; w: wet/damp ground; x: wide niche
(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant

Plant macrofossil data

Phase 3					Phase 4						Phase 5		Unphased								
3	3	4	4	4	3	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3	
3	3	3	3	3	4	4	4	4	4	4?	5	5	U	U	U	U	U	U	U	U	
34	11	2	10	18	4	15	31	5	12	28	3	13	1	6	7	8	14	24	25	26	
3092	3004	4007	4009	4016	3029	3057	3148	4008	4010	3094	3024	3024	3010	3031	3033	3035	3056	3080	3089	3054	
27	24	24	24	23	23	23	23	23	23	31	26	26	NA	32	NA	32	32	32	NA	32	
P	D	D	D	D	D	lens	D	D	D	P	D	D	PH	PH	P	P	P?	PH	PH	PH	
3061	3003	4004	4004	4002	3019	3019	3070	4002	4002	3093	3023	3023	3010	3030	3032	3034	3055	3079	3088	3053	
y	y	y	y	y	y	y	y	(y)	y	y	(y)	y	y	y	n	y	(y)	y	(y)	y	
6	26	18	9	10	21	20	12	16	10	16	15	7	10	9	9	8	10	7	8	7	
60	250	40	200	50	90	50	130	80	40	120	40	80	40	60	20	50	40	40	40	40	
-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	+	(+)	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	
++	+++	++	+++	++	+	++	+	(+)	+	+++	+	(+)	++	+++	(+)	++	++	++	++	++	
-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	+	-	
(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	++	-	
-	++	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	
+	+++	++	-	+	++	+	(+)	-	-	+	++	-	+	++	++	++	++	++	++	++	
+	+++	++	++	+	++++	++	++++	+++	+++	+	++	++++	-	-	(+)	++	++	+	+	++	
-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	(+)	-	
(+)	(+)	(+)	(+)	-	(+)	-	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	(+)	(+)	-	(+)	+	(+)	
17	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	-	-	-	4	-	-	1	-	-	10	-	-	-	-	-	-	-	-	-	-	
1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	
14	13	-	-	3	-	4	-	-	-	4	-	-	-	1	-	-	-	2	-	-	
2	3	4	-	-	-	2	-	1	1	10	-	-	1	-	-	-	-	2	-	-	
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	-	1	-	30	-	1	1	-	3	5	-	1	-	1	-	-	-	7	4	-	
-	2	-	1	4	-	1	-	-	-	3	-	-	-	2	-	-	-	-	1	-	
2	3	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	-	-	
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
2	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	2	-	
-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	1	-	-	-	-	1	-	1	-	-	-	-	-	-	-	3	-	
1	-	-	1	-	-	1	-	-	2	1	-	-	-	-	-	-	-	1	23	-	
-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
2	8	-	-	6	1	2	-	-	2	5	-	-	-	-	-	-	-	2	1	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
51	31	6	3	51	2	12	3	1	13	42	1	1	1	6	0	0	0	16	43	0	
8.5	1.2	0.3	0.3	5.1	0.1	0.6	0.3	0.1	1.3	2.6	0.1	0.1	0.1	0.7	0.0	0.0	0.0	2.3	5.4	0.0	36.1

Table 18.4. Black Grove (BAG15) Plant macrofossil data

		Phase 2					Phase 3					Ph4	Ph5	
Trench		6	5	5	5	5	5	5	5	6	6	6	6	
Phase		2?	2	2	2	2	3a	3a	3a	3b	3b	4	5	
Sample		6	8	9	10	11	3	7	12	1	2	5	4	
Context		6017	5029	5035	5041	5040	5018	5027	5043	6011	6011	6019	6015	
Feature		P	L	L	L	L	O?	L	W	D	D	F	F	
Material available for radiocarbon dating		y	y	y	y	y	y	y	n	y	y	y	y	
Volume processed (l)		9	8	8	1	20	18	6	7	10	10	18	8	
Volume of flot (ml)		20	100	40	25	10	90	190	10	50	50	350	25	
Flot matrix														
Beetle		-	+	-	-	-	-	-	-	-	-	-	-	
Bone (burnt / calcined)		-	-	-	-	-	-	-	-	-	-	(+)	-	
Bone (unburnt)		+	+	-	-	(+)	+	-	-	+	++	+	+	
Bone (fish)		(+)	-	-	-	-	-	-	-	+	(+)	-	-	
Charcoal		+	++	+	+	(+)	++	++	-	(+)	+	-	(+)	
Clinker / cinder		-	-	-	-	-	+	-	-	-	-	-	-	
Coal		-	-	-	-	-	-	-	-	-	-	-	(+)	
Compacted ash?		-	-	-	-	-	-	-	-	-	-	++	-	
Earthworm egg case		(+)	-	-	-	-	-	-	-	-	-	-	-	
Fine plant debris (charred)		-	-	-	-	-	-	+++	-	-	-	-	-	
Monocot stems (charred)		-	+	-	-	-	-	-	-	-	-	-	-	
Roots (modern)		-	-	-	-	-	+	-	-	+	-	++	-	
Snails (terrestrial)		+	++	+	+	+	++	++	+	++++	+++	+	++	
Tuber / rhizome (charred)		-	(+)	-	-	-	-	(+)	-	-	-	-	-	
Uncharred seeds		-	(+)	-	-	-	(+)	-	-	-	(+)	-	(+)	
Charred remains (total count)														
(a) *Anthemis cotula* (Stinking Chamomile)	achene	-	-	-	-	-	-	-	-	-	-	1	-	
(a) *Avena* sp (Oat species)	caryopsis	-	16	1	-	-	1	8	-	-	1	8	-	
(a) *Avena fatua* (Wild-oat)	floret base	-	2	-	-	-	3	3	-	-	-	-	-	
(a) *Avena / Bromus* type (Oat / Bromes)	4-5mm caryopsis	-	2	-	-	-	5	4	-	-	-	6	-	
(a) *Bromus* sp (Bromes)	caryopsis	-	2	-	-	-	-	-	-	-	-	2	-	
(a) *Fallopia convolvulus* (Black-bindweed)	nutlet	-	-	-	-	-	1	1	-	-	-	-	-	
(a) *Lithospermum arvense* (Field Gromwell)	seed	-	3	-	-	-	-	5	-	-	-	6	-	
(a) *Tripleurospermum inodorum* (Scentless Mayweed)	achene	-	3	-	-	-	-	1	-	-	-	-	-	
(a) *Valerianella dentata* (Narrow-fruited Cornsalad)	fruit	-	-	-	-	-	2	-	-	-	-	-	-	
(c) Cerealia indeterminate	culm node	-	3	1	-	-	2	4	-	-	-	4	-	
(c) Cerealia indeterminate	embryo	-	4	-	-	-	-	-	-	-	-	-	-	
(c) Cerealia indeterminate	grain	7	159	7	4	1	18	138	-	2	25	175	1	
(c) Cerealia indeterminate	partial rachis frag.	-	-	-	-	-	-	19	-	-	-	-	-	
(c) Cerealia indeterminate	straight awn frag.	-	-	-	-	-	-	-	-	-	-	>300	-	
(c) Cerealia indeterminate	twisted awn frag.	-	127	3	-	-	3	91	-	-	-	5	-	
(c) *Hordeum* sp (Barley species)	grain	8	17	7	7	1	12	22	-	3	-	34	-	
(c) *Hordeum* sp (Barley species)	straight hulled grain	-	-	1	-	-	3	2	-	-	-	4	-	
(c) *Hordeum* sp (Barley species)	rachis frag.	-	109	2	1	-	1	130	-	-	-	14	1	
(c) *Hordeum vulgare* (6-row Barley)	rachis frag.	-	15	-	-	-	-	12	-	-	-	10	-	
(c) *Hordeum vulgare* (6-row Barley)	twisted grain	-	36	-	-	-	-	-	-	-	-	-	-	
(c) *Hordeum vulgare* (6-row Barley)	twisted hulled grain	1	6	-	-	-	5	2	-	-	-	13	-	
(c) *Triticum aestivum* (Bread Wheat)	rachis frag.	-	142	-	-	-	-	66	-	-	-	-	-	
(c) *Triticum aestivum* (Bread Wheat)	basal rachis frag.	-	4	-	-	-	-	-	-	-	-	-	-	
(c) *Triticum cf. aestivum* (cf. Bread Wheat)	grain	2	128	2	-	-	1	50	-	-	-	5	1	
(c) *Triticum spelta* (Spelt Wheat)	glume base	12	451	72	8	2	35	637	1	4	4	1612	21	
(c) *Triticum spelta* (Spelt Wheat)	spikelet fork	-	21	3	-	-	4	78	-	-	-	68	-	
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	3	22	3	2	1	3	77	-	1	8	119	-	
(c) *Triticum* sp (Wheat species)	glume base	-	-	-	-	-	-	-	-	-	-	-	15	
(c) *Triticum* sp (Wheat species)	spikelet fork	-	-	-	-	-	-	-	-	-	-	43	-	
(c) *Triticum* sp (Wheat species)	grain	3	56	-	2	-	5	42	-	1	9	34	-	
(g) *Arrhenatherum elatius* ssp *bulbosum* (False Oat-grass)	tuber	-	-	-	-	-	-	1	-	-	-	-	-	
(g) *Centaurea nigra* (Common Knapweed)	achene	-	-	-	-	-	-	-	-	-	-	1	-	
(g) *Cynosurus cristatus* (Crested Dog's-tail)	caryopsis	-	2	-	-	-	-	4	-	-	-	-	-	
(g) *Galium* cf. *mollugo* (cf. Hedge Bedstraw)	seed	1	-	1	-	-	-	-	-	-	-	-	-	
(g) *Lolium perenne* (Perennial Rye-grass)	2-3.5mm caryopsis	-	-	1	-	-	5	17	-	-	1	3	-	
(g) *Lolium / Festuca* type (Rye-grass / Fescue)	2-3.5mm caryopsis	6	>350	13	-	1	9	452	-	-	-	3	-	
(g) *Phleum / Poa* type (Cat's-tail / Meadow-grass)	1-1.5mm caryopsis	3	>500	8	-	3	15	212	1	-	-	3	-	
(r) *Galium aparine* (Cleavers)	seed	1	3	1	1	1	7	4	-	-	-	3	-	
(r) *Lapsana communis* (Nipplewort)	achene	-	-	-	1	-	-	1	-	-	-	2	-	
(r) *Malva neglecta* (Dwarf Mallow)	seed	-	-	-	-	-	-	1	-	-	-	-	-	
(r) *Plantago lanceolata* (Ribwort Plantain)	seed	-	-	-	-	-	-	-	-	-	1	-	-	
(r) *Silene dioica* (Red Campion)	seed	-	1	-	-	1	-	-	-	-	-	1	-	
(r) *Stellaria media* (Common Chickweed)	seed	-	-	-	1	-	-	-	-	-	-	-	-	
(t) *Corylus avellana* (Hazel)	nutshell frag.	1	-	1	-	10	5	-	2	-	2	-	-	
(t) *Prunus spinosa* (Sloe)	fruitstone frag.	-	1	-	-	-	-	-	-	-	-	-	-	
(t) Indeterminate	thorn	-	1	-	-	-	-	-	-	-	-	-	-	
(w) *Carex* sp (Sedges)	biconvex nutlet	-	-	-	-	-	-	-	-	-	-	1	-	
(w) *Carex* sp (Sedges)	trigonous nutlet	-	-	-	1	-	-	-	-	-	-	-	-	
(w) *Eleocharis palustris* (Common Spike-rush)	nutlet	1	1	-	-	-	-	4	-	1	-	1	-	
(x) Asteraceae undiff. (Daisy family)	achene	-	-	-	-	-	-	-	-	-	-	1	-	
(x) *Chenopodium* sp (Goosefoots)	seed	-	-	3	2	-	7	-	-	-	-	-	-	
(x) Fabaceae undiff. (Pea family)	seed	-	-	-	-	-	-	-	-	-	-	4	-	
(x) *Potentilla* cf. *reptans* (Creeping Cinquefoil)	achene	-	1	-	-	-	-	-	-	-	-	-	-	
(x) *Ranunculus* subgenus *Ranunculus* (Buttercup)	achene	-	-	-	-	-	1	1	-	-	-	-	-	
(x) *Rumex* sp (Docks)	nutlet	3	33	3	3	-	7	26	-	1	-	7	-	
(x) *Vicia* sp (Vetches)	seed	-	-	-	-	-	1	-	-	-	-	5	-	
(x) Indeterminate	fragmented small chaff	-	-	-	-	-	-	35	-	-	-	-	-	
(x) Indeterminate	large tuber	-	-	-	-	-	-	1	-	-	-	-	-	
Total number of charred remains		52	1371	133	33	21	161	2151	4	13	51	2198	39	
Number of CPR per litre sediment		5.8	171.4	16.6	33.0	1.1	8.9	358.5	0.6	1.3	5.1	122.1	4.9	729.2

y = material available for C14
(y) = material possibly available for C14
n = material not available for C14

P=Pit
L=Layer
O?=Occupation layer?
W=Wall trench
D=Deposit
F=Hypocaust flue

a: arable; c: cultivated; g: grassland; r: ruderal; t: tree/shrub; w: wet/damp ground; x: wide niche
(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant

Table 18.5. Area A (BAG81) Plant macrofossil data

Sample		**B4**	**B5**	**B6**	**B3ab**	**B1abcf**	**B2a-e**	
Context		**1**	**2**	**20**	**21**	**38**	**55**	
Material available for radiocarbon dating		y	(y)	n	n	y	(y)	
Volume processed (l)		2	2	2	4	9	4	
Volume of flot (ml)		40	5	N/A	3	90	5	
Flot matrix								
Beetle		-	-	-	-	(+)	-	
Charcoal		++	+	-	-	++	(+)	
Globular nodules		+	-	-	-	-	-	
Monocot stems (charred)		(+)	-	-	-	-	-	
Roots (modern)		-	-	-	-	(+)	-	
Snails (terrestrial)		+	-	-	(+)	(+)	(+)	
Thorn (charred)		(+)	-	-	-	-	-	
Uncharred seeds		-	(+)	-	-	-	-	
Charred remains (total count)								
(a) *Avena / Bromus* type (Oat / Bromes)	4-5mm caryopsis	-	-	-	-	2	-	
(a) *Bromus* sp (Bromes)	caryopsis	1	1	1	-	-	-	
(a) *Valerianella dentata* (Narrow-fruited Cornsalad)	fruit	-	1	-	-	-	-	
(c) Cerealia indeterminate	grain	2	-	1	-	-	-	
(c) Cerealia indeterminate	twisted awn frag.	-	1	-	-	-	-	
(c) *Hordeum* sp (Barley species)	grain	2	-	-	-	-	-	
(c) *Triticum spelta* (Spelt Wheat)	glume base	-	1	-	-	-	-	
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	3	-	-	-	2	-	
(t) *Corylus avellana* (Hazel)	nutshell frag.	3	-	-	-	-	-	
(t) *Sambucus nigra* (Elder)	fruitstone	-	1	-	-	-	-	
(x) Fabaceae undiff. (Pea family)	seed	-	1	-	-	-	-	
y = material available for C14								
(y) = material possibly available for C14								
n = material not available for C14								
Total number of charred remains		11	6	2	0	4	0	
Number of CPR per litre sediment		5.5	3.0	1.0	0.0	0.4	0.0	9.9
a: arable; c:cultivated; t: tree/shrub; x: wide niche								
(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant								

hemp-nettles and hedge bedstraw (*Galium* cf. *mollugo*) noted in several samples, are common weeds of hedgerows and woodland clearing (Preston *et al.* 2002), further evidence for which is discussed in the charcoal section.

Plant remains indicative of grassland or rough pasture include cat's-tail/meadow-grass type (*Phleum*/*Poa*), ribwort plantain (*Plantago lanceolata*), rye-grass/fescue type (*Lolium*/*Festuca*), false oat-grass (*Arrhenatherum elatius* ssp *bulbosum*) and hedge bedstraw. While a portion of these remains possibly derives from hay brought to the site for fodder, the presence of a charred tuber of false oat-grass and sporadic remains of other indeterminate tuber/rhizomes may reflect the presence of burnt dung from pigs, which obtain much of their food from rooting and grazing (Jørgenson 2013). Turves, used for purposes including roofing or fuel (Hall 2003), may have been an additional source of these burnt underground plant parts.

Small amorphous calcareous nodules occur in many of the samples attributed to Phase 3. These globular nodules are frequently detected in mineralised contexts particularly relating to the disposal of cess, but have also been noted in midden deposits (Carruthers 1989). Their presence amongst material dumped in the enclosure ditches may be evidence of urine or faecal deposits, probably deriving from middens of accumulated stable manure. A similar practice was observed at the Late Iron Age oppidum at Silchester, where a dominance of dumped midden material (including stable manure) was noted in waterlogged well fills (Lodwick 2017).

Cutham Enclosure (2014)

Thirty two samples were analysed from Cutham. As at Scrubditch, the concentrations of charred plant remains are low, with 84% of the samples containing <2 items per litre. The only samples with >2 items per litre are pit fill (3092) and ditch fill (4016) from Phase 3, Phase 4 pit fill (3094) and unstratified posthole fills (3080) and (3089). The highest concentration of remains is in context (3092), upper fill of pit F27. At 8.5 items/litre this is still lower than the richest sample at Scrubditch (ditch fill (1042) with 34.2 items/litre). Charred remains are generally associated with enclosure ditches F23 and F24, pits F27 and F31, and postholes F3079 and F3088. Few remains occur in the fills of ditch F26 or pit F29.

The cereal remains at Cutham comprise barley and spelt wheat, with no evidence of using other wheat crops. There is an indication from the identifiable grains, that the proportions of barley (34%) and wheat (27%)

Table 18.6. Dyke 'e' (BAG17

Trench		7	7	7	7	7	7
Sample		1	2	3	4	5	6
Context		7008	7007	7011	7010	7014	7015
Material available for radiocarbon dating		n	n	y	n	n	n
Volume processed (l)		38	9	16	18	17	16
Volume of flot (ml)		150	20	100	20	50	30
Flot matrix							
Beetle		-	-	-	-	-	-
Cenococcum geophilum (Soil fungus)	charred sclerotia	+++	-	+++	-	-	++
Charcoal		(+)	(+)	-	-	-	-
Clinker / cinder		-	-	-	-	-	-
Coal		-	-	(+)	-	-	-
Earthworm egg cases		+	-	-	-	-	-
Monocot stems (charred)		(+)	-	(+)	-	-	-
Roots (modern)		+++	++	+++	++	+	++
Snails (terrestrial)		++	+	+	-	+++	++
Tuber / rhizome (charred)		-	-	+	-	-	-
Uncharred seeds		+	(+)	+	(+)	-	-
Charred remains (total count)							
(a) *Avena* type (Oat)	4-5mm caryopsis	-	-	-	-	-	-
(c) Cerealia indeterminate	grain	-	-	-	-	-	-
(c) *Hordeum* sp (Barley species)	grain	-	-	-	-	-	-
(c) *Hordeum* sp (Barley species)	straight hulled grain	-	-	1	-	-	-
(c) *Triticum spelta* (Spelt Wheat)	glume base	-	-	-	-	-	-
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	-	-	-	-	-	-
(c) *Triticum cf. aestivum* (cf. Bread Wheat)	grain	-	-	-	-	-	-
(c) *Triticum* sp (Wheat species)	grain	-	-	-	1	-	-
(g) *Linum catharticum* (Fairy Flax)	seed	1	-	-	-	-	-
(g) *Phleum / Poa* type (Cat's-tail / Meadow-gr	1-1.5mm caryopsis	-	-	1	-	-	-
(t) *Corylus avellana* (Hazel)	nutshell frag.	-	-	-	-	-	-
y = material available for C14							
(y) = material possibly available for C14							
n = material not available for C14							
Total number of charred remains		1	0	2	1	0	0
Number of CPR per litre sediment		0.03	0.00	0.13	0.06	0.00	0.00
a: arable; c:cultivated; g: grassland; t: tree/shrub							
(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant							

) Plant macrofossil data

7	7	7	9	9	9	9	10	10	10	10	
7	8	9	1	2	3	4	1	2	3	4	
7016	7017	7016	9002	9004	9005	9006	10002	10003	10004	10004	
n	n	n	y	y	n	(y)	y	y	y	(y)	
8	17	6	18	19	16	9	10	16	18	19	
10	15	20	200	50	5	3	100	100	20	30	
-	-	(+)	-	-	-	+	-	-	-	-	
+	+	+	-	-	-	-	-	-	-	-	
-	-	-	(+)	+	-	(+)	(+)	+	(+)	+	
-	-	-	-	+	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	+	+	-	-	+	-	+	+	
-	-	-	-	-	(+)	-	-	-	-	-	
+	+	-	+++	++	+	(+)	++	++	+	+	
+	+	++	(+)	+	-	-	(+)	+	+	+	
-	-	-	-	-	-	-	-	-	-	-	
(+)	-	-	+	+	(+)	(+)	(+)	(+)	(+)	+	
-	-	-	-	1	-	1	-	-	-	-	
-	-	-	-	3	-	-	-	3	2	1	
-	-	-	1	-	-	-	-	-	1	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	2	1	-	
-	-	-	-	-	-	-	-	1	-	-	
-	-	-	1	5	-	-	-	-	-	-	
-	-	-	-	2	-	-	-	-	-	1	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	1	-	
0	0	0	2	11	0	1	0	6	5	2	
0.00	0.00	0.00	0.11	0.58	0.00	0.11	0.00	0.38	0.28	0.11	1.77

Table 18.7 Proportions of cereal grain at Scrubditch (BAG12/13)

		% of total grain	No of occurrences
(c) Cerealia indeterminate	grain	50.0	31
(c) *Hordeum* sp (Barley species)	grain	17.9	20
(c) *Hordeum* sp (Barley species)	straight grain	1.1	1
(c) *Hordeum* sp (Barley species)	straight hulled grain	0.6	2
(c) *Hordeum vulgare* (6-row Barley)	twisted grain	1.7	2
(c) *Hordeum vulgare* (6-row Barley)	twisted hulled grain	0.8	2
(c) *Triticum cf. dicoccum* (cf. Emmer Wheat)	grain	0.6	2
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	12.8	12
(c) *Triticum* sp (Wheat species)	grain	14.5	17

Table 18.8 Proportions of cereal chaff at Scrubditch (BAG12/13)

		% of total chaff	No of occurrences
(c) *Hordeum* sp (Barley species)	rachis frag.	0.5	2
(c) *Triticum* sp (Wheat species)	glume base	26.0	8
(c) *Triticum* sp (Wheat species)	spikelet fork	4.2	6
(c) cf. *Triticum aestivum* (cf. Bread Wheat)	rachis frag.	0.3	1
(c) *Triticum cf. dicoccum* (cf. Emmer Wheat)	glume base	0.3	1
(c) *Triticum spelta* (Spelt Wheat)	glume base	67.9	23
(c) *Triticum spelta* (Spelt Wheat)	spikelet fork	0.8	1

Table 18.9 Proportions of cereal grain at Cutham (BAG14)

		% of total grain	No of occurrences
(c) Cerealia indeterminate	grain	39.3	10
(c) *Hordeum* sp (Barley species)	grain	33.0	15
(c) *Hordeum vulgare* (6-row Barley)	twisted hulled grain	0.9	1
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	17.0	11
(c) *Triticum* sp (Wheat species)	grain	9.8	7

Table 18.10 Proportions of cereal chaff at Cutham (BAG14)

		% of total chaff	No of occurrences
(c) *Hordeum* sp (Barley species)	rachis frag.	3.2	3
(c) *Triticum spelta* (Spelt Wheat)	glume base	96.8	17

Table 18.11 Proportions of cereal grain at Black Grove (BAG15)

		% of total grain	No of occurrences
(c) Cerealia indeterminate	grain	41.3	11
(c) *Hordeum* sp (Barley species)	grain	8.5	9
(c) *Hordeum* sp (Barley species)	straight hulled grain	0.8	4
(c) *Hordeum vulgare* (6-row Barley)	twisted grain	2.8	1
(c) *Hordeum vulgare* (6-row Barley)	twisted hulled grain	2.1	5
(c) *Triticum cf. aestivum* (cf. Bread Wheat)	grain	14.5	7
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	18.4	10
(c) *Triticum* sp (Wheat species)	grain	11.6	8

Table 18.12 Proportions of cereal chaff at Black Grove (BAG15)

		% of total chaff	No of occurrences
(c) Cerealia indeterminate	partial rachis frag.	0.5	1
(c) Cerealia indeterminate	twisted awn frag.	5.5	5
(c) Cerealia indeterminate	straight awn frag.	7.2	1
(c) *Hordeum* sp (Barley species)	rachis frag.	6.2	7
(c) *Hordeum vulgare* (6-row Barley)	rachis frag.	0.9	3
(c) *Triticum aestivum* (Bread Wheat)	rachis frag.	5	2
(c) *Triticum aestivum* (Bread Wheat)	basal rachis frag.	0.1	1
(c) *Triticum spelta* (Spelt Wheat)	glume base	58.1	11
(c) *Triticum spelta* (Spelt Wheat)	spikelet fork	3.7	4
(c) *Triticum* sp (Wheat species)	glume base	11.2	2
(c) *Triticum* sp (Wheat species)	spikelet fork	1.5	2

Table 18.13 Chaff, grain and weed seed counts for selected macrofossil-rich samples from Scrubditch (BAG12/13)

Context	Sample	Total wheat glume bases	Total wheat grains	Total barley rachis fragments	Total barley grains	Total arable weed seeds
1042	12	204	28	-	3	177
1026	8/22	105	14	-	31	24

Table 18.14 Chaff, grain and weed seed counts for selected macrofossil-rich samples from Black Grove (BAG15)

Context	Sample	Total wheat glume bases	Total spelt type grains	Total BW rachis fragments	Total BW type grains	Total undiff. wheat grains	Total barley rachis fragments	Total barley grains	Total arable weed seeds
5029	8	493	22	146	128	56	124	59	26
5035	9	78	3	-	2	-	2	8	1
5027	7	793	77	66	50	42	142	26	18
6019	5	1834	119	-	5	34	24	51	17

are not dissimilar, although as at Scrubditch, a large number of the grains are indeterminate due to their poor condition (Table 18.9). The cereal chaff remains are predominantly spelt wheat glume bases, whereas barley rachis fragments make up only 3%.

Charred plant macrofossil assemblages are small, with the absolute number of remains not exceeding 51 for any of the samples, making the ratios of grain to chaff/weeds less reliable for interpretation. However, wheat glume bases frequently outnumber wheat grains and arable weed remains are consistently present, suggesting that burnt crop processing waste formed a component of a number of the fills. As at Scrubditch, the waste is dominated by glume bases and large weed seeds of brome, oat/brome type and black-bindweed, suggesting the routine cleaning of crops taken from storage. Evidence for early stages of processing, such as culm nodes and rachis fragments, are absent or infrequent respectively, and small weed seeds are rare. The few occurrences of goosefoots (*Chenopodium* sp) and docks (*Rumex* sp) are the most likely small-seeded weeds to have grown amongst the cereal crops, although they occupy other disturbed ground habitats if nutrient-enriched, especially in the case of goosefoots. As at Scrubditch, the results can be interpreted as a site with little emphasis on arable production, or having been occupied for a short period only.

The wild plant food resource utilised at Cutham includes hazelnuts, hawthorns, crab apples and cf. rowan berries (*Sorbus aucuparia*), which may have grown on hedge banks, or in local woodland copses.

A range of weed seeds indicative of grassland and rough pasture are present at Cutham. These include squinancywort (*Asperula cynanchica*), perennial rye-grass (*Lolium perenne*), rye-grass/fescue type, cf. burnet-saxifrage (*Pimpinella saxifraga*), cat's-tail/meadow-grass type and ribwort plantain. Their combined presence is consistent with calcicolous grassland communities, such as National Vegetation Classification grassland types CG2 or CG3 (Rodwell 1992). These grassland communities are characteristic of the free-draining, lime-rich bedrocks of the Cotswolds (Rodwell 1992). Although it was not attempted to differentiate brome caryopses to species due to morphological variability, it is assumed that the majority of the widely-keeled caryopses relate to *Bromus secalinus* (rye brome) or *Bromus hordeaceus* (soft-brome) which are weeds of cultivation. However, some of the narrower caryopses may derive from upright brome (*Bromopsis erecta* – formerly *Bromus erectus*) which is common to these calcicolous grassland types (Rodwell 1992).

Elements of the charred weed flora in posthole fill (3089) differed from other contexts on the site in having a few remains of taxa associated with wetland habitats, namely a sedge (*Carex* sp) and common spike-rush (*Eleocharis palustris*). These wetland plants are more characteristic of the Black Grove assemblages, where the floodplain and wet meadow habitats along the valley floor are situated. While wetland plant remains may be brought to the site as hay or roofing materials collected from wet meadows, it is also plausible that the weed remains derive from the manure of animals moved to the site from lower in the valley. Studies have shown that nearly 25% of weed seeds fed to cattle or pigs are recovered in the manure, with a portion still remaining viable (Harmon and Keim 1934; Katovich *et al.* 2005). The spike in the number of cleavers seeds observed in this context, perhaps reflects the colonisation of a manure heap by this nutrient-loving scrambling annual. These charred remains may therefore represent the burning of an accumulation of midden material as a form of fuel or waste disposal.

Black Grove (2015)

Twelve samples analysed from Black Grove comprise occupation deposits/layers, a possible levelling deposit, and the fills of a wall trench and hypocaust flue. At >60 items/litre, the average concentration of charred plant remains is much higher than at Scrubditch and Cutham. Particularly large numbers of remains are present in Phase 2 burnt ashy layer (5029), Phase 3 silting layer (5027) and the Phase 4 fill (6019) of a hypocaust flue.

Cereal remains comprising barley and wheat crops form a significant proportion of the charred plant macrofossil record. Wheat remains outnumber those of barley in both the quantities of grain and chaff. Large concentrations of spelt wheat glume bases and spikelet forks are present and many of the wheat grains have the parallel sides and bluntly rounded form associated with spelt wheat (Jacomet 2006). Other wheat grains have a more compact form typical of naked wheats. Diagnostic rachis fragments of bread wheat make up 5% of total chaff remains, confirming the use of this crop, although spelt remained the dominant wheat crop at the site. Although not systematically measured, the spelt glume bases at Black Grove appear robust in comparison to the earlier sites, suggesting well-grown crops.

Cereal grains are frequently in a poor condition, with over 40% of the grains recorded as indeterminate. Despite this, some of the barley grains can be identified as being hulled. Diagnostic rachis fragments and the twisted morphology of a number of the grains indicate some, if not all, of the barley derives from 6-row barley (*Hordeum vulgare*). The records of wild-oat floret bases infer that the oat caryopses relate to this arable weed rather than a cultivated oat crop. Twisted awn fragments, a feature of this grass, occur in relatively high numbers in some contexts.

Evidence that spelt wheat and 6-row barley continued as the main field crops into the Roman period is consistent with results from other sites in southern Britain. Bread wheat is less usual, being abundant at very few sites (Greig 1991). Although the expansion of bread wheat was believed to have largely taken place towards the end of the Iron Age, debate about this timing continues due to the problematic nature of some of the evidence (Campbell and Straker 2003). At some sites, such as those in the South Cadbury Environs, bread wheat did not become a major crop until the late Romano-British period (de Carle 2014: 76). The quantities of remains in layers assigned to Phase 2 suggest it may have been in use by the early 2nd century at Black Grove.

Analysis of samples with >100 grain and chaff fragments (contexts 5029, 5035, 5027 and 6019) shows that spelt wheat chaff fragments significantly outnumber wheat grains (Table 18.14), indicating the deposits contain waste from the dehusking of spelt spikelets. In contrast to Scrubditch and Cutham, the samples contain large numbers of barley and bread wheat rachis fragments, and culm nodes are present in low numbers. These waste products represent the initial stages of crop processing suggesting the entire ears of these crops were brought to the site and/or were stored in a pre-processed form (Stevens 2003). It is unclear whether this reflects local production of the crops, a change in crop husbandry or is evidence of storage practices. The higher concentrations of cereal remains in general may indicate a greater emphasis on arable farming than at the earlier sites.

Context (6019), an ashy layer within a flue of the hypocaust, comprises large quantities of spelt wheat chaff (glume bases and spikelet forks). A smaller quantity of barley remains is present, with grains outnumbering rachis fragments in an approximate ratio of 2:1. The 'ashy' character of the sample is in part due to the presence of hundreds of small (up to 5mm long) indeterminate awn fragments, which have narrow barbs, inrolled margins and were burnt to a white colour. This could be an indication of crop processing waste, possibly containing whole barley ears, used as fuel for the hypocaust, and in preference to wood as charcoal is absent from the sample. The whole barley ears may represent surplus fodder, or a crop spoiled by a damp harvest. In contrast to the other cereal-rich assemblages, bread wheat is absent (with the exception of 5 possible grains), perhaps reflecting a greater emphasis on the use of this crop for human consumption, or less likely, its use was restricted to earlier phases of activity at Black Grove. While the use of crop processing waste for fuel in Roman corn-driers/multi-functional kilns is documented (Van der Veen 1989), including the warming of solid floors used for grain malting (Van der Veen 1989), evidence from Roman hypocausts suggests the use of wood or charcoal was preferred. The exploitation of non-wood fuels particularly hay was, however, not uncommon in The Gloria, an underfloor heating system used in areas of Spain in the medieval period and considered to be a descendant of the Roman hypocaust.

The weed seed assemblage at Black Grove is diverse. While a number of the weeds have a wide ecological habitat range that includes cultivated land, the remains of weeds specifically categorised as arables occur in low numbers relative to cereals. They include large-seeded taxa such as wild-oats, bromes, black-bindweed and field gromwell (*Lithospermum arvense*), and smaller seeded scentless mayweed (*Tripleurospermum inodorum*), narrow-fruited cornsalad and stinking chamomile (*Anthemis cotula*). Stinking chamomile, a weed of heavy calcareous soils and a characteristically Roman weed (Robinson 2007), is absent from the earlier occupation sites at Bagendon (Scrubditch and Cutham).

The samples from Black Grove feature a wide range of grassland remains. These are particularly abundant in layers (5029) and (5027) and include numerous grass seeds, including cat's-tail/meadow-grass type (*Phleum/Poa* type), perennial rye-grass, crested dog's-tail (*Cynosurus cristatus*), rye-grass/fescue type and a tuber of false oat-grass. Common knapweed (*Centaurea nigra*), ribwort plantain and cf. hedge bedstraw are perennial herbs also common to a range of mesotrophic and calcicolous grassland communities (Rodwell 1992). While large numbers of grass seeds have been associated with shallow cultivation, the overall assemblage is more characteristic of grassland communities than an arable flora. Perennial rye-grass frequently occupies lowland pasture and crested dog's-tail is commonly found in short and heavily-grazed swards (Preston *et al.* 2002), suggesting a proportion of the grassland remains may derive from the burnt dung of animals grazing on local pasture.

The grassland remains may also have arrived at the site in hay collected from local meadows. Palaeoenvironmental remains from the settlement at Claydon Pike provide strong evidence for the importation of hay from managed, species-rich hay meadows during the 2nd and 3rd centuries AD (Robinson 2007: 361). It was suggested that the increased scale of hay production was in part due to the establishment of towns such as Cirencester and the resulting high demand for fodder (Robinson 2007). Rare earlier evidence for hay meadow management is recorded at the Late Iron Age oppidum at Silchester, where it has been suggested that such agricultural innovations were a reaction to the settlement nucleation taking place at the site (Lodwick 2017). Species including common spike-rush, sedges and crested dog's-tail are associated with water meadows conforming to National Vegetation Classification MG8 (Rodwell 1992). MG8 grassland often occurs on periodically inundated flat or slightly sloping ground alongside rivers, traditionally used as pasture for cattle and horses (Rodwell 1992). The amount and variety of charred plant material at Black Grove is a reflection of the level of hay meadow exploitation, either directly by grazing animals or by the collection of hay for fodder or bedding, and illustrates the diversity of plant species associated with this habitat.

A component of the weed flora, including cleavers, nipplewort (*Lapsana communis*), red campion (*Silene dioica*) and cf. creeping cinquefoil (*Potentilla reptans*), is indicative of lightly shaded habitats such as woodland rides, hedgerows or scrub. Charred remains of hazel nutshells and sloe fruitstones point to the exploitation of these woodland/hedgerow habitats. Weed species such as common chickweed (*Stellaria media*) and cleavers are plants that favour disturbed waste ground, especially if nutrient-enhanced (Preston *et al.* 2002). Dwarf mallow (*Malva neglecta*), an edible ruderal species recorded in layer (5027) at Black Grove, is an archaeophyte thought to have been introduced to Britain during the Roman period (Preston *et al.* 2004), although a recent record of it in a mid-late Iron Age pit at Middlesbrough may indicate an earlier introduction (Archaeological Services 2018).

1980s excavation (1981)

No systematic sampling strategy was applied in the 1979-1981 excavations but a number of (pre-processed) samples were in the archive. These all derived from the 1981 season of excavations of Area A, from pit AA and AL, dating to the mid-1st century AD. Charred plant remains were present in four of the six samples examined from the BAG81 excavations. The small sample size (2 to 9 litres) is likely to have been a factor in the low number and diversity of remains recovered. At 1.7 items/litre, the average concentration of charred remains is comparable to those at Cutham. The macrofossil assemblage is similar to those recorded at the other Iron Age sites at Bagendon, with limited evidence indicating the use of barley and spelt wheat. The arable weeds include bromes, oat/brome type and narrow-fruited cornsalad, while the wild food resource includes hazelnuts and elderberries.

Trench 7 (Rampart dyke 'e'); Trenches (Test pits) 9 and 10 (2017)

Charred plant macrofossils from the earthworks ditch sampled in Trench 7 are largely restricted to small numbers in upper layers (7008), (7011) and (7010). Post-medieval ceramics and a 15th century radiocarbon date indicate a relatively late date for the infilling of these layers. The remains comprise a barley grain, a partial wheat grain and two grassland weed seeds (fairy flax and cat's-tail/meadow-grass). Charred resting bodies of the soil fungus *Cenococcum geophilum* are common in fills (7008) and (7011), whereas the lower fills have only rare occurrences. This ectomycorrhizal species is common in woodland soils, where it occurs amongst leaf litter around the roots. Their charred remains may represent burnt leaf litter or episodes of woodland or scrub clearance.

The samples from test pits 9 and 10 within the valley occupation area produced very low numbers of charred plant remains. These comprise barley, spelt wheat, probable bread wheat, hazel nutshell and oat-type grasses, which are consistent with the 1st-2nd century AD date suggested by artefactual evidence.

Charcoal

Methods

The study involved over 100 bulk samples, taken from four sites within the Bagendon complex, and included both long-term 'secondary refuse' deposits and short-term 'primary' or *in situ* waste. Analysis concentrated on fragments from the >4mm dry-sieved fraction, as smaller fractions may contain too many unidentifiable remains, although a limited number of fragments from the 2mm fraction were examined in order to trace small woods such as shrubs and twiggy material (Asouti and Austin 2005; Asouti and Hather 2001). Twigs are defined as <10mm in diameter including pith and bark (Huntley 2010).

Charcoal remains occur in all of the contexts from the various sites and phases, although assemblages are small to moderate in size, with only nine samples comprising more than 100 fragments >4mm. The number of fragments considered a reasonable minimum for analysis is 100-400 per context (Huntley 2010), although generally it is agreed that if sufficient samples are analysed, then the percentage frequencies for each taxa can be calculated by site, period or context type and used for comparative purposes (Huntley 2010).

Full analysis, following Marguerie and Hunot (2007), was undertaken on 31 samples, which in addition to species identification, involved examining and recording roundwood diameter, tree ring curvature, the number of tree rings, and the presence of pith, bark, tyloses, insect degradation, radial cracking, reaction wood and alteration by vitrification. The samples were 100% analysed, with the exception of Cutham enclosure ditch fill (4009), which comprised a larger quantity of charcoal. This was 50% analysed after sub-sampling using a riffle box. Species identification was undertaken on all fragments from a further 97 samples in order to provide frequency data for each woody species, resulting in the examination of over 3000 fragments.

For species identification, the transverse, radial and tangential sections were examined at up to x500 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Gale and Cutler (2000), Hather (2000) and Schweingruber (1990), and modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Weights and fragment counts were obtained for each species.

Where comparable anatomical properties, fragment size and poor condition prevent secure identification, charcoal remains were recorded to genus level or assigned to family groups. Willow and poplar were grouped as Salicaceae (willow family). Based on the presence of heterogeneous rays the Salicaceae fragments are likely to represent willows (*Salix* sp).

Occasionally, identifications for blackthorn, wild plum, bird and wild cherry were not possible and therefore recorded as cherries (*Prunus* sp). Fragments comprising the broad and tall heterocellular rays characteristic of blackthorn (*Prunus spinosa*) and wild plum (*Prunus domestica*) are present. These species cannot be differentiated on the basis of their wood anatomy alone. However, due to the likelihood that wild plum has an historical introduction (Preston *et al.* 2002) the records were assumed to represent blackthorn. Blackthorn (sloe) fruitstones and thorns noted in several contexts confirms the presence of this taxon.

Maloideae is a subfamily within the Rosaceae (rose family) comprising hawthorns, apple, pear, and whitebeams. Characteristics used collectively to support further identifications include the spacing/clustering of vessels, especially at the ring boundaries, ground tissue thickness, ray size and cell composition and whether tertiary spiral thickening was abundant, localised or absent. Anatomical properties used to identify cf. apple (*Malus sylvestris*) include a very diffuse porous vessel arrangement with solitary vessels of equal size and spacing, indistinct ring boundaries, absent spiral thickening and predominantly biseriate rays. For cf. hawthorn (*Crataegus monogyna* /*Crataegus laevigata*) vessel arrangement is diffuse porous with mainly solitary vessels that are more distinct at the earlywood ring boundary, ground tissue is dense especially at the latewood boundary, there are relatively more triseriate rays and fine spiral thickening is localised. For cf. rowan (*Sorbus aucuparia*), fine tertiary spiral thickening is frequent and vessel arrangement is diffuse porous with mainly solitary vessels that are densely clustered and thin-walled in the earlywood. Charred pips and fruitstones of apple, hawthorn and rowan, noted in several contexts, supports such identifications. Fragments of Maloideae charcoal occasionally comprised indistinct ring boundaries, preventing examination of ring curvature or ring count.

Results and interpretation

The condition of the charcoal varies from firm and well preserved, to soft and friable and often comprising mineral inclusions. Fragment sizes are mainly <10mm and often 5mm or less. It is impossible to separate the <4mm charcoal fraction from small fragments of material such as fired clay, coal and cinder, which prevents recording weights for this fraction. Evidence for at least 21 woody species is present. Three species, rose (*Rosa* sp), honeysuckle (*Lonicera periclymenum*) and wayfaring-tree (*Viburnum lantana*) only occur in the 2mm sieve fraction or assemblages with limited remains. Plant nomenclature follows Stace (2010). Habitat classification follows Preston *et al.* (2002). A full list of identified taxa and a summary of results are presented in Table 18.15-18.23.

Scrubditch Enclosure (2012-2013)

A total of 78 bulk samples from Scrubditch were submitted for charcoal analysis. Considering some fragments are not identifiable beyond family group, there is evidence for at least thirteen woody species in the charcoal remains. Fragment counts consistently show hazel (*Corylus avellana*), ash (*Fraxinus excelsior*), field maple (*Acer campestre*) and Maloideae/cf. hawthorn are the predominant species. Oak occurs in 18 contexts, primarily from enclosure ditches F2 and F4 and postholes associated with F12, and often as low fragment numbers. The exceptions to this are the fill (2002) of ditch F6 exclusively containing 'blocky' fragments of oak heartwood with weak ring curvature (representing stemwood/timber), and fill (1053) of ditch F2 comprising thin radially fractured 'slivers' of oak sapwood and a fragment of heartwood. Overall counts for blackthorn/cherries are relatively common and dogwood (*Cornus sanguinea*) is the most frequent of the smaller shrub species. Other woody taxa identified from Scrubditch include elder (*Sambucus nigra*), guelder-rose (*Viburnum opulus*), whitebeams, rose and wild privet (*Ligustrum vulgare*). Although charcoal concentrations are generally low, the highest recorded frequencies are for Phase 3 fills, suggesting increased activity. Some ditch F2 deposits assigned to Phase 2 also comprise larger volumes of charcoal.

Cutham Enclosure (2014)

Analysis comprised 32 bulk samples from the Cutham enclosure. The deposits from Cutham contain a greater range of woodland species compared to Scrubditch, even though the number of samples is less than half of the total number taken at Scrubditch. In accordance with evidence from Scrubditch, the predominant species are Maloideae/cf. hawthorn, hazel, blackthorn/cherries and field maple, although counts for ash are noticeably much lower. Oak fragments are relatively common, although how frequently this species occurs is skewed by the number of posthole deposits containing 'slivers' of charred oak. These remains occur in (3010), (3031), (3035), (3054) and (3056). In the case of (3056) the assemblage consists entirely of oak sapwood fragments with sizes >10mm. Evidence of this nature is unusual for deposits of wood fuel hearth waste and is more consistent with the remains of a burnt post, or could represent the use of charcoal as fuel, for some form of industrial activity.

Charcoal from posthole (3089) includes highly distorted material with increased levels of vitrification. The 'molten' appearance of some of the fragments suggests high temperatures (Schweingruber 1990) or further evidence for using charcoal as a fuel, rather than wood. Certain fragments of this material are magnetic and occur alongside flake hammerscale. Although limited by the small quantity of material, evidence from deposit (3089) suggests that metalworking (probably smithing) occurred nearby. Clearly, hazel and oak heartwood are favoured for this industrial activity, perhaps reflecting their excellent burning properties (Bishop *et al.* 2015).

Ditch and pit fills from Cutham often contain a variety of species, as is characteristic of secondary refuse deposits accumulated over a prolonged period (Asouti and Austin 2005). Posthole fills contain few additional species other than oak, and where present, these taxa usually occur as traces, perhaps reflecting 'sweepings' of charred waste from around the posts.

Additional taxa recorded from Cutham are buckthorn (*Rhamnus cathartica*), elder, dogwood, wayfaring-tree, honeysuckle, cf. wild privet and rowan (*Sorbus*

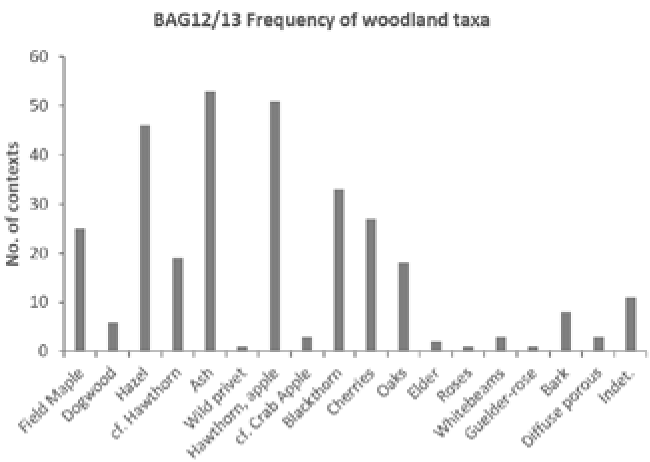
Table 18.15. Scrubditch (BAG12)

Abundance							**Phase 2**				
	Trench	1	1	1	1	1	1	1	1	1	2
	Phase	2	2	2	2	2	2	2	2	2	2
	Sample	2	20	23	26	27	20	15	19	25	10
	Context	1006	1055	1061	1062	1060	1061	1048	1053	1063	2014
	Feature number	1	4	4	4	4	4	2	2	2	8
	Feature	D	D	D	D	D	D	D	D	D	AD
	Feature number	1011	1031	1032	1032	1031	1032	1007	1007	1007	
Acer campestre	Field Maple	+	+	(+)	+	-	-	(+)	++	(+)	-
Cornus sanguinea	Dogwood	-	(+)	-	-	-	-	-	(+)	-	-
Corylus avellana	Hazel	+	++	-	(+)	(+)	(+)	+	+++	++	+
cf. *Crataegus* sp	cf. Hawthorn	-	+	(+)	-	-	-	-	++	++	-
Fraxinus excelsior	Ash	+	++	-	(+)	++	(+)	+	+	+	-
Ligustrum vulgare	Wild Privet	-	(+)	-	-	-	-	-	-	-	-
Maloideae	Hawthorn, apple	+	++	+	++	++	(+)	+	-	+++	-
cf. *Malus sylvestris*	cf. Crab Apple	-	-	-	-	-	-	-	-	(+)	-
Prunus spinosa	Blackthorn	-	+	(+)	(+)	-	-	(+)	++	+	-
Prunus sp	Cherries	(+)	+	-	+	-	-	-	+	-	-
Quercus sp	Oaks	-	(+)	(+)	-	(+)	-	+	++	+	+
Sambucus nigra	Elder	-	-	-	-	-	-	-	-	-	-
Sorbus sp	Whitebeams	-	(+)	-	-	-	-	-	-	-	-
Viburnum opulus	Guelder-rose	(+)	-	-	-	-	-	-	-	-	-
Bark	Bark	-	+	-	-	-	-	-	-	(+)	-
Diffuse porous	Diffuse porous	-	+	-	-	-	-	-	-	-	-
Indet.	Indet.	(+)	+	-	(+)	-	-	-	+	-	-

	No. of Fragments
(+)	1-2
+	3-10
++	11-40
+++	41-500
++++	500+

Total number of contexts = 33

Criteria										
I = Insect degradation * common/abundant	I	I*	-	I	-	-	I*	I*	I*	-
H = Hedgerow evidence using criteria below, ** = Most plausible evidence, H? = Possible evidence	H?	H**	-	-	-	-	H?	H**	H?	-
FC = Fruitstones (charred) FU = Fruitstone (uncharred)	-	FC	-	-	-	-	FC	FC	-	-
Th = Thorns (charred) * common occurrence	-	Th	-	-	-	-	-	Th*	-	-
TRW = Twisted growth / reaction wood * = regular occurrence ? = possible evidence	TRW*	TRW	-	-	-	-	-	TRW	-	-
M = Maintenance (fluctuating series of wide / narrow / wide rings) ? = possible evidence	-	M	-	-	-	-	-	M	-	-
HB = Hedgerow / Hedge Bank plants (charred) H* = most plausible evidence, H? = possible evidence	HB?	-	-	-	-	-	-	HB*	-	-
N = Nutshell (charred) * = common occurrence	N	N	-	-	-	-	-	N	N	-
NGR = Narrow Growth Rings (Predominantly) - traumatic growth (short shoot)	NGR	NGR	NGR	NGR	NGR	-	NGR	NGR	-	-
WGR = Long Growth Rings (Predominantly) - rapid growth (long shoot)	-	WGR	-	WGR	WGR	-		WGR	WGR	-
Tw = Twigs (charred) Definition of a twig is <10mm in diameter and includes pith and bark	-	Tw	-	-	-	-	-	Tw	Tw	-
B = Bark (charred) (i.e. branchwood with attached bark)	-	B	-	-	-	-	-	B	-	-
RCV = Radial Cracks + Vitrification * regular occurrence (evidence of burning green? branchwood)	RCV	RCV*	RCV	RCV	-	-	-	RCV	RCV	RCV
COP = Perhaps evidence indicating silvicultural treatment (possibly coppicing / pollarding)	-	-	-	-	-	-	-	-	-	-
BP = Burnt Post? Oak slivers (comprising material indicative of coppicing)	-	-	-	-	-	-	-	-	-	-
CG = Calcicolous Grassland / Rough pasture Plants (charred) CG2 / CG3 (* / ? = very good / possible evider	CG?	CG?	-	-	-	-	-	CG?	-	-
MS = Monocot stems (charred)	-	MS	-	-	-	-	-	-	-	-
TR = Tubers / Rhizomes (turves?)	-	-	-	-	-	-	-	-	-	-
IM = Industrial material (smithing) IM? = trace (smithing activity)	-	-	-	-	-	-	-	IM?	-	-
Nod = Nodules (evidence of urine?)	-	Nod	-	-	-	-	-	-	-	-
Pu = Puparia (evidence of dung?)	-	-	-	-	-	-	-	-	-	-
CC = Coal / cinder (tiny fragments)	-	-	-	-	-	CC	-	-	-	-



Charcoal summary data

	Phase 3																Phase 4					U	
2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	1	
2	3	3	3	3	3	3	3?	3	3	3?	3?	3?	3?	3	3	3	4	4	4	4	4	U	
21	1	5	12	16	9	10	14	17	24	9	0	22	4	30	31	13	6	11	29	32	33	7	
2015	1004	1021	1042	1049	1035	1030	1045	1036	1036	1023	1026	1026	2002	2011	2012	2013	1025	1039	2007	2009	2004	1015	
8	1	2	2	2	4	4	4	4	4	7	10	10	6	9	9	8	2	2	9	8	8	3.5	
AD	D	D	D	D	D	D	D	D	D	P	P	P	D	AD	AD	AD	D	D	D	AD	AD	PH	**Context**
	1011	1007	1007	1009	1032	1031	1031	1032	1032	1027	1043	1043	2001				1009	1007	2006			1012	**Frequency**
-	+	-	-	+	-	++	+	+	-	+	-	-	-	-	-	(+)	-	-	-	-	-	-	14
-	(+)	-	-	-	-	-	-	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	5
(+)	++	++	++	++	(+)	++	++	++	(+)	(+)	(+)	(+)	-	-	-	(+)	(+)	-	-	-	-	-	24
-	++	(+)	(+)	+	-	+	+	+	-	-	-	++	-	-	-	-	-	-	-	(+)	-	(+)	13
-	++	++	+	++	(+)	++	++	++	+	(+)	++	++	-	+	-	-	-	(+)	-	-	-	(+)	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	++	+	+	++	(+)	++	+++	++	++	+	++	+++	-	+	+	(+)	-	-	-	(+)	-	-	24
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
(+)	+	(+)	++	++	-	++	+	+	++	-	+	(+)	-	-	-	-	-	-	-	(+)	(+)	-	19
-	+	(+)	++	-	(+)	(+)	+	+	-	(+)	-	-	-	-	-	-	(+)	-	(+)	-	-	-	14
-	-	-	(+)	-	-	-	-	(+)	-	-	-	-	++	-	-	-	-	-	-	(+)	-	-	11
-	-	-	-	-	-	-	(+)	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	2
-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	(+)	-	(+)	(+)	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
-	-	-	-	(+)	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
-	+	-	-	(+)	-	-	+	+	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	9

-	-	I	I**	-	-	I*	I	-	I	I	I	-	-	-	-	-	-	-	-	-	-	-
-	H**	H	H**	H	H?	H**	H?	H?	H?	-	H	H**	-	-	-	-	-	-	-	-	-	-
-	FC	-	FC	-	-	-	-	-	FC	-	FU	-	-	-	-	-	-	-	-	-	-	-
-	Th	-	-	-	-	Th	-	-	-	-	-	Th	-	-	-	-	-	-	-	-	-	-
-	TRW	TRW	TRW*	TRW*	TRW	TRW	TRW	TRW	TRW?	-	TRW	TRW	-	-	-	-	-	-	-	-	-	-
-	M	M?	-	M	-	M?	M?	M	-	-	-	M	-	-	-	-	-	-	-	-	-	-
-	HB	HB	HB*	-	-	HB	-	-	HB?	-	HB*	HB?	-	-	-	-	-	-	-	-	-	-
-	N	N*	N*	N	-	N	N	N	-	-	N	N	-	-	-	-	-	-	-	-	-	-
-	NGR	NGR	NGR	NGR	-	NGR	NGR	-	NGR	-	-	NGR	-	-	-	-	-	-	-	-	-	-
-	WGR	WGR	WGR	-	-	WGR	WGR	-	WGR	-	-	WGR	-	-	-	-	-	-	-	-	-	-
-	Tw	-	Tw	-	-	-	-	-	-	-	Tw	-	-	-	-	-	-	-	-	-	-	-
-	B	-	B	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-
-	RCV*	RCV	RCV*	RCV	RCV	RCV	RCV	RCV	RCV	RCV	RCV	RCV	-	-	-	-	RCV	-	-	RCV	-	-
-	COP?	COP?	-	COP?	-	COP	COP?	COP?	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	CG?	CG?	CG	CG?	CG?	CG?	CG?	CG?	-	CG?	CG	CG?	-	-	-	-	-	-	-	-	-	-
-	-	-	MG	-	-	-	-	-	-	MG	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	TR	-	-	-	-	-	TR	-	-	-	-	TR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	Nod	-	Nod	Nod	-	-	Nod	Nod	-	Nod	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CC	CC	CC	-

Insect degradation is probable evidence of long term storage of fuel (seasoning?) rather than collection of deadwood
H = Deposits with significant evidence for the presence of hedgerows contain 5 applicable criteria (H** = contain more than 5 criteria, H = 5, H? = contain 2 - 4)
Evidence for the presence of hedgerows is proportional to the amount of material present in the deposits (HB = more than one of the following plants)
HB- Plants typical of hedge banks, scrub, woodland ride = Cleavers, Hedge Bedstraw, Nipplewort, Red Campion, Common / Bifid Hemp-nettles, Timothy (grass)
Evidence for **CG2 / CG3** calcicolous grassland / rough pasture (more than one of the following characteristic plants noted below)
CG2 / CG3 plants Squinancywort, Burnet-saxifrage, Crested Dog's-tail, Ribwort Plantain, Hedge Bedstraw, Timothy, False Oat-grass, Perennial Rye-grass
Perhaps evidence of managed tree growth (primarily based on charcoal fragments containing a series of 5+ consistently well-spaced growth rings
- i.e. Hazel from (1030) contained 7 wide even-spaced growth rings)
(Evidence above possibly reflecting straight growth and open aspect - suggesting growth is likely to have been managed)
Above evidence was noted in the following contexts
BAG12 (1004) <1> noted in Hazel / Ash / Field Maple
BAG12 (1030) <10> noted in Hazel / Ash / Field Maple
BAG12 (1045) <14> noted in Hazel / Maloideae
BAG12 (1049) <16> noted in Hazel
BAG12 (1036) <17> noted in Maloideae / Ash / Field Maple

D=Ditch
AD=Antenna ditch
PH=Posthole
P=Pit

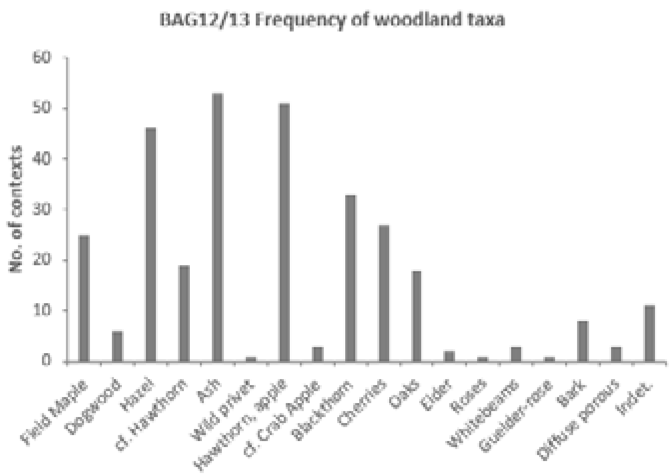
Table 18.16. Scrubditch (BAG13)

Abundance								Phase 2							
	Trench	1	1	1	1	1	1	1	1	1	2	2	2	1	1
	Phase	2	2	2	2	2	2	2	2	2	2	2	2	3	3
	Sample	21	35	26	30	34	36	37	42	17	27	38	41	7	8
	Context	1146	1180	1151	1155	1177	1181	1182	1189	1138	2027	2030	2031	1083	1136
	Feature number	4;21	1	16	16	16	16	16	16	4;21	8	8	22	16	4;21
	Feature	D	D	P	P	P	P	P	P	D	AD	D	D	P	D
	Feature number	1109	1171	1082	1082	1082	1082	1082	1082	1109	2019	2019	2021		1097
Acer compestre	Field Maple	-	++	-	-	-	-	-	-	(+)	-	-	-	-	-
Cornus sanguinea	Dogwood	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corylus avellana	Hazel	(+)	-	-	-	-	-	-	-	+	+	(+)	+	(+)	++
cf. *Crataegus* sp	cf. Hawthorn	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Fraxinus excelsior	Ash	-	++	-	-	++	+	+	+	-	+	(+)	+	++	+
Maloideae	Hawthorn, apple	+	++	-	(+)	+	-	(+)	+	+	-	+	-	++	+
cf. *Malus sylvestris*	cf. Crab Apple	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prunus spinosa	Blackthorn	-	-	+	-	+	-	-	-	(+)	-	-	-	++	-
Prunus sp	Cherries	(+)	-	-	-	(+)	(+)	-	-	-	(+)	+	(+)	-	-
Quercus sp	Oaks	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Rosa sp	Roses	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-
Sorbus sp	Whitebeams	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bark	Bark	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet.	Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(+)	1-2
+	3-10
++	11-40
+++	41-500
++++	500+

Total number of contexts = 42

Criteria															
I = Insect degradation * common/abundant		I*	-	-	-	-	-	-	-	I	-	-	-	-	-
H = Hedgerow evidence using criteria below, H? = Possible, ** = Most plausible		H?	-	-	-	-	-	-	-	H?	-	-	-	H?	-
FC = Fruitstones (charred)	FU = Fruitstone (uncharred)	-	-	FC	-	-	-	-	-	-	-	-	-	-	-
Th = Thorns (charred) * common occurrence		-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRW = Twisted growth / reaction wood * = regular occurrence ? = possible evidence		-	-	-	-	-	-	-	-	-	-	-	-	TRW?	TRW
M = Maintenance (fluctuating series of wide / narrow / wide rings) ? = possible evidence		-	-	-	-	-	-	-	-	-	-	-	-	-	-
HB = Hedgerow / Hedge Bank plants (charred) H* = most plausible evidence, H? = possible evidence		HB?	-	-	-	-	-	-	-	-	-	-	-	-	-
N = Nutshell (charred) * = common occurrence		N	-	-	-	N	-	-	-	N	-	N	-	N	-
NGR = Narrow Growth Rings (Predominantly) - traumatic growth (short shoot)		-	-	-	-	-	-	-	-	NGR	-	-	NGR	NGR	-
WGR = Long Growth Rings (Predominantly) - rapid growth (long shoot)		-	WGR	-	-	-	-	-	-	-	-	-	-	WGR	-
Tw = Twigs (charred) Definition of a twig is <10mm in diameter and includes pith and bark		-	-	-	-	-	-	-	-	-	-	-	-	-	-
B = Bark (charred) (i.e. branchwood with attached bark)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCV = Radial Cracks + Vitrification * regular occurrence (evidence of burning green? branchwood)		-	RCV	-	-	RCV	-	-	-	-	RCV	-	-	RCV	-
COP = Perhaps evidence indicating silvicultural treatment (possibly coppicing / pollarding)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
BP = Burnt Post? Oak slivers (comprising material indicative of coppicing)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
CG = Calcicolous Grassland / Rough pasture Plants (charred) CG2 / CG3 (* / ? = very good / possible evidence)		-	-	-	-	CG?	-	-	-	-	-	-	-	-	-
MS = Monocot stems (charred)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR = Tubers / Rhizomes (turves?)		-	-	-	-	-	-	-	-	-	-	-	-	TR	-
IM = Industrial material (smithing) IM? = trace (smithing activity)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nod = Nodules (evidence of urine?)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pu = Puparia (evidence of dung?)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC = Coal / cinder (tiny fragments)		-	-	-	-	-	CC	-	-	-	-	-	-	CC	-



Charcoal summary data

Phase 3					Phase 4					Unphased																					
1	1	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3	3	3	3	3	4	4	4	4	4a	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	?	
10	14	24	39	40	16	33	22	23	45	1	2	3	4	5	6	9	11	12	13	15	18	19	25	28	29	31	32	43	44	20	
1104	1127	2025	2025	2028	1098	1173	2020	2022	2029	1069	1077	1087	1075	1091	1089	1094	1089	1119	1112	1103	1137	1124	1142	1153	1168	1156	1133	1188	1161	1101	
4;21	4;21	22	22	22	4;21	1	8	22	22	15;18	12	19	12	12	15;18	?	15;18	12	12	12	12	12	NA	12	NA	12	NA	11;15	NA	?	
D	D	D	D	D	D	D	AD	D	D	PH	PH	PH	PH	PH	PH	PH	D	PH	PH	PH	PH	PH	P	PH	PH	PH	PH	PH	PH	PH	Context
1097	1109	2021	2021	2021	1097	1171	2019	2021	2021								1088	1090		1102	1123	1123	1141	1152	1167	1152	1132	1187	1160	1100	Frequency
-	(+)	(+)	+	(+)	-	+	-	(+)	+	-	-	-	-	-	-	-	-	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	11
-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
++	(+)	+	+	(+)	+	+	-	-	+	(+)	-	-	-	(+)	-	(+)	-	-	-	(+)	-	(+)	-	+	(+)	-	-	-	-	-	22
-	-	-	+	+	-	+	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	6
+	(+)	(+)	+++	++	(+)	++	-	+	+	-	(+)	(+)	-	(+)	-	-	-	+	++	(+)	(+)	(+)	(+)	-	-	(+)	(+)	-	-	-	30
++	(+)	+	++	++	(+)	++	-	(+)	+	-	(+)	-	-	-	-	-	-	+	(+)	-	(+)	-	-	+	(+)	-	-	-	(+)	(+)	27
-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	2
-	-	-	++	++	-	+	-	-	+	-	(+)	-	-	-	-	-	-	-	-	-	-	(+)	-	++	-	-	-	+	(+)	(+)	14
-	-	-	-	-	-	+	-	-	-	-	-	-	-	(+)	-	-	-	(+)	-	(+)	-	-	-	++	-	(+)	+	-	-	-	13
-	-	-	-	-	-	(+)	-	-	-	-	(+)	-	(+)	-	-	-	-	(+)	-	-	(+)	(+)	-	-	-	-	-	-	-	-	7
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I*	-	-	I	-	-	I	-	-	-	-	-	-	-	I	-	-	-	-	-	I	-	I	-	-	-	-	-	-	-	-
H?	-	-	H?	H	-	H?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H?	-	-	-	-	-	-	-	-
-	-	-	FC	FC	-	-	-	-	-	-	-	-	-	-	FU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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TRW*	-	-	TRW?	TRW	-	TRW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRW	-	-	-	-	-	-	-	-
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N	N	N	N	N	-	N	-	N	-	N	-	-	-	-	-	-	-	-	N	N	-	N*	-	-	-	-	-	-	-	-
NGR	-	-	NGR	NGR	-	NGR	-	-	NGR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WGR	-	-	WGR	WGR	-	WGR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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RCV	-	-	RCV	RCV*	-	RCV*	-	-	RCV	-	-	-	-	-	-	-	-	-	RCV	RCV	-	-	-	RCV*	RCV	RCV	RCV	RCV	RCV	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	CG?	CG?	-	CG?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CG?	-	-	-	-	CG?	-	-	-
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-	-	-	TR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TR	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	Nod	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	CC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CC	-	-	CC	-	-	-

Insect degradation is probable evidence of long term storage of fuel (seasoning?) rather than collection of deadwood

H = Deposits with significant evidence for the presence of hedgerows contain 5 applicable criteria (H** = contain more than 5 criteria, H = 5, H? = contain 2 - 4)

Evidence for the presence of hedgerows is proportional to the amount of material present in the deposits (HB = more than one of the following plants)

HB- Plants typical of hedge banks, scrub, woodland ride = Cleavers, Hedge Bedstraw, Nipplewort, Red Campion, Common / Bifid Hemp-nettles, Timothy (grass)

Evidence for **CG2 / CG3** calcicolous grassland / rough pasture (more than one of the following characteristic plants noted below)

CG2 / CG3 plants Squinancywort, Burnet-saxifrage, Crested Dog's-tail, Ribwort Plantain, Hedge Bedstraw, Timothy, False Oat-grass, Perennial Rye-grass

D=Ditch

AD=Antenna ditch

PH=Posthole

P=Pit

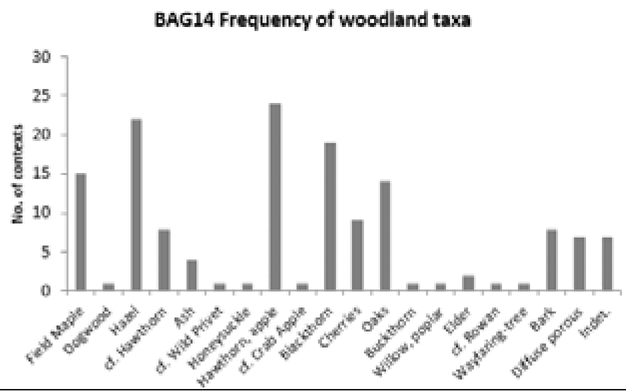
Table 18.17. Cutham (BAG14)

Abundance		Phase 1			Phase 2					
	Trench	3	3	4	3	3	3	3	3	3
	Phase	1?	1?	1	2	2	2	2	2	2
	Sample	9	19	20	23	29	30	21	17	27
	Context	3044	3072	4019	3081	3152	3153	3059	3060	3102
	Feature number	32	32	24	23	23	23	24	24	27
	Feature	P	PH	D	D	P	D	D	D	P
	Feature number	3036	3073	4004	3019	3138	3070	3003	3003	3061
Acer campestre	Field Maple	(+)	(+)	-	(+)	-	(+)	(+)	-	-
Cornus sanguinea	Dogwood	-	-	-	-	-	-	-	-	-
Corylus avellana	Hazel	-	+	(+)	(+)	++	-	+	(+)	(+)
cf. *Crataegus* sp	cf. Hawthorn	+	(+)	-	-	-	-	-	-	-
Fraxinus excelsior	Ash	-	-	-	+	-	-	-	-	-
cf. *Ligustrum vulgare*	cf. Wild Privet	-	-	-	-	-	-	-	-	-
Lonicera periclymenum	Honeysuckle	-	-	-	-	-	-	-	-	-
Maloideae	Hawthorn, apple	+	++	+	+	+	+	-	+	-
cf. *Malus sylvestris*	cf. Crab Apple	-	-	-	-	-	-	-	-	-
Prunus spinosa	Blackthorn	+	+	(+)	-	+	-	+	+	-
Prunus sp	Cherries	+	-	-	-	+	-	-	-	(+)
Quercus sp	Oaks	-	(+)	-	(+)	-	-	-	-	-
Rhamnus cathartica	Buckthorn	-	-	-	-	-	-	-	-	-
Salicaceae	Willow, poplar	-	-	-	-	-	-	-	-	-
Sambucus nigra	Elder	-	-	-	-	-	-	-	-	-
Sorbus cf. *aucuparia*	cf. Rowan	-	-	-	-	-	-	-	-	-
Viburnum lantana	Wayfaring-tree	(+)	-	-	-	-	-	-	-	-
Bark	Bark	(+)	-	-	-	-	-	-	-	-
Diffuse porous	Diffuse porous	+	-	-	-	+	-	-	-	-
Indet.	Indet.	-	-	-	-	-	-	-	-	-

(+)	1-2
+	3-10
++	11-40
+++	41-500
++++	500+

Total number of contexts = 31

Classification criteria									
I = Insect degradation * common/abundant	-	I	-	-	-	-	-	I	-
H = Hedgerow evidence using criteria below, ** = Most plausible evidence, H? = Possible evidence	H?	-	-	-	H?	-	-	-	-
FC = Fruitstones (charred) FU = Fruitstone (uncharred)	FC	-	-	-	-	-	-	-	-
Th = Thorns (charred) * common occurrence	-	-	-	-	-	-	-	-	-
TRW = Twisted growth / reaction wood * = regular occurrence ? = possible evidence	TRW	TRW	-	-	TRW	-	-	TRW	-
M = Maintenance (fluctuating series of wide / narrow / wide rings) ? = possible evidence	-	-	-	-	-	-	-	-	-
HB = Hedgerow / Hedge Bank plants (charred) H* = most plausible evidence, H? = possible evidence	-	-	-	-	-	-	-	-	-
N = Nutshell (charred) * = common occurrence	N	N	-	-	N	-	-	-	-
NGR = Narrow Growth Rings (Predominantly) - traumatic growth (short shoot)	-	-	-	-	NGR	-	-	-	-
WGR = Long Growth Rings (Predominantly) - rapid growth (long shoot)	-	-	-	-	-	WGR	-	-	-
Tw = Twigs (charred) Definition of a twig is <10mm in diameter and includes pith and bark	-	-	-	-	-	-	Tw	-	-
B = Bark (charred) (i.e. branchwood with attached bark)	B	-	-	-	-	-	-	-	-
RCV = Radial Cracks + Vitrification * regular occurrence (evidence of burning green? branchwood)	RCV	RCV	-	-	RCV	-	RCV	-	-
COP = Perhaps evidence indicating silvicultural treatment (possibly coppicing / pollarding)	-	-	-	-	-	-	-	-	-
BP = Burnt Post? Oak slivers (comprising material indicative of coppicing)	-	-	-	-	-	-	-	-	-
CG = Calcicolous Grassland / Rough pasture Plants (charred) CG2 / CG3 (* / ? = very good / possible evid	-	-	-	-	CG?	-	CG?	-	-
MS = Monocot stems (charred)	-	-	-	-	-	-	-	-	-
TR = Tubers / Rhizomes (turves?)	TR	-	-	-	-	-	-	-	-
IM = Industrial material (smithing) IM? = trace (smithing activity)	-	IM?	-	-	-	-	-	-	-
Nod = Nodules (evidence of urine?)	-	-	-	-	-	-	-	-	-
Pu = Puparia (evidence of dung?)	-	-	-	-	-	-	-	-	-
WM = Wet meadow * = good evidence WM ? Possible evidence	-	-	-	-	-	-	-	-	-



Charcoal summary data

	Phase 3						Phase 4						Phase 5		Unphased								
3	3	3	3	4	4	4	3	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3	
2	3	3	3	3	3	3	4	4	4	4	4	4?	5	5	U	U	U	U	U	U	U	U	
33	22	34	11	2	10	18	4	15	31	5	12	28	3	13	1	6	7	8	14	24	25	26	
3135	3083	3092	3004	4007	4009	4016	3029	3057	3148	4008	4010	3094	3024	3024	3010	3031	3033	3035	3056	3080	3089	3054	
29	27	27	24	24	24	23	23	23	23	23	23	31	26	26	NA	32	NA	32	32	32	NA	32	
P	P	P	D	D	D	D	D	lens	D	D	D	P	D	D	PH	PH	P	P	P?	PH	PH	PH	Context
3084	3061	3061	3003	4004	4004	4002	3019	3019	3070	4002	4002	3093	3023	3023	3010	3030	3032	3034	3055	3079	3088	3053	Frequency
-	+	-	+	+	-	+	(+)	-	+	-	+	+	-	-	-	-	-	-	-	+	-	(+)	15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	1
-	++	++	++	+	-	++	-	+	+	(+)	(+)	++	(+)	-	-	+	-	(+)	-	-	+	+	22
-	+	(+)	+	(+)	-	+	-	-	-	-	-	-	(+)	-	-	-	-	+	-	-	-	-	8
-	-	-	-	-	-	-	-	+	-	-	-	-	-	(+)	(+)	-	-	-	-	-	-	-	4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	1
-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
(+)	++	++	+++	++	-	++	+	+	+	-	(+)	+++	+	-	+	++	-	-	-	++	+	+	24
-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	++	+	+	++	-	+	-	+	-	-	-	+	+	-	-	(+)	(+)	+	-	++	-	+	19
-	-	+	++	-	-	-	-	(+)	(+)	-	-	+	-	-	-	-	-	(+)	-	-	-	-	9
-	-	-	-	(+)	-	-	(+)	+	-	+	-	-	-	-	++	+++	+	++	++	+	++	++	14
-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	(+)	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	+	+	-	-	+	-	-	(+)	-	-	+	-	-	-	(+)	-	-	-	(+)	-	-	8
-	+	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	7
-	+	-	(+)	+	-	-	-	(+)	-	-	-	-	-	-	-	(+)	-	-	-	+	++	-	7

-	I	I?	-	-	I*	I	I	I	-	-	-	I*	-	-	-	-	-	-	-	-	-	-
-	H	H	H	-	H?	H	-	H	-	-	-	H**	-	-	-	H?	-	-	-	H?	H?	-
-	-	-	-	-	FU	-	-	FC	FU	-	-	-	-	FU	-	FC	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	TRW	TRW	TRW	TRW	-	TRW	-	TRW	-	-	-	TRW	-	-	-	TRW	-	TRW	-	TRW	-	-
-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-	-
-	HB?	HB	-	-	HB?	-	-	HB	-	-	HB	HB?	-	-	-	HB?	-	-	-	HB?	HB?	-
N	-	N	N	-	-	N	N	N	-	-	N	N	-	-	-	-	-	-	-	N	N	-
-	NGR	-	NGR	-	NGR	NGR	-	NGR	NGR	-	-	NGR	-	-	-	NGR	-	-	-	-	-	NGR
-	WGR	-	WGR	-	WGR*	WGR*	-	WGR	-	-	-	WGR	-	-	-	?	-	WGR	WGR	-	-	-
-	Tw	Tw	Tw	-	-	Tw	-	-	-	-	-	Tw	-	-	-	-	-	-	-	-	-	-
-	-	B	B	-	B	B	-	-	-	-	-	B	-	-	-	B	-	-	-	-	-	-
-	RCV	RCV*	RCV*	-	RCV*	RCV*	-	RCV	-	-	-	RCV	RCV	-	-	RCV	-	RCV	RCV	RCV*	RCV*	RCV
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	COP?	COP?	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BP?	BP	-	BP	BP	BP	BP?	BP
-	CG?	CG*	-	-	-	CG?	CG?	-	CG?	-	CG*	CG?	CG?	-	-	-	-	-	-	-	CG	-
-	-	-	-	-	-	-	-	-	-	-	-	MS	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	TR	-	-	-	-	-	-	-	-	TR	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IM	-
-	-	-	Nod	-	-	-	-	-	-	-	-	Nod	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pu	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WM	-

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HB- Plants typical of hedge banks, scrub, woodland ride = Cleavers, Hedge Bedstraw, Nipplewort, Red Campion, Common / Bifid Hemp-nettles, Timothy (grass)

Evidence for **CG2 / CG3** calcicolous grassland / rough pasture (more than one of the following characteristic plants noted below)

CG2 / CG3 plants Squinancywort, Burnet-saxifrage, Crested Dog's-tail, Ribwort Plantain, Hedge Bedstraw, Timothy, False Oat-grass, Perennial Rye-grass

Evidence for MG8 grassland / wet meadow - seasonal flooding (more than one of the characteristic plants below)

MG8 plants Common Spike-rush, Crested Dog's-tail, Common Knapweed, Ribwort plantain, Perennial Rye-grass, Buttercup

Context (3089) sample 25 contains charred material typical of wet meadow. (No wet meadow snails present). A plausible explanation is the burning of manure heaps resulting from animals grazing in the wet meadow below

A spike in the number of charred cleavers seeds occurred in (3089)<25>. This plant thrives in nutrient-rich (nitrogen) environment such as manure/soil heaps and may have been charred whilst burning/clearing manure

Evidence for probable burnt posts includes fragments of oak fractured into 'slivers'. Charcoal from context (3056) is exclusively oak (some fragments >10mm) no evidence of kindling material

Possible evidence of managed tree growth primarily based on charcoal recovered from probable burnt posts - oak fragments showing a series of consistently well-spaced growth rings

(Evidence above possibly reflecting straight growth and open aspect - suggesting growth is likely to have been managed)

PH=Posthole

D=Ditch

P=Pit

aucuparia). A charred rowan fruitstone from the same context (3031) as the identified charcoal confirms the presence of this species on the site. Charcoal quantities are similarly as small as the Scrubditch deposits. Activity peaks in Phase 3 with only traces of charcoal noted in Phase 5.

Black Grove (2015)

Small quantities of charcoal (<2g) recovered from twelve Black Grove samples contained evidence of nine tree/shrub species. Frequencies are consistent with Scrubditch, indicating a predominance for ash, hazel, field maple, Maloideae/cf. hawthorn and blackthorn/cherries. Occurrences are fewer for oak, dogwood, elder and spindle (*Euonymus europaeus*). Charcoal remains are absent from the hypocaust flue deposit (6019).

1980s excavation (1981)

Six previously processed samples contain low quantities of charcoal. Palaeoenvironmental evidence, although limited by the small sample size, indicates the burning of a range of woody taxa, ten species in total. Frequency data is consistent with evidence from elsewhere at Bagendon, comprising a predominance of ash, hazel, field maple and Maloideae/cf. hawthorn. The presence of alder and willow/poplar in the charcoal record, species typically found in damp environments, seems to reflect the riverside location of BAG81 and may represent an effort to keep the riverbanks clear of shrubs and trees. Species of elm also occur on moist soils, and are frequently a component of hedgerows.

Trench 7, 9 and 10 (2017)

Charcoal is absent from the earthworks ditch sampled in Trench 7 with the exception of a tiny fragment (2mm fraction) of Maloideae and oak charcoal in upper ditch fills (7008) and (7007) respectively.

Small quantities of charcoal from test pits 9 and 10 comprise field maple, hazel, ash, Maloideae, blackthorn/cherries, oak, elder and elm. A small fragment of beech charcoal is present in context (9004), a species not recorded in any of the other assemblages at Bagendon and may represent later activity.

Woodland structure and composition

Of the 21 woody species identified in the Bagendon charcoal assemblages the most frequently recorded are ash, hazel, field maple, Maloideae (cf. hawthorn) and to a lesser extent oak. Woodland comprising ash and field maple with a prominent understorey of hazel and hawthorn is characteristic of the National Vegetation Classification plant community W8, referred to as ash-maple-hazel woodland (Rackham 2003; Rodwell 1991). Many of the trees, understorey shrubs and underscrub plants associated with this type of woodland occur in the charcoal remains, including blackthorn, dogwood, guelder-rose, buckthorn, elder, wayfaring-tree, spindle, rowan, elm, wild privet, honeysuckle and dog-rose. This woodland community occurs on calcareous soils in the relatively warm and dry lowlands of southern Britain, south-east of a line from the Severn to the Humber (Rodwell 1991). Pedunculate oak (*Quercus robur*) is usually the most common tree in W8 woodland after ash, maple and hazel.

Abundance and frequency data show the charcoal record at Scrubditch and Cutham have many similarities, although there are some variations. The most notable difference is in the proportions of ash, which occurs far less frequently at Cutham. It is unclear whether this is a reflection of a more wooded environment at Scrubditch or merely a difference in woodland practices between the two sites. The predominance of hazel, ash and field maple within the charcoal assemblages at Black Grove and samples from the 1980s excavations, highlights the consistent exploitation of the local woodland resource from the Mid-Iron Age into the Mid-2nd century AD. However, the small number and size of the samples from the valley sites prevent a detailed interpretation of the surrounding landscape during the transition from the Iron Age to the Roman period.

The charcoal record at Bagendon clearly highlights the importance of hazel, ash and field maple, although some of the woody plants recorded less frequently are worthy of note, as they provide useful evidence of the local landscape. Spindle is present in layer (5027) at Black Grove, which based on samian pottery within the deposit is dated to the mid-2nd century AD. This shrub or small tree occurs in low frequency and low abundance as scattered individuals, and is found in hedgerows, woodland edges, open scrub over limestone or as an understorey shrub in W8 woodland (Rodwell 1991; Thomas *et al*. 2011). It is a species regarded as an indicator of ancient woodland and old hedges (Rackham 2003: 75). Given the poor dispersal of this shrub, it is unlikely to invade open grassland unless there is a 'connectedness' to other old hedges or woodland, which aids dispersal by bird or mammal (Pollard 1973; Sarlöv Herlin and Fry 2000). Its presence suggests the persistence of pockets of ancient woodland or old hedges close to Black Grove, at least until the mid-2nd century AD.

The remains of elder (charcoal and/or fruitstones) are present in deposits from across the Bagendon complex. At Scrubditch, they occur only in Phase 3, while at Cutham they are in Phases 3 and 4. This shrub is relatively light-demanding and favours nutrient-rich soil conditions that are subjected to anthropogenic disturbances (Atkinson and Atkinson 2002) such as the dumping of waste or burning (Rodwell 1991). This anthropogenic indicator is associated with W8 woodland margins and hedgerows.

Fragments of honeysuckle (woody climber) and buckthorn (thorny shrub) occur in small charcoal assemblages (3004) and (4007) assigned to Phase 3 at Cutham. These are taxa found in hedgerows, calcicolous scrub or as woodland undershrubs. Their presence in the charcoal record is rare and is more noteworthy considering the small size of the samples. The burning of these species would be consistent with clearance or some form of maintenance. Evidence of twisted growth in some of the fragments from these deposits and the presence of other thorny shrubs (hawthorn and blackthorn) could be a sign of material from compact hedges, discussed later. Buckthorn can be found in openings of old ash-oak wood, where standard trees have been removed or are in bad condition (Godwin 1943). Fragments representing large trees such as oak and ash are absent from these contexts at Cutham.

Wayfaring-tree and guelder-rose are found in scrub, woodland edges or inside woods periodically opened by coppicing. Guelder rose is able to tolerate shaded habitats better than wayfaring-tree (Kollmann and Grubb 2002). Evidence of wayfaring-tree occurs at Cutham, whereas guelder-rose is present at Scrubditch, possibly reflecting a more shaded environment at Scrubditch.

Woodland development and management

There is no evidence in the charcoal or plant macrofossil assemblages for the so called 'wildwood' or primary forest dominated by lime woods, which according to pollen evidence, existed in lowland southern England prior to the Neolithic period (Greig 1982). Instead, the results suggest the establishment of secondary woodland, comprising species such as ash and field maple. Human activity probably aided the predominance of these trees that favour woodland clearance (Orme and Coles 1985). Despite the underrepresentation of field maple and ash in pollen records (Rackham 2003: 204), pollen evidence from Somerset showed a tendency for these trees to follow the weed and cereal pollen curves, suggesting that increases in agricultural activities in the Bronze Age and even more so in the Iron Age favoured the formation of this woodland type (Godwin 1975: 475).

The structure and floristics of W8 woodland are probably influenced by silvicultural selection (Rodwell 1991). This is due to the recognition of how rapidly hazel, ash and field maple respond to coppicing or pollarding, and an appreciation of their qualities for wood, fuel and fodder (Bishop *et al.* 2015; Jones 1945; Rackham 2006: 12). The consistent exploitation at Bagendon of woody plants that are best suited to coppicing (ash, hazel, oak, field maple and hawthorn) provides compelling evidence of woodland management. Similar indications for this exploitation occur at the Roman site at Gravelly Guy, Oxfordshire (Gale 1988: 11).

The fragmentary nature of the charcoal remains and the scarcity of complete roundwood fragments, other than a few small twigs, prevents the possibility of identifying coppice rotation cycles. Nonetheless, some of the growth ring patterns observed at Bagendon are consistent with a managed woodland landscape. Enlarged ring widths comprising long dense latewood or 'summer growth' appear regularly in specimens of field maple, ash and hazel and occasionally in oak and Maloideae. This rapid growth is a reflection of an open aspect, as is the case following the opening of managed woodland or the result of maintaining a hedge. Such new growth results in heavier, harder and stronger wood known as 'second growth' (Dobrowolska *et al.* 2011; Paul 1944).

Several posthole fills from Cutham contain comparable oak sapwood remains displaying moderate ring curvature and consistently well-spaced growth rings. This is an indication of the straight growth expected in an open aspect, and may represent the growth of managed oak standards. Most of the identified oak fragments are sapwood remains representing young growth from smaller trees, while evidence of oak heartwood is only occasional. An instance of using oak heartwood occurs in Cutham posthole fill (3089), which appears to show the specific selection of this type of wood as fuel for metalworking. Fragments of heartwood represent the older harder non-living central wood of a tree, possibly providing further evidence for the exploitation of oak standards. Wood of this nature provides the timber necessary for construction purposes. The sapwood to heartwood growth ring boundary is calculated between 10 and 55 years for England and Wales (Hillam *et al.* 1984).

The diversity of species recorded in the Bagendon samples is significant considering the quantities of charcoal are often minimal and many of the calcicolous shrubs usually occur in locally low numbers (Rodwell 1991). This is particularly evident for the Cutham enclosure, where the greatest species diversity occurs, and appears to imply the specific collection and burning of shrubs and underscrub, either from the maintenance of hedges or maintaining woodland clearings.

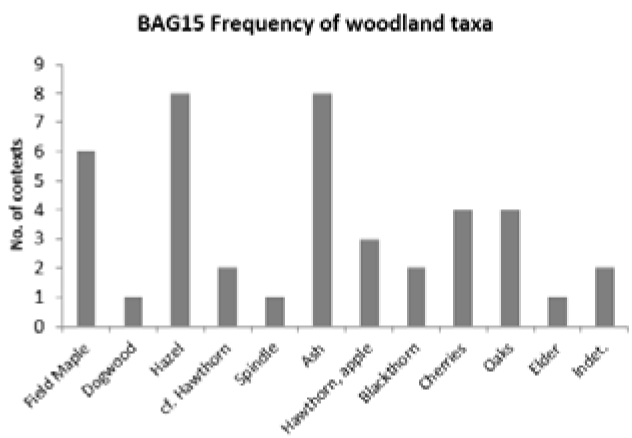
Numerous incidences of uneven edged boreholes caused by burrowing insects, occur in fragments displaying strong and moderate ring curvature (Table 18.24-18.25). This evidence is mostly associated with hazel, Maloideae/hawthorn and field maple and either represents the collection of dead or decaying

Table 18.18. Black Grove (BAG15)

Abundance		
	Trench	5
	Phase	2
	Sample	8
	Context	5029
	Feature	L
Acer campestre	Field Maple	(+)
Cornus sanguinea	Dogwood	-
Corylus avellana	Hazel	+
cf. *Crataegus* sp	cf. Hawthorn	(+)
Euonymus europaeus	Spindle	-
Fraxinus excelsior	Ash	+
Maloideae	Hawthorn, apple	+
Prunus spinosa	Blackthorn	-
Prunus sp	Cherries	+
Quercus sp	Oaks	-
Sambucus nigra	Elder	+
Indet.	Indet.	(+)

(+)	1-2
+	3-10
++	11-40
+++	41-500
++++	500+

Classification criteria	
I = Insect degradation * common/abundant ? = possible insect tunnel	I
H = Hedgerow evidence using criteria below, ** = Most plausible evidence, H? = Possible evidence	H
FC = Fruitstones (charred) FU = Fruitstone (uncharred)	FC
Th = Thorns (charred) * common occurrence	Th
TRW = Twisted growth / reaction wood * = regular occurrence ? = possible evidence	-
M = Maintenance (fluctuating series of wide / narrow / wide rings) ? = possible evidence	-
HB = Hedgerow / Hedge Bank plants (charred) H* = most plausible evidence, H? = possible evidence	HB
N = Nutshell (charred) * = common occurrence	-
NGR = Narrow Growth Rings (Predominantly) - traumatic growth (short shoot)	-
WGR = Long Growth Rings (Predominantly) - rapid growth (long shoot)	-
Tw = Twigs (charred) Definition of a twig is <10mm in diameter and includes pith and bark	Tw
B = Bark (charred) (i.e. branchwood with attached bark)	B
RCV = Radial Cracks + Vitrification * regular occurrence (evidence of burning green? branchwood)	RCV
COP = Perhaps evidence indicating silvicultural treatment (possibly coppicing / pollarding)	-
BP = Burnt Post? Oak slivers (comprising material indicative of coppicing)	-
CG = Calcicolous Grassland / Rough pasture Plants (charred) CG2 / CG3 (* / ? = very good / possible evidence)	CG
MS = Monocot stems (charred)	MS
TR = Tubers / Rhizomes (turves?)	TR
IM = Industrial material (smithing) IM? = trace (smithing activity)	-
Nod = Nodules (evidence of urine?)	-
Pu = Puparia (evidence of dung?)	-
WM = Wet meadow * = good evidence WM ? Possible evidence	WM



Charcoal summary data

Phase 2				Phase 3					Ph4	Ph5	
5	5	5	6	5	5	5	6	6	6	6	
2	2	2	2?	3a	3a	3a	3b	3b	4	5	
9	10	11	6	3	7	12	1	2	5	4	
5035	5041	5040	6017	5018	5027	5043	6011	6011	6019	6015	Context
L	L	L	P	O?	L	W	D	D	F	F	Frequency
-	-	(+)	-	+	(+)	-	(+)	+	-	-	6
-	-	-	-	-	+	-	-	-	-	-	1
(+)	+	(+)	+	+	(+)	-	(+)	-	-	-	8
-	-	-	+	-	-	-	-	-	-	-	2
-	-	-	-	-	(+)	-	-	-	-	-	1
(+)	-	(+)	(+)	(+)	(+)	-	(+)	(+)	-	-	8
(+)	-	-	-	+	-	-	-	-	-	-	3
(+)	-	-	-	-	-	-	-	(+)	-	-	2
-	-	-	-	+	+	-	-	-	-	(+)	4
(+)	-	-	-	-	(+)	-	(+)	+	-	-	4
-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	+	-	-	-	-	-	2
-	I	-	I	I	-	-	I	-	-	-	
H?	-	H?	H?	H?	H?	-	-	-	-	-	
-	-	-	-	-	FU	-	-	-	-	FU	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	TRW	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
HB	HB	HB	HB	HB?	HB	-	-	-	HB	-	
N	-	N	N	N	-	N	-	N	-	-	
-	-	-	-	NGR	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
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CG	-	CG?	CG?	CG?	CG	CG?	-	-	CG?	-	
-	-	-	-	-	MS	-	-	-	-	-	
-	-	-	-	-	TR	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	Nod	
-	-	-	-	-	-	-	-	-	-	-	
-	WM?	-	WM	WM?	WM*	-	WM	WM?	WM	-	

Insect degradation is probable evidence of long term storage of fuel (seasoning?) rather than collection of deadwood

H = Deposits with significant evidence for the presence of hedgerows contain 5 applicable criteria (H** = contain more than 5 criteria, H = 5, H? = contain 2 - 4)

Evidence for the presence of hedgerows is proportional to the amount of material present in the deposits (HB = more than one of the following plants)

HB- Plants typical of hedge banks, scrub, woodland ride = Cleavers, Hedge Bedstraw, Nipplewort, Red Campion, Common / Bifid Hemp-nettles, Timothy (grass)

Evidence for **CG2 / CG3** calcicolous grassland / rough pasture (more than one of the following characteristic plants noted below)

CG2 / CG3 plants Squinancywort, Burnet-saxifrage, Crested Dog's-tail, Ribwort Plantain, Hedge Bedstraw, Timothy, False Oat-grass, Perennial Rye-grass

Evidence for **MG8** grassland / wet meadow - seasonal flooding (more than one of the characteristic plants below)

MG8 plants Common Spike-rush, Crested Dog's-tail, Common Knapweed, Ribwort plantain, Perennial Rye-grass, Buttercup

The occurrence of freshwater snails typical of wet meadows supports this **MG8** grassland habitat at BAG15

P=Pit

L=Layer

O?=Occupation layer?

W=Wall trench

D=Deposit

F=Hypocaust flue

Table 18.19. Area A (BAG81) Charcoal summary data

Abundance								
	Sample	B4	B5	B6	B3 ab	B1 abcf	B2 a-e	Context
	Context	1	2	20	21	38	55	Frequency
Acer campestre	Field Maple	+	-	(+)	-	+	(+)	4
Alnus glutinosa	Alder	-	-	-	-	(+)	-	1
Cornus sanguinea	Dogwood	+	-	-	-	(+)	-	2
Corylus avellana	Hazel	++	(+)	-	-	++	(+)	4
cf. *Crataegus* sp	cf. Hawthorn	(+)	-	-	-	-	-	1
Fraxinus excelsior	Ash	+	(+)	-	-	++	-	3
Maloideae	Hawthorn, apple	++	(+)	-	(+)	++	(+)	5
Prunus spinosa	Blackthorn	+	-	-	-	++	-	2
Prunus sp	Cherries	-	(+)	-	-	+	-	2
Quercus sp	Oaks	-	-	-	-	++	-	1
Salicaceae	Willow, poplar	-	(+)	-	-	(+)	-	2
Ulmus sp	Elms	(+)	-	-	-	-	-	1
Bark	Bark	-	-	-	-	(+)	-	1
Diffuse porous	Diffuse porous	(+)	-	-	-	-	-	1
Indet.	Indet.	(+)	-	-	-	(+)	-	2

(+)	1-2
+	3-10
++	11-40
+++	41-500
++++	500+

Classification criteria	B4	B5	B6	B3 ab	B1 abcf	B2 a-e
I = Insect degradation * common/abundant ? = possible insect tunnel	I?	-	-	-	I	-
H = Hedgerow evidence using criteria below, ** = Most plausible evidence, H? = Possible evidence	H**	H?	-	-	H?	-
FC = Fruitstones (charred) FU = Fruitstone (uncharred)	-	FC	-	-	-	-
Th = Thorns (charred) * common occurrence	Th	-	-	-	-	-
TRW = Twisted growth / reaction wood * = regular occurrence ? = possible evidence	TRW	TRW	-	-	-	-
M = Maintenance (fluctuating series of wide / narrow / wide rings) ? = possible evidence	-	-	-	-	-	-
HB = Hedgerow / Hedge Bank plants (charred) H* = most plausible evidence, H? = possible evidence	-	-	-	-	-	-
N = Nutshell (charred) * = common occurrence	N	-	-	-	-	-
NGR = Narrow Growth Rings (Predominantly) - traumatic growth (short shoot)	NGR	-	-	-	NGR	-
WGR = Long Growth Rings (Predominantly) - rapid growth (long shoot)	WGR	-	-	-	WGR	-
Tw = Twigs (charred) Definition of a twig is <10mm in diameter and includes pith and bark	-	-	-	-	Tw	-
B = Bark (charred) (i.e. branchwood with attached bark)	B	-	-	-	B	-
RCV = Radial Cracks + Vitrification * regular occurrence (evidence of burning green? branchwood)	RCV	-	-	-	RCV	-
COP = Perhaps evidence indicating silvicultural treatment (possibly coppicing / pollarding)	-	-	-	-	-	-
BP = Burnt Post? Oak slivers (comprising material indicative of coppicing)	-	-	-	-	-	-
CG = Calcicolous Grassland / Rough pasture Plants (charred) CG2 / CG3 (* / ? = very good / possible evidence)	-	-	-	-	G?	-
MS = Monocot stems (charred)	MS	-	-	-	-	-
TR = Tubers / Rhizomes (turves?)	-	-	-	-	-	-
IM = Industrial material (smithing) IM? = trace (smithing activity)	IM	IM?	IM?	IM?	IM	IM?
Nod = Nodules (evidence of urine?)	Nod	-	-	-	-	-
Pu = Puparia (evidence of dung?)	-	-	-	-	-	-

Insect degradation is probable evidence of long term storage of fuel (seasoning?) rather than collection of deadwood

H = Deposits with significant evidence for the presence of hedgerows contain 5 applicable criteria (H** = contain more than 5 criteria, H = 5, H? = contain 2 - 4)

Evidence for the presence of hedgerows is proportional to the amount of material present in the deposits (HB = more than one of the following plants)

HB- Plants typical of hedge banks, scrub, woodland ride = Cleavers, Hedge Bedstraw, Nipplewort, Red Campion, Common / Bifid Hemp-nettles, Timothy (grass)

Evidence for **CG2 / CG3** calcicolous grassland / rough pasture (more than one of the following characteristic plants noted below)

CG2 / CG3 plants Squinancywort, Burnet-saxifrage, Crested Dog's-tail, Ribwort Plantain, Hedge Bedstraw, Timothy, False Oat-grass, Perennial Rye-grass

BAG81 - Evidence from the charred fine fraction material was sparse (Generally this fraction has been removed during previous work)

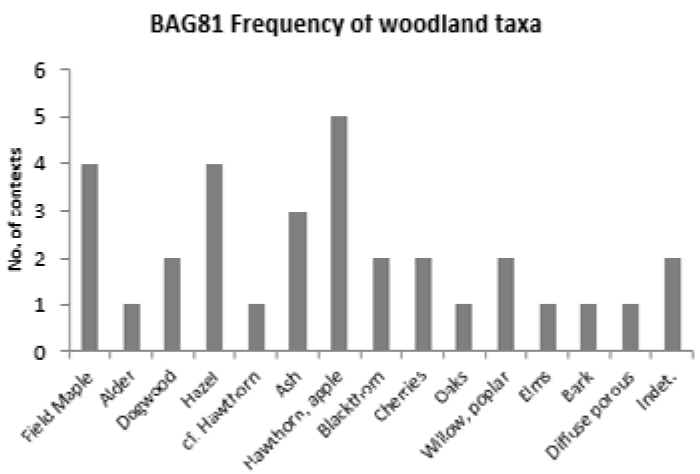

Table 18.20. Dyke 'e' (BAG17) Charcoal summary data

Abundance																			
	Trench	7	7	7	7	7	7	7	7	7	9	9	9	9	10	10	10	10	
	Sample	1	2	3	4	5	6	7	8	9	1	2	3	4	1	2	3	4	
	Context	7008	7007	7011	7010	7014	7015	7016	7017	7016	9002	9004	9005	9006	10002	10003	10004	10004	Context Frequency
Acer campestre	Field Maple	-	-	-	-	-	-	-	-	-	-	(+)	-	(+)	-	(+)	-	-	3
Corylus avellana	Hazel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	(+)	2
Fagus sylvatica	Beech	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	1
Fraxinus excelsior	Ash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	(+)	2
Maloideae	Hawthorn, apple	(+)	-	-	-	-	-	-	-	-	(+)	-	-	(+)	-	(+)	(+)	-	5
Prunus spinosa	Blackthorn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	1
Prunus sp	Cherries	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	1
Quercus sp	Oaks	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	(+)	(+)	(+)	4
Sambucus nigra	Elder	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	1
Ulmus sp	Elms	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	1
(+)	1-2																		
+	3-10																		
++	11-40																		
+++	41-500																		
++++	500+																		

wood or the long-term storage of fuel wood, possibly following coppicing/pollarding. The wood structure of these remains is often in good condition, although occasionally fragments are soft and friable (particularly noted in field maple). Insect attack is absent from fragments containing signs of vitrification and radial cracking. Considering hazel and Maloideae dominate the evidence for both insect degradation and radial cracking/vitrification, these differing characteristics probably represent two separate sources of wood appearing in the charcoal record. Perhaps the former reflects evidence of long-term storage and the latter signifies the burning of green wood soon after cutting (discussed below).

Hedgerows

Distinguishing evidence for hedges rather than scrub or woodland edge habitats can be difficult considering their similar floristic composition. In fact, hedgerows have been described as a linear form of scrub (Grieg 1994). However, the charred plant macrofossils and charcoal from Bagendon provide convincing evidence for the presence and maintenance of thorny hedges used to confine or exclude stock.

At Scrubditch, there are frequent charred remains representing hawthorn, blackthorn and rose shrubs, including small calibre branchwood, twigs, thorns/ prickles and fruitstones, providing plausible evidence of an impenetrable hedge intended for livestock management. Smaller quantities of similar material are present in the Cutham, Black Grove and BAG81 samples (Table 18.15-18.19). The higher number of charred thorns and prickles present at Scrubditch may reflect a thorny hedge of greater density compared to elsewhere at Bagendon or it may indicate maintenance occurred on a more regular basis. Examples of thorny hedges of hawthorn or blackthorn have been suggested for the Iron Age/Roman settlements at Farmoor, Oxfordshire (Lambrick and Robinson 1979: 121), Little Common Farm, Cambourne (Stevens 2009), Wardy Hill, Coveney, Cambridgeshire (Murphy 2003) and Fisherwick, Staffordshire (Williams 1979).

Due to the thorny nature of the remains at Scrubditch, it was probably convenient to dump the charred offcuts relatively close to where the shrubs were growing. Elements of this charred material may even represent *in situ* burning. The strongest evidence for hedges is concentrated in deposits associated with enclosure ditches F1, F2 and F4, possibly reflecting their use in association with these features. Burnt hedgerow trimmings appear to have been disposed of in pit F10. By contrast, remains of twigs and thorns are absent from the antenna ditches, pit F16 and postholes associated with F12, possibly reflecting the use of fencing in these areas.

The absence of charred buds may relate to the time of year trees and shrubs were cut for fuel or when any maintenance occurred. The paucity of charred twiggy material probably represents an alternative use for this resource prior to any burning, for instance providing 'tree hay' leaf fodder. The few recordings of twigs at Scrubditch are identified as the thorny shrubs Maloideae/cf. hawthorn and blackthorn, while at Cutham hazel and Maloideae/cf. hawthorn are noted. At Black Grove they are cherries and Maloideae, and at BAG81 it is cherries and ash. Charred thorns often occurred in the same contexts, perhaps representing thorny hedge clippings as part of a regime of maintenance. Growth ring counts indicate cutting was between 1 and 6 years (Table 18.26).

Table 18.21: Charcoal analysis data – Scrubditch (BAG12/13)

Site code	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG12	BAG13	BAG13	BAG13	BAG13
Context	1004	1006	1021	1026	1026	1030	1036	1042	1045	1049	1053	1055	1063	1104	1173	2025	2028
Sample	1	2	5	8	22	10	17	12	14	16	19	20	25	10	33	39	40
Number of fragments >4mm analysed	102	24	34	43	71	61	78	67	105	79	154	138	142	44	94	108	58
Weight of fragments >4mm analysed (g)	4.430	1.189	1.550	2.325	2.696	3.970	3.154	3.319	3.999	2.940	6.045	5.490	8.116	3.113	4.194	3.922	1.266
% of fragments (>4mm) analysed	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Charcoal weight in grams (number of fragments)																	
Acer campestre (Field Maple)	0.301 (7)	0.280 (5)	-	-	-	0.320 (8)	0.169 (3)	-	0.061 (4)	0.210 (6)	0.943 (17)	0.218 (8)	0.018 (1)	-	0.450 (9)	0.212 (6)	0.035 (2)
Cornus sanguinea (Dogwood)	0.028 (1)	-	-	-	-	-	0.037 (1)	-	-	-	0.015 (1)	0.035 (1)	-	-	0.034 (1)	-	-
Corylus avellana (Hazel)	0.348 (12)	0.181 (4)	0.495 (11)	0.084 (2)	0.024 (2)	1.085 (9)	0.719 (19)	0.651 (20)	0.432 (11)	0.836 (16)	2.375 (61)	0.838 (21)	0.311 (12)	2.073 (22)	0.275 (7)	0.152 (7)	0.025 (2)
cf. *Crataegus* sp (cf. Hawthorns)	1.149 (19)	-	0.138 (1)	-	1.139 (14)	0.551 (3)	0.106 (3)	0.240 (2)	0.247 (5)	0.281 (6)	0.515 (17)	0.205 (3)	1.335 (11)	-	0.383 (3)	0.085 (3)	0.078 (3)
Fraxinus excelsior (Ash)	0.559 (16)	0.262 (8)	0.488 (14)	0.763 (13)	0.218 (13)	0.495 (10)	0.661 (15)	0.302 (7)	0.577 (18)	0.331 (15)	0.177 (7)	0.867 (26)	0.054 (3)	0.488 (9)	0.939 (26)	2.077 (43)	0.411 (19)
cf. *Ligustrum vulgare* (cf. Wild Privet)	-	-	-	-	-	-	-	-	-	-	-	0.044 (1)	-	-	-	-	-
Maloideae (Hawthorn, apple, pear)	1.100 (26)	0.200 (4)	0.281 (5)	1.029 (21)	1.284 (40)	1.064 (21)	0.719 (17)	0.236 (5)	1.771 (41)	0.776 (21)	-	1.516 (36)	5.550 (102)	0.552 (13)	1.451 (35)	0.891 (32)	0.259 (15)
cf. *Malus sylvestris* (cf. Crab Apple)	-	-	-	-	-	-	-	-	-	-	-	-	0.131 (1)	-	-	0.233 (3)	-
Prunus spinosa (Blackthorn)	0.277 (5)	-	0.056 (1)	0.389 (6)	0.016 (1)	0.357 (8)	0.177 (5)	1.284 (14)	0.158 (5)	0.390 (12)	1.026 (21)	0.606 (10)	0.599 (5)	-	0.257 (6)	0.223 (11)	0.402 (14)
Prunus sp (Cherries)	0.355 (9)	0.081 (1)	0.068 (1)	-	-	0.098 (2)	0.280 (10)	0.546 (17)	0.294 (8)	-	0.191 (5)	0.321 (9)	-	-	0.351 (5)	-	-
Quercus sp (Oaks)	-	-	-	-	-	-	0.095 (1)	0.042 (1)	-	-	0.351 (17)	0.073 (1)	0.062 (5)	-	0.054 (2)	-	-
Sambucus nigra (Elder)	-	-	-	-	0.015 (1)	-	-	-	0.025 (1)	-	-	-	-	-	-	-	-
Sorbus sp (Whitebeams)	-	-	0.024 (1)	-	-	-	-	-	-	-	-	0.072 (1)	-	-	-	-	0.008 (1)
Viburnum opulus (Guelder-rose)	-	0.070 (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bark	0.048 (2)	-	-	-	-	-	-	0.018 (1)	0.035 (2)	0.018 (1)	-	0.145 (8)	0.056 (2)	-	-	0.049 (3)	0.011 (1)
Diffuse porous	-	-	-	-	-	-	-	-	0.241 (3)	0.036 (1)	-	0.401 (9)	-	-	-	-	-
Indet.	0.265 (5)	0.115 (1)	-	0.060 (1)	-	-	0.191 (4)	-	0.158 (7)	0.062 (1)	0.452 (8)	0.149 (4)	-	-	-	-	0.037 (1)

Table 18.22 Charcoal analysis data – Cutham (BAG14)

Site code	BAG14	BAG14	BAG14	BAG14	BAG14	BAG14	BAG14	BAG14	BAG14
Context	3004	3054	3057	3080	3083	3092	3094	4009	4016
Sample	11	26	15	24	22	34	28	10	18
Number of fragments >4mm analysed	111	39	31	55	96	50	113	138	75
Weight of fragments >4mm analysed (g)	4.895	1.578	1.482	1.488	3.602	1.917	5.957	7.983	2.589
Weight of fragments >4mm not analysed (g)	-	-	-	-	-	-	-	7.809	-
% of fragments (>4mm) analysed	100	100	100	100	100	100	100	50	100
Charcoal weight in grams (number of fragments)									
Acer campestre (Field Maple)	0.372 (9)	0.049 (2)	-	0.091 (3)	0.070 (4)	-	0.419 (9)	0.721 (16)	0.466 (9)
Cornus sanguinea (Dogwood)	-	-	-	0.049 (2)	-	-	-	-	-
Corylus avellana (Hazel)	0.528 (12)	0.058 (5)	0.427 (8)	-	1.201 (32)	0.864 (18)	2.269 (30)	1.412 (25)	0.326 (12)
cf. *Crataegus* sp (cf. Hawthorns)	0.181 (3)	-	-	-	0.269 (4)	0.018 (1)	-	0.481 (3)	0.222 (4)
Fraxinus excelsior (Ash)	-	-	0.027 (3)	-	-	-	-	-	-
cf. *Ligustrum vulgare* (cf. Wild Privet)	-	-	-	0.030 (1)	-	-	-	-	-
Maloideae (Hawthorn, apple, pear)	2.055 (50)	0.115 (7)	0.339 (7)	0.438 (16)	0.788 (22)	0.465 (11)	2.718 (62)	3.001 (60)	1.157 (30)
cf. *Malus sylvestris* (cf. Crab Apple)	-	-	0.173 (1)	-	-	-	-	-	-
Prunus spinosa (Blackthorn)	0.492 (9)	0.025 (4)	0.070 (3)	0.383 (18)	0.818 (25)	0.151 (5)	0.326 (6)	1.826 (20)	0.204 (9)
Prunus sp (Cherries)	0.649 (13)	-	0.055 (2)	-	-	0.134 (6)	0.113 (3)	0.456 (10)	-
Quercus sp (Oaks)	-	1.331 (21)	0.312 (6)	0.102 (7)	-	-	-	-	-
Rhamnus cathartica (Buckthorn)	0.110 (2)	-	-	-	-	-	-	-	-
Salicaceae (Willow/Poplar)	-	-	-	-	-	-	-	-	0.008 (1)
Sambucus nigra (Elder)	-	-	-	-	0.032 (2)	-	-	-	-
Bark	0.181 (5)	-	-	0.022 (1)	-	0.104 (4)	0.112 (3)	0.065 (3)	0.083 (4)
Diffuse porous	0.284 (7)	-	-	0.269 (3)	0.234 (4)	0.181 (5)	-	-	0.123 (6)
Indet.	0.043 (1)	-	0.079 (1)	0.104 (4)	0.190 (3)	-	-	0.021 (1)	-

Fluctuating growth-ring widths, probably reflecting management, consistently appear in Maloideae/cf. hawthorn and hazel charcoal from nine contexts at Scrubditch. There are single occurrences for Maloideae/cf. hawthorn at Cutham and BAG81. Series of narrow growth rings followed by abrupt increases in ring widths perhaps represent dense vegetation cover and a period of suppressed growth, followed by improved growing conditions after a cycle of vegetation thinning (Kabukcu 2018). This is probably a sign of deliberate human manipulation in order to promote new growth. Significantly, this evidence occurs in fruit and nut bearing trees and shrubs (Table 18.27).

Signs of eccentric growth comprising twisted growth and reaction wood, occur variably from a few fragments to over a quarter of a sample, and is particularly evident in Scrubditch fills (1006), (1042), (1049) and (1104). This evidence relates to mechanical stress (Kabukcu 2018), and for the instances noted at Bagendon, is probably the result of wood damage following management practices. At Scrubditch, most of this evidence occurs in nut and fruit bearing trees and shrubs such as hazel, blackthorn, and hawthorn or apple, with much lower numbers noted for ash and field maple. At Cutham, fragments are exclusively hazel and apple or hawthorn, at Black Grove there are a few instances in blackthorn/cherries and for BAG81 it is hawthorn or apple. A full list of this evidence is presented in Table 18.28. Similar evidence from a Roman Iron Age ditch at Bar Hill, Scotland, comprised well-preserved hawthorn branches with crooked unnatural growth typical of hedge-laying (Boyd 1984). Furthermore, indications for hedge-laying occurred in a Neolithic causewayed enclosure at Etton,

Table 18.23 Charcoal analysis data – Black Grove (BAG15) and BAG81

Site code	BAG15	BAG15	BAG81	BAG81	BAG81
Context	5018	5029	1	38	38
Sample	3	8	B4	B1abc	B1f
Number of fragments >4mm analysed	21	25	59	39	45
Weight of fragments >4mm analysed (g)	0.884	0.723	1.200	1.696	0.972
Weight of fragments >4mm not analysed (g)	-	-	-	-	-
% of fragments >4mm analysed	100	100	100	100	100
Charcoal weight in grams (number of fragments)					
Acer campestre (Field Maple)	0.110 (3)	0.010 (1)	0.330 (5)	0.657 (3)	0.028 (3)
Alnus glutinosa (Alder)	-	-	-	-	0.039 (1)
Cornus sanguinea (Dogwood)	-	-	0.085 (3)	0.028 (3)	0.020 (1)
Corylus avellana (Hazel)	0.309 (8)	0.039 (4)	0.143 (11)	-	0.171 (9)
cf. *Crataegus* sp (cf. Hawthorns)	-	0.034 (2)	0.019 (1)	-	-
Fraxinus excelsior (Ash)	0.065 (2)	0.097 (5)	0.061 (5)	0.105 (7)	0.059 (7)
Maloideae (Hawthorn, apple, pear)	0.185 (5)	0.029 (3)	0.378 (23)	0.487 (12)	0.157 (7)
Prunus spinosa (Blackthorn)	-	-	0.112 (7)	0.025 (2)	0.351 (9)
Prunus sp (Cherries)	0.215 (3)	0.436 (5)	-	0.085 (3)	-
Quercus sp (Oaks)	-	-	-	0.285 (6)	0.125 (6)
Salicaceae (Willow/Poplar)	-	-	-	0.008 (1)	0.008 (1)
Sambucus nigra (Elder)	-	0.047 (3)	-	-	-
Ulmus sp (Elms)	-	-	0.017 (1)	-	-
Bark	-	-	-	0.007 (1)	-
Diffuse porous	-	-	0.038 (2)	-	-
Indet.	-	0.031 (2)	0.017 (1)	0.009 (1)	0.014 (1)

Cambridgeshire showing this practice has a long history (Taylor 1998: 147).

Evidence of radial cracking coupled with vitrification is often present in charcoal from the Scrubditch and Cutham enclosures (Table 18.29). Radial cracks indicate the shrinkage of wood, either due to the burning of damp/green wood (Schweingruber 1990) or perhaps the natural result of seasoning fuel wood. It is possible to identify the former by recognising numerous less developed cracks (Théry-Parisot and Henry 2012), although small fragment size led to difficulty in applying this method for the Bagendon samples. Evidence of vitrification and radial cracking is frequent in fragments of hazel, blackthorn/cherries and Maloideae/cf. hawthorn that predominantly comprise strong growth-ring curvature. The burning of twiggy material or thorny branchwood is consistent with the disposal of green wood clippings and hedgerow maintenance. Cutham deposit (3089) contained fragments showing total fusion and unrecognisable anatomical features. In this instance, the remains are probably due to high temperature, and related to the evidence of metalworking activity noted in the deposit.

Classification of the growth rings into three groups of strong, moderate and weak curvature follows Marguerie and Hunot (2007). Due to small fragment size and poor condition, many of the fragments are classed as indeterminate. Where ring curvature could be determined, the majority of the fragments from all the Bagendon sites are characterised as strongly curved or small calibre (30%-60%). The high proportion of small branchwood within the charcoal assemblages (particularly at Scrubditch) and the strong probability of burning green wood, perhaps provide additional evidence of management practices. This could indicate a regime of hedge maintenance or the clearing of invasive scrub from pasture or managed woodland. The charred plant macrofossil record includes ample evidence of herbaceous taxa typically found in hedgerows or woodland clearings. Evidence of weak ring curvature representing large wood is rare, but when present, found to be oak, ash and field maple. Ring curvature data is presented in Table 18.30.

Table 18.24: Insect degradation - presence

Site code	Context	Sample	Woody species with evidence of insect tunnels
BAG12	1006	2	Field Maple
BAG12	1023	3	Field Maple
BAG12	1021	5	Hazel
BAG12	1026	8	Hazel, Hawthorn / Maloideae
BAG12	1030	10	Hawthorn / Maloideae, Blackthorn / Cherries, Ash
BAG12	1042	12	Hazel, Hawthorn / Maloideae, Blackthorn / Cherries,
BAG12	1045	14	Hazel
BAG12	1048	15	Hazel, Hawthorn / Maloideae, Ash, Oak
BAG12	1053	19	Hazel, Hawthorn / Maloideae, Field Maple, Blackthorn / Cherries, Ash, Oak
BAG12	1055	20	Hazel, Hawthorn / Maloideae, Field Maple, Blackthorn / Cherries, Ash, Wild Privet
BAG12	1036	24	Hawthorn / Maloideae
BAG12	1063	25	Hazel, Hawthorn / Maloideae
BAG12	1062	26	Hazel, Field Maple, Blackthorn / Cherries
BAG13	1091	5	Hazel
BAG13	1104	10	Hazel, Hawthorn / Maloideae
BAG13	1103	15	Field Maple
BAG13	1138	17	Field Maple
BAG13	1146	21	Hazel, Hawthorn / Maloideae
BAG13	1173	33	Hazel, Hawthorn / Maloideae, Field Maple, Ash
BAG13	2025	39	Hawthorn / Maloideae, Field Maple
BAG14	4007	2	Field Maple
BAG14	3029	4	Field Maple
BAG14	4009	10	Hazel, Hawthorn / Maloideae, Field Maple, Blackthorn / Cherries
BAG14	3057	15	Hazel
BAG14	3060	17	Hazel
BAG14	4016	18	Hazel, Field Maple, Willow / Poplar
BAG14	3072	19	Hawthorn / Maloideae, Field Maple
BAG14	3083	22	Hazel, Hawthorn / Maloideae,
BAG14	3094	28	Hazel, Hawthorn / Maloideae, Field Maple, Blackthorn / Cherries
BAG15	6011	1	Hazel
BAG15	5018	3	Hazel
BAG15	6017	6	Hawthorn / Maloideae,
BAG15	5029	8	Hazel, Blackthorn / Cherries
BAG15	5041	10	Hazel
BAG81	1	B4	Field Maple
BAG81	38	B1abcf	Hazel, Ash, Field Maple

Table 18.25: Insect degradation – species frequency

Species	Frequency
Hazel	24
Hawthorn / Maloideae	17
Field Maple	17
Blackthorn / Cherries	8
Ash	6
Oak	2
Willow / Poplar	1
Wild Privet	1

Table 18.26: Summary of identified twigs

Site code	Context	Sample	Notes of identified taxa and (growth ring counts)
BAG12	1004	1	Hawthorn (2 & 3yrs) - twigs with leaf nodes
BAG12	1026	8	Hawthorn (4yrs), Maloideae (2yrs), Ash (2yrs)
BAG12	1042	12	Cherries (3yrs) – reaction wood noted
BAG12	1053	19	Diffuse porous (1yr)
BAG12	1055	20	Maloideae (4yrs), Blackthorn (4yrs) – leaf node present for blackthorn
BAG12	1063	25	Maloideae (1yr)
BAG14	3004	11	Cherries (2yrs)
BAG14	4016	18	Hawthorn (6yrs), Maloideae (5yrs) (Hawthorn cut in early latewood with 2 wide then 4 narrow rings)
BAG14	3059	21	Hazel (1yr)
BAG14	3083	22	Hawthorn (2yrs)
BAG14	3094	28	Hazel (5yrs), Maloideae (5yrs)
BAG14	3092	34	Hazel (2yrs) Maloideae (3yrs) - Maloideae cut early in third year
BAG15	5029	8	Cherries (3, 4, & 5yrs), Maloideae (1yr) (Cherries cut late summer/autumn)
BAG81	38	B1abc	Cherries (5yrs), Indeterminate (1yr)
BAG81	38	B1f	Ash (2yrs)

[Maloideae and cherries are almost certainly hawthorn and blackthorn due to the frequent occurrence of identified fruitstones and thorns. Twigs are defined as <10mm in diameter with pith and bark (Huntley 2010) - see archive data for diameter measurements]

Table 18.27: Identification of fluctuating growth ring width (maintenance/manipulation)

Site code	Context	Sample	Woody species with fluctuations in growth ring width
BAG12	1004	1	Hawthorn
BAG12	1021	5	Hawthorn, Hazel
BAG12	1030	10	Hawthorn, Maloideae
BAG12	1045	14	Maloideae
BAG12	1049	16	Hawthorn, Hazel
BAG12	1036	17	Hazel
BAG12	1053	19	Hawthorn, Hazel*
BAG12	1055	20	Maloideae
BAG12	1026	22	Hawthorn, Maloideae
BAG14	4016	18	Hawthorn
BAG81	3094	28	Maloideae

[Maloideae is almost certainly hawthorn due to the occurrence of identified fruitstones and thorns.
*Fluctuations were particularly evident in (1053) see archive data for specific details]

Table 18.28: Presence of twisted growth or reaction wood

Site code	Context	Sample	Woody species with evidence of twisted growth / reaction wood
BAG12	1004	1	Hazel, Hawthorn / Maloideae, Blackthorn / Cherries
BAG12	1006	2	Hazel, Hawthorn / Maloideae, Ash, Field Maple
BAG12	1021	5	Hazel
BAG12	1026	8	Hawthorn / Maloideae, Ash
BAG12	1035	9	Hawthorn / Maloideae
BAG12	1030	10	Hazel
BAG12	1042	12	Hazel, Blackthorn / Cherries, Ash
BAG12	1045	14	Hazel, Hawthorn / Maloideae, Ash
BAG12	1049	16	Hazel, Hawthorn / Maloideae, Blackthorn / Cherries, Ash, Field Maple
BAG12	1036	17	Hazel, Ash
BAG12	1053	19	Hazel, Blackthorn / Cherries,
BAG12	1055	20	Hazel, Hawthorn / Maloideae
BAG12	1026	22	Hawthorn / Maloideae
BAG12	1036	24	Hawthorn / Maloideae
BAG12	1060	27	Hazel
BAG13	1083	7	Hazel
BAG13	1136	8	Hazel
BAG13	1104	10	Hazel
BAG13	1173	33	Hazel, Hawthorn / Maloideae, Blackthorn / Cherries
BAG13	2025	39	Hazel, Field Maple
BAG13	2028	40	Diffuse porous
BAG14	4007	2	Hazel
BAG14	3031	6	Hazel
BAG14	3035	8	Hazel
BAG14	3044	9	Hazel
BAG14	4009	10	Hazel
BAG14	3004	11	Diffuse porous
BAG14	3057	15	Hazel
BAG14	3060	17	Hawthorn / Maloideae
BAG14	4016	18	Hawthorn / Maloideae
BAG14	3072	19	Hazel
BAG14	3080	24	Hawthorn / Maloideae
BAG14	3094	28	Hazel, Hawthorn / Maloideae
BAG14	3152	29	Hazel
BAG14	3092	34	Hazel, Hawthorn / Maloideae, Blackthorn / Cherries
BAG15	5018	3	Blackthorn / Cherries
BAG81	1	B4	Hawthorn / Maloideae
BAG81	2	B5	Hawthorn / Maloideae

Table 18.29: Taxa containing evidence of radial cracking and vitrification

Site code	Context	Sample	Woody taxa with fragments comprising radial cracking and vitrification
BAG12	1004	1	Cherries, Hazel, Maloideae, Hawthorn, Ash, Indet.
BAG12	1023	3	Cherries
BAG12	1021	5	Blackthorn, Hazel
BAG12	1025	6	Hazel
BAG12	1026	8	Blackthorn, Maloideae, Ash, Indet.
BAG12	1035	9	Cherries, Hawthorn
BAG12	1030	10	Blackthorn, Cherries
BAG12	1042	12	Blackthorn, Cherries, Hazel, Ash
BAG12	1045	14	Cherries, Hazel, Maloideae, Hawthorn, Ash, Indet.
BAG12	1049	16	Blackthorn, Hazel, Indet.
BAG12	1036	17	Blackthorn, Cherries, Hazel, Ash, Oak, Indet.
BAG12	1053	19	Hazel, Oak
BAG12	1055	20	Blackthorn, Cherries, Hazel, Maloideae, Indet.
BAG12	1026	22	Blackthorn
BAG12	1061	23	Blackthorn
BAG12	1036	24	Blackthorn
BAG12	1063	25	Hazel
BAG12	1062	26	Cherries, Hazel, Maloideae
BAG12	2009	32	Oak
BAG13	1083	7	Blackthorn, Maloideae, Hazel, Ash
BAG13	1104	10	Hazel
BAG13	1112	13	Ash
BAG13	1103	15	Blackthorn
BAG13	2027	27	Hazel
BAG13	1153	28	Cherries, Hazel, Hawthorn
BAG13	1168	29	Hazel, Maloideae
BAG13	1156	31	Cherries
BAG13	1133	32	Cherries, Ash
BAG13	1173	33	Cherries, Hazel, Maloideae
BAG13	1177	34	Maloideae
BAG13	1180	35	Maloideae
BAG13	2025	39	Blackthorn, Maloideae, Hazel, Ash
BAG13	2028	40	Blackthorn, Maloideae, Ash
BAG13	1188	43	Blackthorn
BAG13	1161	44	Blackthorn
BAG13	2029	45	Blackthorn, Hazel
BAG14	3024	3	Blackthorn, Hazel
BAG14	3031	6	Oak
BAG14	3035	8	Blackthorn, Oak
BAG14	3044	9	Blackthorn, Cherries
BAG14	4009	10	Blackthorn*, Hazel, Maloideae*, Hawthorn
BAG14	3004	11	Blackthorn*, Cherries
BAG14	3056	14	Oak
BAG14	3057	15	Hazel, Indet.
BAG14	4016	18	Blackthorn*, Hazel, Maloideae, Indet.
BAG14	3072	19	Blackthorn
BAG14	3059	21	Blackthorn

BAG14	3083	22	Blackthorn*, Hazel
BAG14	3080	24	Blackthorn* Wild Privet
BAG14	3089	25	Oak
BAG14	3054	26	Hazel, Maloideae, Oak
BAG14	3094	28	Blackthorn, Hazel
BAG14	3152	29	Blackthorn, Cherries, Hazel
BAG14	3092	34	Blackthorn, Cherries, Hazel, Indet.
BAG15	5029	8	Cherries
BAG81	1	B4	Blackthorn
BAG81	38	B1abc	Blackthorn /Cherries / Maloideae / Ash
BAG81	38	B1f	Blackthorn / Maloideae / Alder

[Order of frequency = Blackthorn/Cherries-52; Hazel-33; Hawthorn/Maloideae-22; Ash-11; Oak-8; Alder-1; Wild Privet-1
*Regular occurrences were noted for a particular species. Oak fragments in BAG14 are mainly due to burnt posts or industrial activity. Insect degradation was absent from fragments comprising both radial cracking and vitrification]

Table 18.30: Growth ring curvature - fragment counts / percentages

Ring curvature	Context	Sample	Strong	Moderate	Weak	Indet.	Total
	Fragment counts						
BAG12	1004	1	38	18	2	44	102
BAG12	1026	8	29	4	1	9	43
BAG12	1042	12	54	0	0	13	67
BAG12	1045	14	53	13	0	39	105
BAG12	1049	16	32	11	0	36	79
BAG12	1036	17	32	15	0	31	78
BAG12	1053	19	81	23	0	50	154
BAG12	1055	20	70	21	0	47	138
BAG12	1026	22	27	11	0	34	72
BAG13	1063	25	32	44	0	66	142
BAG13	1104	10	27	0	0	17	44
BAG13	1173	33	20	22	0	52	94
BAG13	2025	39	22	22	15	49	108
BAG13	2028	40	21	3	0	34	58
BAG14	4009	10	50	20	1	67	138
BAG14	3004	11	50	14	0	47	111
BAG14	4016	18	41	13	1	20	75
BAG14	3083	22	53	10	0	33	96
BAG14	3080	24	29	4	0	22	55
BAG14	3094	28	77	0	0	36	113
BAG15	5018	3	15	0	0	6	21
BAG15	5029	8	6	0	0	19	25
BAG81	1	B4	38	4	0	17	59
BAG81	38	B1abcf	44	1	0	39	84
% Totals							
-	-	BAG12 (%)	46	16	0	38	-
-	-	BAG13 (%)	30	15	5	50	-
-	-	BAG14 (%)	51	10	0	39	-
-	-	BAG15 (%)	46	0	0	54	-
-	-	BAG81 (%)	57	3	0	40	-

[Indeterminate curvature was often due to small fragment size or radial fracturing producing narrow 'slivers'.
Ring curvature is based on Marguerie & Hunot 2007]

Table 18.31. Scrubditch

Abundance							Phase 2							
	Trench	1	1	1	1	1	1	1	1	1	2	2	1	1
	Phase	2	2	2	2	2	2	2	2	2	2	2	3	3
	Sample	2	20	23	26	27	28	15	19	25	18	21	1	5
	Context	1006	1055	1061	1062	1060	1061	1048	1053	1063	2014	2015	1004	1021
	Feature Number	1	4	4	4	4	4	2	2	2	8	8	1	2
	Feature	D	D	D	D	D	D	D	D	D	AD	AD	D	D
	Feature Number	1011	1031	1032	1032	1031	1032	1007	1007	1007			1011	1007
W1a/M5d	*Vitrea crystallina*	+	+	-	-	-	-	(+)	-	-	-	-	+	(+)
W1a	*Vitrea contracta*	++	+	++	++	(+)	(+)	+	-	+	-	+	-	(+)
W1a	*Oxychilus cellarius*	-	-	-	++	-	-	-	+	+	-	+	-	-
W1a/O4b/M5d	*Nesovitrea hammonis*	-	(+)	-	-	-	-	-	-	-	-	-	-	-
W1a	*Aegopinella pura*	-	-	-	-	-	-	-	-	(+)	-	-	-	-
W1a	*Aegopinella nitidula*	+	++	-	+	+	-	+	++	++	-	+	+	(+)
W1b/M5d	*Carychium tridentatum*	++	++++	+++	+++	++	+++	+++	+	++++	++	+	+++	++
W1c	*Discus rotundatus*	+++	+++	+++	+++	+	++	+++	+++	++++	(+)	++	++	+
W1d	*Acicula fusca*	-	-	-	-	-	-	-	-	-	-	(+)	-	-
W1d	*Acanthinula aculeata*	(+)	-	-	-	-	-	(+)	-	-	-	-	+	-
W1d	*Merdigera obscura*	-	(+)	(+)	(+)	-	-	-	-	++	-	-	(+)	(+)
W1d	*Cochlodina laminata*	(+)	-	(+)	(+)	-	-	-	+	++	-	(+)	(+)	-
W1d	*Clausilia bidentata*	(+)	+	+	(+)	-	-	+	+	+	-	(+)	(+)	+
W1d	*Helicigona lapicida*	-	-	-	-	-	-	-	-	-	-	-	-	-
W1d	*Punctum pygmaeum*	(+)	+	+	+	-	(+)	(+)	-	-	-	-	+	-
W1d	*Euconulus fulvus*	-	-	-	-	-	-	-	-	-	-	-	-	-
2/B8	*Pomatias elegans*	-	-	-	(+)	-	-	-	-	-	-	++	(+)	-
I3/M5d	*Cochlicopa cf. lubrica*	++	++	++	+	+	(+)	+	++	+++	(+)	(+)	+	+
I3/O4b	*Cochlicopa cf. lubricella*	-	-	-	(+)	-	-	(+)	+	+	-	-	(+)	-
I3/M5d	*Arianta arbustorum*	-	-	-	(+)	-	-	-	-	(+)	-	-	-	-
I3	*Cepaea hortensis*	-	(+)	-	-	-	-	-	-	-	-	(+)	-	(+)
I3/M5d	*Cepaea nemoralis*	-	-	(+)	-	-	-	(+)	+	-	-	+	-	-
I3/M5d	*Trochulus hispidus*	++	+++	+++	+++	(+)	+	++	++	+++	+	++	+	+
O4a/M5d	*Vertigo pygmaea*	+	(+)	-	-	(+)	-	-	-	-	-	-	-	+
O4a	*Pupilla muscorum*	+	-	(+)	(+)	-	-	-	-	-	-	-	+	(+)
O4a	*Vallonia costata*	+++	++	++	-	-	-	++	-	-	-	-	+++	+
O4a	*Vallonia cf. excentrica*	-	-	+	-	-	-	+	-	-	(+)	(+)	(+)	+
O4a	*Helicella itala*	-	-	(+)	(+)	(+)	-	+	-	-	(+)	-	++	(+)
M5b	*Succinea / Oxyloma* sp	-	-	-	-	-	-	-	-	-	-	-	-	-
	Carychium sp	(+)	-	-	-	-	-	-	(+)	+	-	(+)	-	-
B8	*Cecilioides acicula*	+	+++	+++	++++	++	++	++	++++	++++	+++	+	+++	+++
	Cepaea sp	-	-	-	-	-	-	-	-	-	-	-	-	-
	Clausiliidae	-	-	-	(+)	(+)	-	-	+	++	-	-	-	-
	Oxychilus alliarius	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oxychilus sp	+	+	++	++	(+)	++	(+)	-	++	-	+	+	-
	Trochulus sp	-	-	-	-	-	-	-	-	-	-	-	-	-

W = Possible stone walls
(+) = 1-2
\+ = 3-10 D=Ditch
++ = 11-40 AD=Antenna ditch
+++ = 41-200 PH=Posthole
++++ = 200+ P=Pit

(BAG12) Snail data

Phase 3														Phase 4					U
1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	1
3	3	3	3	3?	3	3	3?	3?	3?	3?	3	3	3	4	4	4	4	4	U
12	16	9	10	14	17	24	3	8	22	4	30	31	13	6	11	29	32	33	7
1042	1049	1035	1030	1045	1036	1036	1023	1026	1026	2002	2011	2012	2013	1025	1039	2007	2009	2004	1015
2	2	4	4	4	4	4	7	10	10	6	9	9	8	2	2	9	8	8	3 or 5
D	D	D	D	D	D	D	P	P	P	D	AD	AD	AD	D	D	D	AD	AD	PH
1007	1009	1032	1031	1031	1032	1032	1027	1043	1043	2001				1009	1007	2006			1012
+	+	(+)	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	+	(+)	+	+	(+)	++	-	-	-	-	-	-	++	-	-	-	(+)	-	-
-	-	-	-	-	(+)	+	-	-	-	-	-	-	++	-	-	-	+	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	+	+	+	+	++	-	-	-	-	-	-	-	+	(+)	(+)	-	+	-	-
++	+++	++	++	++++	++++	+++	-	-	-	-	++	+++	+	++++	-	-	+++	++	-
++	+++	+	++	+++	+++	++	-	+	+	-	(+)	+	+++	++	++	-	++	+	-
-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-
+	+	-	+	(+)	(+)	-	-	-	-	-	-	+	++	-	-	-	-	-	-
-	+	-	-	-	-	(+)	-	-	-	-	(+)	-	(+)	(+)	-	-	-	-	-
+	+	-	-	-	(+)	(+)	-	-	-	-	-	-	+	(+)	-	-	(+)	-	-
+	++	-	(+)	+	(+)	-	-	-	-	-	-	-	(+)	-	-	-	(+)	-	-
-	-	-	-	-	-	-	-	-	-	-	-	(+)	(+)	-	-	-	-	-	-
+	+	(+)	-	-	-	(+)	-	-	-	-	-	(+)	-	-	-	-	-	-	-
(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	(+)	(+)	(+)	(+)	-	-	-	-	-	-	+	(+)	++	++	-	-	++	++	-
+	++	+	+	++	+	+	(+)	-	+	-	+	(+)	+	++	++	-	++	+	-
+	(+)	-	-	-	(+)	-	-	-	-	-	-	-	(+)	+	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-
-	-	(+)	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
-	-	-	(+)	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
++	++	+	+	++	++	++	-	-	+	-	-	+	+++	-	-	+	+++	+	-
(+)	-	(+)	(+)	-	+	(+)	-	(+)	-	-	++	(+)	+	++	-	-	-	-	-
-	-	(+)	-	(+)	+	-	(+)	(+)	(+)	-	++	-	-	+++	-	-	++	+	-
++	+++	+	++	++	++	-	-	-	-	-	++	(+)	(+)	-	-	-	-	-	-
-	-	(+)	(+)	+	+	-	(+)	(+)	-	-	++	(+)	+	+++	++	-	++	++	(+)
-	+	-	-	++	++	+	(+)	(+)	-	-	++	++	(+)	+	-	(+)	-	-	-
(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	(+)	(+)	-
++	+++	+	++	+++	+++	+++	++	++	+++	(+)	+++	+++	+++	+++	++	++	+++	+++	(+)
-	(+)	-	(+)	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	(+)	-	-	-	(+)	-	-	-	-	-	-	-	-	-	(+)	-
-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-
-	-	(+)	+	-	-	+	-	-	-	-	-	(+)	++	+++	(+)	-	++	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
												W	W						

Table 18.32. Scrubditch

Abundance		Phase 2												Phase 3							
	Trench	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	2	2	2	1
	Phase	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4
	Sample	21	35	26	30	34	36	37	42	17	27	38	41	7	8	10	14	24	39	40	16
	Context	1146	1180	1151	1155	1177	1181	1182	1189	1138	2027	2030	2031	1083	1136	1104	1127	2025	2025	2028	1098
	Feature Number	4;21	1	16	16	16	16	16	16	4;21	8	8	22	16	4;21	4;21	4;21	22	22	22	4;21
	Feature	D	D	P	P	P	P	P	P	D	AD	D	D	P	D	D	D	D	D	D	D
	Feature Number	1109	1171	1082	1082	1082	1082	1082	1082	1109	2019	2019	2021		1097	1097	1109	2021	2021	2021	1097
W1a/M5d	*Vitrea crystallina*	+	+	-	-	-	(+)	-	-	++	-	-	++	-	(+)	(+)	++	-	-	-	+
W1a	*Vitrea contracta*	+	++	(+)	-	+	+	(+)	+	++	(+)	(+)	++	-	+	++	+	+	(+)	-	++
W1a	*Oxychilus cellarius*	(+)	(+)	-	(+)	+	-	+	+	-	-	+	(+)	-	-	-	-	-	(+)	-	-
W1a/O4b/M5d	*Nesovitrea hammonis*	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	(+)	-	-	-	(+)
W1a	*Aegopinella pura*	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W1a	*Aegopinella nitidula*	(+)	+++	-	-	+	-	-	+	(+)	-	+	+	-	+	(+)	-	-	-	-	+
W1b/M5d	*Carychium tridentatum*	++++	++++	+	+	+	++	+++	+	++++	+	-	++++	-	++	+++	+++	++	-	++	+++
W1c	*Discus rotundatus*	+	+++	-	+	++	++	++	+	+++	++	+	+++	-	++	++	++	(+)	+	-	++
W1d	*Acicula fusca*	-	(+)	-	-	-	-	-	-	+	-	-	-	-	-	(+)	+	-	-	-	(+)
W1d	*Acanthinula aculeata*	(+)	+	(+)	-	+	+	+	(+)	++	(+)	-	+	-	+	+	++	-	(+)	+	+
W1d	*Merdigera obscura*	-	-	-	-	-	-	-	-	(+)	(+)	-	(+)	-	-	(+)	-	-	-	-	+
W1d	*Cochlodina laminata*	(+)	+	-	(+)	-	(+)	(+)	-	(+)	(+)	-	(+)	-	(+)	-	(+)	-	-	-	(+)
W1d	*Clausilia bidentata*	(+)	+	-	-	-	-	-	-	+	(+)	(+)	(+)	-	-	-	(+)	-	(+)	-	(+)
W1d	*Helicigona lapicida*	(+)	(+)	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	(+)
W1d/S10	*Trochulus cf. striolatus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W1d/O4b/M5d	*Punctum pygmaeum*	+	-	-	-	-	(+)	(+)	-	++	(+)	-	+	-	(+)	(+)	+	-	-	(+)	+
2/B8	*Pomatias elegans*	-	++	-	(+)	-	-	-	(+)	++	++	-	+	-	+	+	++	(+)	+	(+)	(+)
I3/M5d	*Cochlicopa cf. lubrica*	++	++	-	-	+	-	+	(+)	+	(+)	-	+	-	++	+	++	-	+	+	+
I3/O4b	*Cochlicopa cf. lubricella*	-	-	(+)	-	-	-	-	-	+	-	-	-	-	-	(+)	+	+	-	-	-
I3/M5d	*Arianta arbustorum*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-
I3	*Cepaea hortensis*	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I3/M5d	*Cepaea nemoralis*	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	(+)	-	-
I3/M5d	*Trochulus hispidus*	+	++	-	-	+	-	(+)	+	++	(+)	+	++	-	+	+	+	-	-	-	+
O4a/M5d	*Vertigo pygmaea*	(+)	(+)	-	-	-	-	-	-	-	-	-	(+)	-	+	+	+++	++	++	(+)	(+)
O4a	*Pupilla muscorum*	-	-	-	-	-	-	-	-	-	+	-	-	-	+	(+)	++	++	++	+	(+)
O4a	*Vallonia costata*	-	+	-	-	-	-	-	-	++	-	-	++	-	-	++	+	(+)	+	+	++
O4a	*Vallonia cf. excentrica*	-	-	(+)	-	-	-	+	-	-	++	(+)	-	-	+	(+)	+++	++	++	+	-
O4a	*Helicella itala*	-	-	+	-	-	-	(+)	-	+	+	-	+	-	-	-	+	+	+++	++	-
M5b	*Succinea / Oxyloma* sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A7	*Candidula intersecta*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Carychium sp	-	+	-	(+)	(+)	-	-	-	+	-	-	-	-	-	+	+	-	-	-	-
B8	*Cecilioides acicula*	+	+++	+++	++	+++	+++	++	+	+	++	+	+	(+)	++	++	++	++	++	+++	++
	Cepaea sp.	-	(+)	-	-	-	-	-	-	(+)	(+)	-	(+)	-	-	-	-	-	-	-	-
	Clausiliidae	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-
	Oxychilus alliarius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A7	*Oxychilus cf. draparnaudi*	-	-	-	-	-	-	+	(+)	-	-	-	-	-	-	-	-	-	-	-	-
	Oxychilus sp	+	++	+	-	-	++	+	+	++	-	-	+	-	(+)	(+)	+	-	-	-	-
	Trochulus sp	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	W = Possible stone walls	W	W							W											W

(+) = 1-2
\+ = 3-10
++ = 11-40
+++ = 41-200
++++ = 200+

D=Ditch
AD=Antenna ditch
PH=Posthole
P=Pit

(BAG13) Snail data

Phase 4				Unphased																				
1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	4	4a	U	U	U	U	U	U	U	U	U	U	U	U	?	U	U	U	U	U	U	U	U
33	22	23	45	2	4	5	12	13	15	18	19	28	31	3	9	20	43	1	6	11	25	29	32	44
1173	2020	2022	2029	1077	1075	1091	1119	1112	1103	1137	1124	1153	1156	1087	1094	1101	1188	1069	1089	1089	1142	1168	1133	1161
1	8	22	22	12	12	12	12	12	12	12	12	12	12	19	?	?	11;15	15;18	15;18	15;18	NA	NA	NA	NA
D	AD	D	D	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	PH	D	P	PH	PH	PH
1171	2019	2021	2021				1090		1102	1123	1123	1152	1152			1100	1187			1088	1141	1167	1132	1160
-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
++	+	-	++	-	-	-	-	(+)	(+)	-	(+)	-	-	-	(+)	-	-	-	-	-	-	-	-	-
+	-	-	-	-	-	(+)	-	+	(+)	-	-	(+)	-	-	-	-	+	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
++	-	(+)	+++	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
++++	++	++	++++	-	-	-	-	-	(+)	(+)	(+)	-	(+)	-	-	(+)	-	-	-	(+)	-	-	-	-
+++	+	+	+++	(+)	-	(+)	(+)	+	+	++	+	+	+	-	(+)	-	(+)	-	-	-	(+)	+	-	(+)
+	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
++	+	-	++	-	-	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
++	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	(+)	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+++	+	+	++	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
+++	+	-	++	-	-	-	-	-	-	-	-	(+)	+	-	-	-	-	-	-	-	-	-	-	(+)
-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-
(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+++	(+)	-	++	-	-	-	-	(+)	+	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-
(+)	-	+	-	-	-	(+)	-	(+)	-	(+)	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-
+	+	+	(+)	-	-	-	-	+	(+)	-	-	(+)	-	-	(+)	-	-	(+)	-	-	-	-	-	-
++	-	+	+++	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	-	++	-	(+)	(+)	-	(+)	(+)	-	-	(+)	-	-	(+)	(+)	(+)	-	(+)	-	-	-	-	-	-
-	(+)	+	+ cf.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-
-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	-	(+)	+	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+++	++	++	+++	+++	(+)	+	++	+++	++	++	++	++	++	(+)	+	+	+++	(+)	(+)	(+)	++	++	++	++
+	-	-	-	-	-	(+)	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	(+)	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
++	+	-	++	-	-	-	(+)	-	+	(+)	+	-	+	-	-	-	-	-	-	-	-	-	-	(+)
-	-	-	-	-	-	-	(+)	-	-	-	(+)	-	-	(+)	-	-	-	-	-	-	-	-	-	-

Table 18.33. Cutham

Abundance		Phase 1			Phase 2								Phase 3		
	Trench	3	3	4	3	3	3	3	3	3	3	3	3	3
	Phase	1?	1?	1	2	2	2	2	2	2	2	3	3	3
	Sample	9	19	20	23	29	30	21	17	27	33	22	34	11
	Context	3044	3072	4019	3081	3152	3153	3059	3060	3102	3135	3083	3092	3004
	Feature Number	32	32	24	23	23	23	24	24	27	29	27	27	24
	Feature	P	PH	D	D	P	D	D	D	P	P	P	P	D
	Feature Number	3036	3073	4004	3019	3138	3070	3003	3003	3061	3084	3061	3061	3003
W1a/M5d	*Vitrea crystallina*	-	-	-	-	-	-	-	-	-	-	-	-	-
W1a	*Vitrea contracta*	-	-	+	+	+	++	+	++	-	+	+	-	-
W1a	*Oxychilus cellarius*	-	-	-	+	+	-	(+)	+	-	-	-	-	-
W1a/O4b/M5d	*Nesovitrea hammonis*	-	-	-	-	-	-	-	-	-	-	-	-	-
W1a	*Aegopinella nitidula*	-	-	(+)	+	(+)	+	-	++	-	-	-	-	-
W1b/M5d	*Carychium tridentatum*	-	-	++	+++	-	+++	+++	++++	-	+	-	-	-
W1c	*Discus rotundatus*	-	-	++	++	++	+++	++	+++	-	+	-	-	+
W1d	*Acanthinula aculeata*	-	-	-	-	-	(+)	-	-	-	(+)	-	-	-
W1d	*Merdigera obscura*	-	-	-	-	-	-	-	(+)	-	-	-	-	-
W1d	*Cochlodina laminata*	-	-	(+)	-	-	-	-	(+)	-	-	-	-	-
W1d	*Clausilia bidentata*	-	-	-	-	-	(+)	-	-	-	(+)	-	-	-
W1d	*Helicigona lapicida*	-	-	-	-	-	-	-	-	-	-	-	-	-
W1d/O4b/M5d	*Punctum pygmaeum*	-	-	-	-	-	(+)	-	-	-	(+)	+	-	-
2/B8	*Pomatias elegans*	-	-	-	(+)	-	+	-	-	-	-	(+)	-	-
I3/M5d	*Cochlicopa cf. lubrica*	-	-	+	+	-	+	+	+++	-	(+)	-	-	-
I3/O4b	*Cochlicopa cf. lubricella*	-	-	-	-	-	-	-	-	-	-	-	-	-
I3/M5d	*Arianta arbustorum*	-	-	-	-	-	-	-	-	-	-	-	-	-
I3	*Cepaea hortensis*	-	-	-	-	-	+	-	-	-	-	-	-	-
I3/M5d	*Cepaea nemoralis*	-	-	-	-	-	-	-	-	-	-	-	-	-
I3/M5d	*Trochulus hispidus*	-	-	+	(+)	-	++	-	+++	-	+	-	-	(+)
O4a/M5d	*Vertigo pygmaea*	(+)	-	-	-	(+)	(+)	-	-	(+)	(+)	+	-	+
O4a	*Pupilla muscorum*	(+)	-	-	-	+	-	-	(+)	-	-	+	-	++
O4a	*Vallonia costata*	-	-	-	-	+	-	-	-	(+)	-	++	-	-
O4a	*Vallonia cf. excentrica*	+	+	-	-	(+)	+	-	-	-	+	+	+	+
O4a	*Helicella itala*	-	(+)	-	(+)	+	-	-	-	-	-	+	-	++
A7	*Candidula intersecta*	-	-	-	-	-	-	-	-	-	-	-	-	-
A7	*Oxychilus cf. draparnaudi*	-	-	-	-	-	-	-	-	-	-	-	-	-
	Carychium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-
B8	*Cecilioides acicula*	+++	++	+	-	+++	+	++	+++	+	+	++++	+++	++++
	Clausiliidae	-	-	-	(+)	-	-	-	-	-	-	-	-	-
	Cochlicopa sp.	-	-	-	-	(+)	-	-	-	-	-	-	-	-
	Oxychilus sp.	-	-	+	++	+	++	++	++	-	+	-	-	(+)
	Vallonia sp.	-	-	-	-	-	-	-	-	-	-	+	-	-

W = Possible stone walls
(+) = 1-2
\+ = 3-10
++ = 11-40
+++ = 41-200
++++ = 200+

PH=Posthole
D=Ditch
P=Pit

(BAG14) Snail data

			Phase 4						Phase 5		Unphased							
4	4	4	3	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3
3	3	3	4	4	4	4	4	4?	5	5	U	U	U	U	U	U	U	U
2	10	18	4	15	31	5	12	28	3	13	6	8	14	24	26	1	7	25
4007	4009	4016	3029	3057	3148	4008	4010	3094	3024	3024	3031	3035	3056	3080	3054	3010	3033	3089
24	24	23	23	23	23	23	23	31	26	26	32	32	32	32	32	NA	NA	NA
D	D	D	D	lens	D	D	D	P	D	D	PH	P	P?	PH	PH	PH	P	PH
4004	4004	4002	3019	3019	3070	4002	4002	3093	3023	3023	3030	3034	3055	3079	3053	3010	3032	3088
-	-	-	-	-	(+)	(+)	(+)	-	-	-	-	-	-	-	-	-	-	-
-	(+)	(+)	+++	++	+++	++	++	+	+	++	+	-	-	-	(+)	-	-	-
-	-	-	+	-	++	-	-	-	++	+++	-	-	-	-	-	-	-	-
-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-
+	-	-	+	(+)	(+)	(+)	+	-	-	-	-	-	-	-	-	-	-	-
+	-	+	++	++	+++	+++	+++	-	+++	+++	-	-	-	-	-	-	-	-
++	-	+	+++	++	+++	++	++	-	+	+++	+	++	-	-	+	++	-	+
-	-	+	+	(+)	(+)	(+)	+	-	-	-	-	-	-	-	-	-	-	-
-	-	-	(+)	-	(+)	-	-	-	-	(+)	-	-	-	-	-	-	-	-
-	-	-	-	-	+	-	(+)	-	-	-	-	-	-	-	-	-	-	-
-	-	-	(+)	-	(+)	(+)	(+)	-	-	(+)	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-
-	-	-	+	-	(+)	+	(+)	-	-	-	-	-	-	-	-	-	-	-
(+)	-	-	+	(+)	++	++	++	-	+	++	-	-	-	-	-	-	-	-
-	-	-	+	-	+	+	+	-	-	-	(+)	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-
-	-	-	-	-	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	(+)	-	-	-	-	(+)	-	-	-	-	-	-	-	-
-	-	-	-	+	+	+	(+)	-	-	+	-	-	-	-	-	-	-	-
-	-	(+)	+++	+	++	+	++	-	+	++	-	-	-	-	-	-	-	-
-	-	-	++	-	(+)	++	++	(+)	(+)	+	(+)	-	-	-	(+)	(+)	-	-
-	(+)	-	+	(+)	-	+++	+	-	++	+	+	(+)	-	+	+	(+)	(+)	+
-	-	(+)	+++	-	+	++	+++	+	+	+	-	-	-	+	(+)	++	-	(+)
+	++	(+)	+	-	-	+	+	(+)	++	++	+	(+)	+	(+)	-	-	(+)	-
+	+	-	++	-	(+)	++	(+)	(+)	+	++	(+)	-	-	-	-	-	-	-
(+)	-	-	-	-	-	-	-	(+)	-	(+)	-	-	-	-	-	-	-	-
(+)	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	+	-	-	-	(+)	-	-	-	-	-	-	-	-
++	+++	++	++++	+++	+	+++	+++	+++	+++	+++	+++	++	++	++	++	-	+	++
(+)	-	-	-	+	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+	-	-	++	+	+	+	+	-	+	-	(+)	(+)	-	-	-	(+)	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
										W								

Table 18.34. Black Grove

Abundance				Phase 2	
	Trench	5	5	5	5
	Phase	2	2	2	2
	Sample	8	9	10	11
	Context	5029	5035	5041	5040
	Feature number				
	Feature	Layer	Layer	Layer	Layer
W1a/M5d	*Vitrea crystallina*	-	-	-	-
W1a	*Vitrea contracta*	-	-	-	-
W1a	*Oxychilus cellarius*	-	-	-	-
W1b/M5d	*Carychium tridentatum*	(+)	-	-	-
W1c	*Discus rotundatus*	(+)	-	-	-
W1d	*Lauria cylindracea*	-	-	-	-
W1d	*Merdigera obscura*	-	-	-	-
W1d	*Clausilia bidentata*	-	-	-	-
W1d/O4b/M5d	*Punctum pygmaeum*	-	-	-	-
I3/M5d	*Cochlicopa cf. lubrica*	-	(+)	-	-
I3/M5d	*Cepaea nemoralis*	-	-	-	-
I3/M5d	*Trochulus hispidus*	(+)	-	+	-
O4a/M5d	*Vertigo pygmaea*	(+)	-	(+)	-
O4a	*Pupilla muscorum*	(+)	-	(+)	(+)
O4a	*Vallonia costata*	-	-	-	-
O4a	*Vallonia cf. excentrica*	(+)	(+)	(+)	(+)
O4a	*Helicella itala*	-	(+)	-	-
B8	*Cecilioides acicula*	+	+	-	+
	Cepaea sp.	-	-	-	-
	Clausiliidae	-	-	-	-
	Cornu aspersum	-	-	-	-
	Oxychilus sp	-	-	(+)	-
	Pyramidula pusilla	-	-	-	-
	Freshwater Snails				
F6	*Anisus leucostoma*	(+)	+	-	-
M5a	*Galba truncatula*	(+)	(+)	-	-
M5a	*Pisidium sp*	-	(+)	(+)	-

W = Possible stone walls
(+) = 1-2
\+ = 3-10
++ = 11-40
+++ = 41-200
++++ = 200+
Snails with grey colouring

(BAG15) Snail data

	Phase 3					Ph4	Ph5
6	5	5	5	6	6	6	6
2?	3a	3a	3a	3b	3b	4	5
6	3	7	12	1	2	5	4
6017	5018	5027	5043	6011	6011	6019	6015
	Occup?					Hypoc	Hypoc
Pit	Layer	Layer	Wall trench	Deposit	Deposit	Flue	Flue
-	-	-	-	-	-	-	(+)
(+)	(+)	-	-	+	(+)	(+)	-
-	-	-	(+)	-	-	-	(+)
-	+	-	-	-	(+)	-	(+)
+	-	(+)	-	(+)	+	+	+
-	-	-	-	-	(+)	-	-
-	-	-	(+)	(+)	(+)	-	(+)
-	-	-	-	-	(+)	-	-
-	-	-	-	-	(+)	-	-
-	-	-	(+)	-	-	-	(+)
-	-	-	-	(+)	-	-	-
+	+	-	-	++	++	-	+
-	+	-	-	(+)	+	(+)	+
-	+	-	-	+	+	(+)	+
+	++	(+)	+	++	++	(+)	++
-	(+)	+	(+)	-	-	-	-
-	-	-	-	-	-	(+)	(+)
+	++	++	+	++	++	+	++
-	-	-	-	-	(+)	-	-
(+)	(+)	-	-	-	-	-	-
-	-	-	-	-	(+)	-	-
-	(+)	-	-	(+)	-	(+)	(+)
-	-	-	-	-	-	-	+
-	-	(+)	-	-	(+)	-	-
-	-	-	-	-	-	-	-
-	-	(+)	-	-	-	-	-
					W		W

Table 18.35. Area A (BAG81) Snail data

Abundance	Sample	B4	B5	B6	B3 ab	B1 abcf	B2 a-e
	Context	1	2	20	21	38	55
W1b/M5d	*Carychium tridentatum*	-	-	-	-	(+)	-
W1d/O4b/M5d	*Punctum pygmaeum*	(+)	-	-	-	-	-
I3/M5d	*Cepaea nemoralis*	-	-	-	(+)	-	-
I3/M5d	*Trochulus hispidus*	(+)	-	-	-	-	-
O4a/M5d	*Vertigo pygmaea*	(+)	-	-	-	(+)	-
O4a	*Vallonia costata*	-	-	-	-	-	-
O4a	*Vallonia cf. excentrica*	-	-	-	(+)	-	-
O4a	*Helicella itala*	(+)	-	(+)	(+)	(+)	(+)
B8	*Cecilioides acicula*	+	-	-	-	+	(+)
M5b	*Succinea / Oxyloma* sp	(+)	-	-	-	-	-
M5c	*Vallonia cf. pulchella*	(+)	-	-	(+)	-	-
	Freshwater Snails						
F6	*Anisus leucostoma*	(+)	-	-	-	-	-
M5a	*Galba truncatula*	+	-	-	-	-	-
M5b	*cf. Oxyloma elegans*	(+)	-	-	-	-	-

(+) = 1-2
+ = 3-10
++ = 11-40
+++ = 41-200
++++ = 200+

Land snails

Methods

Assessment of the snail assemblages involved scanning the sieved fractions of the flots at up to x60 magnification using a Leica MZ7.5 stereomicroscope. Adult snails were recorded using a semi-quantitative scale of (+): 1-2 snails; +:3-10; ++: 11-40; +++: 41-200; ++++: >200. Juveniles were not quantified. The remains were identified to species using the descriptions of Cameron (2008), Kerney and Cameron (1979) and Macan (1977) and the comparative reference collection held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Nomenclature follows Anderson (2005) and habitat classification follows Evans (1972), Davies (2008), Cameron (2008) and Macan (1977). The results are presented in Table 18.31-18.36 (on tables: Blue = woodland/shade-loving; Orange = open/grassland).

Ceciliodes acicula has been excluded from the discussion because it is a deeply burrowing species and is probably intrusive. Similarly, the rare occurrences of *Candidula intersecta* in BAG13 and BAG14 are not included, as this species is regarded as a recent introduction to the British Isles (Davies 2008).

Results and interpretation

Scrubditch Enclosure (2012-2013)

The snail assemblages at Scrubditch include a variety of taxa typically associated with woodland, or shaded and sheltered habitats. Species such as *Vitrea crystallina*, *V. contracta*, *Oxychilus cellarius*, *Nesovitrea hammonis*, *Aegopinella pura* and *A. nitidula* are characterised by thin, fragile shells and are therefore suited to life amongst leaf litter, although they are not restricted solely to woodland (Evans 1972). Shells of the shade-loving species *Carychium tridentatum* and *Discus rotundatus* are the most abundant on the site. They have broadly similar habitats including under logs and amongst leaf litter. Although *C. tridentatum* is frequently characterised as typical of woodland habitats, it can also be found at the base of long grass, but it dislikes disturbance such as cultivation or heavy grazing (Evans 1972).

Many of the woodland-related species found at Scrubditch, such as *Clausilia bidentata*, *Helicigona lapicida*, *Merdigera obscura* and *Acanthinula aculeata,* occur in old, established hedgerows (Davies 2008). *Helicigona lapicida* is found especially in the base of old hawthorn hedgerows, which is notable considering the ample evidence for hawthorn hedges in the Bagendon charcoal

Table 18.36. Dyke 'e' (BAG17) Snail data

Abundance																		
	Trench	7	7	7	7	7	7	7	7	7	9	9	9	9	10	10	10	10
	Sample	1	2	3	4	5	6	7	8	9	1	2	3	4	1	2	3	4
	Context	7008	7007	7011	7010	7014	7015	7016	7017	7016	9002	9004	9005	9006	10002	10003	10004	10004
W1a/M5d	*Vitrea crystallina*	-	-	-	-	+	(+)	-	-	-	-	-	-	-	-	-	-	(+)
W1a	*Vitrea contracta*	-	-	-	-	++	++	++	+	+++	-	-	-	-	-	-	-	-
W1a	*Aegopinella nitidula*	-	-	(+)	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-
W1b/M5d	*Carychium tridentatum*	-	-	-	+	+++	++	+	+	++	-	(+)	-	-	-	(+)	(+)	(+)
W1c	*Discus rotundatus*	(+)	-	-	(+)	+++	++	+	++	++	-	-	-	-	-	-	-	-
W1d	*Acanthinula aculeata*	-	-	-	-	+	-	(+)	-	(+)	-	-	-	-	-	-	-	-
W1d	*Merdigera obscura*	-	-	-	-	(+)	-	-	(+)	-	-	-	-	-	-	-	-	-
W1d	*Helicigona lapicida*	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-
W1d	*Punctum pygmaeum*	+	-	(+)	-	-	-	-	-	(+)	-	(+)	-	-	-	-	-	-
2/B8	*Pomatias elegans*	-	-	-	(+)	+	-	-	-	(+)	-	-	-	-	-	-	-	-
I3/O4b	*Cochlicopa cf. lubricella*	-	-	-	-	+	(+)	-	(+)	(+)	-	(+)	-	-	-	(+)	-	(+)
I3/M5d	*Arianta arbustorum*	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-
I3/M5d	*Cepaea nemoralis*	-	-	-	-	(+)	-	-	-	(+)	-	-	-	-	-	-	-	-
O4a/M5d	*Vertigo pygmaea*	++	(+)	++	(+)	++	(+)	(+)	(+)	+	-	+	-	-	-	(+)	(+)	(+)
O4a	*Pupilla muscorum*	+	-	(+)	(+)	++	+	(+)	+	(+)	-	-	-	-	-	(+)	-	-
O4a	*Vallonia costata*	++	(+)	-	-	++	-	-	-	-	-	-	-	-	-	(+)	(+)	(+)
O4a	*Vallonia cf. excentrica*	+	(+)	+	(+)	++	(+)	(+)	(+)	+	(+)	(+)	-	-	(+)	++	+	+
O4a	*Helicella itala*	-	-	-	-	+	-	-	-	+	-	-	-	-	-	+	-	-
	Candidula intersecta	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B8	*Cecilioides acicula*	+++	+	+	+	+++	++	+	+	+	-	-	-	-	-	+	(+)	+
	Oxychilus sp	(+)	-	-	-	+	+	+	(+)	+	-	-	-	-	-	-	-	-
	Trochulus sp	-	-	-	(+)	+	(+)	(+)	+	+	-	+	-	-	-	+	(+)	-
	Helicoidea undiff.	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+

(+) = 1-2
+ = 3-10
++ = 11-40
+++ = 41-200
++++ = 200+

record. Populations of this species are currently under threat in England due to the continual destruction of this habitat (Animal Base 2014; Whitehead 2007).

Pomatias elegans, a snail found mainly in open woodland, scree and hedgerows, is present in all of the sampled phases of the site, with highest numbers recorded in Phase 4 ditch fill (1173). The increased frequency of this species within prehistoric deposits is considered to indicate clearance events, with the resulting disturbed soil favouring the burrowing habit of this snail (Davies 2008; Evans 1972). *Punctum pygmaeum* and *Euconulus fulvus* may have inhabited open woodland, although they occur in a wide variety of moist environments.

While a number of the shade-demanding snails recorded at Scrubditch are suggestive of open woodland conditions or scrub, *Acicula fusca,* present in 10 contexts, is an indicator of ancient closed woodland, and is intolerant of human disturbance (Davies 2008; Watson and Wilkinson 2016). Although noted in low numbers, the preponderance of this species in later phases of the site hints at areas of increased woodland cover towards the later Iron Age. This snail is absent elsewhere in the Bagendon complex. The occurrence of *Cochlodina laminata* suggests an element of closed woodland close to the Scrubditch site (Davies 2008).

Although *Helicigona lapicida* is associated with woods and hedgerows, small populations survive in crevices of dry stone walls in the Cotswolds (Whitehead 2007). Similarly, *Clausilia bidentata* and *Merdigera obscura* occur in gaps in rocks and walls, possibly indicating that such structures were a feature of the Iron Age landscape at Scrubditch.

A trace of *Succinea*/*Oxyloma* sp snails was noted in posthole fill (1103) and ditch fill (1042). Species within this group inhabit wet-ground vegetation communities, and as such their presence is unusual for this upland, free-draining site. They may have arrived attached to wet meadow hay or from water collected lower in the valley, or the area north-east of Scrubditch may have formerly included spring-fed damp meadow vegetation.

Despite the significant indications for woodland and shaded habitats, a number of snails characteristic of open, dry exposed habitats are common, particularly in fills assigned to Phases 3 and 4. Species such as *Helicella itala*, *Vallonia* cf. *excentrica*, *V. costata*, *Vertigo pygmaea* and *Pupilla muscorum* indicate the presence of exposed, short-turved, calcareous grassland (Davies 2008). The concurrent records of snails of both woodland/shade habitats and open grassland suggest the landscape at Scrubditch featured a dynamic mosaic of different ecological communities. As discrete grassland faunas can develop in relatively narrow (<10 metres wide) isolated stretches, it is not possible to establish on the basis of snail evidence alone, whether there were substantial open areas of grassland or small grassland clearances within woodland (Davies and Gardner 2009).

Cutham Enclosure (2014)

The snail assemblage at Cutham is similar in many ways to Scrubditch. The diversity of woodland and shade-loving species is notable, with *Carychium tridentatum* and *Discus rotundatus* being the most numerous. A suite of taxa commonly found in well-established hedgerows points to the presence of this habitat type. In contrast to Scrubditch, *Acicula fusca* is absent, possibly reflecting greater disturbance in the landscape in this area. The presence of *Cochlodina laminata* can be indicative of some closed woodland.

There are lower numbers of snail remains in the samples ascribed to Phase 3 at Cutham, with a significant decrease in the numbers of woodland/shade species compared to previous phases at the site. While this may relate to the clearance of woodland or scrub vegetation near the site, it may also in part reflect increased grazing, which would affect the long fallow grassland communities that provide shade for small snails such as *Carychium*. An increase in the number and diversity of shade-loving snails is noted for Phase 4 and continues into Phase 5. This may signal an increase in scrub woodland or a reduction in grazing during the later phases. The decrease in snail numbers in Phase 3 may be influenced by other factors associated with the use of the features, such as acidification caused by the dumping of stable waste comprising urine.

The number and diversity of snails representing open, dry, short-turved grassland is notable for all of the phases of activity at Cutham, and particularly for Phase 4. These results suggest a dynamic landscape comprising a patchwork of habitats, as similarly indicated at Scrubditch.

Black Grove (2015)

Snail remains at Black Grove are less diverse and fewer in number than those recorded at the Scrubditch and Cutham enclosures. Various shade-loving species are present in low numbers in deposits (6011) and (6015), but are infrequent in other fills. The rupestral species, *Pyramidula pusilla* and *Lauria cylindracea*, recovered from deposits here but absent elsewhere at Bagendon, are common occupants of stone walls (Evans 1972) and would have favoured the conditions provided by the stone structures at Black Grove. *Clausilia bidentata* and *Merdigera obscura* are also found in the crevices of stone walls (Davies 2008).

The range of snails at Black Grove reflecting dry, open grassland indicates the close proximity of calcareous grassland, and corresponds with evidence recorded at Scrubditch and Cutham. In contrast to the sites further up the valley sides, there is a small suite of freshwater snails at Black Grove, reflecting the damp floodplain conditions in the valley bottom. These include *Anisus leucostoma*, *Galba truncatula* and the bivalve, *Pisidium* sp. Deposit (6011) contains evidence of *Cornus aspersum*, a species that is absent elsewhere at Bagendon. This large, synanthropic snail, found in a variety of habitats, is believed to have been introduced to the British Isles during the Roman period (Davies 2008). A few shells of *Vertigo pygmaea*, *Pupilla muscorum, Vallonia* cf. *excentrica* and *Galba truncatula* have a grey discolouration. It is unclear if this is the result of charring or another taphanomic process.

1980s excavation (1981)

The BAG81 samples contain very low numbers of snails. Several species comprising *Vertigo pygmaea*, *Vallonia* cf. *excentrica*, *V. costata* and *Helicella itala* indicate a dry and open calcareous habitat. As at Black Grove, a few of the snails including *Anisus leucostoma*, *Galba truncatula* and Succineidae cf. *Oxyloma elegans*, infer marshy or damp ground conditions within the valley, possibly representing evidence of seasonally flooded open meadow. Also present is *Vallonia* cf. *pulchella*, which occurs in wetter habitats than the other identified species of *Vallonia* and is typical of wet pasture, meadow or open marsh (Davies 2008).

Trench 7, 9 and 10 (2017)

The lower fills of the earthworks ditch sampled in Trench 7 contain more snails than the upper fills, with the highest number and greater diversity recorded in silting layer (7016) and rubble fill (7014). Woodland and shade-loving species are well-represented in the lower fills, with *Vitraea contracta*, *Carychium tridentatum* and *Discus rotundatus* most frequent. Open ground taxa include *Vertigo pygmaea*, *Pupilla muscorum, Helicella itala* and species of *Vallonia.* The assemblages have many similarities with those recorded at Scrubditch and Cutham, interpreted as open woodland conditions. The upper fills are notable for having only rare occurrences of woodland and shade-loving species suggesting open conditions at the site at this later stage. A more detailed sample of the full sequence from the ditch was studied by Michael Allen (see Chapter 19) which explores the evidence from the sequence in more detail.

Conclusions

Charred plant remains recovered from the enclosures at Scrubditch and Cutham indicate spelt wheat and hulled 6-row barley were the predominant cereal crops throughout the use of both sites, which is consistent with Mid-Late Iron Age sites in much of southern Britain. Increased numbers of charred plant remains from Phase 3 at Scrubditch and Cutham, suggest activity intensified during this period. Evidence from the charcoal and snail records similarly reflect the increased activity at these sites.

The predominance of chaff and arable weed seeds suggests that much of the macrofossil assemblage derives from crop processing waste. The quantities of spelt glume bases and arable weed seeds suggest that the crops were being de-husked on site when required, probably reflecting their storage as spikelets (spelt) and hulled grain (barley) to prevent rotting. Uncertainty remains as to whether the crops were grown locally or not, although the limited evidence for early stages of crop processing would be consistent with the crops having been brought to the site in a semi-processed state. The low concentrations of remains at Scrubditch and Cutham, probably suggest the deposits comprise a background scatter of waste from agricultural practices, possibly undertaken on a seasonal basis. The crop processing waste was either burnt as fuel or waste, or used as fodder and subsequently burnt as dung/ stable manure.

Small samples representing occupation within the valley (BAG81) show the continued use of barley and spelt wheat, into the Late Iron Age. The large assemblages of cereal remains from Black Grove highlight the significance of bread wheat as a crop by the Roman period, although spelt wheat continued to dominate and barley remained in use. The high concentration of charred remains suggests increased arable production during the Roman period, as was observed at Claydon Pike (Robinson 2007: 360), and at sites along the route of the Wormington to Sapperton gas pipeline (Hart *et al.* 2016a: 153). There is also evidence for the increased importance and management of hay meadows in the 2nd century, as noted in early Roman deposits from Claydon Pike (Robinson 2007) and Farmoor, Oxfordshire (Lambrick and Robinson 1988).

In contrast to areas such as the Cotswold Water Park in the Thames Valley, which was fully cleared of woodland by the end of the late Bronze Age (Robinson 2007: 357), the palaeoenvironmental assemblages from Scrubditch and Cutham indicate a locally wooded landscape through the Mid-Late Iron Age. This is particularly apparent at Scrubditch. Evidence consistent with this occurred in the molluscan record from Middle Duntisbourne, which suggested the persistence of woodland into the Late Iron Age (Mudd *et al*. 1999: 495). The charcoal and snail assemblages from Phase 3 at Cutham show an episode of reduced woodland cover, probably coinciding with increased grazing activity at the site. The return of shrubby vegetation in Phases 4 and 5 possibly corresponds with less intensive activity during these later phases. There is also ample evidence of calcicolous grassland at Bagendon, from both the plant macrofossil and snail record.

The Mid-Late Iron Age woodland at Bagendon comprised ash and field maple with a prominent understorey of hazel, which is characteristic of the National Vegetation Classification W8. This plant community is typical of calcareous soils in the dry lowlands of southern Britain, with pockets of this semi-natural woodland surviving in the Cotswolds to this day (e.g. at Puckham Woods). It has been suggested that the establishment of this secondary open woodland is the result of natural regeneration in conjunction with man-made selection, during increased agricultural activities of the Bronze Age and Iron Age. The structure of this woodland type is usually affected by management practices, as hazel, ash and field maple respond well to coppicing and pollarding, and they provide important sources of wood, fuel and fodder. Ring growth patterns consistent with woodmanship practices were observed in the charcoal record.

The combined lines of palaeoenvironmental evidence point to a dynamic landscape featuring a mosaic of open woodland, scrub and grassland, as is typical of a system of wood-pasture. This managed semi-open habitat is often characterised by pollarded trees, which support the presence of grazing animals, while maintaining sources of wood, fuel and fodder. Wood-pastures are frequently associated with extensive regimes and seasonally based land use (Turner and Briggs 2016), and there are hints in the macrofossil record for the movement of livestock from lower in the valley to the Cutham enclosure on higher ground. Pigs would have been particularly well suited to this habitat type (Jørgenson 2013), which may account for the higher proportions of pig in the faunal remains at Scrubditch. Although of particular importance in the early medieval period, transhumance of stock (especially pigs) for autumn pannage is considered to have prehistoric roots (Jørgenson 2013). Woodland resources comprising the fruit of wild apples, hazelnuts and berries such as rowan, sloes and rosehips are present in the charred macrofossil record at Bagendon. Collectively known as mast, this was traditionally used to fatten pigs before slaughter (Vera 2000: 123). The concentration of macrofossils from late summer/autumn seeding weeds including cleavers, burnet-saxifrage, ribwort plantain, squinancywort, black nightshade, hedge bedstraw and common/bifid hemp-nettle perhaps point to seasonal use of the site.

Elements of the charred macrofossil assemblage are likely to derive from the burning of dung probably as a means of disposal of midden material. Several characteristics are present which Spengler (2018) suggests that when found together, provide compelling evidence for burnt dung, even in the absence of articulated dung remains. These elements include a high fragmentation of plant remains, small seeds and root parts of grassland and ruderal plants, signs of mast including uncharred fruitstones occurring alongside charred remains and low amounts of fragmented charcoal.

Thorny hedgerows, dominated by hawthorn and blackthorn, are particularly evident at Scrubditch. The importance of hedgerows is noted at other late prehistoric sites, with an increase in the number and exploitation of hedges observed in the Iron Age compared to the Bronze Age along the route of the Wormington to Sapperton gas pipeline (Hart *et al.* 2016a: 82). Hazel appears to be a significant component of the evidence for hedgerows at Cutham and Scrubditch.

The overall impression from the palaeoenvironmental remains is that the oppidum emerged in an open wooded landscape, shaped by human activity. The landscape supported a largely pastoral economy with the management strategies within the complex being animal-focused. There is evidence that either a minor element of arable cultivation was undertaken or cereals were brought to the site from more intensively cultivated areas elsewhere in the region such as in the Upper Thames Valley.

Part V

Landscape studies

Chapter 19

Putting the Bagendon complex into its landscape setting: the geoarchaeological and land snail evidence

Michael J. Allen

Introduction

This report deals with geoarchaeological and molluscan evidence from the wider Bagendon landscapes, concentrating on the landscape and land-use histories contemporary with the Iron Age occupation and focusing on material recovered from Trench 7 (dyke 'e' ditch) and test pits (discussed in Chapter 4).[1] As discussed in Chapter 1, the Bagendon landscape lies on limestones (principally the White Limestone Formation) generally supporting brown rendzinas (Sherborne Association) with calcro-cambic gley soils (Kelmscot Association) in the Churn valley (Findlay *et al.* 1984). Despite being formed on calcareous limestones, they weather slowly and the consequent soils, and resultant colluvial sediments, are often only weakly, or non-, calcareous. This produced a challenge for palaeo-environmental interpretation where often even land snails (cf. Bell 1984: 83; 1987) as well as pollen are poorly, highly differentially or only locally preserved.

The overall all aim of the assessment at Bagendon, in geoarchaeological terms, was to provide the character of the prehistoric (Iron Age) landscape and a land-use history of the area. More specifically the objective was to examine how the landscape has been shaped and modified by in the past, in particular examining the impact of prehistoric and Roman occupation and activity on the landscape in conjunction with the excavation work that had already taken place (see Chapter 3-5). A particular focus was trying to examine the woodland to farmland transition, and dryland to wetland, and attempt to produce a landscape soil and deposit model at varying scales of resolution across the defined landscape. The geoarchaeological work (augering with associated test pit excavations – Trenches 9-11, discussed more in Chapter 4) aimed, therefore, to assist in characterising the deposits, but also identify sequences which could be sampled for snails – and palaeo-environmental proxies - that would assist in examining the land-use history.

Sediments such as colluvium and alluvium may be an indicator of past human activity such as clearance and cultivation (Allen 1988; 1991; Bell 1981; 1982; 1983; Dimbleby 1976; 1984). By establishing and mapping the presence, extent and onset of these may provide insights into the use of this landscape in the past, especially that relating to the establishment and occupation of the Late Iron Age complex (discussed in Chapter 4 and 7). The geoarchaeological approach taken was largely to record and characterise the soils and sediments (colluvium in the valleys and valley edges, and alluvium on valley floors) and examine land snails from these and stratified deposits in relevant archaeological features, including ditch [7002] (dyke 'e') and from test pits 9-11.[2] The mapping of the soils and sediments providing the spatial variation, and the stratified sequences (land snails) provided some degree of temporal development and land-use history.

Methods

The approach taken in the Bagendon landscape focused on the Bagendon Brook valley itself, in which the main area of occupation is located (see Chapter 4), and samples from the ditch of Dyke 'e' (see Chapter 4). Augering was undertaken both in a series of structured transects across the landscape (Figure 19.1 and 19.2; Table 19.1) and probablistic auger points. Augering was conducted using 40mm diameter Dutch combination augers and 3.5cm diameter gouge augers with 50cm and 100cm long chambers. Sediments were recorded in the field following standard terminology (Hodgson 1997), and munsel colours recorded on moist deposits by the author. The physical augering was assisted by a number of volunteers from the excavation including many from the from the REFIT project (see Tully and Allen 2018). The auger points were surveyed using GPS by T. Moore and are held in the project database. Four test pits were excavated by hand, and one section drawn at 1:10 by the field team, with the location of any artefacts being pinpointed and recorded on the section (cf. Allen 1988; 1991; Bell 1983), or by context. Full geoarchaeological records were made of the deposits following standard

[1] At the same time a small augering and test pitting survey of the environs of Salmonsbury enclosure was undertaken which is reported on elsewhere (Allen 2016)

[2] Note that the molluscs and other environmental evidence from excavations of Trenches 1-6 (Cutham, Scrubditch and Black Grove) were assessed by C. O'Brien and L. Elliott, discussed in Chapter 18.

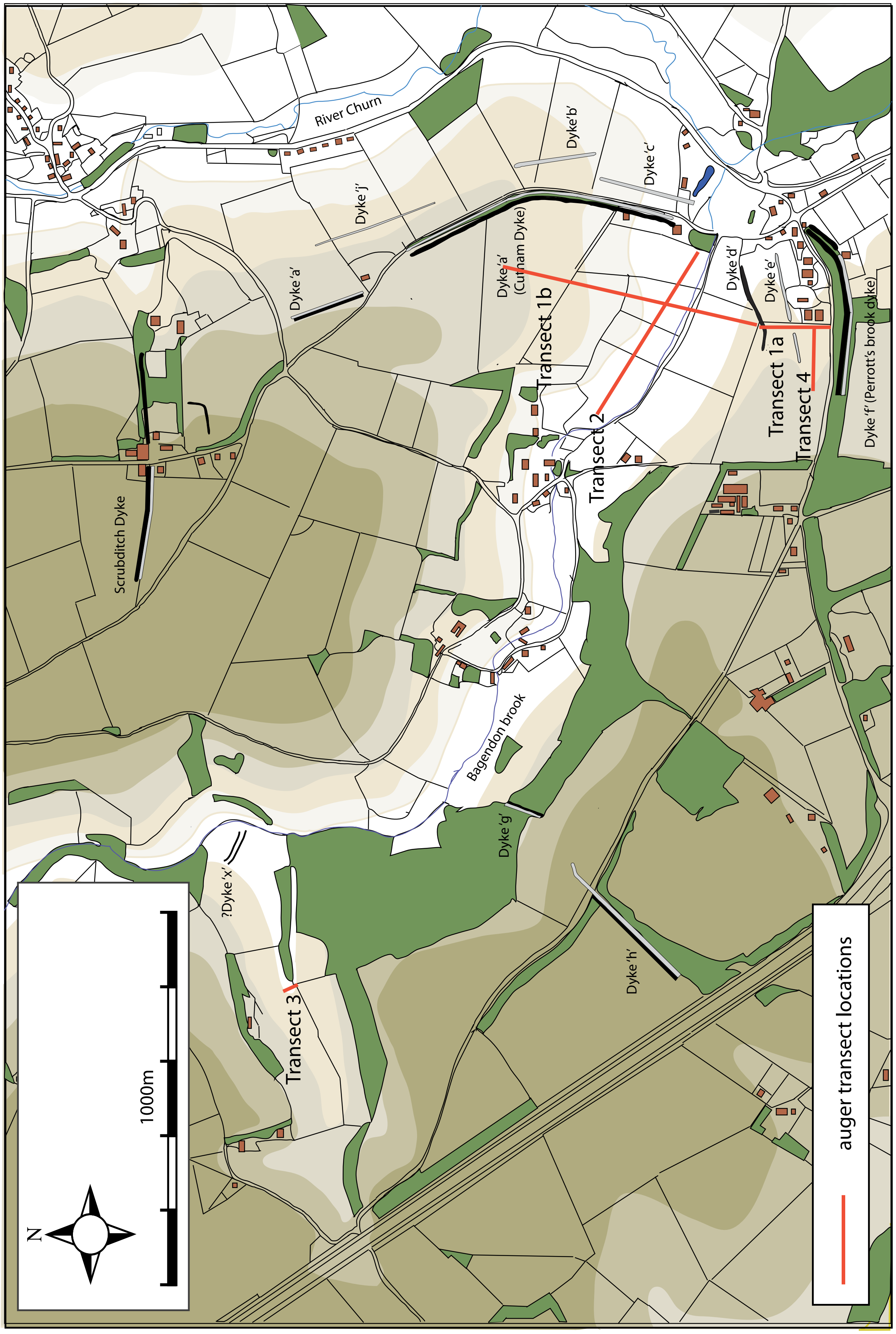

Figure 19.1. Location of Augeri transects at Bagendon.

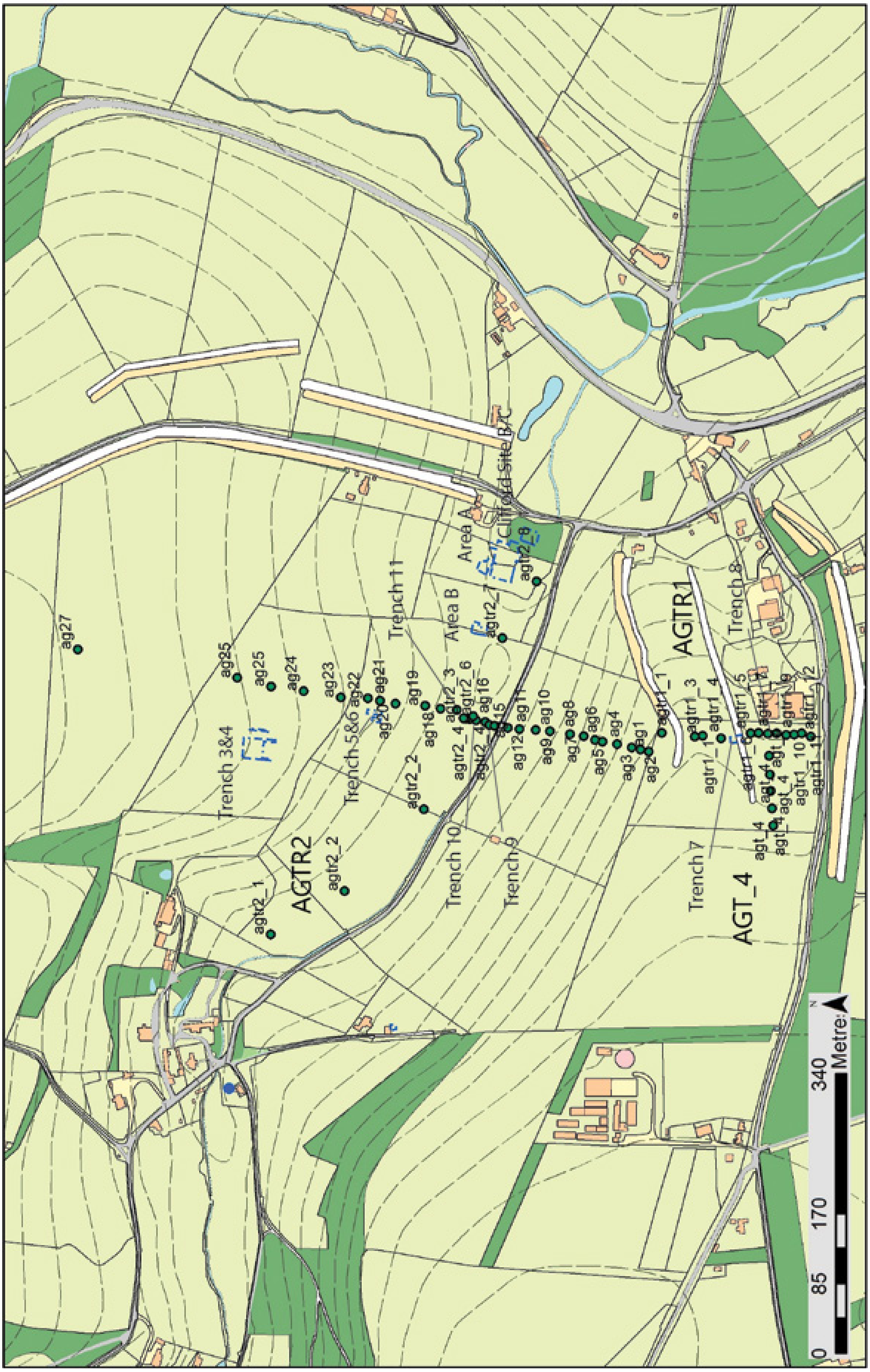

Figure 19.2. Location of Auger transects 1, 2 and 4 at the eastern end of Bagendon valley.

Table 19.1. Geoarchaeological components at Bagendon.

	Feasibility auger	Auger	Total auger	Test pits	Exc profiles
Bagendon	21	59	80	4	1

terminology (Hodgson 1997). Following judicious cleaning and recording of the profiles, short columns of contiguous samples or spot samples were taken for snails from appropriate deposits (Allen 2017a: 33-5; Evans 1972: 41-4).

Samples for land snails were taken from selected test pits, and a key sequence was taken from the dyke 'e' ditch section [7002] (Table 19.2). Samples were taken after cleaning the section, and sample interval varied according to the sedimentological regime (Allen 2017a). The samples for land snail analysis from Dyke 'e' ditch and test pits were air dried and processed following standard methods with sample >14mm weighed (preferably 1500g), and processed; both flots and residues were retained on 0.5mm mesh (Allen 2017a: 35-6; Evans 1972: 44-5). The results are presented in Tables 19.2 and 19.3 and as a histogram of relative abundance (Figure 19.4). The nomenclature follows Anderson (2005), habitat groups follow Evans (1984) and Entwistle and Bowden (1991). The full programme of work draws on a series of auger transects and auger holes (totaling 78), four geoarchaeological test pits (Trenches 8-11), samples from Dyke 'e' [7002], and selected molluscan analysis (Table 19.2).

This report outlines the results followed by a résumé of the nature of the environmental resource, the landscape character, land-use histories and human impact in the area. The study comprised two analytical components i) geoarchaeology, comprising a series of auger transects, specific augering and targeted hand-dug test pits, and ii) a programme of molluscan sampling and analysis. The former looking at the landscape character, and identifying deposits to sample for proxy palaeo-environmental information, and the latter examining local landscape and land-use histories.

Analysis

Geoarchaeology

Following a feasibility study in October 2016 of 21 auger holes (Appendix 2b), a programme of augering and limited test pitting was undertaken over 4 days to characterise the Bagendon area in geoarchaeological terms and provide the character of the prehistoric (Iron Age) landscape and a land-use history. A series of auger transects, augmented by hand dug test pits to elucidate the sequences and facilitate sampling and recovery of artefacts were dug. In total 90 auger holes and four test pits were undertaken and recorded. Land snail samples were taken from two test pits, but the key sequence was from Dyke 'e' ditch [7002].

These data would allow some attempt to meet the following objective which include to:-

- Model the deposits in and use the geoarchaeological record to examine the development
- Define the impact of human activity on the landscape with specific reference to that associated with Late Iron Age occupation
- Define any effect or impact of the activity associated with the Late Iron Age occupation on the landscape
- Isolate if the Late Iron Age complex was imposed in an already open and established (and farmed) Bronze Age landscape
- Define the land-use associated with the Late Iron Age complex
- Identify if any colluvium and alluvium pre-date the Late Iron Age occupation, is contemporary with it, or post-date it

Table 19.2. List of mollusc samples from Trench 9, 10 and Dyke 'e' ditch [7002].

Deposit		Depth	Context		sample thickness
Test pit 3 (Tr 10)					
Basal colluvium	2	60-70cm	1004		10cm
	1	70-80cm	1004		10cm
Test pit 2 (Tr 9)					
occupation	7	65-75cm	9006		10cm
deposit	6	75-85cm	9006		10cm
	5	85-95cm	9006		10cm
	4	95-105cm	9006		10cm
Dyke 'e' ([7002] BAG 17)					
2ndy stone lens	17	80-90cm	7009		10cm
2ndry stasis	16	90-100cm	7010		10cm
	15	110-115cm	7014	stony	10cm
	14	115-130cm	7104	stony	15cm
Primary	13	130-145cm	7104	stony	15cm
	12	145-160cm	7014	stony	15cm
	11	160-167cm	7014	stony	7cm
Initial	19	stone-free 1ry	7014		
	18	stony- primary	7015	stony	-

- To determine if the cause of any colluviation and alluviation relates to activity associated with the Late Iron Age complex
- Attempt to define any land-use activity, and land-use pattern

The auger transects, augmented by hand dug test pits, were conducted to elucidate sediment sequences and facilitate sampling and recovery of artefacts. The overall objective was to examine how the landscape has been shaped and modified by in the past by earlier communities. In particular examining the impact of prehistoric and Roman occupation and activity on the landscape. It will provide an outline land-use history to accompany research on the Bagendon complex. Of particular significance was to attempt to examine woodland to farmland transition, and dryland to wetland, and aims to attempt to produce a landscape soil and deposit model at varying scales of resolution across the defined landscape.

Fieldwork comprised a total of 78 auger holes from three main auger transects (Appendix 2a), and the feasibility study. The location of landscape augering transects are shown in Figure 19.1 and 19.2, these concentrated on:

- a cross profile providing a major transect to characterise the main Bagendon brook valley (Transect 1a, b), and including 4 test pits
- to augment that by a longitudinal transect from the area near to Bagendon church through the main Late Iron Age occupation area towards the complex's entrance (Transect 2)
- locating peat south of Stancombe Roman villa (Transect 3)
- to examine the valley south of the Late Iron Age occupation area and downslope from the 2017 excavations (Transects 4)

Probabilistic augering to locate peat was conducted south of the putative Roman villa at Stancome (Transect 3). This data is reviewed with 21 auger holes conducted as a part of the feasibility survey, and are presented in Appendix 2a. In conjunction with this 4 hand-dug geoarchaeological test pits were excavated, and the ditch fills of dyke 'e' [7002] were examined and sampled. Test pits were located at strategic points (Figure 19.2) to capture the sediment record and facilitate more detailed geoarchaeological investigation and palaeo-environmental sampling. Four test pits were excavated, each was 1m x 1m, excepting Trench 11 (test pit) which was 2m x 1m. Trench (test pit) 8 sampled the dry valley south to the 2017 excavation, and Trenches (test pits) 9 and 10 sampled colluvial and alluvial deposits in the intra-Oppida Bagendon Valley, while Trench 11 (test pit) tested the nature of the lynchet or natural footslope 'bench'.

Results

The 78 auger records and four hand dug test pits, provided a total of 82 profiles within the Bagendon landscape which underpins the geoarchaeological comprehension and interpretation in this report.

Geoarchaeology

Fieldwork confirmed the presence of azonal soils and rendzinas and highly localised packets of relatively shallow colluvial (and alluvial) deposits. No peat or alluvial deposits were recovered in Transect 3, despite 2 recorded auger points and half a dozen probablistic auger holes. Again neither peat nor alluvium was located at the east end of Transect 2 and the entrance to the intra-Oppida Bagendon Valley.

Main Bagendon brook valley and southern (dry) valley (Transects 1, 2 and 4)

Within the two valleys, deposits might be expected in the valley floor and at footslope locations (Allen 1991: 42, fig. 5.2; Bell 1981: 76, fig. 5.1; French 2015: fig. 6). The valley sides and hilltop are unlikely to contain deposits other than in lynchets (ploughwash) and archaeological features. The dry valley to the south of the main Bagendon brook valley (immediately to south of Dyke 'e' ditch [7002]) surprisingly showed no significant colluvial deposits. The valley soils were thin colluvial brown earths (0.55m +) which were only weakly calcareous, and no footslope deposits were encountered (Transect 1). The valley slope and hilltop contained shallow rendzina soils typically only 0.2m thick and occasionally *c.* 0.35m. The Bagendon brook valley was expected to reveal appreciable footslope deposits, especially on the southern slopes, and valley colluvium and potentially shallow overbank floodplain alluvium relating to the former, now canalised, Bagendon brook, on the valley floor. No significant footslope deposits were encountered, but very thin, colluvially enhanced, rendzinas (0.35-0.38 m thick) were present (Figure 19.3).

On the valley floor, however, colluvial deposits were shallow (typically 0.4-0.6 m) and were sealing appreciable and significant archaeological deposits in both test pits (Trench 9 and 10, see Figure 4.19). These included artefacts and building material and a stone floor (Trench 11). Such was the significance of these that although deposits were excavated to 1.05m and 0.5m in test pits (Trench 9 and 10) respectively, excavation ceased at this point leaving further *in situ* archaeological deposits undisturbed. The full depth of deposits in the valley floor, and whether the features and structures lay on limestone bedrock or colluvium relating pre-occupation clearance and farming was not determined. Deeper colluvial deposits may exist further

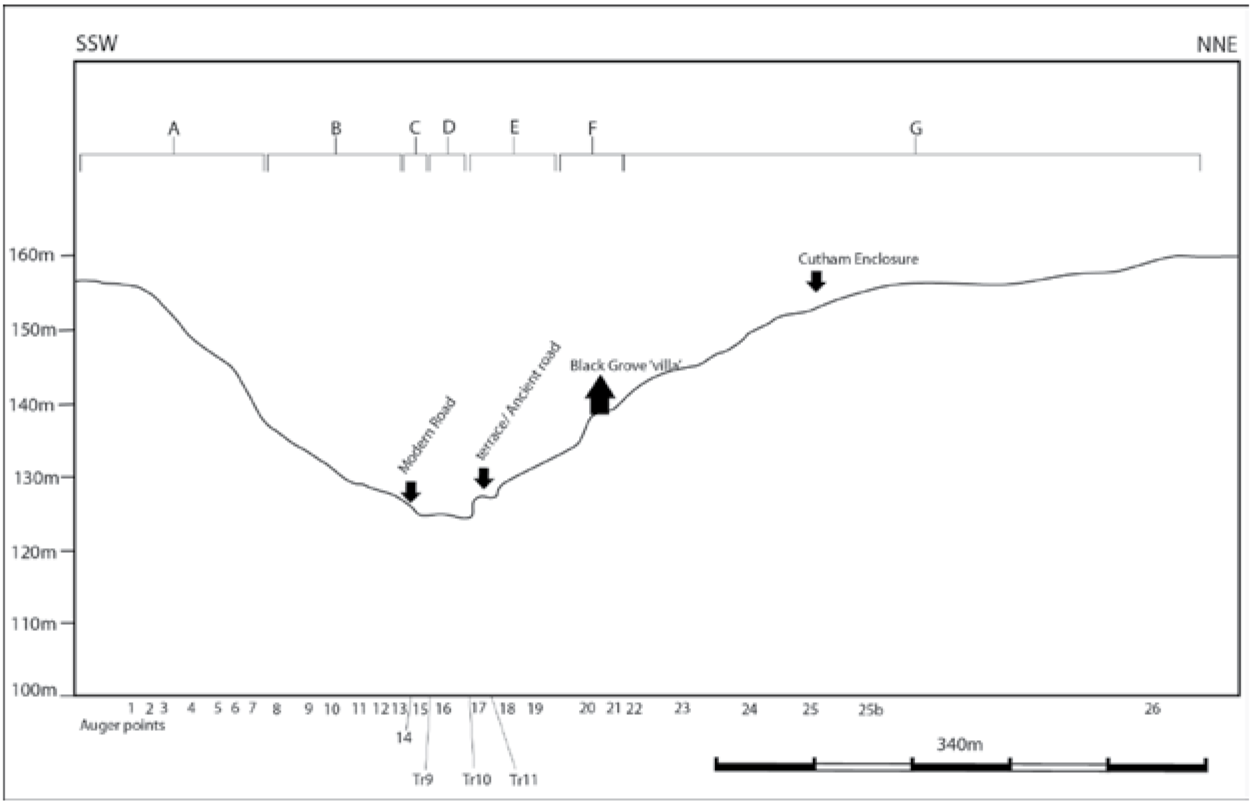

Figure 19.3. Schematic drawing of the auger profile through the Bagendon valley showing location of Transect 1 auger points in relation to location of Trenches 9, 10, 11 and Black Grove 'villa' A = valley side thin rendzina soils; B = footslope thin colluvial brown earth soils (little colluvial contribution); C =valley floor, shallow colluvial deposits (localised thin alluvium); D; colluvium and anthropogenic deposits; E = lower valley side thin rendzina soils; F: small bench valley; thin rendzina and brown earth soils (little colluvial contribution); G = Hill top plateau; thin rendzina soils (drawn by Tom Moore, OD heights based on GPS data).

up the valley where is becomes more constricted north-west of the church, but permission was not gained to access this land. On the northern valley side, geoarchaeological investigation was halted (Trench 11) due to the presence of *in situ* archaeological deposits (see Chapter 4)

To the south of the current Bagendon Brook shallow, stone-free silty clay (possibly representing localised overbank floodplain alluvium) was present to a thickness of 0.5 and up to 0.9m (auger Transect 1/ag16 and Allen 2016, ag 4). The canalised Perrott's Brook has been moved southwards and off the valley floor. The examination of springs, spring-related deposits overbank floodplain alluvium and peat in this valley was also investigated (Transect 1, Transect 2 and feasibility study). Apart from the main transect (Figure 19.1 and 19.2) examination of the area to the west of the Black Grove villa in a possible spring or quarry area (probabilistic augering and feasibility study auger auger) revealed little, and augering in the south west corner of the valley bottom in the boggy area near the Iron Age coin mint (Clifford Site C) showed the presence of highly localised weakly humic silts and possibly waterlogging to depths of 0.8 to 1m, but no peat. In the valley to the south of the main area of Late Iron Age occupation, augering and Trench 8 revealed only very shallow colluvium and in fact modern disturbance.

Waterlogged deposits (transect 2)

The search for waterlogged deposits extended from the east end of the main Bagendon brook valley at Bagendon, to the west where areas of hillside flushes, local ponds and areas of rushes and *Juncus* were present south of the Stancombe villa (Transect 3; Figure 19.1). These were judiciously examined by probabilistic test augering, but no alluvium, waterlogged deposits or peat was encountered in over two dozen test augers up and down the valley. A short transect (Transect 3) only revealed surface peat, i.e. the presence of localised modern peaty soils.

Land snails

Fifteen samples were taken for land snails from 3 profiles (Table 19.2); two from test pit Trench 10, 4 from test pit Trench 9, both the floor the Bagendon valley, and 9 samples from the basal fills of Dyke 'e' ditch [7002].

Sampling and dating

Deposits in the test pits and the ditch were generally weakly calcareous or comprised vacuous limestone rubble in the ditch (e.g. (7015)). Consequently, where possible, samples as large as 3kg were taken in the field which were large enough to realise between 1500g and 2000g of soil >16cm (cf. Allen 2017a). A total of 15 samples were taken from the exposed sections; 2 from the base of Trench 10, context (1004); four from the base of Trench 9, context (9006). A full contiguous sequence of nine samples from the lower (calcareous) fills of ditch [7002] (Dyke 'e') (Table 19.2).

On the basis of associated ceramic material context (1004) may date to the 1st century AD. Context (9006) is harder to date, but also appears likely to be of mid-1st century AD date. Both are potentially layers associated with the final phase of Late Iron Age and Early Roman occupation in the valley.

Dating of the layers in Dyke 'e' ditch [7002] was problematic with no finds retrieved from the lower fills and none of the bulk samples from the lower layers providing organic material suitable for dating. A single radiocarbon date from context one of a later (tertiary) fill (7008) provided a date of cal. AD 1410-1460 (SUERC-79379). In order to obtain dating evidence from the earliest fills of the ditch land snails were used for radiocarbon dating. The choice of species, to avoid any carbon reservoir effect, and methodology for using snails in dating, is discussed in Chapter 13. These dates were consistent with each other as Middle Iron Age: 410-260 cal BC (SUERC-90671) from Aegopinella nitidula and 380-200 cal BC (SUERC-90672)from Oxychilus cellaris.

Bagendon valley (Trench 9 and 10)

Most of the samples in Trench 9 contained no shells in the flots, and only 1 (*Trochulus hispidus*) was present in the very basal sample. Few shells were also present the basal deposit in Trench 10 (8 and 2 shells). As the residues were small (Appendix 2a) they were rapidly fully sorted and extracted. Most contained no shells, other than just the occasional apical fragment. In conclusion there are not enough shells in any of the sequences or samples for statistically viable analysis. All the very small depauperate rapidly assemblages from both test pits are wholly terrestrial, and were largely in keeping with an open landscape. Although shade-loving elements are present in the upper samples from test pit, numbers are too small to make any palaeo-environmental comment.

Dyke 'e' ditch [7002] (Trench 7)

The excavation of dyke 'e' (BAG 17) revealed a ditch about 1.7m deep, but both the bank and any buried soil beneath it (a primary target for palaeo-environmental investigation), were not present. The full profile was described, however, only the primary fill was considered calcareous enough to contain shells, so sampling for land snails was primarily restricted to this context (see below).

The ditch revealed a typical tripartite ditch infilling (*sensu* Allen 2017a: 38-41; Evans 1972: 321-8; Limbrey 1975: 390-300), with a deep unsorted stony primary fill and asymmetrical secondary and tertiary fills. The initial deposits (7015) were calcareous stone-free silt loams, typically rain wash from the ditch sides and soil derived from the old land surface through which the ditch was cut, and probably accumulating over the first few seasons since the ditch was cut. These accumulated on the floor of the ditch and in the corners of the flat-bottomed ditch. Above this 'rainwash' a clast-dominated limestone rubble primary fill (7014) representing a significant proportion of the ditch fill occurred (see Figure 4.26, 4.27). Although clast-dominated, the interstices included highly calcareous yellowish brown silt loams.

A largely stone-free secondary fill probably accumulating during the use of the ditch is about 0.4m thick and comprise a slight stony fill (7010), a stony lens (7009), and a stone-free stabilisation horizon (7011) or *in situ* soil formation (cf. Allen 2017a: fig 2.3). The upper 0.6m was a moderately stony colluvial tertiary fill (7003 and 7001). Land snail samples were taken from the initial fill (7015), the primary fill (7014) and lower part of the secondary fill (7010-7009; see Figure 4.26). It was assumed that although calcareous and display peusedomycelium, that the stasis horizon in the upper secondary fill (7011) was a decalcified soil and shell survival less likely here.

Mollusca: Dyke 'e' ditch [7002]

Shell numbers were low in the stone-free silt below rubbly primary fill (7015) but very high in the basal primary and main primary fill (7014). The secondary fill and possible stasis in the secondary fill (7010 and 7009) contained very few shells, confirming the visual assessment of the deposits (Table 19.3; Figure 19.4).

The assemblages are dominated by shade-loving species (*sensu* Entwistle and Bowden 1991: 20; Evans 1972: 195-203), which although superficially may suggest shady woodland conditions, more nuanced interpretation of the assemblage composition combined with recent ecological studies suggest more open conditions. This invites re-examination of sequence at Uley Bury (Collinson unpubl. 1980; Meddens 1993), Ditches (Allen 1982), and even perhaps Bagendon itself (Davis 1961; cf. O'Brien and Elliott, in Chapter 18) which may imply the areas consisted of long mesic ungrazed herbaceous

Table 19.3. Mollusca from Bagendon Dyke 'e' Ditch [7002],

Site	Bagendon								
Feature	Dyke 'e' Ditch 7002								
Context	7015	7014						7010	7009
Sample	18	19	11	12	13	14	15	16	17
Depth (cm)	Spot	Spot	160-167	145-160	130-145	115-130	100-115	90-100	80-90
Wt (g)	1500	1500	540	1040	1360	1290	1490	1500	1500
MOLLUSCA									
Pomatias elegans (Müller)	+	3	1	-	+	+	1	-	1
Carychium cf. *minimum* Müller	-	-	37	-	-	-	-	-	-
Carychium tridentatum (Risso)	-	145	-	40	**128**	**90**	**20**	**-**	**-**
Cochlicopa cf. *lubrica* (Müller)	-	-	1	-	-	-	1	-	-
Cochlicopa spp.	-	5	3	2	8	4	2	-	1
Vertigo pygmaea (Draparnaud)	1	6	8	7	21	11	6	-	-
Pupilla muscorum (Linnaeus)	1	5	12	12	32	21	13	-	-
Vallonia costata (Müller)	-	-	1	6	9	6	5	-	-
Vallonia cf. *excentrica* Sterki	6	15	14	11	20	27	14	1	1
Acanthinula aculeata (Müller)	-	2	2	1	-	-	2	-	-
Merdigera obscura (Müller)	-	14	8	3	5	3	3	-	1
Punctum pygmaeum (Draparnaud)	-	5	4	3	1	1	1	-	-
Discus rotundatus (Müller)	2	95	32	35	60	33	24	-	-
Vitrea crystallina (Müller)	-	8	3	3	13	2	-	-	-
Vitrea contracta (Westerlund)	1	163	91	105	90	35	12	-	-
Nesovitrea hammonis (Ström)	-	4	-	3	-	1	-	-	-
Aegopinella pura (Alder)	-	1	-	3	6	3	1	-	-
Aegopinella nitidula (Draparnaud)	-	16	5	7	6	2	1	-	-
Oxychilus cellarius (Müller)	-	27	13	22	24	9	2	-	-
Limacidae	-	12	1	-	5	2	1	-	1
Cecilioides acicula (Müller)	(2)	(60)	(40)	(95)	(308)	(236)	(187)	(3)	(10)
Helicella itala (Linnaeus)	+	21	19	21	46	39	25	2	6
Trochulus hispidus (Linnaeus)	1	21	5	11	29	16	11	-	5
Helicigona lapicida (Linnaeus)	-	+	1	-	1	+	-	-	-
Cepaea hortensis (Linnaeus)	-	1	-	-	-	-	-	-	-
Cepaea spp.	-	4	-	+	3	4	-	-	+
Taxa	6	20	19	18	19	19	19	2	7
Total	**12**	**574**	**261**	**295**	**507**	**309**	**145**	**3**	**5**

grassland (Cameron and Morgan-Huws 1975) and scrub (hawthorn scrub, possibly limited bramble, nettles etc.) rather than woodland.

Three mollusc assemblage zones (maz) can be recognised; the variation in the assemblages zone is subtle and do not reflect context variations, maz 1 comprising the initial silt below the rubble primary fill (7015) and the basal portion of the main primary fill (2014; 145-167cm), and maz 2 comprising the main primary fill (7014), and maz 3 the upper part of the main primary fill (7014). The possible stasis horizon (7010) and ploughwash (7009) contained too few shells.

Throughout the profile the shade-loving species are, and remain, important, and probably do not purely reflect woodland habitats.

Shell numbers in maz 1 (contexts 7015 and lower 7014) were very good, generally in the hundreds. They are dominated by the Zonitids (mainly *Vitrea contracta, Ageopinella nitidula* and *Oxychilus cellarius*), *Discus rotundatus* and *Carychium tridentatum.* There is low representation of all other species except, surprisingly and perhaps significantly, the xerophile *Helicella itala,* occurring in particular in the sample at 102-118cm where it represented 18%.

and Trench 9 and 10 on the Bagendon valley floor.

Bagendon valley floor					
TR10		TR9			
10004	10004	9006	9006	9006	9005
1	2	4	5	6	7
70-80	60-70	95-105	85-95	75-85	65-75
1500	1340	1500	1500	1500	1500
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	1	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
1	2	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	1	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	1	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
(5)	(18)	-	-	-	-
-	-	-	-	-	-
-	3	2	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
2	5	1	0	0	0
2	**8**	**2**	**0**	**0**	**0**

Maz 2: characterised by high mollusc numbers (373 per kg), which fall steadily as the ditch infills, and an increase in *Carychium tridentatum* which is the dominant species (25-29%). The Zoniitds progressively decrease while the open county species (*Pupilla muscourm, Vallonia excentrica* and *Helicella itala*) are all poorly represented but increase slightly and gradually with *H. itala* being the most significant.

Maz 3: a fall in *C. tridentaum*, together with the continued decrease in Zonitids and rise in *H. itala* makes the xerophile Helicellid the dominant species. Nevertheless shade-loving species still represent 45% of the assemblage.

Although generally dominated by shade-loving species the presence of open country species, and in particular a relatively high significance in this group of the xerophile *H. itala* suggests more open conditions in the Middle Iron Age than afforded by deciduous woodland. *Carychium tridnetatum* which is strong component of the assemblages here (Figure 19.4), although shade-loving, and does occupy leaf-litter habitats in deciduous woodland (Evans 1972: 136), it also common in much more open habitats with long damp mesic grassland (Kerney 1999: 45) and thrives in well vegetated places, especially tall grassland.

Overall these assemblages represent open country, but with a significant component of dense long mesic grass, tall herbaceous vegetation, and possibly occasional shrubs. Some of the shade-loving species in the primary fills of maz 1 may represent the micro habitats created by the deep shady ditch itself, and the rock rubble habitats providing refuge for the troglophile species *Discus rotundatus, Vitrea contracta* and *Oxychilus cellarius* (cf. Evans and Jones 1973). The increase in *C. tridentatum* and open country species *H. itala* in maz 2 is taken to represent increase in the open, but long, grassland habitats and these open conditions become more prevent in the maz 3. Together with the slight increase in *Pupila muscorum* this may indicate more open drier ground conditions, possibly reflecting slightly shorter grass.

The presence in the shade-loving species such as *Aegopinella nitidula, Vitrea contracta* and *Carcyhium tridentatum* might suggest conditions where the sward height is no greater than about 100mm (Cameron and Morgan-Huws 1975), but the low numbers of *Pomatias elegans* and other species suggest long term grassland, rather than either arable or shirt-turfed grazed pasture (cf. Chappell *et al.* 1971).

This sequence is short, and may represent less than a few centuries, but indicates that Dyke 'e' ditch was constructed in a pre-existing open landscape in the Middle Iron Age, but that the land-use adjacent to the ditch at this point was not one of short grazed or trampled grassland, nor of bare trodden earth or even broken arable soil, but of a rich dense grass sward ideal for grazing animals: sheep, cattle and horses. This land-use is maintained through the early filling of the ditch (context 7014) and there are hints at some reduction in the sward height (possibly light grazing) in the last viable sample at the top of 7014.

This suggests predominantly pasture rather than arable use in the immediate area, and can be compared with the assessment of other assemblages from the Scrubditch and Cutham enclosures, and Black Grove (discussed above by O'Brien and Eliott). It might be suggested that their

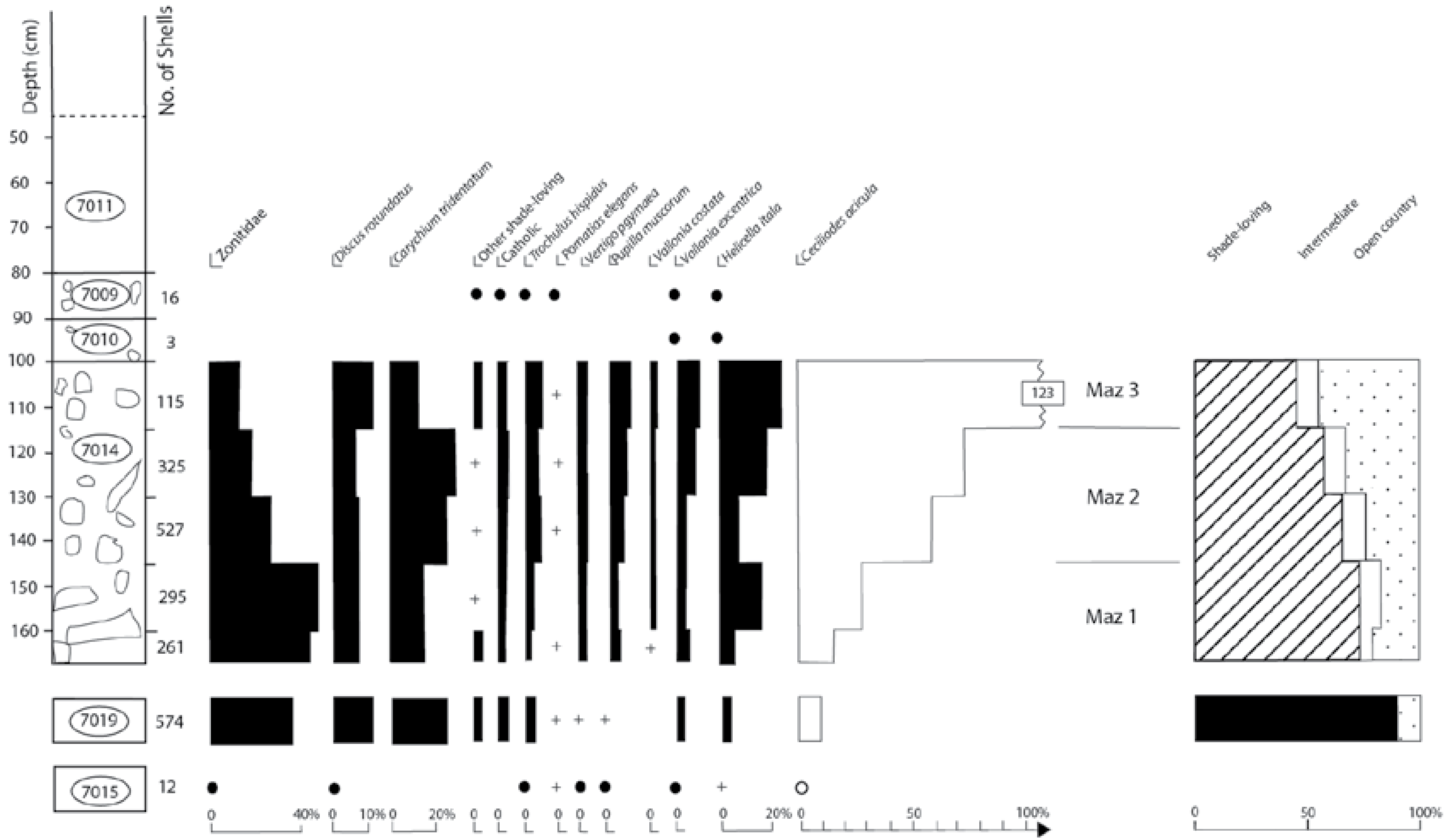

Figure 19.4. Bagendon Dyke 'e' ditch [7002] - mollusc histogram, relative abundance; dots represent presence when total is <25 (drawn by Michael J. Allen and Tom Moore).

palaeo-environmental interpretation is somewhat over optimistic as no numeral record nor final identifications were made, and whether the assemblages represent woodland/hedgerows, as they suggest, or more open mesic grassland and shrubs, is open to question and requires analysis. What is clear, however, is that all these sites also show a predominantly long grassland and pasture, with little evidence of arable. In all cases the grassland is long damp grass in contrast to many short-grazed dry grassland contexts seen elsewhere, and the former habitats seems to characterise the Bagendon landscape in the Iron Age at least.

Discussion: the character of the Bagendon landscape

The nature of colluvium in the Bagendon valley was realised, primarily by the longitudinal transect down the valley (auger transect 2). Only very shallow colluvial deposits were present – colluvial brown earths typically of *c*. 0.4 m – however deeper potential packets of colluvium higher up the valley axis could not be tested. Shallow colluvial deposits up to 0.52 m were recorded in the small dry valley to the south of Dyke 'e' (Transect 4), however the eastern portion of the valley floor was heavily modified by recent disturbance and dumping; but colluvial deposits were present below this disturbance.

The test pits in the Bagendon valley showed shallow deposits of colluvium (test pit 2) and potentially alluvium (test pit 3), but neither was bottomed due to the appreciable archaeological deposits (1.05 and 0.8m; test pits 2 and 3 respectively). Trench 11 indicates that the footslope lynchet is potentially a small limestone bench, which had been enlarged and modified to hold the road identified in the 1950s and 1980s excavations.

Colluvial deposits

A lack of appreciable thickness of colluvial deposits in the valley bottoms or footslope locations contrasts with many other landscapes (cf. Allen 2017a; Allen 2017b; Bell 1983) and *may* suggest a more stable landscape with a lack of extensive deforestation and arable; perhaps a landscape of woodland, wood pasture and grazing. Further analysis of selected land snail sequences e.g., from dyke 'e', Scrubditch enclosure, Cutham enclosure and Black Grove may elucidate this and provide greater information on its land-use history. If this hypothesis is correct, then a consideration is required of why this landscape, with its notably viable agricultural soils, was not extensively exploited for agriculture in the Iron Age and Romano-British period from an environmental, economic and socio-political view.

Alluvial deposits

The potential for alluvial and waterlogged deposits superficially seemed high; the eastern end of the Bagendon brook valley was under light wood carr with a damp vegetation; the valley floor was very flat and localised springs and spring flushes were known. Augering and test pit excavation refuted this, and showed that overbank floodplain alluvium and waterlogged deposits were not extensive, or hardly present, in this valley.

Peat

Similarly it was considered likely that localised peat or fen carr peat may have occurred at the eastern of the Bagendon valley and the location of lakes, pooled water and spring flushed surrounded by wetland plants (*Juncus* etc.) towards the western end of the valley. Once again augering (transects 3 and 1) demonstrated this not to be the case.

The lack of deep stratified colluvial, alluvial and peat deposits initially makes any detailed geoarchaeological and palaeo-environmental land-use history challenging. However, the lack of these deposits is in some large measure, the answer to the character of the past landscape and land-use which can be isolated via a combination of selected land snail analysis, and ascribing chronological episodes to the sediment packets that have been recovered (including the colluvial infill of Dyke 'e' ditch 7002). What was significant was that Trenches (test pits) 9 and 10 revealed significant archaeological deposits, presumably relating to the Iron Age occupation of the Oppida, buried and sealed under shallow colluvial, and local overbank floodplain alluvial deposits.

Land-use character and history

The Bagendon environs are not comparable to many of the chalkland colluvial landscapes (cf. Allen 1992; Allen 2017b; Bell 1983), nor even the Hazleton North environs where footslope colluvium to 0.3m and valley colluvium to 1.45m were readily encountered (Bell and Macphail 1990). No long landscape or land-use history is provided and the evidence of the earlier prehistory (Neolithic and early Bronze Age) seems to be largely absent. Where many other areas show evidence of considerable tillage by the later Bronze Age and Iron Age dates (see especially Favis-Mortlock *et al.* 1997), the shallow colluvial deposits in both valleys, and the mollusc evidence from dyke 'e' ditch (above) and elsewhere (see Chapter 18).

This suggests a landscape dominated by animal herding (sheep, cattle and horse), and that grazing was not intensive and did not produce short-grazed dry grassland. This does, however, corroborate the suggestion of a mosaic of open woodland, grassland, and wood-pasture (cf. Vera 2000). The overall impression is of largely pastoral landscape with little local arable cultivation. Considering the significance of the oppida we might even surmise that the animals may even have been largely horses kept for prestige and transport rather than cattle and sheep kept for food and secondary products.

The landscape around Bagendon seems to have been relatively stable, potentially lightly wooded, and predominantly long, lightly grazed grassland. There is an absence from both of these sites, including the landscape around Scrubditch and Cutham enclosures, and Black Grove (discussed by O'Brien and Elliott, in Chapter 18), of well-established or large tracts of arable land. This tends to infer that animal husbandry was primary in this landscape, and that cereals crops may have been bought in from elsewhere, possibly from along the Thames valley. The nature of the pasture also begs the question of the density of farming and stocking, as nowhere in this landscape was short grazed grassland pasture confidently defined. Is this just a matter of stock density with animals in large areas of grassland, or one of prestige animals (horses) with fewer animals in controlled pasture?

Chapter 20

Viewsheds and Least Cost Analysis of the Bagendon Complex and its environs

Sam Bithell

Introduction

To better understand patterns of movement and visibility in the landscape around the Bagendon complex (discussed in Chapter 24), a number of Least Cost Analyses (LCA) and viewsheds were used to explore these issues. Three iterations of LCA were conducted between Cotswold Community, Kingsholm, Birdlip and Andoversford in the vicinity of the Bagendon complex. These sites were chosen in order to examine contemporary Late Iron Age movement between centres known to have been occupied at this time. In addition, binary viewsheds were conducted from The Ditches, Cutham, Scrubditch and Duntisbourne enclosures; cumulative viewsheds were conducted from the ramparts of the complex, the trackway at its centre, and from the Least Cost Paths (LCPs) which pass by the entrance of the complex. Further detail and explanation of the methods and results included here will be available in Bithell (forthcoming).

Methods

Viewsheds

Viewshed analysis was carried out using the 'Advanced Visibility Analysis' plugin (Cuckovic 2016) included in QGIS 2.18. It is important to note (both for the viewsheds and LCA) that where the OS Terrain 5 DEM (Ordnance Survey 2013a) was used this includes certain modern features such as roads and developments. A point for further work would be to attempt to remove these by interpolating over historic contour data in order to produce a more accurate set of results.

Binary Viewsheds

Viewsheds were calculated from single points at each of The Ditches (Figure 20.1), Duntisbourne (Figure 20.2), Cutham (Figure 20.3) and Scrubditch (Figure 20.4) enclosures. Observer heights were set to 1.7m and the viewsheds were calculated using a 50m resolution DEM (OS Terrain 50 – Ordnance Survey 2013b) and a maximum search radius of 40 km. The Ditches and Duntisbourne enclosures were chosen as they represent important foci during the height of activity at Bagendon (see Chapter 4 and 24), while the Cutham and Scrubditch

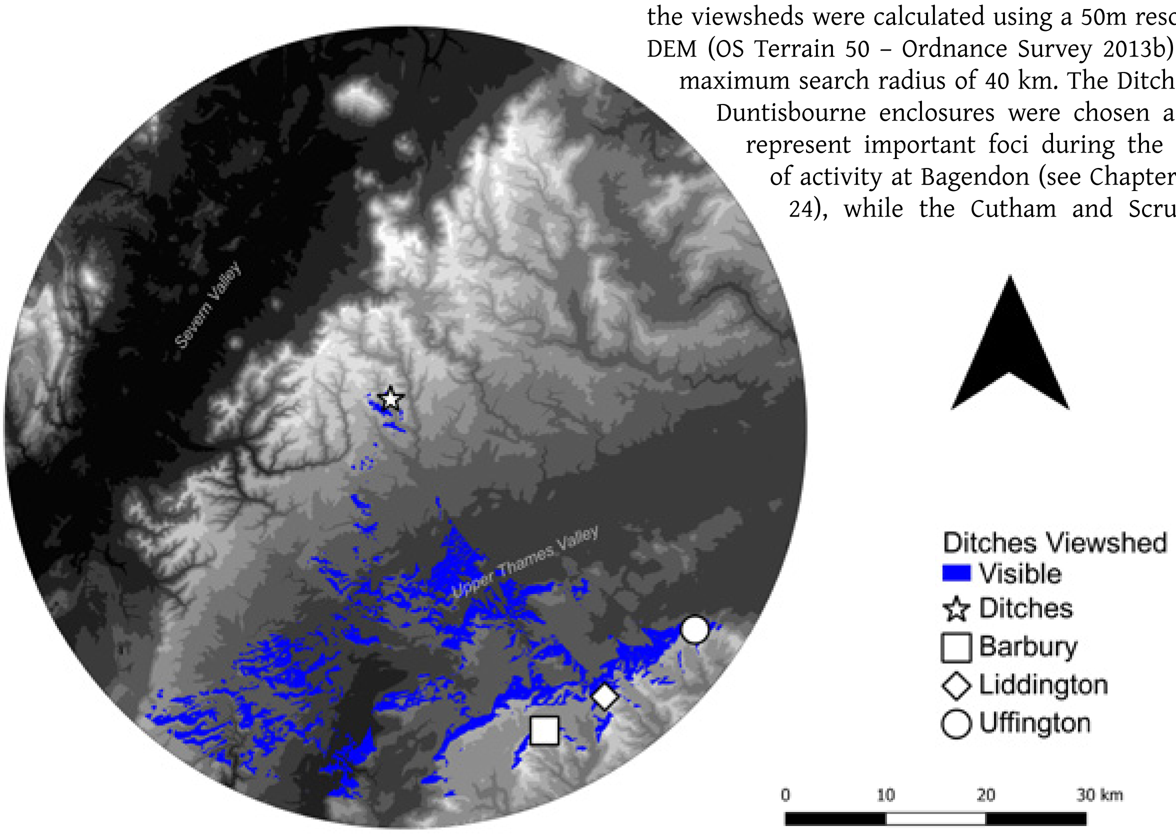

Figure 20.1. The Ditches enclosure viewshed. 1.7 m observer height. 0m target height. 40 km maximum search radius.

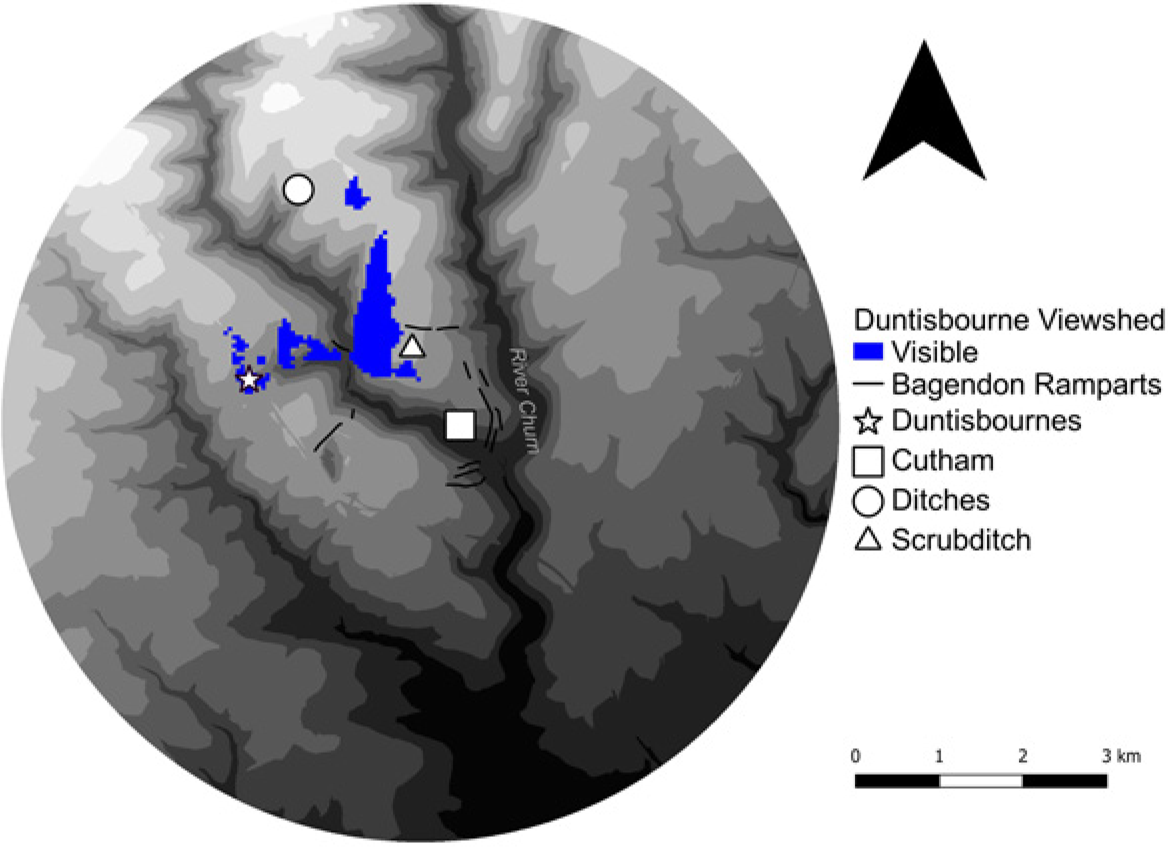

Figure 20.2. Duntisbourne viewshed. 1.7 m observer height. 0m target height. 40 km maximum search radius.

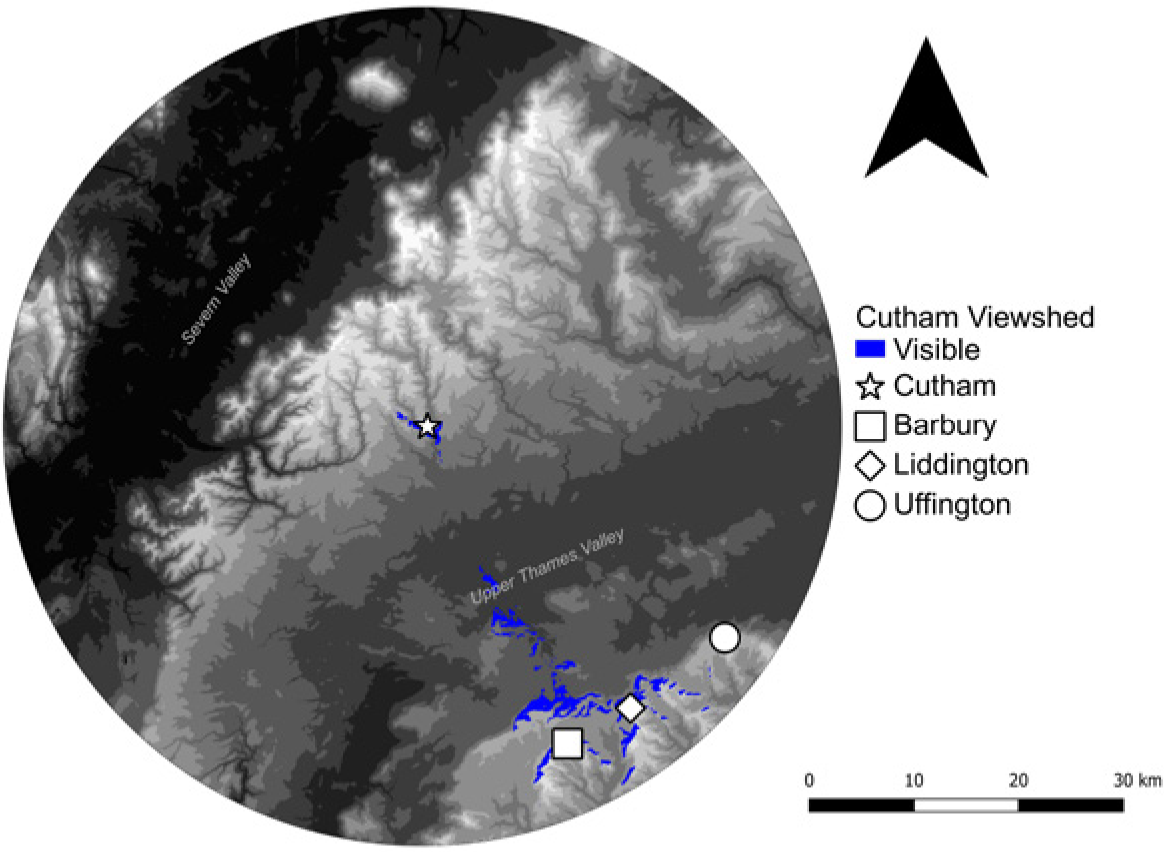

Figure 20.3. Cutham enclosure viewshed. 1.7m observer height. 0m target height. 40 km maximum search radius.

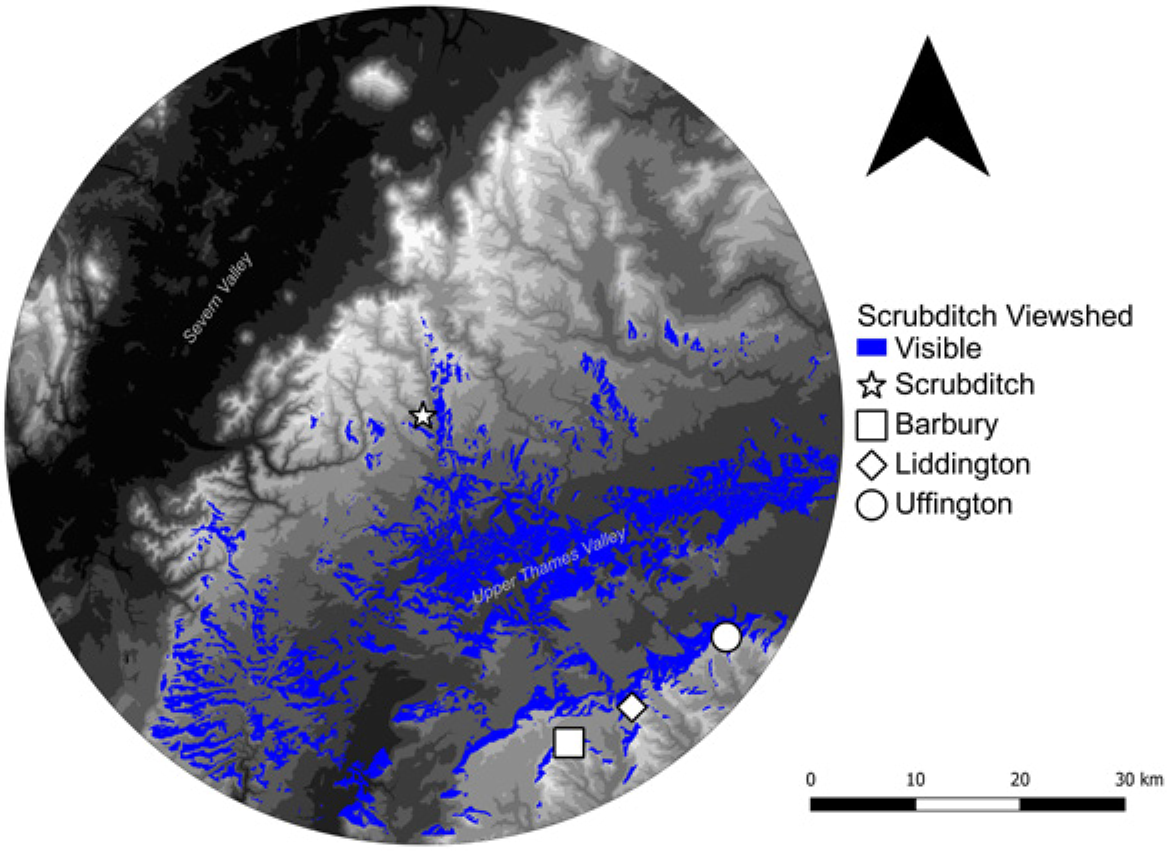

Figure 20.4. Scrubditch enclosure viewshed. 1.7m observer height. 0m target height. 40 km maximum search radius.

enclosures represent important enclosures largely predating the complex but which may have had influence on its placement (see Chapter 3 and 24).

Given the distances at which these viewsheds were calculated it is important to note that line-of-sight does not equate to visibility (Wheatley and Gillings 2000: 10) and the maximum distance at which true visibility is possible is more likely in the region of 5-10 km. However, set within the cultural context of the time, simple line-of-sight (rather than true 'visibility') or the ability to distinguish the outline of a feature against the horizon may well still have been of importance. The use of 'fuzzy' or 'probable' viewsheds (Fisher 1992; 1994; 1995) to clarify such issues in these instances may be the subject of further work.

Cumulative Viewsheds

While binary viewsheds are simple line-of-sight calculations from single points, cumulative viewsheds add together many binary calculations in order to determine the most visible parts of a landscape from a set group of points. In the instances outlined below these have been used to demonstrate areas of the landscape that would have been most/least visible as people moved around Bagendon (along the dykes, the trackway, or up the River Churn in this case).

Points were placed every 25 m along the known extent of both the central trackway (Figure 20.5) and ramparts (Figure 20.6) of the complex. For the trackway viewsheds were conducted using a 1.7 m observer height, while a 5 m observer height was used for the ramparts (to simulate a man standing atop the rampart) using a 5 m resolution DEM (OS Terrain 5 – Ordnance Survey 2013a). In both instances the viewsheds were calculated using a maximum visible radius of 10 km as the locally visible landscape was of most concern here.

A segment of the routes for both LCA2 and LCA3, both of which travel along the River Churn directly in front of the entrance to the complex, was cropped to extend just beyond the dykes to either side of Bagendon. Points were then placed every 50 m along their lengths and two cumulative viewsheds calculated from these with observer heights of 1.7 m and target heights of 3 m (to demonstrate where Bagendon's dykes would fall into the field of view). The maximum visible radius was set to 5 km as this viewshed was concerned mostly with the visibility of the dykes and Bagendon's interior. Because the two LCPs differed slightly along their route these two results were then added together to produce a single raster in order to account for some variation in the exact path which an observer may have taken (Figure 20.7).

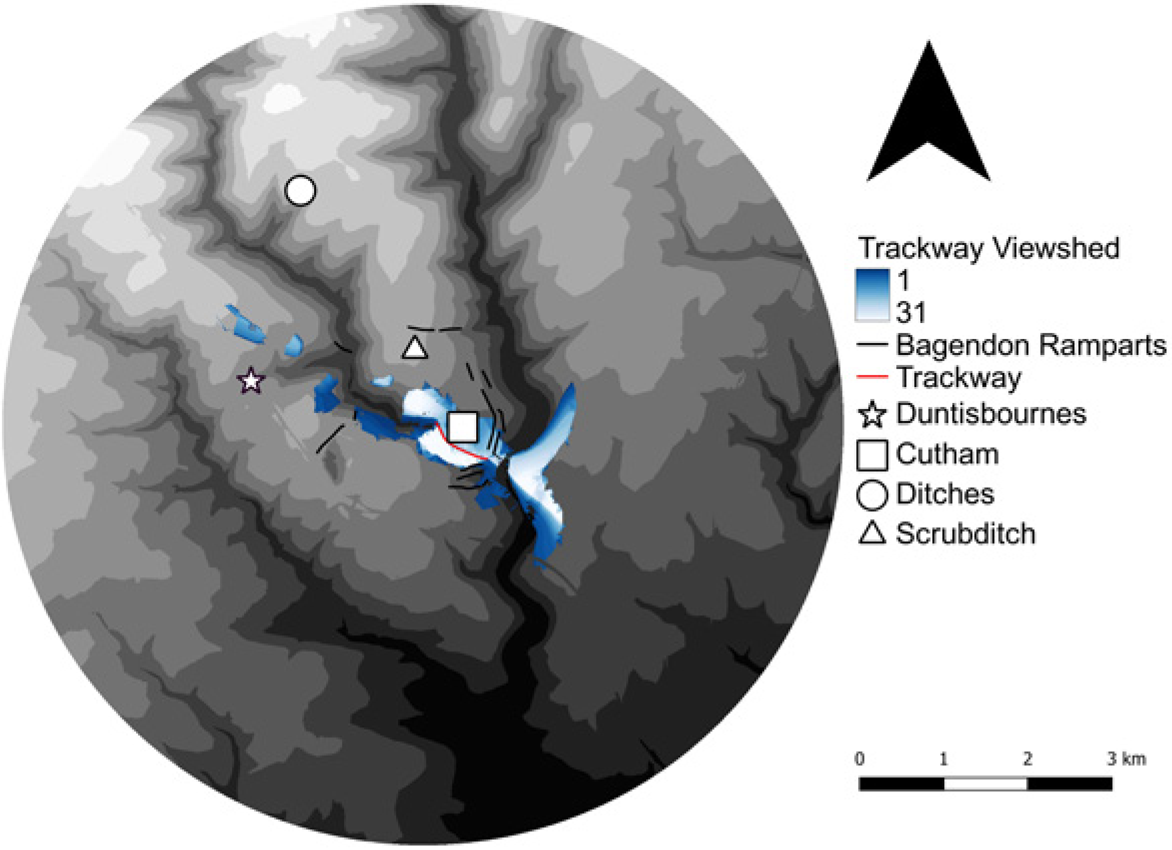

Figure 20.5. Cumulative trackway viewshed. 1.7m observer height. 0m target height. 10 km maximum search radius.

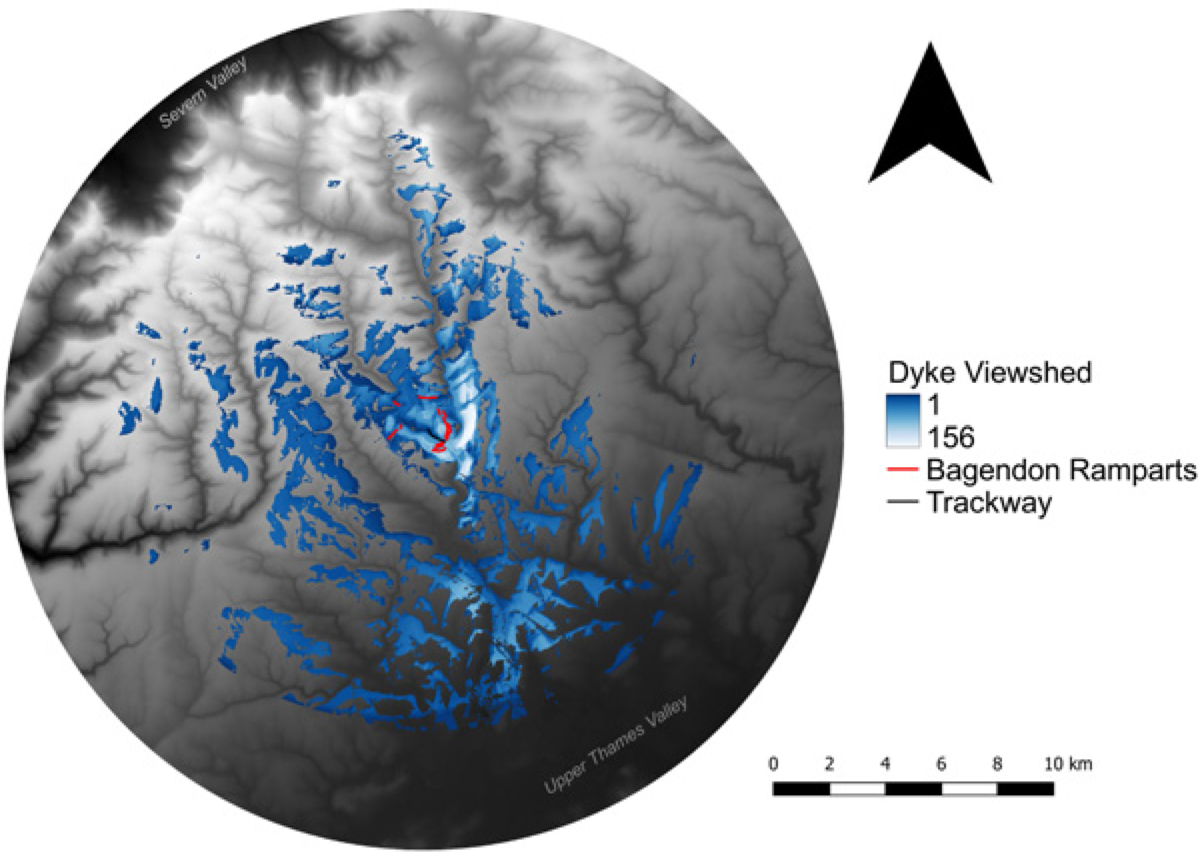

Figure 20.6. Cumulative dyke viewshed. 5 m observer height. 0m target height. 10 km maximum search radius.

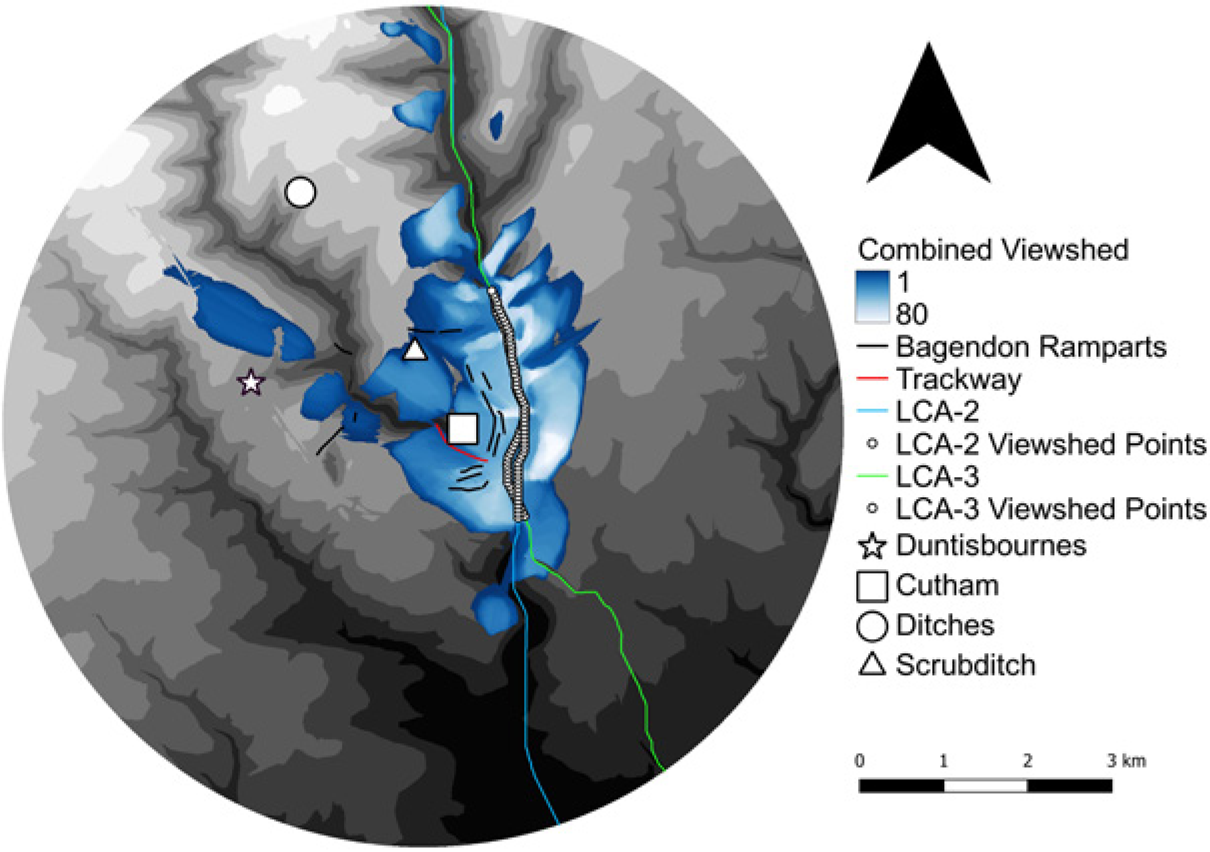

Figure 20.7. Combined LCA-2 and LCA-3 cumulative viewsheds. 1.7 m observer height. 3 m target height. 5 km maximum search radius

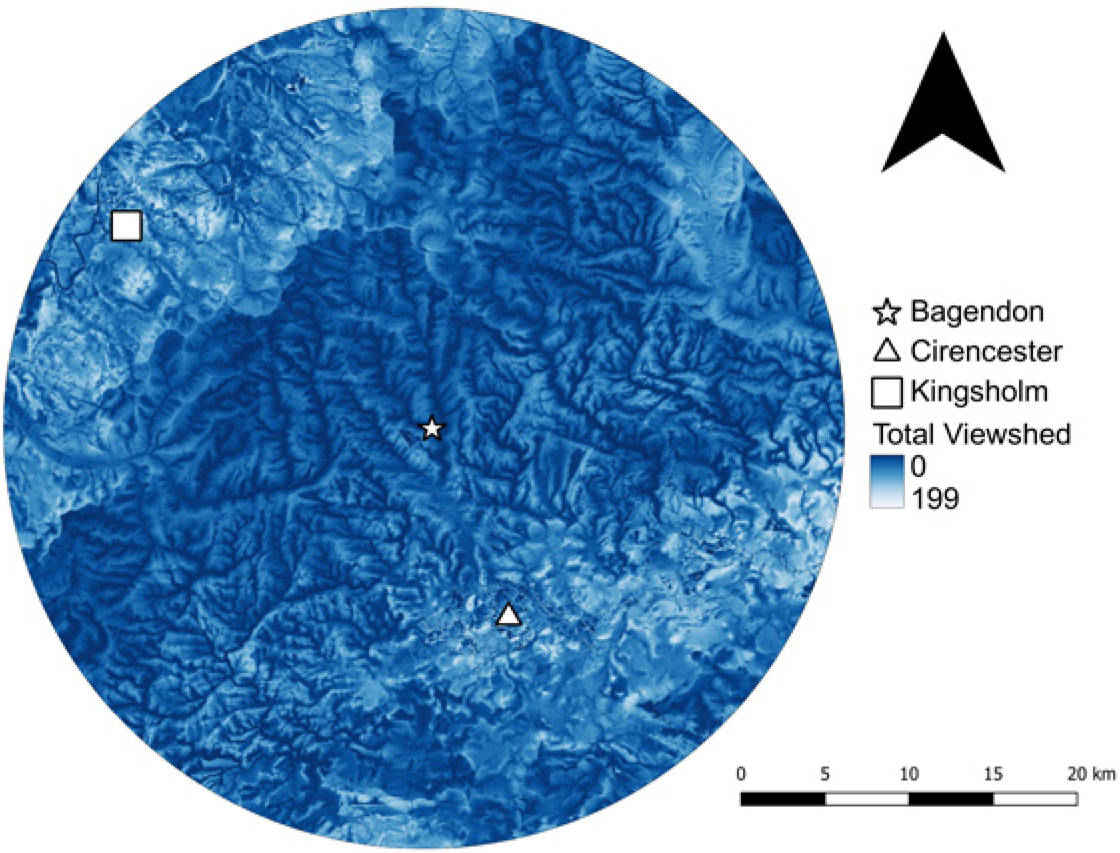

Figure 20.8. Total viewshed. 500 m grid of points. 1.7m observer height. 0m target height. 5 km maximum search radius. Clipped to 25 km around Bagendon to reduce the 'edge-effect'.

The logical progression from cumulative viewsheds is to calculate a total viewshed (Figure 20.8), essentially a cumulative viewshed for an entire landscape. This was used here to determine a potential cost factor for LCA3. The total viewshed was calculated by creating a grid of points, spaced at 500m intervals across an area with a radius of 40 km, centred on Bagendon, and running viewshed analysis from each of these. It used a 50 m resolution DEM (Ordnance Survey, 2013b) with a 1.7 m observer height and a maximum visible radius from each point of 5 km (in order to reduce the necessary computing power – further research could expand on this maximum radius). The final results were then clipped to 25 km in order to remove any edge-effect.

Least Cost Analysis

LCA was carried out using the r.walk function (Franceschetti *et al.* 2004) included as a plugin processing tool in QGIS 3.2. This includes an anisotropic function for energy expenditure based on slope using calculations from Aitken (1977) and Langmuir (1984). All iterations of the LCA used the OS Terrain 5 DEM which, as mentioned above, includes modern features such as roads. Once again further research could use historic contour data to attempt to avoid this issue. The cost factors used here will be explained in more detail as part of Bithell (forthcoming). The LCA presented here was kept purposefully simple as it has been suggested that overly complicated LCA can damage the explanatory strength of the resulting models (Bevan 2011). Similarly, applying arbitrary costs for cultural factors, such as the desire to be able to see or be close to a particular monument would be phenomenally hard to justify given our lack of understanding about what people considered important to their movement.

LCA1 – Slope

The first iteration of LCA undertaken in the study utilised just the slope function included in r.walk, along with a high cost assigned to the ramparts of the complex itself.

LCA2 – Elevation

The second iteration of LCA undertaken assigned a cost factor to elevation across the landscape. It assumed a linear progression of cost, assigning the lowest cost to the lowest elevation and the highest cost to the highest elevation.

LCA3 – Visibility

The final version of LCA assigned a cost factor to visibility by using a total viewshed (Figure 20.10)

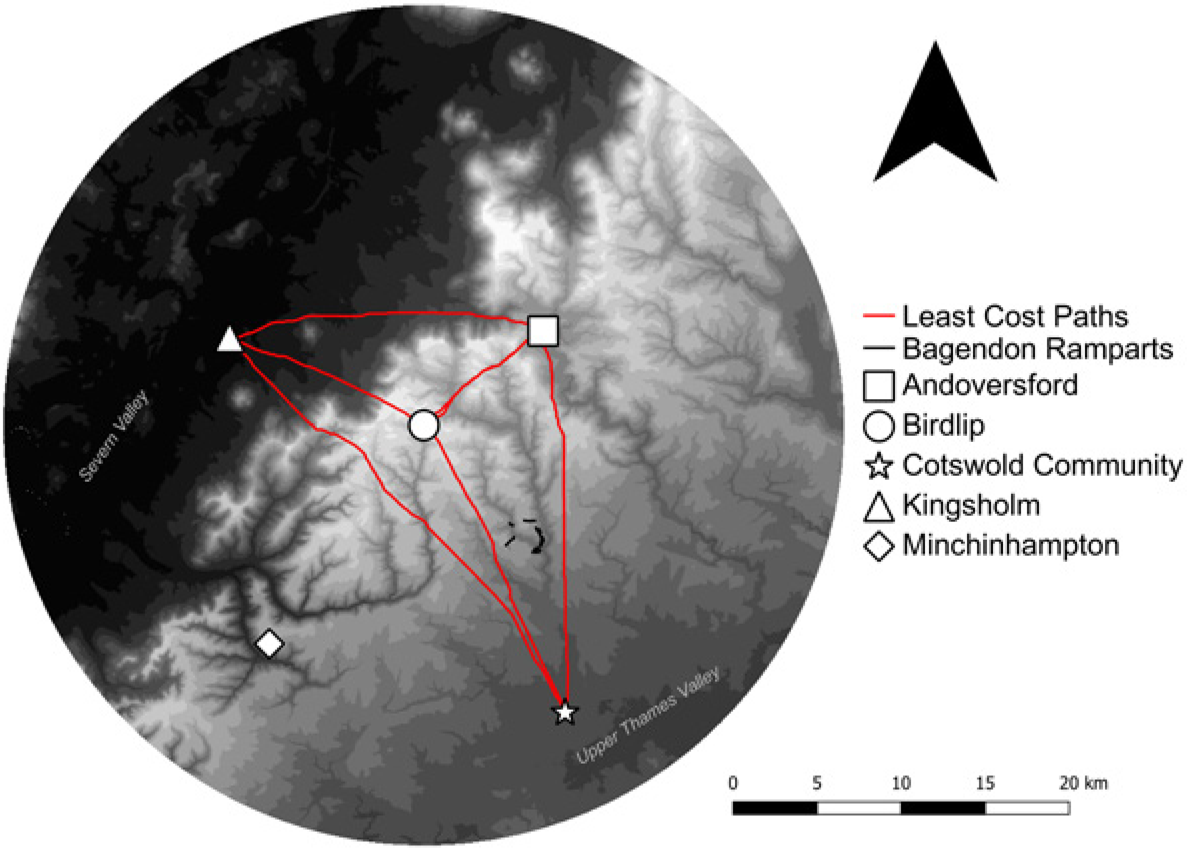

Figure 20.9. LCA-1. Least Cost Paths between Andoversford, Birdlip, Cotswold Community and Kingsholm using slope as the only cost factor.

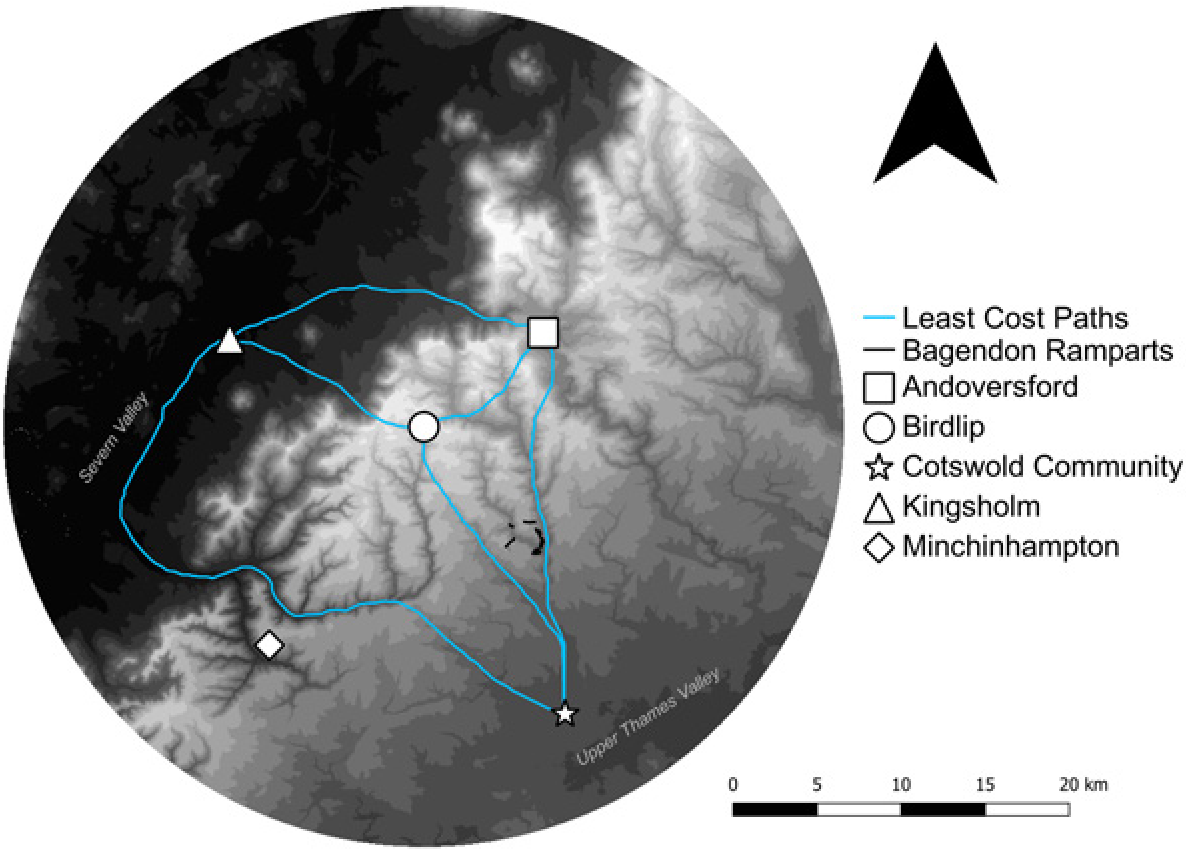

Figure 20.10. LCA-2. Least Cost Paths between Andoversford, Birdlip, Cotswold Community and Kingsholm using slope and elevation as cost factors.

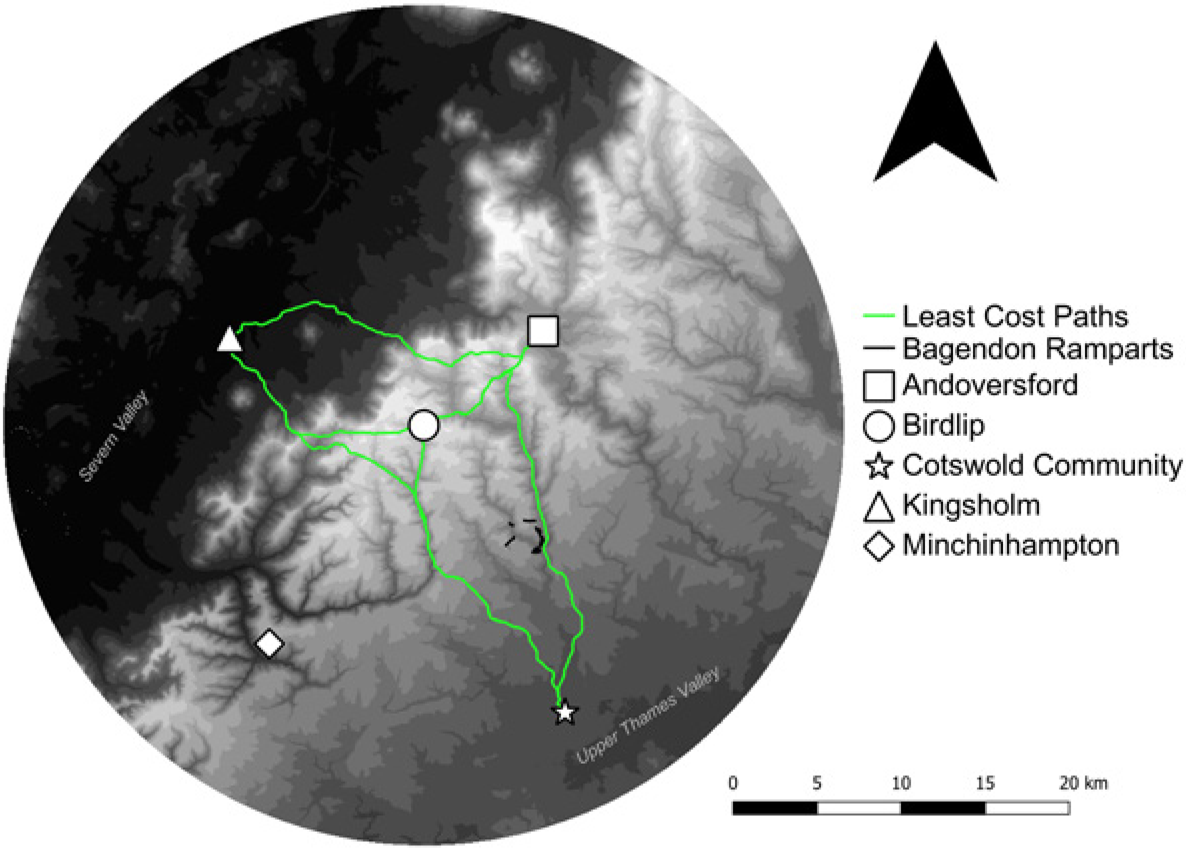

Figure 20.11. LCA-3. Least Cost Paths between Andoversford, Birdlip, Cotswold Community and Kingsholm using slope and the total viewshed (Figure 20.8) as cost factors.

described above. It also assumed a linear progression of cost assigning the least cost to the least visible cells of the raster and the highest cost to the most visible cells.

Results and Discussion

Of the three LCA undertaken here all the results give plausible explanations for how movement might have occurred both in the immediate landscape around Bagendon and on a larger scale, between the Upper Thames and Severn Valleys.

Figure 20.9 shows some connections with how the Romans organised routes across the landscape. For example, the route between Cotswold Community and Birdlip has significant overlap with the location of Roman Ermin Street. This would corroborate suggestions that Roman roads were, primarily concerned with the quickest and least energy intensive route over the Cotswolds to easily cross the Severn at Kingsholm (see Chapter 24; cf. Reece 2003).

One of the most interesting observations from both Figures 20.9 and 20.10 is that the route between Wycomb-Andoversford (where there is some evidence of a potentially important Iron Age centre before the establishment of the Roman Small Town there, see Chapter 23) and Cotswold Community passes close to the entrance to the Bagendon complex. Figure 20.10, which initially seems something of an outlier, also passes not far from the potential Iron Age occupation at Minchinhampton (The Bulwarks), approximately 15 km to the southwest of Bagendon.

Viewsheds from the complex's interior (Figure 20.5) show that much of Bagendon would not have been visible (except perhaps as glimpses through ramparts) until observers were almost within touching distance, just a few tens of metres away. The cumulative viewsheds from the LCPs along the Churn valley (Figure 20.7) corroborate this, although the higher target height used for these also indicates the tops of any structures may have been visible from a few places while travelling along the valley. These viewsheds also clearly demonstrate that the dykes of the complex were designed to be seen specifically by people plying these routes. Not only acting to impress and funnel people towards the interior, but perhaps to artificially increase the sense of scale surrounding the monument. They may have seen no need to enclose the opposite side of the complex with such monumental structures if no-one was going to see it (see Chapter 24).

It seems quite likely, as all three sets of LCA (Figures 20.9–20.11) take approximately the same route between Andoversford and the Upper Thames Valley (here designated by Cotswold Community), that Bagendon may have been specifically placed to exploit this routeway. However, the highly directional nature of the visibility present at the main focus of the complex suggests that merely controlling access along this route was not the only, or the prime, function of the complex. It seems likely that the desire for a sense of spectacle was also important in the minds of its builders, perhaps to enhance the experience and sense of power exuded by such a place (see Chapter 24).

Interestingly, such restricted and directional viewsheds are also present at three of the four sites where binary viewsheds were conducted (Figures 20.1–20.4). Although, neither Scrubditch nor Cutham can be considered as foci of the complex in the same way as The Ditches or the Duntisbournes as they have been shown to pre-date it (albeit likely having had some influence on its placement – see Chapter 24). Both Scrubditch (Figure 20.4) and The Ditches (Figure 20.1) – and to a limited extent Cutham (Figure 20.3) - had extensive, long-distance viewsheds and both have (ground-truthed) line-of-sight to three hillforts, Liddington, Barbury and Uffington almost 40 km away to the south (see Chapter 24). As mentioned above this does not necessarily equate to true 'visibility' (Wheatley and Gillings 2000: 10), however people standing at Scrubditch or The Ditches and looking over the Thames Valley on a clear day must have understood what they were seeing, silhouetted against the horizon. Compared to Scrubditch though, the amount of the landscape visible from The Ditches decreases significantly. Such restricted viewsheds at both The Ditches (at least within a certain distance) and the Duntisbourne enclosures (Figure 20.2) are interesting as they could be interpreted as microcosms of the wider complex. Upon progressing through the complex itself neither of these high-status areas would have been hugely visible until the last moment when they, and their importance, would have been revealed.

The results of this research into Least Cost Analysis around Bagendon have shown how the complex was specifically located in relation to possible routeways across the Cotswolds, in particular between sites such as Cotswold Community in the Upper Thames valley, the possible Late Iron Age centre at Wycomb-Andoversford and sites in the Severn Valley around Kingsholm. In addition, visibility analyses from important foci within the oppidum itself, from its ramparts and throughout the wider landscape have helped to illustrate how people might have experienced the complex as part of its wider landscape.

Chapter 21

Geophysical survey at Hailey Wood Camp, Sapperton, Gloucestershire

Tom Moore

Introduction

A geophysical survey of Hailey Wood Camp, Sapperton, Gloucestershire (NGR: SO96450034; Scheduled ancient monument 265; GlosHER 382) was undertaken in 2012 as part of the wider project examining the Bagendon complex. In order to contextualise activity at Bagendon, other sites in the area which have potential evidence of continuity of occupation between the Late Iron Age and Roman period were chosen for further examination.

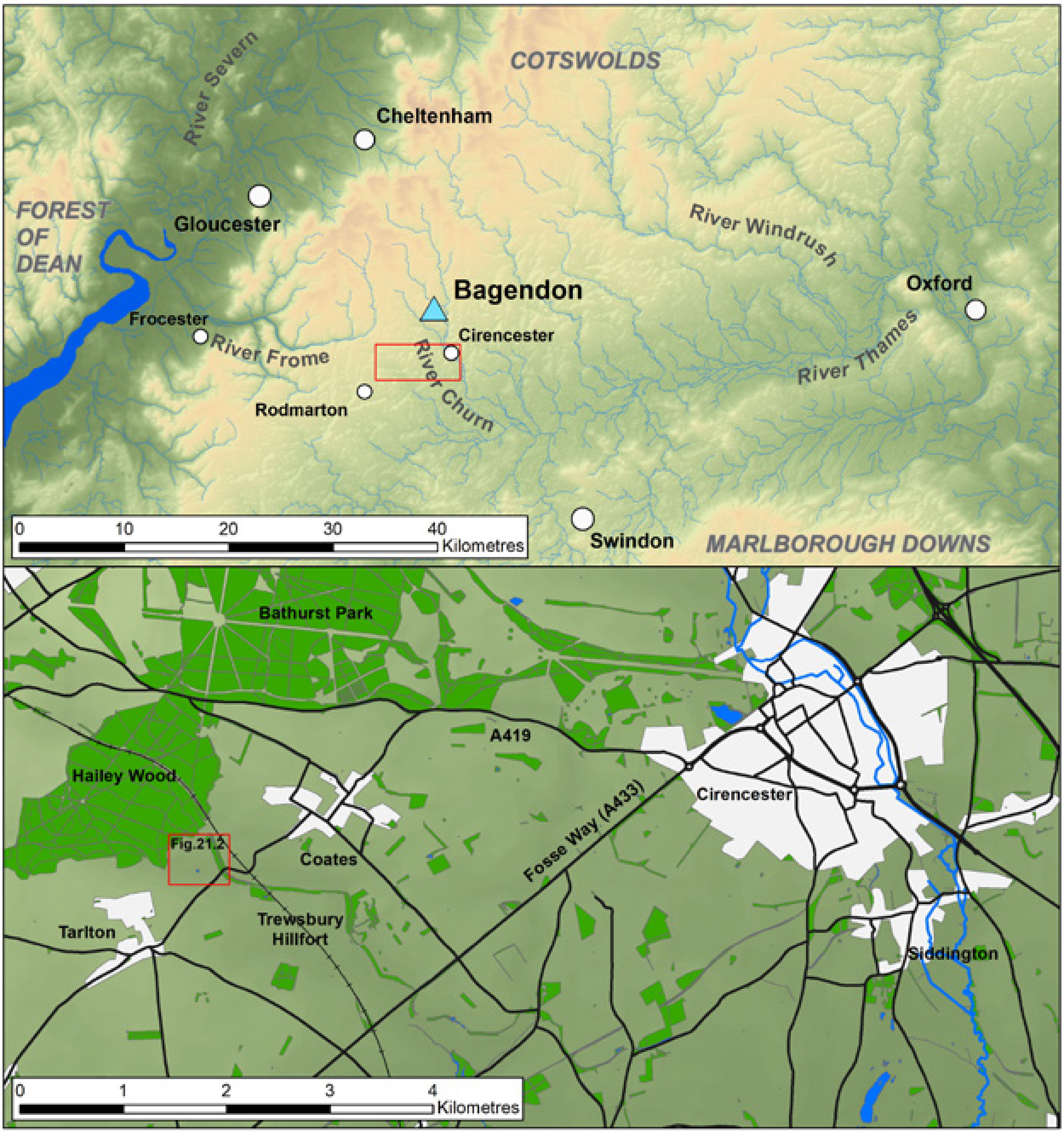

Figure 21.1. Location of Hailey Wood, Sapperton (drawn by Tudor Skinner).

The Hailey Wood camp site is situated on a small knoll of oolitic limestone overlooking a dry valley which represents the uppermost reaches of the Thames Valley (Figure 21.1). The current attributed source of the Thames is situated approximately 1.3 km to the east, down this dry valley. A number of aerial photographs of the site taken in the 1990s (e.g. NMR 4368) reveal the presence of a double-ditched enclosure, while some photographs from the 1950s (e.g. Cambridge GX028; RCHME 1976) provide evidence for stone structures outside the main enclosure. In 1996 the current author conducted a fieldwalking and geophysical survey of the site. This consisted of a resistivity survey of the main enclosure conducted at a relatively coarse resolution (sample interval of 1 m, sample traverse at 1 m). This survey provided evidence of stone structures within the enclosure and additional ditch features. Fieldwalking of the site provided evidence of Roman ceramics dating from the 1st to 4th century AD while probable Iron Age ceramics and metal-detected *Dobunnic* coin finds, which have been attributed to the site, suggested the possibility of additional Late Iron Age activity (Moore 2001: 91). It was also suggested at this time that metal-detected finds of Roman curse tablets, dedicated to Mercury, were likely to derive from the site. On the basis of the evidence of the form of the enclosure and the curse tablets, as well as it position relatively close to the traditional source of the River Thames, it was suggested that the site might be Romano-Celtic temple complex, similar to a number of double-ditched temenos enclosures elsewhere (Moore 2001: 92, see Chapter 23).

Despite the usefulness of this survey the nature of features within the enclosure and outside the complex could not be closely defined. Considering the relatively coarse interval of the geophysical survey conducted in 1996 and the current Bagendon project's focus on gaining a better appreciation of the nature of Late Iron Age and Roman activity and settlement within the area it was decided that a new survey of Hailey Wood was likely to provide greater evidence of the nature of the site.

Methodology

Because of the beneficial results of magnetometer surveys elsewhere in the region, largely due to the limestone geology of the area, it was decided that the most appropriate geophysics technique was fluxgate gradiometry. The survey was conducted using two, dual array, Bartington 601-2 gradiometers, with readings sampled every 0.125 m and traverses every 0.5 m. A total of 10.8 hectares was surveyed comprising the area of the main enclosure and an extended area beyond this to examine any additional structures and activity (Figure 21.2). The survey was conducted in line with English Heritage (2008) guidelines for geophysical surveys. At the time of the survey the site was under pasture having been taken out of arable cultivation in recent years. Features are identified using numbering codes, commencing with F5000.

Results and interpretation

A number of dipolar magnetic anomalies occur across the survey. These are likely to represent ferrous objects close to the surface (for example horse-shoes, nails etc). A clustering of these in the north-eastern area of the survey (close to the Tunnel House pub) is likely to relate to modern activity in this area. Elsewhere, some of the dipolar anomalies over the main occupation area may represent hearths or archaeological material.

Significant plough scarring is visible in a number of areas of the survey, represented by striations which on the survey. This is most pronounced in area XX (Figure 21.3) and it is worth noting that this may mean any ephemeral archaeology has been destroyed. It is also visible in area YY over the area of significant archaeological remains; it is likely that ploughing in this area has significantly disturbed archaeological remains. Plough damage to archaeological features was recognised in the 1996 survey (Moore 2001) and led to the monument being placed under pasture.

Most significantly, the survey has revealed a relatively clear image of the extent of archaeological remains. The most obvious feature is the main, double-ditched (bivallate) enclosure (F5000/F5001) which corresponds to that seen on a number of aerial photographs. This survey demonstrates that the enclosure is slightly trapezoidal rather than rectangular, as it is depicted on the RCHME plan (1976: 99). The interior of the main enclosure measures approximately 60m across, with clear evidence of an entrance on the south-eastern side. Both the inner and outer enclosures respect each other and appear to be contemporary, although there is some asymmetry in their layout. The presence of an additional ditch (F5003) may represent the feature noted by the commission (RCHME 1976: 99) and a possible additional phase to the enclosure.

As evident on a number of aerial photographs from the 1950s, it is clear that interior to the inner ditch was a bank or, perhaps more likely, a stone wall, of which the rubble demolition survives (F5004). In a number of areas, the positive response from this feature suggests it may have been a substantial structure. There is some evidence from the entrance area and the northern side of the enclosure that a second stone wall or bank may have existed, internal to the outer enclosure ditch (F5005). On the south side of the entrance these positive features appear to represent some kind of independent

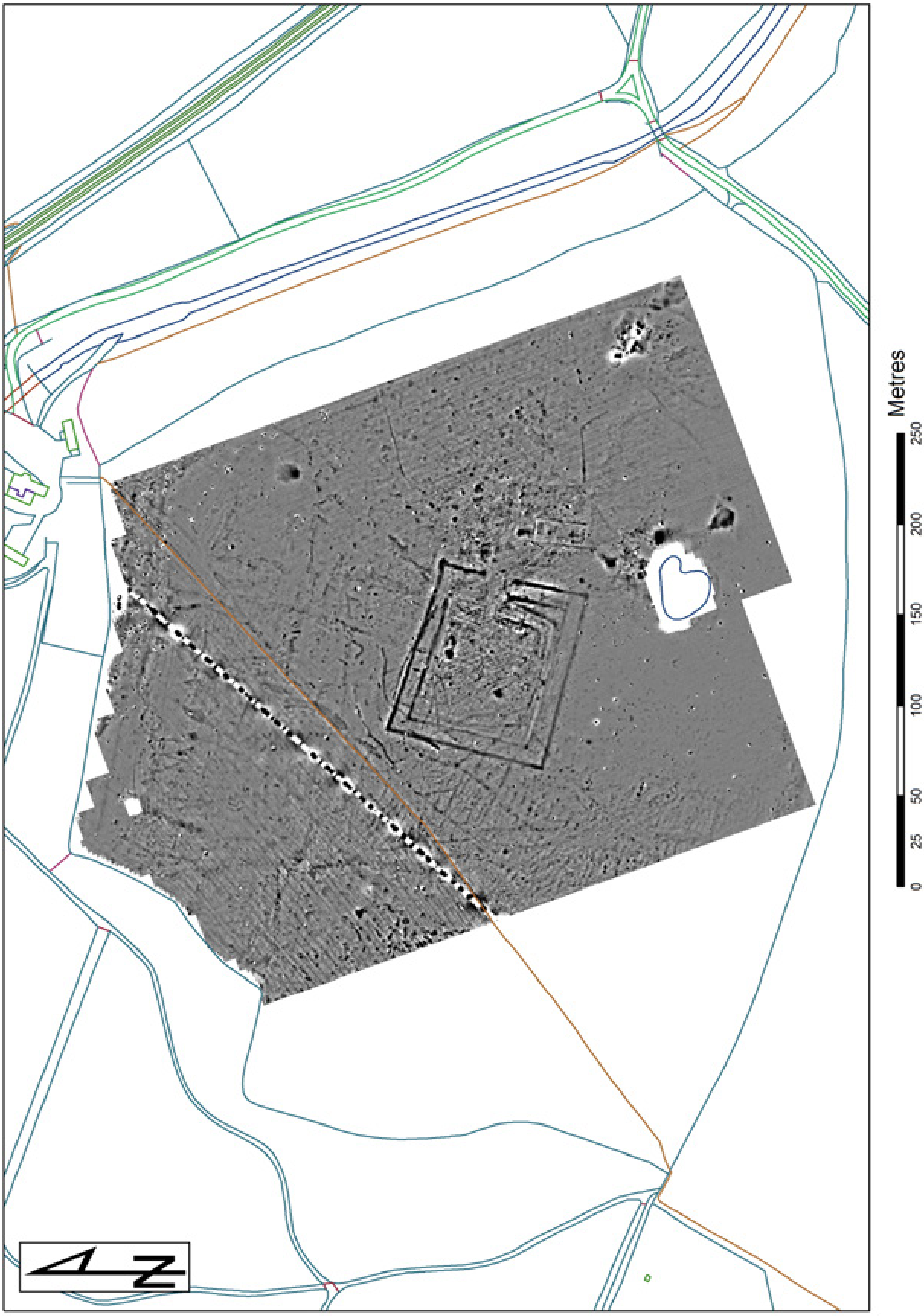

Figure 21.2. Geophysics results from Hailey Wood, Sapperton.

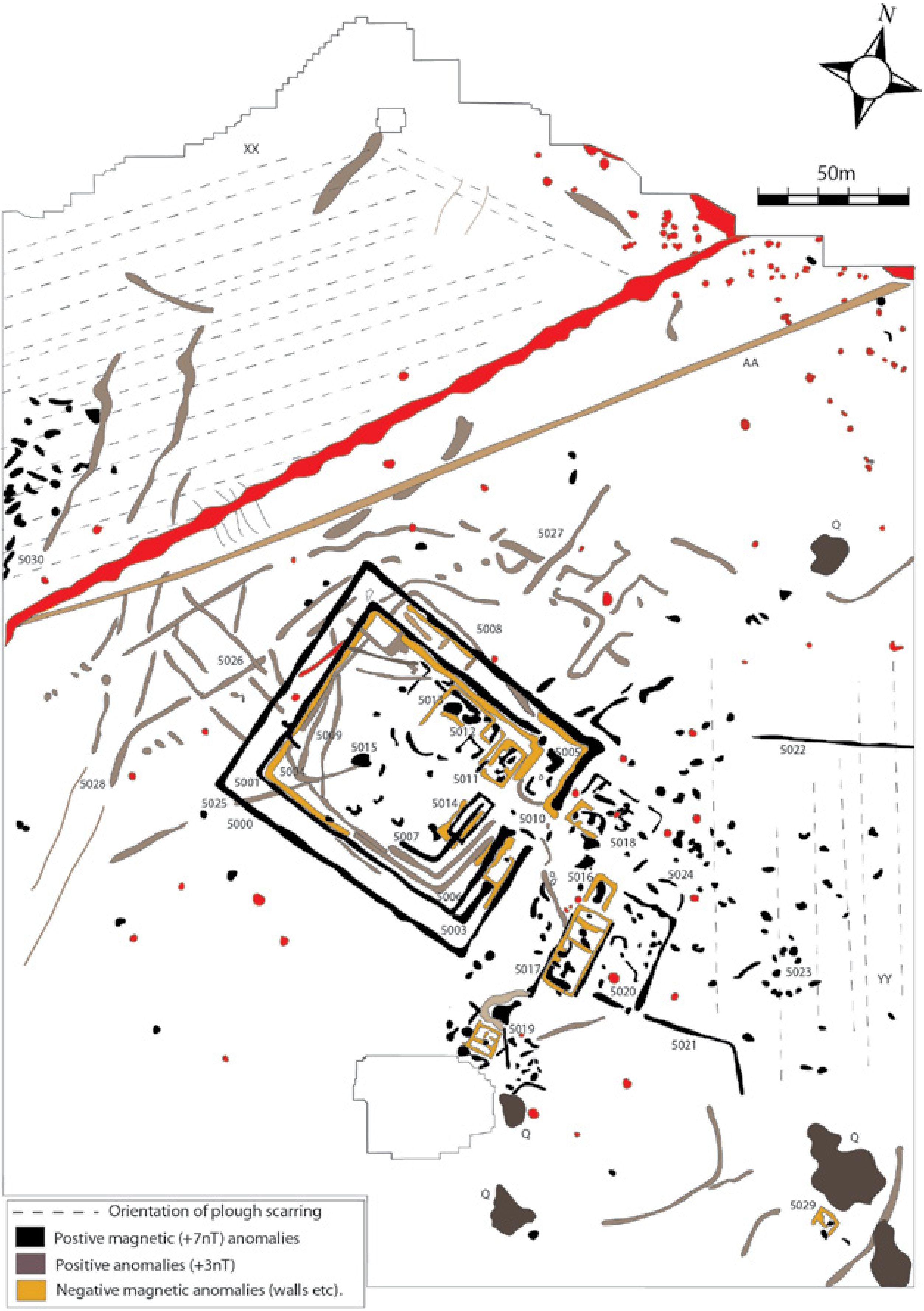

Figure 21.3. Interpretation of geophysics results from Hailey Wood, Sapperton.

structure but this is unclear. It is possible perhaps that some of these features represent buildings of a different phase to the main enclosure ditch.

The survey has also revealed evidence of additional ditch-like features within the enclosure area (F5006). This appears to be a, potentially earlier, sub-rectangular enclosure on a similar axis to the main rectangular enclosure. There is some evidence that these ditches continue and relate to an additional ditch feature which underlies the main enclosure represented by the ditches at F5008 and F5009. A further ditch feature (F5007) apparently parallel to those at F5006 may represent part of this phase or another phase of enclosure. At F5006 this appears to be bivallate, although there is no evidence of this elsewhere. The area around the entrance to the main enclosure is flanked by two curvilinear ditches on either side (F5010); these seem likely to be related to the earlier enclosure (F5006), rather than the main enclosure (F5000).

Within the enclosure there is tantalising evidence of rectangular stone-built structure on the northern side of the enclosure (F5011 and F5012), reflecting the Royal Commission's (1976: 99) observation of stone walls in this area. One of these F5012 is hard to define but if rectangular the southern side appears to have been destroyed. A very large negative feature (F5013) is located in relation to this structure – potentially a large pit or cellar. Another, less clear, structure is represented by linear arrangements of positive material (perhaps rubble) apparently flanking the entrance (F5014) in similar fashion to structure F5011. There is little other evidence on the north-western or south-western sides of other structures within the enclosure. However, there is significant evidence of what appear to be earlier (?) ditches in the western part of the enclosure (a number of which are clearly overlain by the enclosure wall within the enclosure). Some of these, such as F5009 and F5008, may be elements of the same enclosure represented by F5006, although the relationship of the other linear features in this area harder to define. Alongside a number of possible pit features within the enclosure, a second large negative feature (F5015) also occurs. The lack of any apparent structure associated with this feature may imply it is a large pit.

Immediately outside the enclosure a number of structures are clearly visible. Structure F5017 corresponds with that noted on an aerial photograph taken in 1952 and recorded by the royal commission (RCHME 1976: 99). The building displays internal walls and what may be hearths and/or postholes. A secondary, associated structure (F5016), not noted on aerial photographs, contains what may be a large pit or, more likely, a cellar. Structure F5017 also appears to be related to an enclosure (F5020) which encompasses a number of pits and other anomalies of uncertain nature. To the north of structure F5017 a number of other possible structures are visible. The clarity of these is less clear, but a number of possible stone buildings exist at F5018 which corresponds with a density of finds and tiles noted by the Royal Commission and recorded on in the fieldwalking in 1996 (Moore 2001: 87). An additional small building is visible at F5019, just to the west of the current quarry/pond. This small, square structure measures approximately 10x10m and appears to have a number of internal rooms. It is associated with a number of negative features which may be pits and scoops.

To the east of the main enclosure and buildings, linear features at F5021 and F5022 appear to represent an enclosure which seems to respect the main enclosure. Within this enclosure a circular arrangement of pit like features (F5023) seems unlikely to represent a roundhouse, the pits being too large for postholes, but may represent contemporary or earlier occupation. Fragments of a curvilinear negative feature (F5024) may represent fragment of a circular structure, perhaps a roundhouse.

To the north and west of the enclosure the linear anomalies found in the enclosure continue, suggesting these represent features of a different phase to the main enclosure. The irregular nature of some of these features may imply that some are geological in nature, perhaps fissures in the underlying bedrock. However, linear features such as F5025, which runs diagonally across the enclosure, and F5026, at right angles to the main enclosure (which are both also visible on the resistivity survey from 1996: Moore 2001: 88), are likely to be archaeological. These, and the other anomalies, such as F5027, may form the remnants of a field system, although it is worth noting that fissures in limestone bedrock can form similarly regular arrangements (see Chapter 2). The arrangement of anomalies at F5028 has the impression of creating a trackway, although the elements of this are too ephemeral to be certain.

The survey has also revealed a range of features which are unlikely to be Iron Age or Roman in date. A number of large, amorphous negative features are likely to be quarries (Q) probably of relatively recent date (perhaps post-medieval), although some might be earlier. One contains significant magnetic anomalies which may represent ferrous material dumped in to the quarry. Associated with the southern most of these quarries may be a possible structure at F5029. It is notable that this corresponds to a cluster of Roman ceramics found in the 1996 fieldwalking survey (Moore 2001: 87), potentially suggesting some of these features are in fact Roman in date.

The large dipolar anomaly running south-west to north-east is a modern service pipe; this run parallel to the current public footpath which can be seen as a relatively faint anomaly (AA). Further anomalies to the north-west of the footpath are uncertain. Some of these may be the remnants of field boundaries or occupation evidence but are relatively weak anomalies and for the present cannot be interpreted further. It seems likely that the dense cluster of anomalies on the western edge of the survey (F5030) are geological in nature, but it is possible they are pits. On a final note, it is notable that a structure visible on some aerial photographs (e.g. Cambridge University GX028 1951) is not apparent on the survey. The structure visible on these photographs is at a different angle to the main enclosure and the lack of any remains on the geophysics may mean this was a relatively recent structure, perhaps related to the former field boundary which ran north-west from the quarry/pond, and thus unrelated to the other buildings.

Discussion

The gradiometer survey largely confirms the survey results of the 1996 survey but provides a wealth of additional detail and adds precision to the Royal Commission's plan of the site. The survey also provides greater evidence on the role of the complex. Walled enclosure of this size can be paralleled at some villa complexes in the region, for example Sudeley, Gloucestershire, where villa buildings are clustered in a stonewalled enclosure of comparable size to that at Hailey Wood. Like Hailey, there are additional buildings beyond the enclosure (RCHME 1976: 114). In addition, villas have also been demonstrated to be situated within rectilinear enclosures, sometimes double-ditched, as at Cromwell, Nottinghamshire (Whimster 1989: 79). However, such enclosures tend to be far larger than the Hailey Wood enclosure. The lack of evidence for significant structures in the north-west side of the enclosure, where we would expect the main range of a villa to be, and the enclosure's rather small size, both suggest it is unlikely to be a villa complex.

Potentially closer parallels for the enclosure are a number of double-ditched enclosures which encompassed Roman temple sites (see Figure 23.14). Examples of similar enclosures, often ditched (either a single ditch or bivallate) with an internal stone wall, as at Hailey Wood, can be found at a number of examples. The temenos enclosure at Great Chesterford, Essex (Miller 1995), for example, shows some morphological similarities with Hailey Wood, consisting of a ditched trapezoidal enclosure with internal wall of comparable scale. The rather poorly understood enclosure of a Romano-Celtic temple at Gosbecks, Colchester, Essex also shares affinities; this includes a large ditch surrounded by three concentric walled enclosures (Ingle and Saunders 2011).

This survey has not been able to confirm the nature of structures within the enclosure, although stone buildings clearly existed along the northern side of the enclosure and immediately inside either side of the entrance to the enclosure. The presence of two extremely large pit-like features whilst difficult to interpret is consistent with large pits/shafts within religious temenos enclosures elsewhere in Britain and France. Outside the main enclosure, situated in the irregular enclosure to the west the circular arrangement of pits is also notably similar to a circular arrangement of pits immediately outside the temenos enclosure at Hayling Island temple (Smith 2001: 132). This survey also confirms the evidence from fieldwalking and aerial photographs of a cluster of buildings outside the south-east entrance to the enclosure. This can be paralleled at other temple complexes, such as Uley West Hill, Gloucestershire (Woodward and Leach 1993), where associated buildings are found outside the main temenos. The role of the small structure at F5019 is intriguing, perhaps an additional shrine, and its association with a current quarry and pond may be significant. Was this also a wet place in earlier periods?

The discovery of elements of what appears to be a sub-rectangular enclosure potentially underlying the main enclosure also provides further potential parallels. The sub-rectilinear, multivallate enclosure at Lee's Rest, Oxfordshire has also been argued as having a ritual role from its form and stray finds (Copeland 2002: 37). Similarly, the phase 2 Late Iron Age sub-rectangular enclosure at Fison Way, Norfolk has been suggested as a ritual enclosure and is also similar in form and size to that at Hailey Wood (Gregory 1991). Both of these have more rounded-cornered enclosures, similar to enclosure 5006 at Hailey Wood, perhaps implying this feature is of earlier, perhaps Late Iron Age date.

In conclusion, this survey provides further supporting evidence to suggest that the site at Hailey Wood is indeed as ritual temenos enclosure and that the site may well represent a rural sanctuary similar to those at Uley West Hill and Nettleton in the region. Allied with finds of Late Iron Age coins and ceramics as stray finds and from the previous survey, it suggests the potential for pre-Roman activity is likely and possibly even ritual in nature. An association for the Roman period structures with the source of the Thames, as previously suggested (Moore 2001: 92), remains speculative. However, the existence of temple complexes at the source of major rivers, such as the Seine and Yonne in France, is well known and seems the most likely explanation for a sanctuary enclosure in this area. The complex at Hailey Wood emphasises the potential of other important Late Iron Age foci in the immediate Bagendon area.

Chapter 22

Geophysical Survey at Stratton Meadows, Cirencester, Gloucestershire

Tom Moore

Introduction and methodology

In 2003 excavations in advance of sewer repairs small test pits revealed two, intercutting pits located on slightly raised ground above the small floodplain of the River Churn (Figure 22.1; Wymark 2003; Holbrook 2008b). These pits included an assemblage of ceramics which can be dated to approximately AD 50–70 and include material of even earlier date (including a Pascual 1 amphorae of Augustan-Tiberian date) (McSloy 2008:

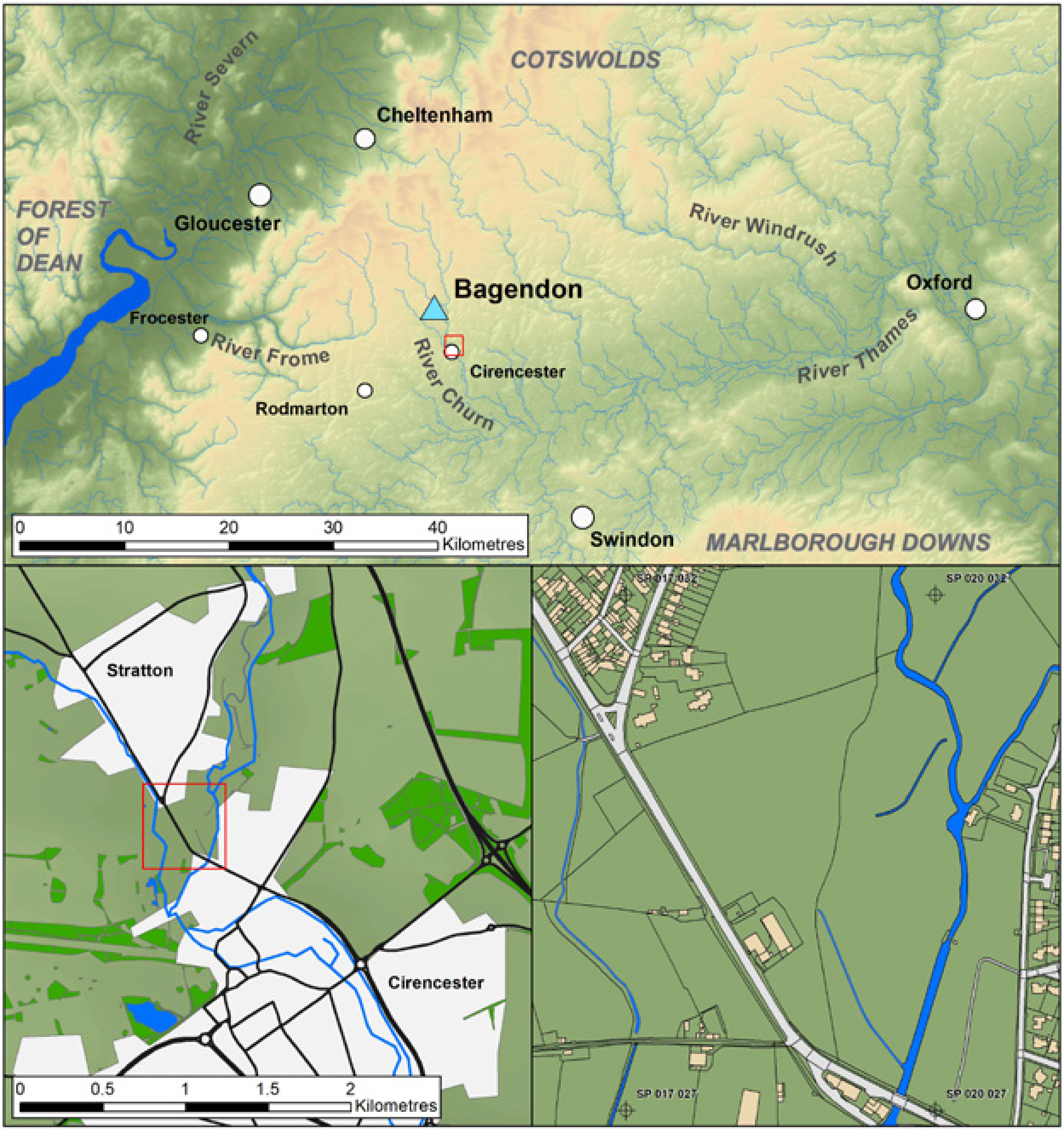

Figure 22.1. Location of Stratton Meadows, Cirencester (drawn by Tudor Skinner).

135). The nature of this assemblage has been suggested as most closely paralleling those from Bagendon and The Ditches (Holbrook 2008b: 136). The presence of Late Iron Age and early Roman material of this date and nature may suggest that the types of settlement recorded at Duntisbourne are also found further afield with this material potentially representing evidence for similar occupation in the vicinity of Cirencester (Moore 2007a). The site is also situated in relatively close proximity to the putative Late Iron Age/early Roman activity associated with the Tar barrows (Holbrook 2008b: 137), located on the hills to the south east.

Despite the material evidence from the pits at Stratton little more could be said of the nature of the site. Holbrook (2008b: 134) suggests the pits were gravel extraction pits, although for what purpose is not clear. The high density of finds, faunal remains and environmental evidence (Holbrook 2008b: 135) in this small sample implies intense occupation, probably in the immediate vicinity. In order to examine further the potential evidence for Late Iron Age and/or early Roman activity in the area, a geophysical survey was conducted in 2008. These pits were located on an area of slightly raised ground, representing a slight gravel terrace above the flood plain of the river.

The area presents a number of problems for identifying Iron Age and Roman activity. Features associated with post-medieval water meadow management are clearly visible as upstanding earthworks. These were partially mapped on the first edition Ordnance survey map. Such systems were laid out in the late 17th and 18th century in this area (Gerrard and Viner 1994: 136) and remained in use until the late 19th century. Those in the Cirencester area were regarded, by contemporary writers, to be particularly impressive (Bettey 1999: 190). Similar systems have been mapped from aerial photographs and can be seen along the course of the Churn to the north and south of Cirencester. This indicates a major landscaping of the area at this time, potentially leading to substantial destruction of earlier archaeological evidence.

Closer to the old Roman road of Ermin Street a number of quarry pits, probably for stone and gravel for the road and field boundaries, can be recognised. These are likely to range in date from Roman to post-medieval. In addition, a number of modern pipelines are known to have truncated the area. Finally, in recent times the area has been used for fairs and car-boot sales; the related refuse from metallic objects can also be seen on the gradiometry survey as significant numbers of metallic 'spikes'. Despite these problems a high-resolution gradiometry survey was conducted of the area. Survey was undertaken at a resolution of 0.5m traverse and 0.25m samples, using FM256 Gradiometers. Features have been identified with a numerical code, beginning at F6000.

Results and interpretation

The survey results (Figure 22.2) represent a relatively challenging set of data to interpret (Figure 22.3), emphasising the highly disturbed nature of the area and the localised issues for gradiometry with the localised gravel geology. The gravel terrace can be recognised on the survey and to the south-east it appears to be bordered by an old river channel (X). Cutting across the survey area is the water pipe which led to the test pits (TP) excavated in 2003. These are located in an area of large amorphous anomalies (F6000). Further features to the west (F6001) and north-east (F6002), as well as more ephemeral potential features (F6003), clustering on what appears to be a slight gravel terrace. The size and location of these anomalies suggests that some are likely to represent large pit-like features similar to that encountered in 2003 (which was approximately 2.5 m deep and 3 m wide), probably of Late Iron Age date. Not all of these need be of Iron Age date, however, one of the test pits in 2003 (TP on Figure 22.2; Wymark 2003: fig 7) encountered a relatively deep 'scoop' of post-medieval date.

Much of what was revealed in the field can be related to the 18th and 19th century water meadow management (Figure 22.3). Wymark (2003) noted the presence of medieval ridge and furrow in the field and suggests this as the features which cut the early Roman pit feature. No clear ridge and furrow can be recognised on the ground or on the geophysical survey and it appears likely that some of these features are in fact drainage ditches related to water management systems. A multitude of carrier streams and 'aqueducts' typical of such systems can be noted on the geophysics with the main carrier stream (F6004) which relates to an aqueduct outside the survey area, which once carried water over the course of the river Churn. Further feeder ditches are recognisable (F6005). These show on the geophysics as negative magnetic anomalies, most likely because they are stone lined and reveal limestone which provides a negative magnetic response. Other ephemeral features, which appears to be gullies or ditches do not appear to relate to this system (F6006) and may relate to an additional water management system.

To the west the linear feature (F6007), which may have an entrance gap within it (F6008) is hard characterise but may be an earlier boundary. It may relate to the linear to the north (F6010), which follows the modern field boundary and maybe an earlier phase of this boundary. No clear connection between these features and the cluster of pits can be made. The linear features (F6009) within boundary 6007, seem too small and close together to be rigde and furrow and their role is hard to explain; some form or drainage system of relatively recent data seems likely.

Figure 22.2. Geophysics results from Stratton Meadows, Cirencester.

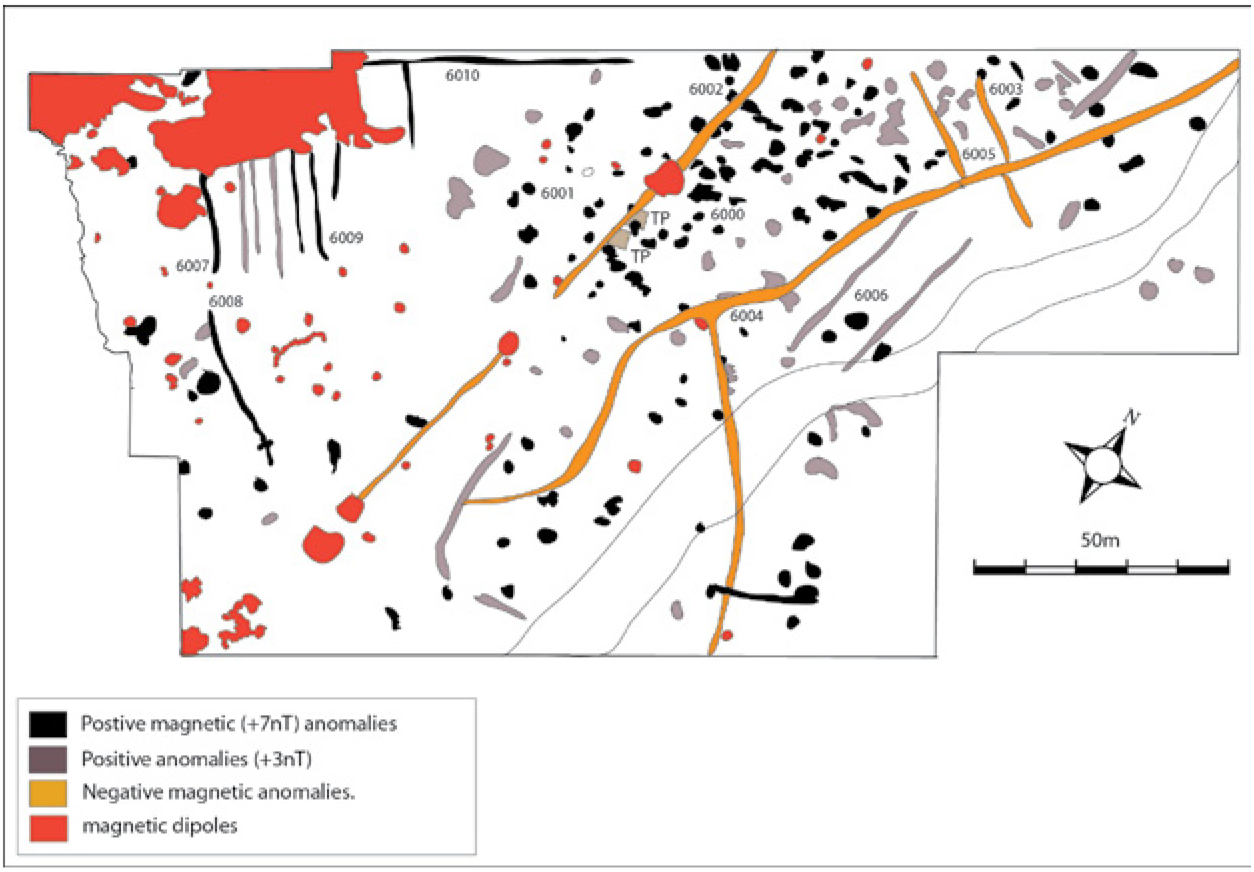

Figure 22.3. Interpretation of geophysics results from Stratton Meadows, Cirencester.

Conclusions

The geophysical survey does not allow us to confirm the specific nature of the Late Iron Age and early Roman activity in this area. However, the cluster of apparent pits situated on the gravel terrace in suggests that the test-pits in 2003 encountered an area of activity marked by a pit cluster. This may represent repeated pits for gravel extraction and rubbish dumping but its focused nature seems to signify occupation activity. There is little clear evidence for structures related to these pits, but the confusing nature of the geophysics results may be obscuring these. The ditches to the west were identified, these do not seem related to this occupation. It is also possible that the main area of settlement occupation was situated to the north; it is certainly unlikely to be located in the floodplains to the south and east of the terrace. Evidence for probable Late Iron Age settlement some metres to the west has also been suggested, on the basis of aerial photographs and stray finds (see Chapter 23).

Parallels for gravel terraces with collections of pits are well known from the Thames Valley, such as Gravelly Guy (Lamrick and Allen 2004). The latter represents a potentially quite different type of site from that here, although the large numbers of pits cut in to the terrace might conceivably produce a similar geophysical result. This survey cannot confirm such a settlement by any means, but it is likely that many of the features revealed on this survey do represent evidence for occupation in the vicinity. There is little evidence for the nature of Iron Age occupation in the valleys of this area and it is perhaps likely that occupation was generally restricted to higher ground. However, a lack of significant archaeological investigation within these area entails that landuse in these areas has been largely truncated by post-medieval water meadows.

Chapter 23

Becoming the Dobunni? Landscape change in the Bagendon environs from the Early Iron Age to AD 150

Tom Moore

Introduction

The developments at Bagendon, charted in the preceding chapters, can only be fully understood in the context of the wider trajectory of settlement and landscape change over the Later Iron Age and early Roman period. In particular, it is important to assess how developments around Bagendon related to, or perhaps even stimulated, changes in the wider landscape. In particular, do changes elsewhere reflect the periods of transformation witnessed at Bagendon and to what extent do transformations in Iron Age and early Roman settlement and subsistence patterns provide insights into Bagendon's social or economic roles? To explore these issues, this chapter assesses settlement change in Bagendon's immediate environs placing them within the context of the Severn Valley, Cotswolds and Thames Valley regions.

The environs of Bagendon are geographically diverse (Figure 23.1a and 23.1b). Situated on the dipslope of the Cotswold hills, the landscape to the north and west of Bagendon is constituted of a limestone plateau, intercut with well-watered valleys, often running north-south. Rising to a maximum of 300 m, the Cotswold Hills then drop away from the scarp to the Severn Valley below. To the south-east, just a few kilometres from Bagendon the upper reaches of the Thames Valley begin, widening quickly to provide a large open plain. These landscapes offer contrasting potential for farming and subsistence. The Jurassic limestone of the Cotswolds is well drained, with water sources largely restricted to springs along the sides of the intercutting valleys. Between the greater and inferior oolitic limestone are layers of Fuller's earth which provide heavier soils in places. The Thames valley consists of calcareous alluvial soils and gravel terraces. The Severn Valley is largely made up of Triassic and Jurassic Mudstones with overlying clay soils, gravel terraces and alluvial areas around modern Gloucester. Even today, the region's topography and soils tend to define different farming regimes: the relatively dry Cotswold plateau for sheep pasture and arable, whilst the fertile Thames Valley and Severn Valley lend themselves more to cattle pasture, with arable on the gravel terraces.

Studies of the Iron Age in the region have tended to focus on one of these seemingly coherent areas. The Thames Valley has been a particular focus of study (e.g. Hingley 1984; Lambrick *et al.* 2009; Morrison 2016) often contrasting its settlement patterns and trajectories with the adjacent Cotswolds. Meanwhile, the Severn Valley has often been explored separately, as part of the West Midlands (e.g. Hurst 2011). Despite these contrasts, the Iron Age in the region has often been considered as being interconnected as part of the tribal bounds of the *Dobunni* (Cunliffe 2005: 179; Hurst 2001) although, as is discussed later (Chapter 24), the coherency of this as a unified social or economic entity can be questioned (Moore 2011). Recognising that Bagendon's development may have related significantly to its location on a natural routeway from south-east England, via the Thames Valley, to western Britain (Sherratt 1996), and its potential role as a social centre, the nature of connections and relationships across these regions needs to be considered. In examining these regions, it is important to be conscious that drawing firm distinctions between the Thames Valley, Severn Valley and the Cotswolds under-estimates interconnections that existed between them, for example in exchange and landscape management. Similarly, regarding each settlement as an independent farmstead may obscure complex relationships between communities (Moore 2007a).

The regional Iron Age settlement pattern is becoming increasingly well understood thanks to a large number of investigations under modern conditions since the advent of Planning Policy Guidance 16 (PPG 16) in 1990. Even since a review of the early impact of PPG 16 on our understanding of the Iron Age within the region (Moore 2006), significant numbers of interventions, including excavations, have taken place and many more have witnessed post-excavation and/or publication. For a long time, the focus of archaeological work was heavily biased towards the Thames Valley where large-scale gravel quarrying provided open-area excavations of considerable size. To some extent this continues to be the case, but development around urban areas such as Cirencester, Bourton-on-the-Water and Tetbury, as well as major pipelines and road schemes, is beginning

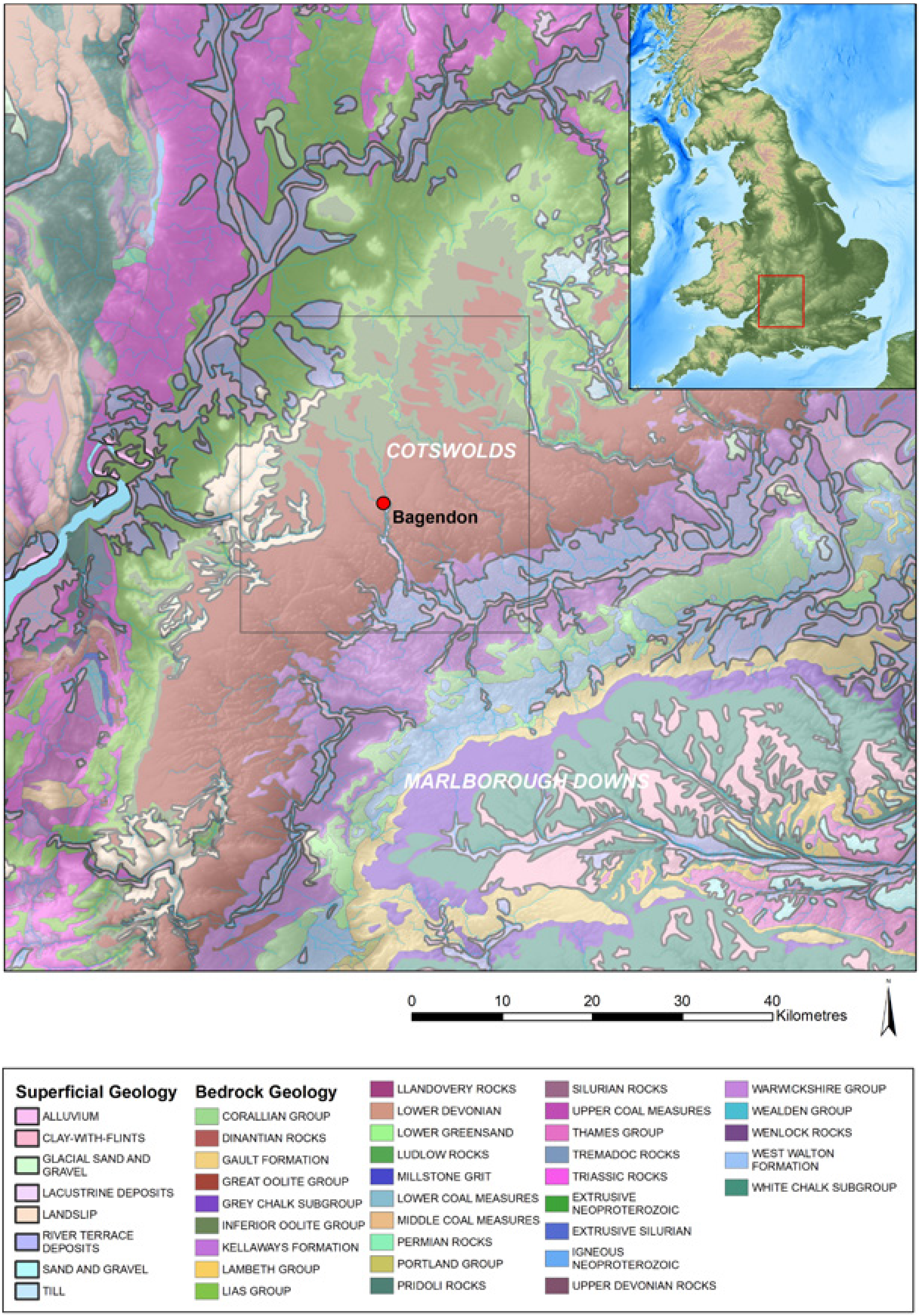

Figure 23.1a. Map of the geology of the region (based on OS map data) (drawn by Tudor Skinner).

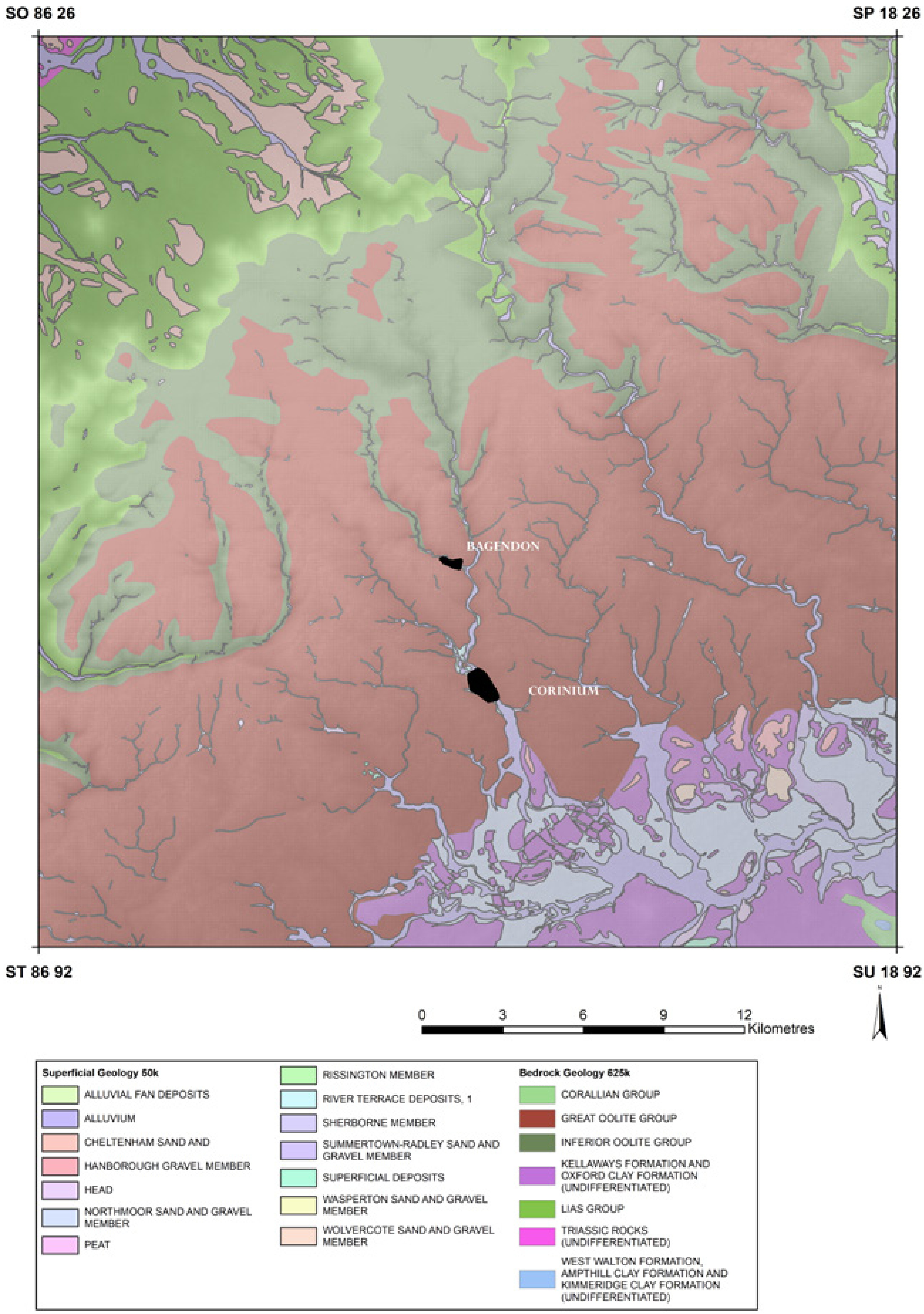

Figure 23.1b. Map of the geology of detailed study area (drawn by Tudor Skinner).

to redress the imbalance for the Cotswolds. More recently, a wealth of archaeological investigation has similarly taken place in the Severn Valley, related to house building around Gloucester, Cheltenham and Bishops Cleeve. In some cases, these archaeological investigations are more piecemeal than those in the Thames Valley whilst some of the larger ones are not fully published making inferences for this area rather more provisional. Despite these issues, an increasingly systematic approach to dating settlements is revealing the complex life-histories of what might appear to be relatively simple settlements and field boundaries. In addition to excavations, the National Mapping Programme (NMP) has covered all of the Cotswolds and upper Thames providing a systematic recording of cropmark data (Janik *et al.* 2011). Some regional studies of aerial photography have also provided important insights into settlement patterns on the Gloucestershire (Moore 2006) and Oxfordshire Cotswolds (Lang 2008). Geophysical surveys and more systematically recorded stray finds, thanks to the Portable Antiquities Scheme (PAS), also provide increasingly useful datasets.

As part of this project, a number of smaller geophysical surveys of individual sites of particular interest were also undertaken, the results of which were discussed

Figure 23.2. The location of the detailed Bagendon environs study area in relation to wider Severn-Cotswolds-Thames region and key sites mentiond in text (drawn by Tudor Skinner).

in the preceding chapters, 21 and 22. These were designed to augment our appreciation of a number of potentially significant sites in the immediate Bagendon environs. They included the possible Roman Temple complex at Hailey Wood (Chapter 21), an Iron Age and Roman settlement at Upper Mill, Somerford Keynes (Figure 23.13; Burton 2012) and possible Late Iron Age settlement at Stratton Meadows, Cirencester (Chapter 22). Combining this evidence, the following discussion places Bagendon within the broader context of landscape change from the Early Iron Age to the early 2nd century AD.

Bagendon environs assessment: methodology

To provide an assessment of the immediate Bagendon environs an examination of settlement was undertaken in an area encompassing 1088 km sq (Figure 23.2; Appendix 1). This built on an earlier study (Moore 2006) with significant up dating using Historic Environment Records, PAS data and a survey of grey-literature. This includes sites of probable Iron Age date but, due to the sheer quantity of sites, Roman settlements which could not be firmly ascribed a date earlier than the mid-2nd century AD were not included. In addition, a broad assessment of cropmarks was undertaken which included general attribution of site types that were likely to be of Iron Age date. For many cropmarks dating evidence is unavailable, with many enclosures of potentially Iron Age or Roman date (see Smith *et al.* 2016). An assessment of settlement forms does allow, however, for broad comparison of site morphology and provides an impression of settlement density, especially in the Cotswolds where archaeological investigation has been more limited. This also permits recognition of the morphological variations across the region (Figure 23.3), notably the greater presence of unenclosed settlements in the Thames and Severn Valleys (Hingley 1984; Moore 2006). To assess changing settlement forms, this survey categorised settlements by types based on broad morphological classifications (Table 23.1; cf. Moore 2006: 43). 115. This has necessarily meant simplifying the settlement record at times, for example when small enclosures were part of larger, unenclosed settlements. Unlike the Roman Rural Settlement Project (Smith *et al.* 2016), which relied only on well-excavated data-sets, this assessment has included settlements recognised through evaluation, geophysics and aerial photography. In some cases, therefore, definition of site type can only be regarded as provisional. Despite the use of relatively broad categories, we should not underestimate the potential social, cosmological and functional differences that discrepancies in settlement form might imply (Moore 2006: 44).

Site classifications for the detailed study area comprised the following:

Table 23.1 Morphological site types used in the detailed survey analysis.

1.	Enclosure (rectangular)
2.	Enclosure (polygonal and irregular)
3.	Enclosure (curvilinear)
4.	Enclosure (Banjo and funnel type)
5.	Large enclosure (hillfort)
6.	Unenclosed settlement
7.	Complex farmstead
8.	Settlement (undefined)
9.	Uncertain activity (stray find coin; stray find coin (multiple); stray find-other)
10.	Villa
11.	Field system/field boundary
12.	Sanctuary site
13.	Roman fort
14.	Burial site / cemetery
15.	Roman town/Roman small town

Enclosures

Enclosed settlements have been divided on a broad basis (cf. Moore 2006: 43; Whimster 1989) into four groups: rectilinear/rectangular; curvilinear; polygonal/irregular and banjo/funnel. Funnel enclosures, often referred to as banjo enclosures (see Chapter 3), included a range of enclosures (such as that at Spratsgate Lane (Vallender 2007) and those in Bagendon itself – discussed in Chapter 3) which are morphologically somewhat distinct from the classic banjo form (see Lang 2016), although some of their roles and locations share affinities with banjo enclosures farther afield (see Figure 3.29 and 23.7).

Complex farmsteads

Using a terminology similar to that used for the Roman Rural settlement project ('complex enclosure' and 'farm enclosure complexes': Smith *et al.* 2016: 28), this encompasses a range of settlements which have multiple enclosed elements but where an enclosure does not appear to define the settlement area. This includes a diversity of sites of both Iron Age and Roman date. Some of these have been described as 'pen and paddock' settlements (Lambrick *et al.* 2009: 116) which are regarded as consisting of stock enclosures. To what extent this form of settlement relates to changes in farming practices remains an important question. In a few cases, the distinction between complex farmsteads and well-defined enclosures can be somewhat blurred. For example, the rectangular enclosure at Horcott Pit (BE67: Landmark *et al.* 2009) is attached to linear ditches which may make it somewhat similar to the complex farmstead at Coln Gravel (BE61: Stansbie *et al.* 2008). Similarly, the distinction between these and some 'unenclosed' settlements is not always clear as many of the latter also include small enclosures.

Large enclosure (hillfort)

Enclosures over 2ha have been designated as 'large enclosures', recognising that these stand out from the range of smaller enclosures in the region (see Moore 2006: 62). Most of these have traditionally been designated as hillforts, although some, such as The Ditches, near Bagendon, have been regarded as similar to Boscombe Down enclosures in Wessex (Trow *et al.* 2009: 47), whilst Salmonsbury's low-lying location has seen it defined as an enclosed '*oppidum*' (Cunliffe 2005: 404).

Unenclosed settlements

These are defined by the presence of roundhouses or other features, such as pits, without an encompassing boundary feature and where enclosures within the settlement are small and tend to define single roundhouses. Despite the dangers of creating overly simplistic morphological dichotomies of enclosed and unenclosed (Hingley 1984; Moore 2007b) this broad definition of unenclosed settlements allows for broad variations in settlement form to be examined.

Villas (Large Roman rural buildings)

There has been significant discussion on the definition of villas (e.g. Hingley 1989; Smith *et al.* 2016: 34). While recognising that the category is problematic (see discussion in Chapter 5) in order to assess the appearance of stone architecture, this assessment has included anything defined by its excavator as a villa and other buildings of similar form, even if not previously designated as such.

Settlement (undefined)

This includes any site identifiable from features which suggests settlement activity but where a lack of plans or only partial investigation make defining its nature any farther difficult.

Uncertain activity

This includes all stray finds (including Late Iron Age coins) where the nature of what the material represent is unclear. In some cases it is likely that these denote settlements but others may represent votive offerings or casual losses.

Chronological issues

As discussion of developments within the Bagendon complex demonstrates (see Chapter 3 and 4), the chronology of the later 1st millennium BC is far from straightforward. There have been questions over whether the terms Middle and Late Iron Age are appropriate in this region (Moore 2006; 2007a), particularly when defining the Late Iron Age rests largely on the presence of wheel-thrown ceramics which do not appear to have been universally adopted until at least the mid to late 1st century AD.

This chronological enigma has led to varying regional dating schemes and can lead to rather confusing terminology being used by excavators (such as 'Mid-Late' or 'Later' Iron Age) without clarification on what calendrical dates these refer to. Some relatively detailed chronological schemes have been proposed for the Thames Valley, for example a 'Pre-Caesarean Iron Age' (100 BC-54 BC), a Late Iron Age (c 50 BC-1 BC) and Very Late Iron Age AD 1-AD 42 (Morrison 2016: 4), but the applicability of such a refined scheme for the wider region is questionable. The term 'Later Iron Age' is useful in recognising the indistinct nature of cultural and chronological transitions in the later 1st millennium BC (Moore 2007a), but suffers from potentially obscuring more subtle transformations in the final centuries of the Iron Age. For that reason, this study has retained Middle and Late terminology whilst recognising its problems. Using existing ceramic and radiocarbon dating, a relatively broad chronological framework has been used here, although one which it is hoped provides some insights into periods of transitions and transformation. Settlements are defined as identifiable to the: Earlier Iron Age (800-400/350 BC); Middle Iron Age (400/350 BC-50 BC); Late Iron Age (50 BC-AD 50)— within which a Very Late Iron Age (AD 1-AD 50) may be distinguishable; Early Roman (AD 50-AD 75); Late 1st century AD (AD 75-AD 100) and Early 2nd century AD (AD 100-150). Clearly, many sites cannot be placed in such detailed chronologies and have thus been attributed to the most likely period or identified as possibly straddling a number of periods. Despite being a rather coarse-grained approach, this allows for a general sense of settlement distribution and density. As the following discussion highlights, however, this may obscure more nuanced aspects of landscape transformation and reify periods of transition which were, in fact, more protracted.

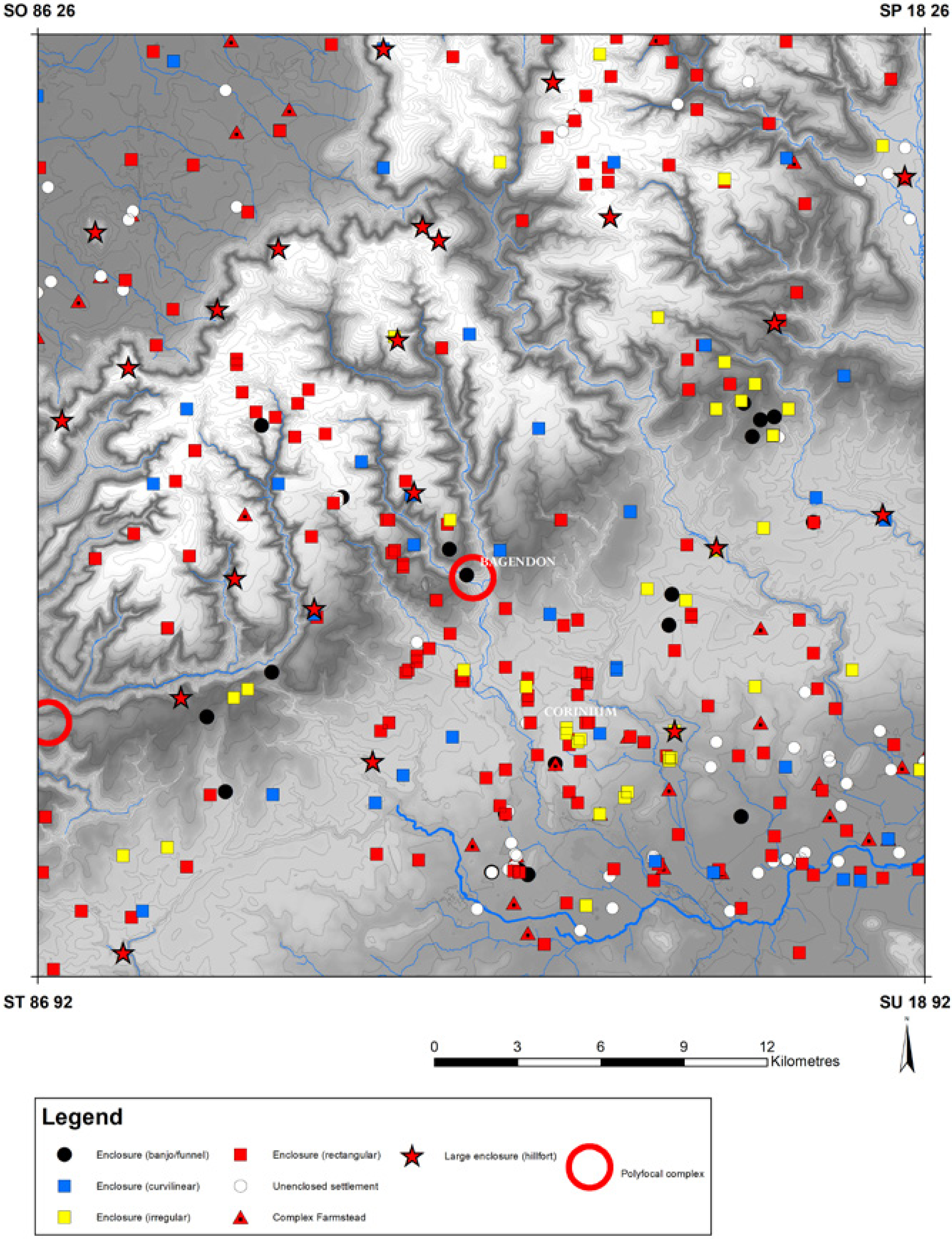

Figure 23.3. Settlement morphology across the detailed study area.

Clearing the land? The Late Bronze Age and Early Iron Age background

Despite the lack of evidence for Late Bronze Age or Early Iron Age activity within the Bagendon complex, the nature of the wider landscape at this time is becoming clearer from recent investigations (Figure 23.4). By the Late Bronze Age (*c.* 1100-800 BC) and Early Iron Age (800-400 BC) the upper Thames Valley appears to have been relatively intensively settled, predominantly with unenclosed post-built roundhouses, such as those around Lechlade and Shorncote (Darvill 2010: 167; Lambrick *et al.* 2009: 97). Many of these settlements shifted periodically across the landscape, with perhaps just a few houses occupied at any one time (Lambrick *et al.* 2009: 97). Further to the east more long-lived settlements existed, consisting of large clusters of pits, as at Gravelly Guy (Lambrick *et al.* 2009: 105). A characteristic of all these settlements is their unenclosed nature (at least in terms of archaeological visibility), in contrast to many later settlement forms.

Although fewer excavations have taken place in the Severn Valley, those that have imply a similar situation. Excavations at Huntsman's Quarry, Kemerton, for example, revealed a dispersed, unenclosed settlement of Late Bronze Age date (Jackson 2015: 158). Early Iron Age settlement is harder to identify, however. Unenclosed settlements of post-built roundhouses have been recognised at Hucclecote (Thomas *et al.* 2003), with possibly similar activity to the east of Brockworth (Barber and Havard 2011) and at Winchcombe (Simmonds and Welsh 2016). It seems likely that a number of the seemingly Early Iron Age settlements inferred from early investigations around Cheltenham and Gloucester (e.g. Clifford 1930; 1934) also represent similar unenclosed settlements but where the ephemeral archaeology was not well recognised at the time.

Closer to Bagendon, evidence on the nature of Later Bronze Age activity on the Cotswolds remains relatively limited, although recent excavations have contributed considerably to a better understanding of this landscape. Indications of landscape boundaries suggest that the Cotswolds began to be cleared in the Middle-Late Bronze Age—most notably in the south Cotswolds at Tormarton (Darvill 2010: 177) with some remnants of possible co-axial field systems recognised in various areas (Moore 2006: 140)—although stands of woodland seem to have remained in places. A pit alignment, later replaced by a segmented ditch, at Winstone, dates from between the 12th-10th century BC (BE88/89; Hart *et al.* 2016a: 49). It suggests that the area to the north of Bagendon had been at least partly cleared of woodland by this time. The settlements associated with this landscape organisation are not well understood, however (Darvill 2010: 177). It seems likely that, as in the adjacent valleys, most settlements across the Cotswolds were usually unenclosed but their relatively ephemeral nature is perhaps illustrated by the isolated pits recognised at Brokenborough, near Malmesbury (Reynish 2012). Some enclosures did also exist close to Bagendon, including a Martin Down style enclosure at Wiggold, excavated by Tim Darvill (2010: 161). This enclosure was constructed between the 15th-13th century BC, but was also (re)used in the earliest Iron Age (Darvill 2010: 175). A Middle Bronze Age rectilinear enclosure was also identified at Beeches, close to Cirencester (Young and Erskine 2012).

Some of the hillforts on the Cotswolds were constructed in the Late Bronze Age or earliest Iron Age, such as Norbury-Northleach (Saville 1983) and Crickley Hill (Dixon 1994). The large enclosures at Gotherington and Dowdeswell also seem likely to be of this date. Excavations at Stow-on-the-Wold have confirmed occupation began in the Late Bronze Age there too (Parry 1999a; Powell 2018). Others continued in use or emerged in the Early Iron Age, such as that at Malmesbury (Collard and Havard 2011) and probably Burhill (Marshall 1989), although they are not well understood. The close proximity of the linear at Winstone to the un-dated hillfort at Pinbury Park (BE13:1) may hint that it too had early origins. The varied size of these enclosures suggests potentially different roles divided between larger enclosures, representing storage centres and gathering places that may not have been permanently occupied, and smaller hillforts which were more intensively occupied (Moore 2007a).

Excavations around the Primary and Cotswold Schools at Bourton on the Water (Nichols 2006; Hart *et al.*2016b) provide good evidence of a spreading unenclosed settlement which appears to date from the Early Iron Age and into the beginning of the Middle Iron Age. On the Cotswold dip-slope itself Early Iron Age settlements have been harder to identify but, once again, recent developer funded archaeology is beginning to redress the imbalance. Excavation of a settlement at Salter's Hill, Winchombe, dating to the Earliest Iron Age (800-600 BC) (Hart *et al.* 2016a: 60), revealed similar post-built roundhouses to those seen in the Thames Valley, accompanied by 4 and 6 post granaries. Although located on a promontory, this settlement does not appear to have been enclosed. An apparently similar settlement of unenclosed post-built roundhouses has been identified close to Stow-on-the-Wold at Bretton House (Simon Cox pers. comm). Closer to Bagendon, the Late Bronze Age or Early Iron Age settlement at Kingshill South (Simmonds *et al.* 2018) also emphasises the ephemeral nature of settlements of this date.

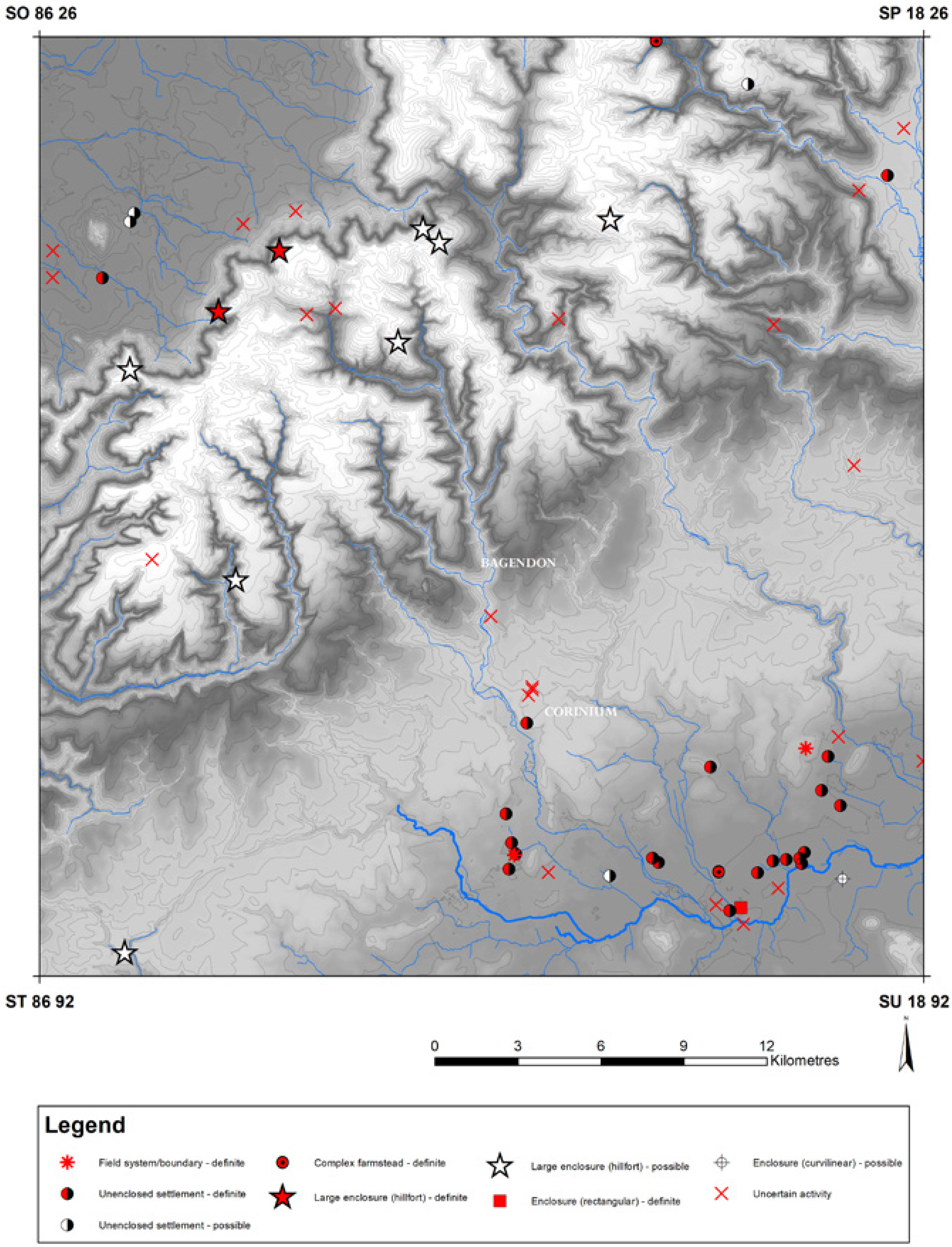

Figure 23.4. Distribution of Early Iron Age settlements in the detailed study area (drawn by Tudor Skinner).

Even if settlement of the Late Bronze Age and Early Iron Age appears to have been dispersed, the pit alignments and long, linear ditches known from the upper Thames Valley and Severn Valley, as well as probably up the Windrush Valley (as seen at Great Rissington: Janik *et al.* 2011: 35), indicate that the valley floors and associated gravel terraces were divided up and managed across this period (Lambrick *et al.* 2009: 60). The dating of pit alignments is often difficult but many, similar to those from Cotswold Community (Powell *et al.*2010) and around Lechlade (Boyle *et al.* 1998), are likely to be of Late Bronze Age and Early Iron Age date. The same may be true of the examples known, primarily from cropmarks (Dinn and Evans 1990), from the Severn Valley. At the same time a range of segmented and other linear ditches were used to divide up the valley floor, as at Frocester (Price 2000). As the example from Winstone (and possibly from Griffin Close, Stow-on-the-Wold: Barber 2013) indicates, similar pit alignments and segmented linear ditches (Hart *et al.* 2016a: 49), also existed on the Cotswolds. The segmented and irregular nature of the ditch recently revealed at Winstone also cautions against automatically interpretaing some of the linear anomalies recognised on the Bagendon geophysical survey as geologically, when they may be linear features similar to these (see Chapter 2).

Overall, the lack of evidence for Early Iron Age activity around Bagendon reflects the broader regional picture and may imply that the landscape was yet to be as intensively exploited as it became in later centuries. The alternative is that any exploitation has merely left little archaeologically detectable evidence. The possibility that there was a general settlement (and population) decline in the Early Iron Age has been suggested (Bevan *et al.* 2017; Haselgrove and Pope 2007: 6), possibly related to a cooler and wetter climate between *c.* 800 and 400 BC (e.g. Armit *et al.* 2013). The problematic nature of identifying and dating earlier 1st millennium BC activity means that its absence from the archaeological (and specifically radiocarbon) record may also be due to taphonomic issues, as well as problems in our chronological resolutions and definitions (Haselgrove and Pope 2007: 5). These issues aside, in most of this region identifying settlement of the Early Iron Age is harder than for the preceding Late Bronze Age and subsequent Middle Iron Age. Another possibility is that there was a nucleation to larger enclosed settlements, many of which provide evidence of probable occupation in the Early Iron Age. Whilst we are almost certainly under-estimating Early Iron Age settlements due to a host of factors, the relatively recognisable nature of ceramics of this period does suggest settlements were less numerous and widespread than later periods. How much this reflects different landuse of this area or merely reflects a wider problem in identifying Early Iron Age settlement remains to be seen.

The age of enclosure: Middle Iron Age settlement patterns

The discovery of Middle Iron Age enclosures at Bagendon, alongside recognition that some of the linear earthworks had Middle Iron Age origins, raises important questions about how these related to wider settlement patterns and in what sort of landscape Late Iron Age Bagendon emerged. Did it mark a significant transformation in the existing wider settlement patterns of the region, and to what extent did pre-existing use of the Cotswolds relate to why the Late Iron Age complex was situated there? Despite the variation in archaeological investigations, some broad patterns within and across these regions can be discerned that provide insights into the context of enclosures at Bagendon and the emergence of the Late Iron Age complex itself (Figure 23.5).

The Cotswolds

Both cropmark data and the results of some transects across the Cotswolds, such as the Wormington-Sapperton pipeline (Hart *et al.* 2016a), suggests that settlement density in the Later Iron Age was lower in parts of the Cotswolds compared to both the Thames and Severn Valley (Figure 23.3 and 23.5). More limited investigation in the Cotswolds, compared to the nearby lowlands, is likely to have led to an underestimation of the level of Iron Age activity, however (Moore 2006). The area around Guiting Power and Naunton demonstrates, for example, the impact of detailed investigation revealing far more intensively occupied landscapes. As explored in Chapter 3, the landscape around Bagendon, an area until recently seemingly relatively devoid of Middle Iron Age settlement (Moore 2006), can also now be shown to have been more utilised than previously suspected.

The most common form of Middle Iron Age settlement on the Cotswolds are small rectilinear (or sub-rectangular) enclosures (Figure 23.6). A number have been investigated, at Birdlip (BE97: Parry 1998), Manor Farm Guiting (BE242; Saville 1979; Vallender 2005) and Middle Ground (Marshall 2004) although many more have been identified from aerial photography (Janik *et al.* 2011: 45). These enclosures normally include one or two houses and might be regarded as representing some form of extended household community (Moore 2007a). Whilst sub-rectangular forms were clearly the most common, other types exist. These include a range of polygonal and irregular enclosures (Moore 2006: 53), one of which has been excavated at Preston (Mudd *et al.* 1999), and more are known from cropmarks. Most enclosures appear singly, although small clusters do occasionally occur, for example around Guiting. In some cases, these may represent individual enclosures shifting across the landscape (Moore 2006: 136) although

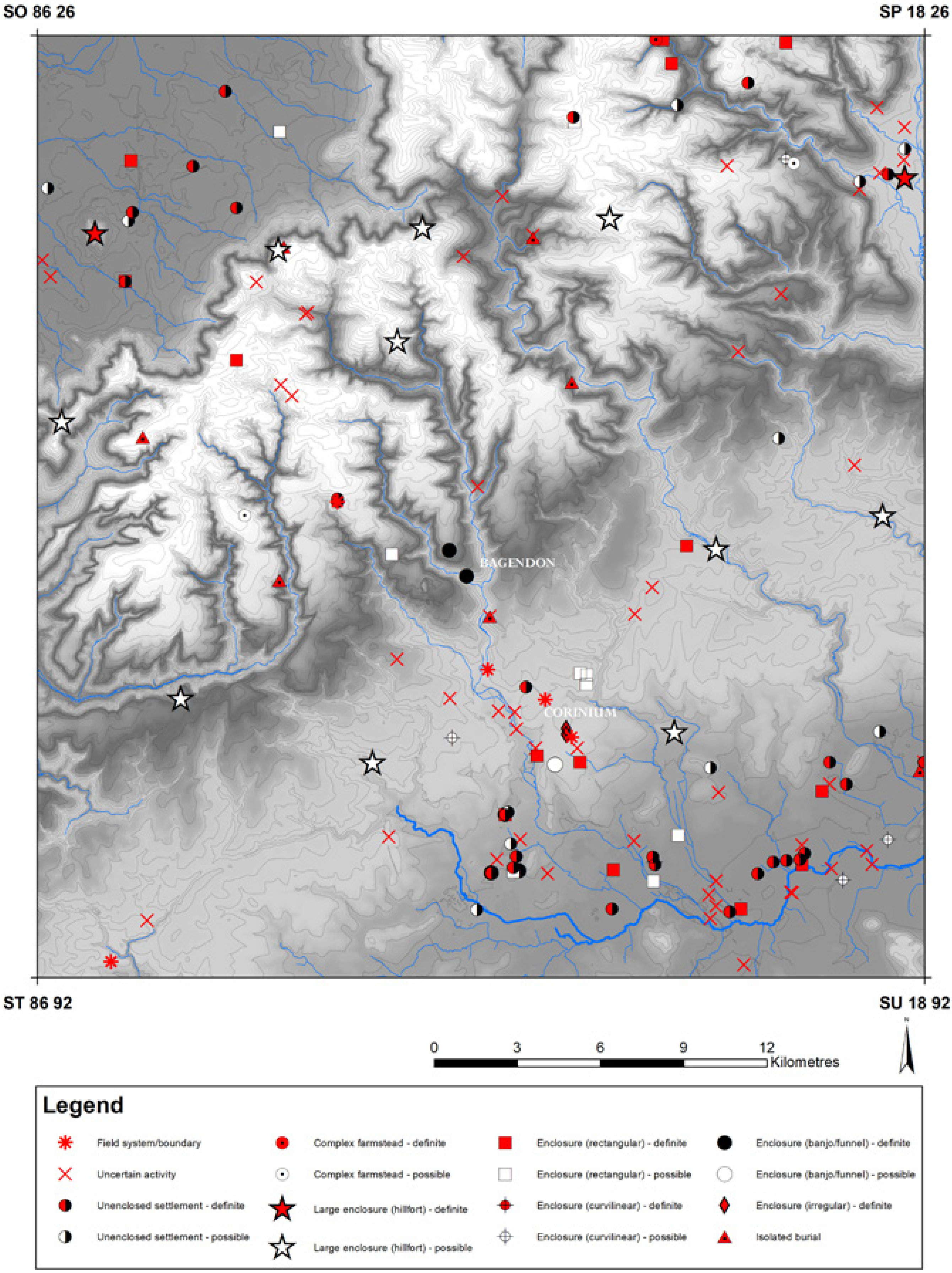

Figure 23.5. Distribution of Middle Iron Age settlements in the detailed study area (drawn by Tudor Skinner).

others could represent clusters of different family units or agglomerations of interconnecting enclosures, as at The Park, Guiting (Marshall 2004). Excavations at Birdlip on the Cotswolds (Parry 1998) might suggest that enclosures could be constructed, then abandoned, and rebuilt nearby. Curvilinear examples are relatively rare in this area compared to the western side of the Severn (Moore 2006: 68) suggesting some form of social or functional variation between regions, a pattern also recognised in some other parts of Britain (cf. Haselgrove and Moore 2016).

Despite enclosures varying in form, their size is predominantly between around 0.1-0.7ha with an average around 0.2-0.3ha (Moore 2006: 61) reflecting a pattern seen in the Welsh Marches and West Midlands (Moore 2006: 61). From the examples excavated, it does not appear that enclosure form reflected differing social roles. For example, while some have evidence for metalworking, such as bronze-working at Huntsman's Quarry, Glos. (BE86; Marshall 2004), in general there is little to distinguish them. Whilst cosmological factors may have informed enclosure form and entrance orientation (Moore 2006: 59), these cannot be divorced form more prosaic needs of fitting into existing landscape divisions and roles in managing areas for livestock and living-space.

Many of these enclosures appear to be new foundations, but in similar fashion to the upper Thames Valley and Severn Valley, some of these settlements appear to represent the enclosing of existing unenclosed settlements. This is possibly the case at Bourton-on-the-Hill (Dyer *et al.* 2017), for example, although at many sites understanding of earlier activity is limited.

As part of this increasing number of small enclosed settlements, the enclosures identified at Scrubditch and Cutham within the Bagendon complex (discussed in Chapter 3) were part of a wider appearance of funnel or 'banjo' enclosures across the Cotswolds and the Thames Valley. The definition of banjo enclosure varies somewhat (Hingley 1984; Lang 2016; Moore 2012) but here they are regarded as largely characterised by the presence of a long funnel towards a main enclosure and of antenna-like ditches at the entrance. Most of the evidence points to banjo enclosures as dating to the Middle Iron Age date (Lang 2016) with some having roles in the Late Iron Age, for example at Nettlebank Copse (Cunliffe and Poole 2000) and the large complexes of banjo enclosures such as Gussage Cow Down (Corney 1989; Moore 2012; Chapter 24). For those on the Cotswolds dating evidence is sparse (see Chapter 3) but they reflect this pattern with Middle Iron Age examples such as Spratsgate (Vallender 2007) and possible Late Iron Age activity, at least, as sites such as Cutham (see Chapter 3).

As discussed in Chapter 3, the two enclosures revealed within the Bagendon complex do not easily fit the morphology of banjo enclosure forms (Lang 2016; Moore 2012), but there is a broad continuum of enclosures, especially in the immediate region, which represent relatively good parallels (Figure. 3.29 and 3.30), although few have witnessed any excavation. Other clusters of banjos and other enclosures have been recognised elsewhere: at Barnsley, approximately 8 km to the east of Bagendon, and also around Ashton Keynes; Eastleach Turville; and Sapperton (Figure 23.7a-d; see also Figure 24.5). It is notable that all of these clusters share more-or-less similar topographic arrangements to the Bagendon enclosures: situated on the limestone plateaus with entrances facing towards nearby valleys.

The integration of these enclosures with linear boundaries, as at Northleach, encompassing large areas of landscape, also supports the notion that they were used for controlling the movement of livestock. The topographic situation of these complexes suggest they were focused around animal husbandry, moving sheep or cattle between upland grazing and better watered valleys, something also suggested for similar enclosures like Nettlebank Copse, Hampshire (Cunliffe and Poole 2000). The distinctive morphology of these enclosures also implies they had a different role to many rectilinear enclosures. While they are unlikely to be simply stock enclosures (see Chapter 3; Lang 2016) they may be related to specific farming regimes, something the isotopic information from the animals examined at Scrubditch goes someway to supporting (see Chapter 3; Chapter 17).

Larger enclosures are mainly restricted to the Cotswold scarp, although others occur across the dip-slope and farther afield on Bredon Hill and the Malverns. Few of those on the Cotswolds have seen the levels of investigation witnessed in Wessex, making assessing their chronology and role problematic. Many of those with glacis style ramparts and often multivallate (such as Bredon Hill and Uley Bury) seem sufficiently like their counterparts in Wessex to suggest they are of Middle Iron Age date. Evidence from Bredon and Uley Bury suggests they were constructed around the 4th – 3rd century BC (Saville 1983) whilst others occupied in the Early Iron Age, such as Crickley Hill were abandoned. Salmonsbury has been described as a multivallate hillfort (Darvill 2010: 226), and shares some characteristics with the hillforts that developed in the Middle Iron Age, although its siting may imply a somewhat different role, even if it was part of the wider process of enclosure taking place. The smaller 'hillfort' at Conderton was initially constructed in the 6th or 5th century but significantly remodelled in the 4th or 3rd century BC (Bayliss *et al.* in Thomas 2005a: 244). The size of the Conderton enclosure suggests it might better be

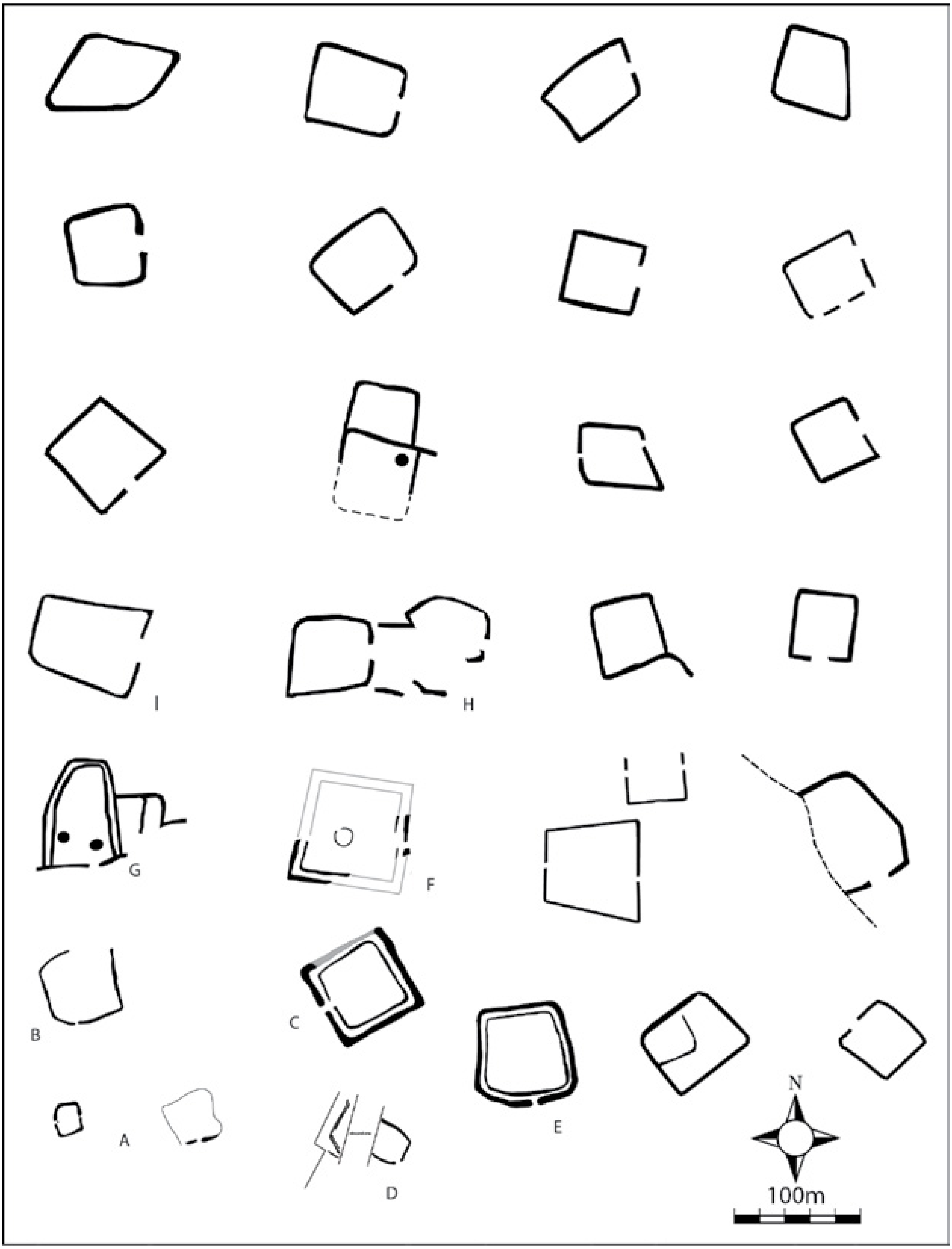

Figure 23.6. Examples of Middle and Late Iron Age rectangular and sub-rectangular enclosures from the region (including sites mentioned in the text: (a, b) Crucis Park Farm, Ampney Crucis (after Havard 2013) (c) Longford, Gloucester (after Allen and Booth 2019, fig. 8); (d) Tetbury (after Garland and Stansbie 2018); (e) Dean Farm, Bishops Cleeve (after Colls 2016) (f) Bank Farm, Wormington (after Coleman et al. 2006) (g) Frocester (after Price 2000) (h) Birdlip (after Parry 1998); (i) The Bowsings (after Marshall 2004) (j).

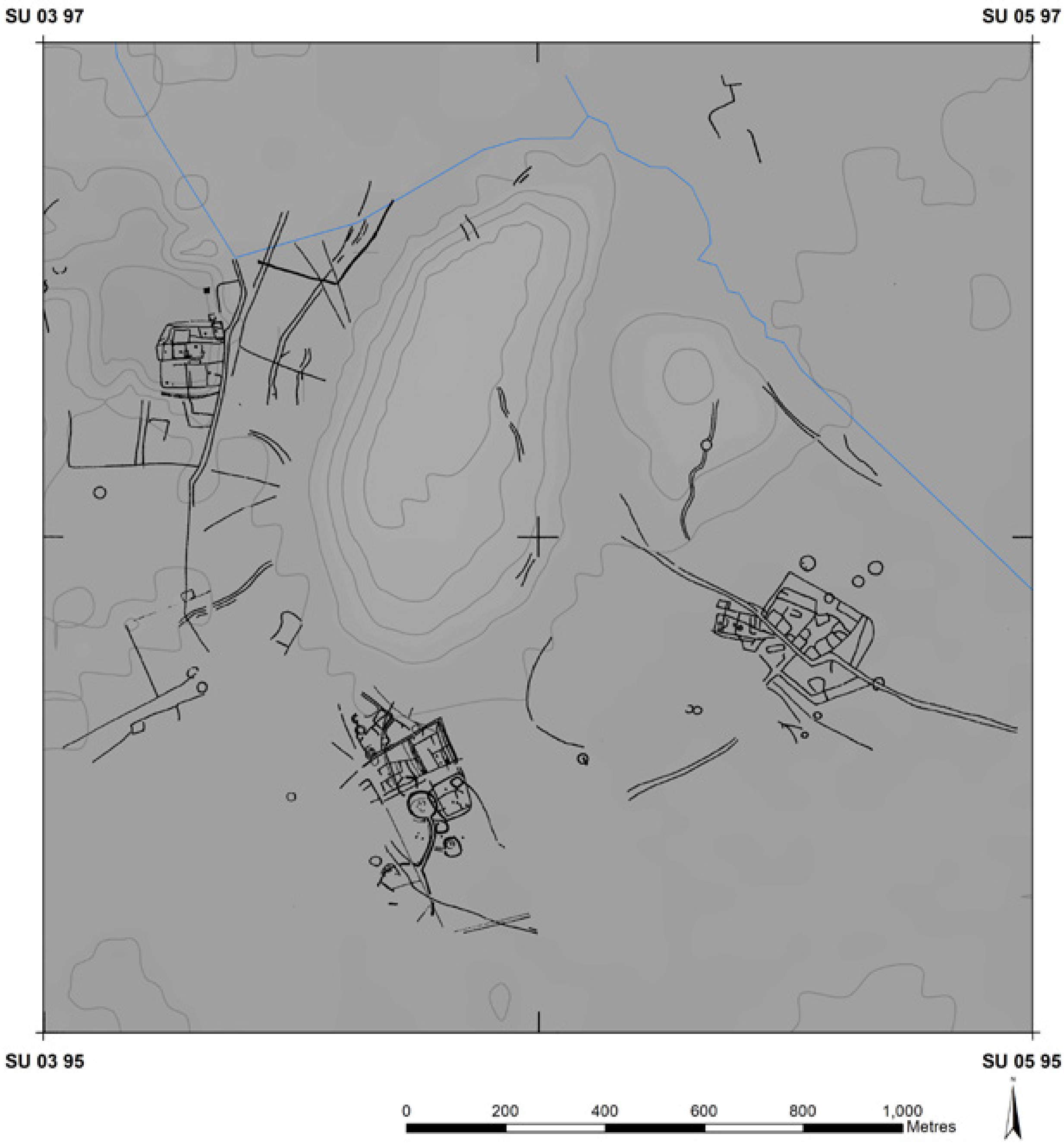

Figure 23.7a. Plot of banjo and other enclosures at Ashton Keynes (after NMP data, © Historic England)

placed amongst the broader spectrum of enclosed farmsteads as it appears to have had no special role. Few of those hillforts clearly occupied in the Early Iron Age appear to show significant activity in the Later Iron Age. The occurrence of two large enclosures in close proximity at Dowdeswell (BE92; BE303), may suggest they were chronologically distinct, and perhaps denotes changing roles for these enclosures. The reasons for this lack of continuity, in contrast to the process of more developed hillforts emerging over time seen farther south in Wessex, is not clear but suggests perhaps divergent roles within these societies.

Closer to Bagendon, hillforts at Pinbury and Ranbury Rings may be of Later Iron Age date. Realisation that the large enclosure at The Ditches (see Chapter 4), is morphological and chronologically distinct from hillforts like Bredon Hill (Trow *et al.*2009: 47) cautions against assuming similar roles for all these sites, however. It is notable that Bagendon is situated some distance from any hillfort that is likely to be of Middle Iron Age date, Ranbury ring (10 km to the South East) and Trewsbury Camp (8 km to the South West) being the most likely, although neither are dated. This may support indications (discussed in Chapter 3), that this

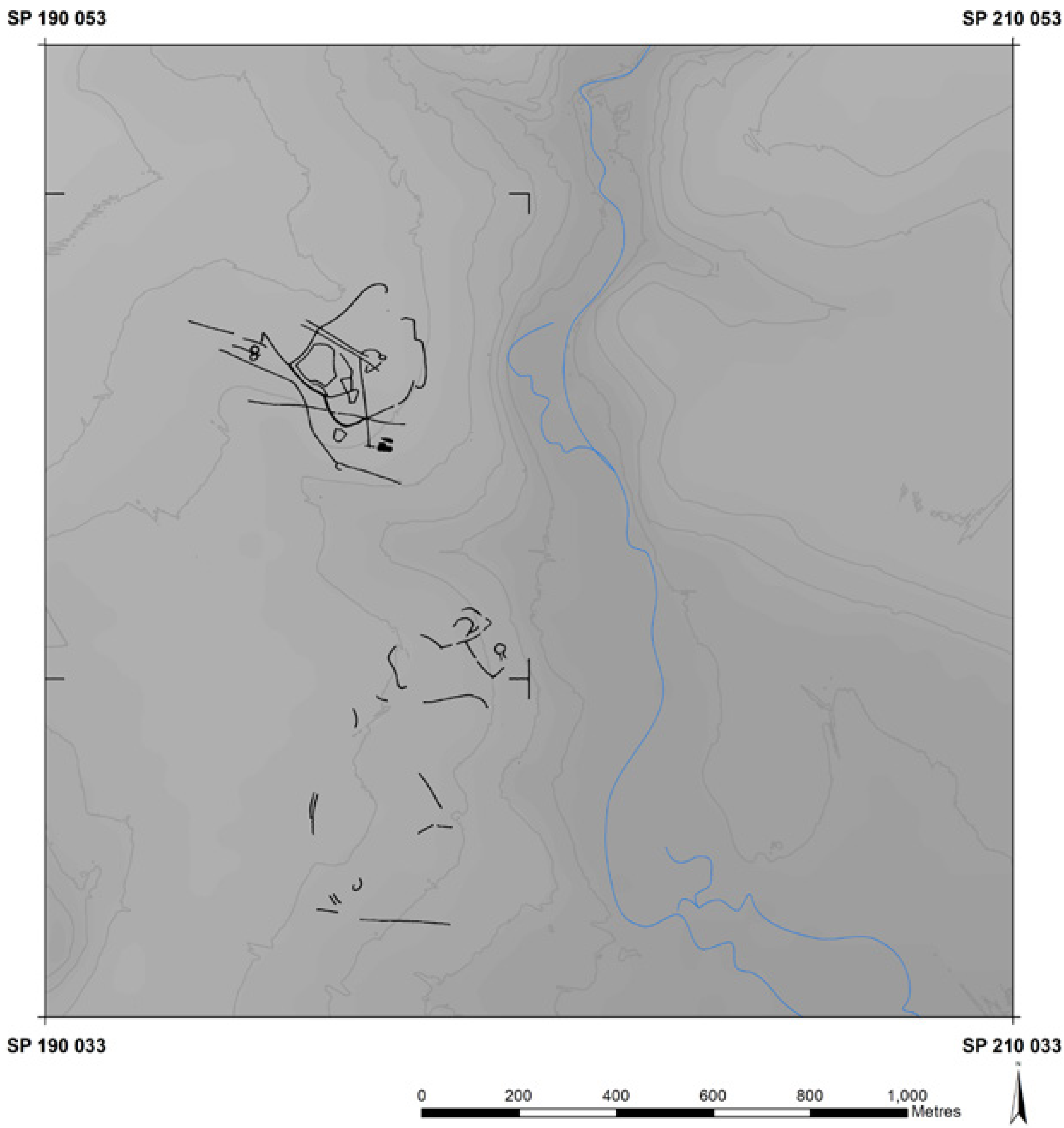

Figure 23.7b. Plot of banjo and other enclosures near Eastleach Turville (after NMP data, © Historic England)

part of the landscape was utilised in distinct ways at this time and certainly that Bagendon's transformations in the Late Iron Age had little connection to earlier hillforts.

One of the reasons for under-estimating Middle Iron Age settlement on the Cotswolds may be the reliance on aerial photography, and to some extent geophysics, in identifying settlements. Unlike the ring-ditches surrounding many roundhouses in the Thames and Severn Valleys, post-built unenclosed roundhouses on the Cotswolds (which will not have required large drainage ditches: see e.g. Figure 3.13) are less likely to be visible through aerial photography or geophysics. To some extent, this is being redressed by developer-led archaeology which, by avoiding previously recognised enclosed settlements, is revealing previously unknown unenclosed activity (e.g. Hart *et al.*2016a).

That more Middle Iron Age unenclosed settlements existed is supported by recent discoveries. Examples may be represented by Middle Iron Age pits not apparently associated with an enclosure at Grange Quarry, Naunton (BE84; Coleman 1999; BA 2005);

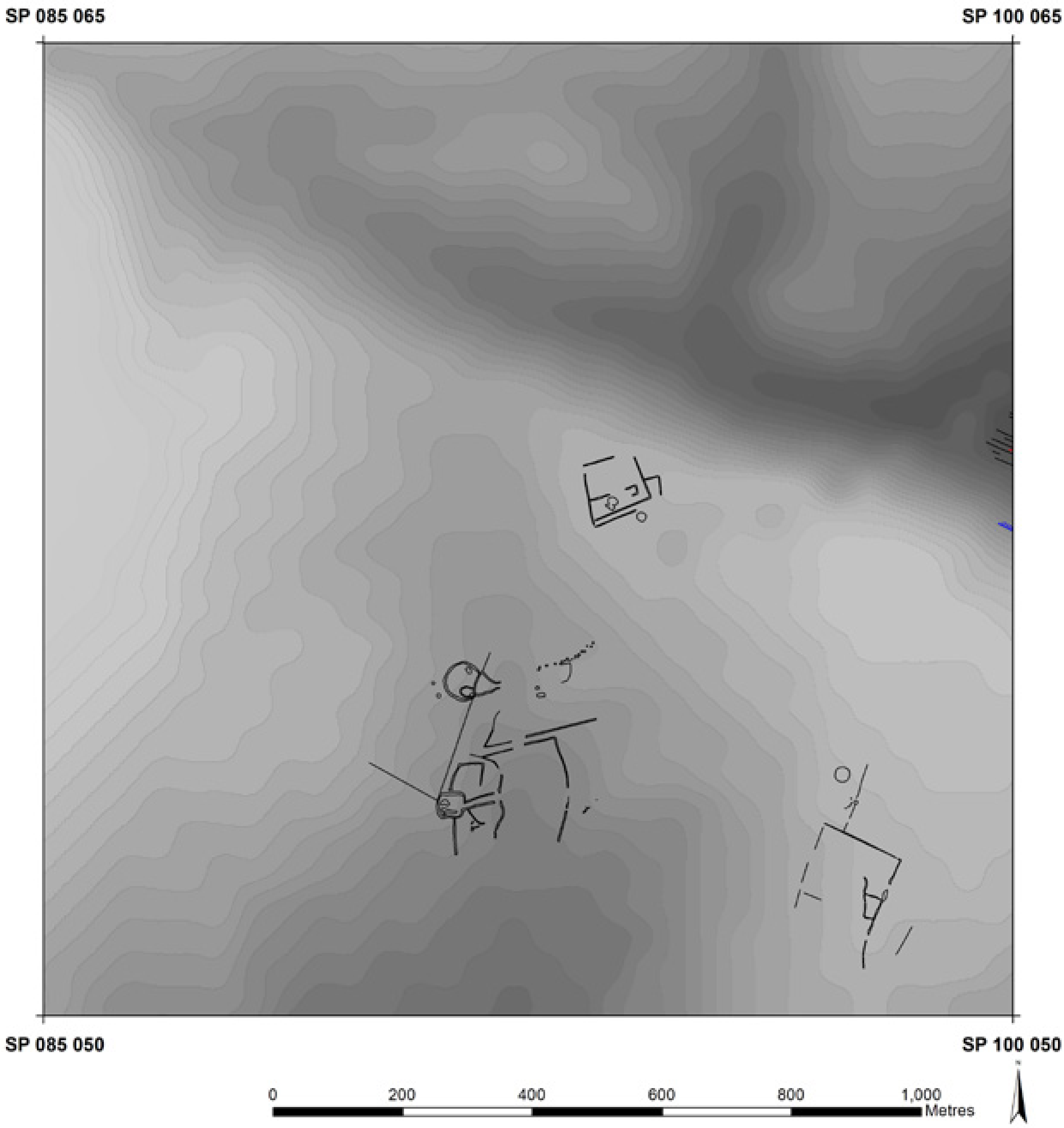

Figure 23.7c. Plot of banjo and other enclosures near Barnsley Park (after NMP data, © Historic England)

Kingshill North (BE33: Biddulph and Welsh 2011: 104), possibly Cirencester Polo club (BE20: Nichols and Timby 2005) and perhaps Burford Road South, Cirencester (BE59: Mudd *et al.*1999: 72). To the south of Cirencester, the segmented field boundaries recorded at St Augustine's Farm (BE40), may also have been associated with unenclosed activity represented by a scatter of pits (Mudd *et al.* 1999: 37). Similarly, enigmatic linear clusters of pits, such as those at Granna Wood (BE157; Hart *et al.*2016a: 65) seem to represent settlement rather than pit alignments. At Griffin Close, near Stow-on-the-Wold, pits and field boundaries appear to represent a settlement of possibly unenclosed nature (Barber 2013). To the east of the complex of banjo enclosures at Northleach, evaluation revealed a ring ditch adjacent to a linear ditch of probable Middle Iron Age date (BE260; Busby 2015). The ring-ditch, interpreted in the report as a Bronze Age barrow, might just as likely be evidence of unenclosed settlement related to the occupation farther west. The possibility of more unenclosed settlements may be also witnessed at Winstone (BE89) where a cluster of postholes and pits appear to indicate some form of Middle Iron Age unenclosed settlement

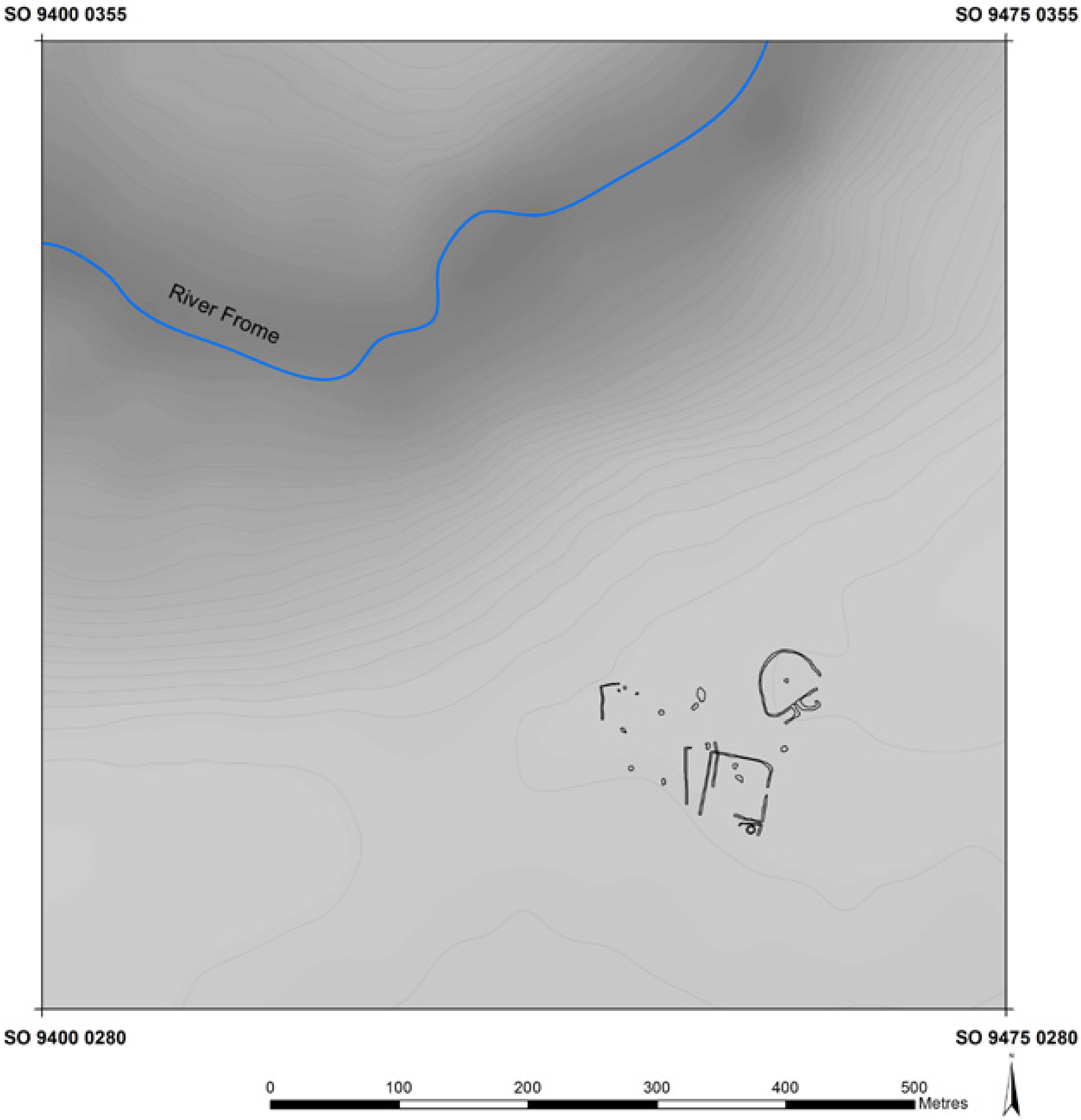

Figure 23.7d. Plot of banjo and other enclosures near Sapperton area (after NMP data© Historic England)

adjacent to the infilled Late Bronze Age linear, which appears to have remained a visible field boundary (Hart *et al.* 2016a: 50). The relatively wide scatter of Middle Iron Age features in this area, encompassing another cluster of pits farther north, may imply more than one area of activity or very dispersed occupation.

Although some of these settlements were almost certainly unenclosed, evidence from Guiting Manor Farm that clusters of pits could be located some distance from the main settlement enclosure (Saville 1979: 148; Vallender 2005) reminds us that these might have sometimes been parts of wider complexes. It is also worth emphasising that some 'enclosed' settlement may have gone through periods of 'unenclosed' occupation, and at Guiting Manor Farm it is not entirely clear whether the pits are contemporary with the enclosure or pre-date it (Nichols 2006: 71).

Few areas on the Cotswolds have seen the scale of archaeological investigation necessary for assessment of how settlement patterns changed over the Iron Age. Two exceptions are the area around Bourton-on-the-Water, close to the large enclosure at Salmonsbury (Figure 23.8), and the area around Guiting Power. Although neither has the density of investigation or chronological resolution available in parts of the Thames Valley, these have witnessed sufficient exploration to allow for some understanding of the shifting nature of settlement.

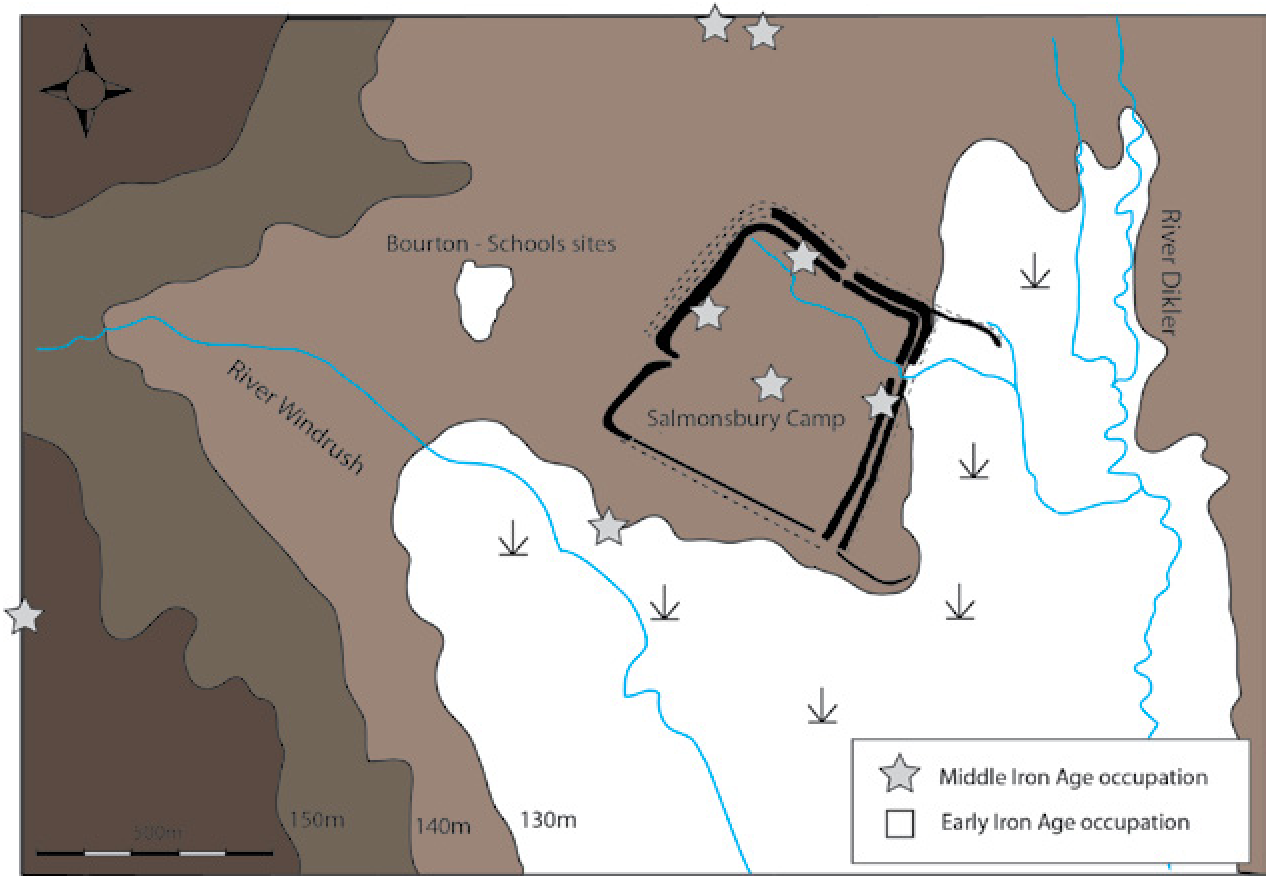

Figure 23.8. Early and Middle Iron Age settlement around Salmonsbury.

At Bourton on the Water, excavations in the vicinity of the Primary and Cotswold schools (Nichols 2006; Hart *et al.*2016b) have revealed pits and gullies indicative of an intensively occupied unenclosed settlement covering over 3ha. The complete nature of the settlement is hard to establish from the piecemeal investigations, but it may represent something similar to those in the upper Thames Valley, with settlement shifting around this area over centuries of occupation. Dating of the settlement indicates it was occupied through the Early Iron Age (from perhaps the 7th century BC) with occupation continuing into the 4th or 3rd century BC (Nichols 2006); this is supported by finds of Middle Iron Age ceramics but relatively small amount of regional wares (Hart *et al.* 2016b: 102; Nichols 2006). Further to the north of the Cotswold School site, more unenclosed occupation appears to have been identified at Bourton Business Park (BE166; Walsh 2011), although whether contemporary is not clear. The intensity of settlement in the area is also indicated by a variety of poorly understood settlements, many of which appear to be of Middle Iron Age date, for example at Lower Slaughter (BE93) and upper Slaughter (BE129).

Occupation around Cotswold School appears to have been abandoned in the 4th or 3rd centuries BC, although this might have been a long process. Paul Nichols (2006: 71) argues that occupation shrank in intensity in the early Middle Iron Age, possibly as a result of a shift elsewhere, most likely the location occupied by Salmonsbury camp. There is plentiful evidence, including pits and roundhouses, of occupation in the Salmonsbury area dating prior to the 1st century BC (Dunning 1976; Kenyon 1998; O'Neill 1977: 23), although much of it is not well dated or understood. Recent discoveries around Greystones Farm, of Middle Iron Age inhumations in pits, associated with possibly later roundhouses, also imply relatively intense occupation within the enclosure at Salmonsbury (Barclay et al forthcoming; Roper 2018). Dating based on ceramic assemblage suggests one area dated largely the 2nd-1st centuries BC perhaps (Barclay *et al.* forthcoming; cf. Timby in Roper 2018) implying a slightly later date than occupation at the School site.

Whether the occupation explored at Greystones predates the construction of the Salmonsbury enclosure remains open to debate. Early-Middle Iron Age pottery was recovered sealed beneath the rampart, and the area remained in use in the 1st century AD (Dunning 1976). Although, it maybe that that the enclosure was constructed relatively late in the sequence there is no clear evidence when exactly this took place and whether the ramparts enclosed an existing, unenclosed, Middle Iron Age settlement. It seems that a date in the Middle Iron Age for the construction of the enclosure is likely, however, reflecting the spate of enclosures seen elsewhere in the region. It is possible that the enclosure at Salmonsbury effectively represents the nucleation of settlements which had previously been unenclosed, part of the wider process of enclosure across the Cotswolds. Comparable 'enclosed *oppida*' or lowland enclosures like this have been shown to have earlier dates than originally thought; Oram's Arbour for example has provided evidence that it was occupied in the Middle Iron Age (Qualmann *et al.* 2004).

The evidence discussed earlier indicates that, at least parts of, the Cotswolds had been cleared by the Later Bronze Age. At Winstone the Late Bronze Age linear appear to have remained open in the Middle Iron Age and probably still acted as a boundary. How widespread a continued significance of earlier land divisions was is hard to gauge, but there are a number of examples from the upper Thames Valley. At Roughground Farm and Cotswold Community, for example, boundaries appear to have remained important through the Iron Age. Such significance is illustrated by the placement of Middle Iron Age burials in some, potentially reaffirming their role in defining territories (Moore 2007b). To the south of Cirencester, segmented ditches suggest a new form of landscape division which may have created better-defined landscapes (Moore 2006; Mudd *et al.*1999), in many cases seemingly replacing earlier pit alignments (Boyle *et al.*1998; Hart *et al.*2016a). On the Cotswolds themselves, field boundaries and systems dating to the Middle Iron Age are rare, although some of the pit alignments and linears associated with enclosures may be of this date.

The limited environmental evidence from the wider Cotswolds makes it hard to determine the exact nature of landuse at the time. Evidence from Bagendon, that the landscape around Cutham and Scrubditch may have contained significant amounts of woodland and grazing in the Middle Iron Age, implying perhaps a wood-pasture like landscape. There are indications elsewhere that some of the Middle Iron Age enclosures may have been constructed in areas of the landscape that had previously been wooded (Barrett 2006a). This may suggest that, at least in places, the Cotswolds was not an entirely open landscape by the later 1st millennium BC.

Environmental assemblages from sites on the Cotswolds point to mixed farming regimes, with little evidence for significant surplus. An increasing emphasis on secondary products has been suggested (Clark and Palmer in Vallender 2005: 44) but whether a region-wide phenomenon is uncertain. Pearson (in Nichols 2006) has argued, on the basis of samples from Cotswold School Bourton-on-the-Water and elsewhere in the region, that there is a surprisingly limited level of evidence for arable farming, perhaps denoting a greater emphasis on pastoralism. To some extent this may relate to that site's particular location in the Windrush Valley, placing it in a more suitable location for greater focus on animal husbandry, but may also reflect the evidence for predominance of pasture on the Cotswolds.

The upper Thames Valley

The contrasting nature of Iron Age settlement patterns between the upper Thames Valley, with greater presence of unenclosed settlements, compared to that on the Cotswolds has been recognised for some time (Hingley 1984; Moore 2006). This area can be regarded as a 'constantly changing landscape of small farmsteads' (Lambrick *et al.*2009), where settlements periodically shifted their location (cf. Hill 1999). Amongst these individual developments, however, a broader trajectory of settlement change can be discerned.

A transformation occurs in the Middle Iron Age whereby the unenclosed post-built roundhouse settlements, characteristic of the Late Bronze Age and Early Iron Age, were frequently replaced by clusters of roundhouses, characterised by deep ring-ditches, demarcating individual houses. In general, the settlements in which they occurred, for example at Totterdown (BE64) and Latton Lands (BE30), can be described as 'unenclosed', in that no boundary defined the settlement area. Within these settlements small enclosures frequently occur however, sometimes defining particular houses. At Warrens Field, Claydon Pike, for example, a small curvilinear enclosure defined a separate roundhouse, perhaps denoting the status of the occupants or its special role (Miles *et al.* 2007: 28).

Across the area, the replacement of dispersed, unenclosed Early Iron Age settlements with more enclosed elements can be seen, for example, at Dryleaze; Latton Lands; Roundhouse Farm (BE284/BE285); and Horcott Pit (BE67), amongst many others. At Dryleaze (BE168) an unenclosed Early Iron Age settlement was replaced with a range of enclosures of varying forms. This comprised an oval enclosure with a funnel entrance and a rectilinear enclosure which contained more internal subdivisions. Close to a cluster of unenclosed roundhouses at Latton Lands (BE68) was also an oval shaped enclosure, whilst at Cotswold Community (BE57) a palisaded enclosure, probably of somewhat later date, was related to a cluster of unenclosed roundhouses. Some of these unenclosed settlements are relatively nucleated. At Claydon Pike the clusters of houses are located on gravel spurs close to marshier ground (Miles *et al.*2007: 29) in some ways blurring the distinction between 'unenclosed' and 'enclosed' settlements in the region (Moore 2007b).

More dispersed settlement also occurs, with seemingly relatively isolated unenclosed roundhouses, for example at Roundhouse Farm (BE284); Coln gravel (BE61); and Cotswold Community (BE56:2; Powell *et al.*2010). At Home Farm, Fairford (BE258:2), a pit cluster seemingly represents an unenclosed settlement which emerged after a field system had largely gone out of use (Craddock-Bennett 2017).

Enclosed settlements more similar to those identified on the Cotswolds also occur, although they are relatively rare by comparison. The rectangular enclosure at Horcott Pit (BE67; Lamdin-Whymark *et al.*2009) appears to have defined the settlement area, as does a less well-dated example at West Latton (BE296). The reason for certain communities defining themselves in this way could relate to their status. The discovery of a currency bar hoard just to the north of the Horcott Pit enclosure, at Totterdown West (BE65), has been suggested as potentially contemporary (Pine and Preston 2004: 45) and may denote an important role for this community. Others, such as the extremely large enclosure in the eastern part of the Roundhouse Farm landscape (BE285:5; Cass *et al.*2015), show little evidence of internal occupation and are best interpreted as stock enclosures.

There is a diversity of enclosure forms. In particular a range of funnel shaped enclosures emerged, with a cluster, known from both excavation and aerial photography around the Ashton Keynes area (see Figure 23.7a). Interpreting all of these curvilinear enclosures as defining domestic roundhouses may be misleading. At Cotswold Community, it seems likely that the empty nature of enclosures T1000 and T1002 (Figure 3.29), which was in contrast to the central ring ditch, may suggest some had other roles, possibly as small paddocks related to a central house. Some of the clusters of roundhouses elsewhere, for example at Latton Lands also share affinities with the arrangement at Spratsgate, related to a funnel off a major field boundary.

More broadly, the increased use of small enclosures across the Middle and Late Iron Age may relate to increased pastoralism. Where enclosures occur, as at Cotswold Community, they appear to form paddocks with settlement outside, rather than inside, the enclosures, in contrast to those on the Cotswolds (Powell *et al.* 2010: 109). At Dryleaze, the lack of internal features in some enclosures, and general lack of evidence for arable crops has also been suggested as evidence for a predominately pastoralist economy (Milbank *et al.*2011).

The organisation of the landscape also appears to have become more structured. At Roundhouse Farm seemingly independent roundhouses were situated in a co-axial field system. Similar co-axial fields, dating to the Early-Middle Iron Age, have been noted elsewhere, at Latton Lands (BE68: Powell *et al.*2009) and Home Farm, Fairford (BE258), and in some places may have stretched for many kilometres (Craddock-Bennett 2017: 107). In certain instances, it appears that this division of the landscape formalised existing Early Iron Age boundaries which are less archaeologically visible. At Cotswold Community, for example, the placement of a Late Iron Age enclosure in close proximity to an earlier Iron Age pit alignment, implies that some form of boundary existed throughout the Iron Age, even if a Middle Iron Age phase is not immediately visible. This seems to echo recognition from other periods that whilst settlement shifted, field boundaries often remained relatively stable (Bowden 2006: 170).

The location of Middle Iron Age settlements in relation to existing Early Iron Age settlements, as at Latton Lands, also suggests some form of continuity and they may not represent a major radical break in the community's place in the landscape (Lambrick *et al.*2009: 111). As seen in the Severn Valley and Midlands (Moore 2007b), a number of the enclosures also appear to have been situated in relation to existing Early Iron Age settlement and landscape boundaries, as for example at Roundhouse Farm (Cass *et al.*2015), defining these places more overtly in the landscape.

The impression from the Thames Valley is of a highly integrated landscape. The use of funnels and droveways, sometimes linking flood plain areas with gravel terraces, as at Roundhouse Farm (BE285:4; Cass *et al.*2015: fig. 49) may reflect that seen farther east at Farmoor (Lambrick and Robinson 1979). At the latter, this seemingly marked seasonal use of the flood plains, connected to settlements on the drier gravels. Elsewhere, many of the enclosures and roundhouse clusters, such as those at Latton Lands, Spratsgate Lane and Cotswold Community, are situated adjacent to linear ditches with entrances facing on to open areas, possibly large communal fields. An arrangement of settlements clustered around larger open landscapes has been identified farther east at Gravelly Guy (Lambrick and Allen 2004) and enabled grazing to be separated from arable fields within which the settlement was situated.

The greater archaeological visibility of Middle Iron Age settlement needs to be taken into consideration, but there are indications that this changing pattern also marked an increase in settlement. In addition to sites which emerged from existing Early Iron Age settlements, many new sites appeared in the Middle Iron Age. At Thornhill Farm a small unenclosed settlement emerged, probably in the 4th century BC (BE62; Jennings *et al.* 2004), as did that at Coln Gravel (BE61) and Spratsgate Lane (BE4/49; Vallender 2007).

The fluidity of settlement in both periods may account for this, with a shifting of settlement foci notable at Latton Lands and Cotswold Community. Similarly, the possibility of shifting within these settlements, and that not all houses were contemporary across the Middle Iron Age is possible. This seems unlikely to be the cause of all new settlement foundations, however and it is likely that the 4th-2nd centuries BC witnessed settlement increase.

Refining the chronology of when these changes took place is difficult. Until recently, dating of the majority of sites was been based solely on ceramic evidence. The long use of many regional wares means that, although there have been attempts (e.g. Cass *et al.* 2015) at refining settlement chronology from ceramics, this has proved challenging. All that can effectively be suggested is that a lack of Early Iron Age forms indicates occupation began no earlier than the 4th century BC. Similarly, a lack of grog-tempered ceramics suggests occupation ceased by the mid 1st century AD. Where radiocarbon dates have been taken settlements cluster around the 4th-2nd century BC, but few sites have sufficient numbers of dates to enable refinement of chronological sequences to match those developed elsewhere in Britain (cf. Hamilton 2010).

Settlement patterns in Severn Valley

The Severn Valley has seen more limited investigation and frequently on a smaller-scale, but a general picture emerges of a densely settled and well-structured landscape. The range of settlements includes unenclosed clusters of roundhouses surrounded by ring ditches, similar to those encountered in the upper Thames Valley. Some of these are associated with field boundaries, for example at Stoke Orchard (Leonard 2015), and a similar example revealed by geophysics at Stanway (Hart *et al.* 2016a: 68). Elsewhere, at All Saints Academy (BE257), a single roundhouse with linear ditches seems to denote an unenclosed settlement dating between the 4th/3rd century BC and 1st century AD (Hardy *et al.* 2017). As with the Thames Valley, a distinction between clusters of small enclosures and spreading open settlement is not always easily drawn, as seen for example at Grange Farm, Bredon (Upex *et al.* 2010), represented by a cluster of roundhouses and enclosures. Further north, a large cluster of four-post granaries at Clifton Quarry, Severn Stoke, may be part of a larger unenclosed settlement (Mann *et al.* 2018).

Enclosed settlements like those on the Cotswolds also existed and are more numerous than in the Thames Valley. More of these are multivallate examples than on the Cotswolds, such as those at Beckford (Oswald 1974), a partly examined site at Bank Farm, Dumbleton (Coleman *et al.* 2006), Longford, Gloucester (Allen and Booth 2019) and Dean Farm, Bishops Cleeve (Colls 2016). Enclosed settlements of this date appear to vary in form and size, such as the small sub-rectangular example from Walton Cardiff, near Tewkesbury (Holbrook 2008c). Others, comprise clusters of interlinked smaller enclosures, as at Throckmorton (Hurst 2017: 114), more redolent of the complex farmsteads seen later.

How Middle Iron Age settlement related to existing landuse is not always clear. In some cases, the enclosures appear to have defined existing earlier, unenclosed settlements. For example, at Frocester, the enclosure appears to have formalised an earlier settlement and been positioned on a node in the existing field system (Moore 2006: 138). Meanwhile the scatter of pits denoting some form of activity at Bank Farm, Dumbleton (Coleman *et al.* 2006), also suggests a pre-existing unenclosed settlement.

Despite the difficulties in identifying earlier activity, many settlements appear to have been new foundations. Settlement around Barnwood (BE110), Brockworth and Churchdown for instance reveal unenclosed and small enclosed settlements which emerged in the Middle Iron Age. A few, such as Churchdown D1 and D2, may have had earlier antecedents (Burgess *et al.*2016), although this is hard to confirm. At Brockworth North (Barber and Havard 2011) there appears to be a sequence from unenclosed roundhouses to more enclosed settlement, much of which most likely dates to the Middle Iron Age.

The potential density of Middle Iron Age settlements in the region may be indicated by investigations around Bishops Cleeve which have produced evidence of possible unenclosed roundhouses, and various enclosures dating to the Middle - Late Iron Age (Colls 2016; Lovell *et al.* 2007; Parry 1999b). These elements of occupation appear to form a contiguous area of settlement. In one area, Gilders Paddock, there has been an attempt to try to determine earlier or later phases of Middle Iron Age occupation (Hancocks 1999), but it remains unclear to what extent these settlements wandered around the landscape or were contemporaneously occupied larger agglomerations.

Along the Carrant brook, to the south of Bredon Hill, many enclosed settlements, such as Wormington Farm, were embedded in a landscape of trackways and co-axial field systems, revealed from aerial photography and excavation (Coleman *et al.* 2006: 32; Dinn and Evans 1990), at least partly dating to the Middle and Late Iron Age. Hints that similar arrangements existed farther south have been identified at Brockworth North (BE187) where a probably Middle Iron Age enclosure adjoined a trackway. Such arrangements appear to have allowed management of the different landscape resources, enabling access to both low-lying flood plains and gravel terraces (Moore 2006: 137). Although an argument for some of these being specialist stock enclosures has been made (Walsh and Lovett 2016: 49), the evidence for this is relatively limited. Most of the settlements examined appear to have been undertaking mixed farming, although an increase in arable over the Middle Iron Age may be evident.

The Middle Iron Age Landscape

The general impression from the wider region is one of a relatively dramatic change in settlement patterns at the beginning of the Middle Iron Age. This includes the appearance of greater number of settlements in many areas, with enclosure becoming more widespread. In some instances, this appears to be the enclosing of existing settlements, elsewhere it marked the movement to a different location or the establishment of entirely new settlements.

Despite their general self-sufficiency, these communities were connected to a range of exchange and social networks. Droitwich briquetage, for the transport of salt, is a regular occurrence on settlements across the region and occurs as far south as Groundwell Farm, Wiltshire (Figure 24.2**;** Morris in Vallender 2007: 69). Similarly, Malvernian derived ceramics were also exchanged across the region, as far as the upper reaches of the Thames Valley (Figure 24.3; Moore 2007a; Morris 1994). Whilst the mechanisms by which such material was exchanged are not clear, there is little to indicate that it was controlled by elites, or that it took place primarily at hillforts (Moore 2007a; Morris 1985). It seems likely this was largely done between household-sized communities, although the possibility that places in the landscape acted as meeting places or areas for social negotiation is worth considering (see Chapter 24). Communities appear to have been bound into a network of social obligations, integrated farming and gift-giving networks (Moore 2007c; cf. Wigley 2007), implying a relatively heterarchical social organisation.

Chronology

The poor chronology of many settlements, often due to a lack of radiocarbon dates and reliance on ceramic dating, hinders analysis of when, precisely, these changes occurred. On the dating available, the increasing prevalence of enclosed settlements across the region certainly appears to have commenced at the beginning of the Middle Iron Age. Ceramic evidence from the enclosures at Birdlip, Preston, Ermin Farm, and Guiting Manor Farm suggests they all appeared at this time (Moore 2006: 25; Parry 1998; Vallender 2005;). This is reflected by sites in the Severn Valley. Both Beckford enclosures (Britnell 1974; Oswald 1974), for example, emerged at the beginning of the Middle Iron Age, while at Bank Farm, a recut of the outer ditch provided radiocarbon dates between the 4th century and late 1st century BC (Figure 23.9; Coleman *et al.* 2006: 17) and a much smaller enclosure's second phase ditch was dated to 380-110 cal BC (Coleman *et al.* 2006: 35). Current indications on the date of the use of Middle Iron Age type ceramics (e.g. Malvern wares and limestone tempered wares) suggests they commenced use around the mid-4th century BC (Moore 2006: 32) and appears to have coincided with the increase in enclosed settlements. There are exceptions: the complex of enclosures and trackway at The Park clearly began in the Early Iron Age but the presence of Malvernian ceramics and Middle Iron Age forms (Marshall 2004: fig. P27), as well as a potin coin, suggests occupation continued as late as the 2nd century BC. The possibility that some enclosures may have emerged earlier is also raised by the presence of Early Iron Age pottery in the first phase of the enclosure at Bengeworth, Evesham, although its association with Middle Iron Age pottery may mean it was residual (Walsh and Lovett 2016).

Assessments of the emergence of similar enclosed settlements in north-east England and south-east Scotland, using Bayesian analysis of multiple radiocarbon dates, has suggested that they emerged somewhat later, in the 3rd century BC (Hamilton 2010; Hamilton and Haselgrove 2019). Assessing whether the same is true for the appearance of enclosures in the Bagendon environs is harder without a similar suite of dates. It is only relatively recently that radiocarbon dates have been widely taken as part of developer-led projects and, even then, rarely have more than a handful of dates been taken. In earlier excavations, dates were sometimes taken from features not directly related to the enclosure itself (e.g. Birdlip) or relied on bulk or large charcoal samples (e.g. Beckford). Assessing the chronology of settlement also suffers from taphonomic issues: ditches and pits are more likely to produce material for radiocarbon dating and thus Middle Iron Age sites appear more numerous, whilst the more ephemeral features of Early Iron Age settlements go undated. More detailed surveys (Hamilton 2010) also demonstrate that many enclosures went through complex cycles of enclosed and unenclosed phases.

Despite these caveats, an assessment of the radiocarbon dates from enclosures in the wider region (Figure 23.9; see discussion of individual dates in Chapter 13) suggests they probably emerged during the 4th-3rd century BC. This almost certainly masks a more complex sequence, however, and the need for a more rigorous dating programme is clear. The Bowsings, for example, appears to have be founded later in the 2nd century BC, based on a date from the initial silt of the enclosure ditch (Marshall 2004: 63), and Longford near Gloucester might also be 2nd century BC than earlier (Allen and

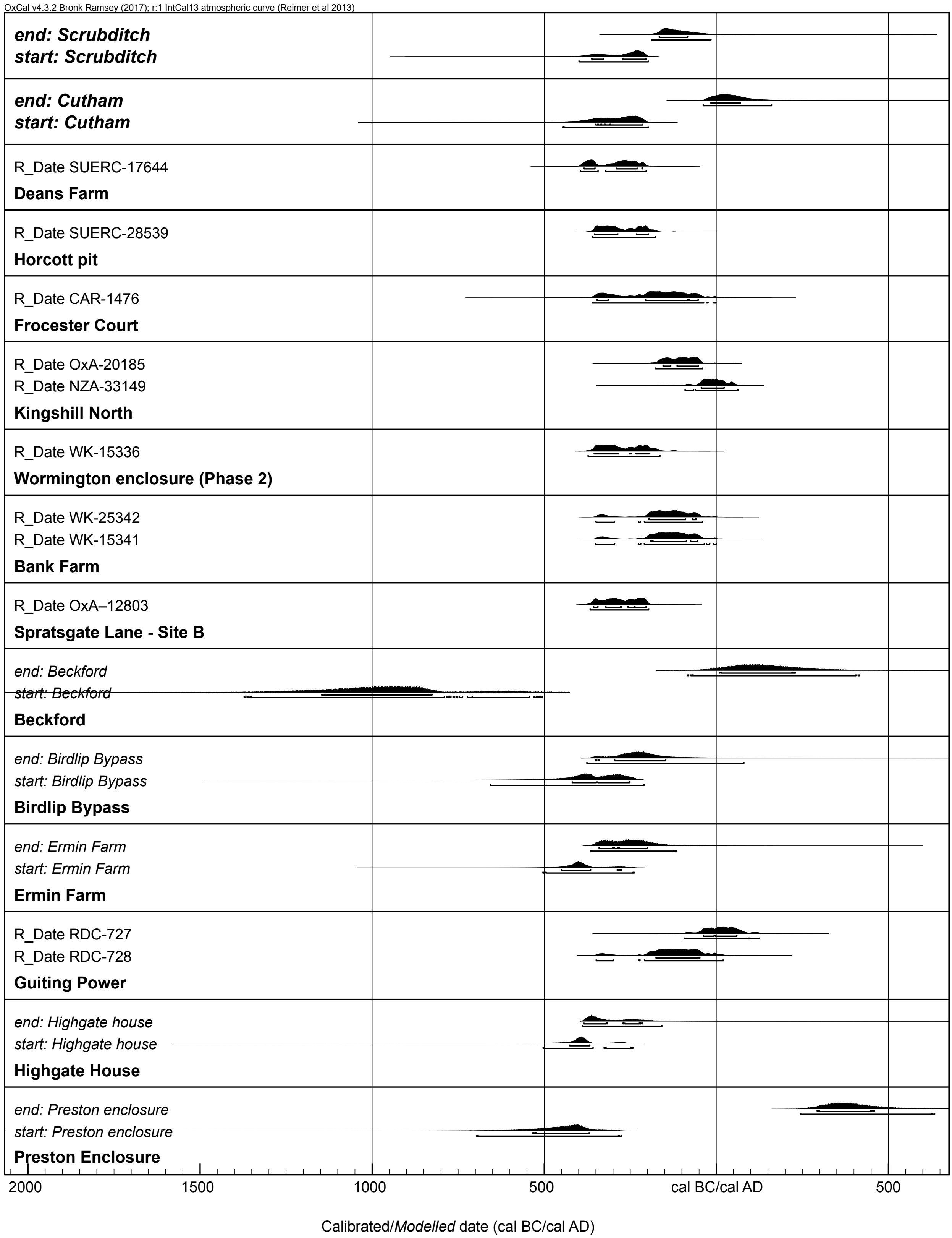

Figure 23.9. Radiocarbon dates from enclosed settlements in the Bagendon environs (by Derek Hamilton).

Booth 2019). The possible shift around Bourton-on-the-Water from the Cotswold school settlements to Salmonsbury in the 3rd or 2nd century BC might also imply a somewhat later process. This suggests complexity over the later 1st millennium BC, but the overall trend is of increasingly enclosed settlement. Transformations in the Thames Valley corroborate this general trend with more enclosed elements within settlements, for example at Claydon Pike and Latton Lands, as well as enclosures like Spratsgate Lane.

Settlement density

The widespread evidence for Middle Iron Age settlements allows us cautiously to explore the density of settlement from the 4th century BC onward. Assessing settlement density is notoriously difficult (cf. Haselgrove and Moore 2016), but the data set available for the region allows for some insights. Taking all Middle Iron Age settlements in the area, settlement density can be calculated at around one settlement per 3 km squared. Factoring in the presence of major urban areas, the proportion of arable land available and recognising that many of the settlements only known from aerial photography are likely to be of Middle Iron Age date, means the real density is likely to have been much higher, perhaps one site per 1-2 square km (Moore 2006: 66). This compares well with calculations for other Middle to Late Iron Age landscapes, such as the Stanwick environs in north-east England (Haselgrove and Moore 2016: 372). There was, however, likely to have been variation in settlement density, with far greater density in the Thames Valley compared to the Cotswolds. Furthermore, these overviews do not allow for recognition of fluctuations in settlements within the Middle Iron Age.

Variation in settlement density also probably relates to the differing landscapes within the Cotswolds, between for example the higher plateau and valleys, such as the Windrush and Evenlode, which appear to have had settlement patterns more similar to the Thames Valley. In the Severn Valley the number of sites revealed through fieldwork around Bishops Cleeve, Winchcombe, Cheltenham and along the Carrant brook, indicates the density of settlement in this area. In the upper Thames Valley, the intensity of archaeological investigation between Marston Meysey, Fairford and Lechlade suggests Middle Iron Age settlements were located as close as every 500 meters, although not all of these were necessarily independent farmsteads. There were also differences between the first and second gravel terraces and flood plain itself (Lambrick *et al.* 2009) which in some cases, as at Farmoor (Lambrick and Robinson 1979), was used seasonally. These issues aside, the intensive and integrated nature of landuse by the last few centuries of the 1st millennium BC seem indisputable.

Increasing settlement

To what extent does this density also signify an increase in settlement? Some have argued that these changes, for example around Bourton-on-the-Water, marked a move to fewer, more well-defined settlements (Nichols 2006: 71) rather than expansion. A simple comparison of the numbers of sites from the immediate Bagendon environs (Figure 23.10 and 23.11) indicates, however, significantly more sites dating to the Middle Iron Age than the Early Iron Age. This reflects the impression from transects of investigation, such as the pipelines in the Severn Valley (Wormington-Tirley) and on the Cotswolds (Sapperton-Wormington) which produced relatively small amounts of Late Bronze Age and Early Iron Age material (Coleman *et al.*2006: 91; Hart *et al.*2016a).

Vagaries in the dating of many sites makes such a comparison problematic. The greater visibility of enclosed settlements of this period, in geophysics and aerial photography, means they are likely to be targeted by archaeological evaluations. Other caveats need to be borne in mind; it is notable that it is in those areas that have witnessed large-scale open-area excavation, often in the upper Thames Valley (and at sites like Huntsman's Quarry, Kemerton, Herefordshire: Jackson 2015), that Late Bronze Age and Early Iron Age settlement are more often recognised. It is also possible, especially for the Early Iron Age which appears to witness something of a decline from the Late Bronze Age, that there was a nucleation of the population to hilltop enclosures which have been subject to less investigation in recent years. For example, the one major Early Iron Age settlement identified by the Wormington-Sapperton pipeline, at Salter's Hill (Hart *et al.*2016a: 56), was in such a location.

Despite these problems, evidence of increasing settlement numbers in the region reflects evidence from the rest of Britain of a general expansion of settlement in the later 1st millennium BC. A recent assessment of radiocarbon dates from Britain (Bevan *et al.* 2017) has suggested a major increase in activity from around 400 BC. Despite the controversial nature of such assessments it is notable that this picture corroborates the impression from these regions based on a combination of evidence.

Reasons for change

The reasons behind the changing nature of settlements and landscape across the later 1st millennium BC have been the subject of some debate (Lambrick *et al.*2009; Moore 2006; 2007a). In prosaic terms, the use of deep ditches around settlement and houses in the upper Thames Valley may imply a greater need for drainage. This may have related to rising ground water levels related to increased water run-off from the adjacent higher land, itself due to increased deforestation and arable farming (Lambrick *et al.*2009: 31-34). The picture suggested for the Thames Valley is party mirrored in the Severn Valley. Evidence for possible intensification of arable farming on the surrounding slopes has been suggested by analysis of cores from Ripple brook near the River Severn (Brown and Barber 1985: 93), which suggested significant woodland clearance in the first half of the 1st millennium BC, with a slightly later intensification of arable suggested from this and other Severn Valley sites (Shotton 1978; Brown 1982; Brown

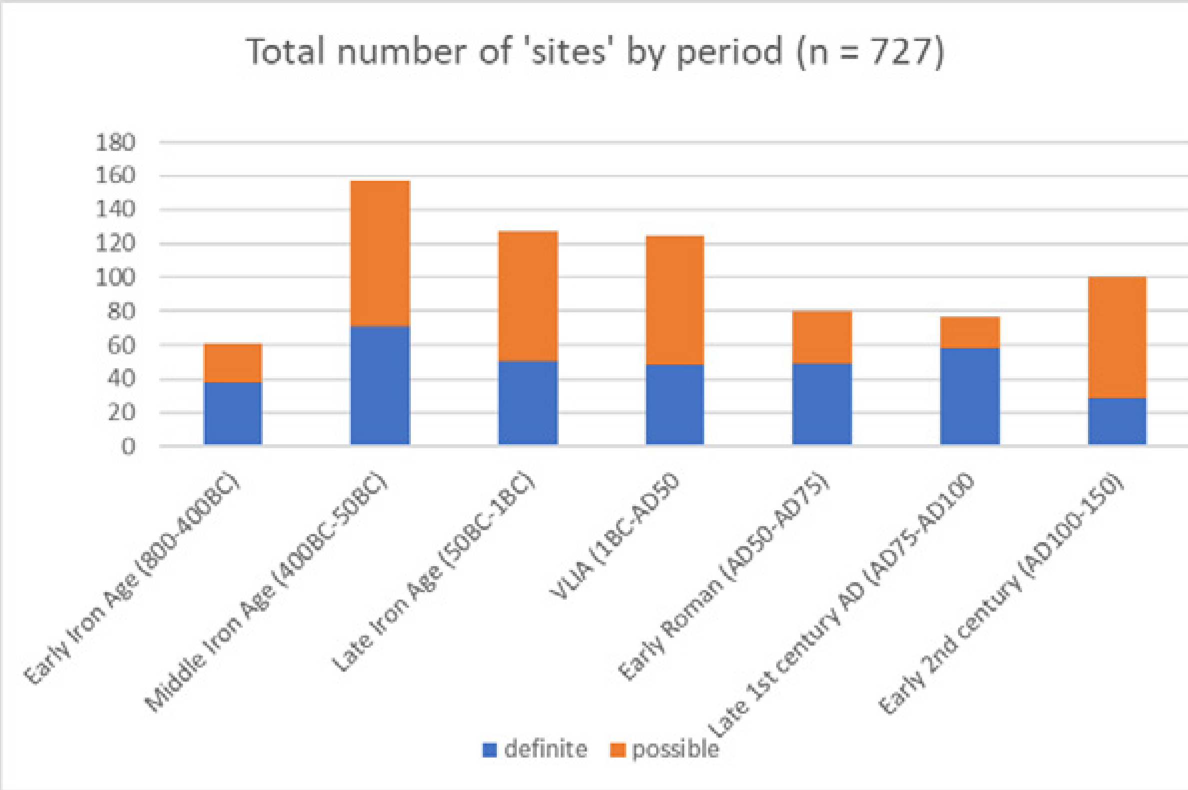

Figure 23.10. Chart showing numbers of sites by period from Early Iron Age to early 2nd century AD.

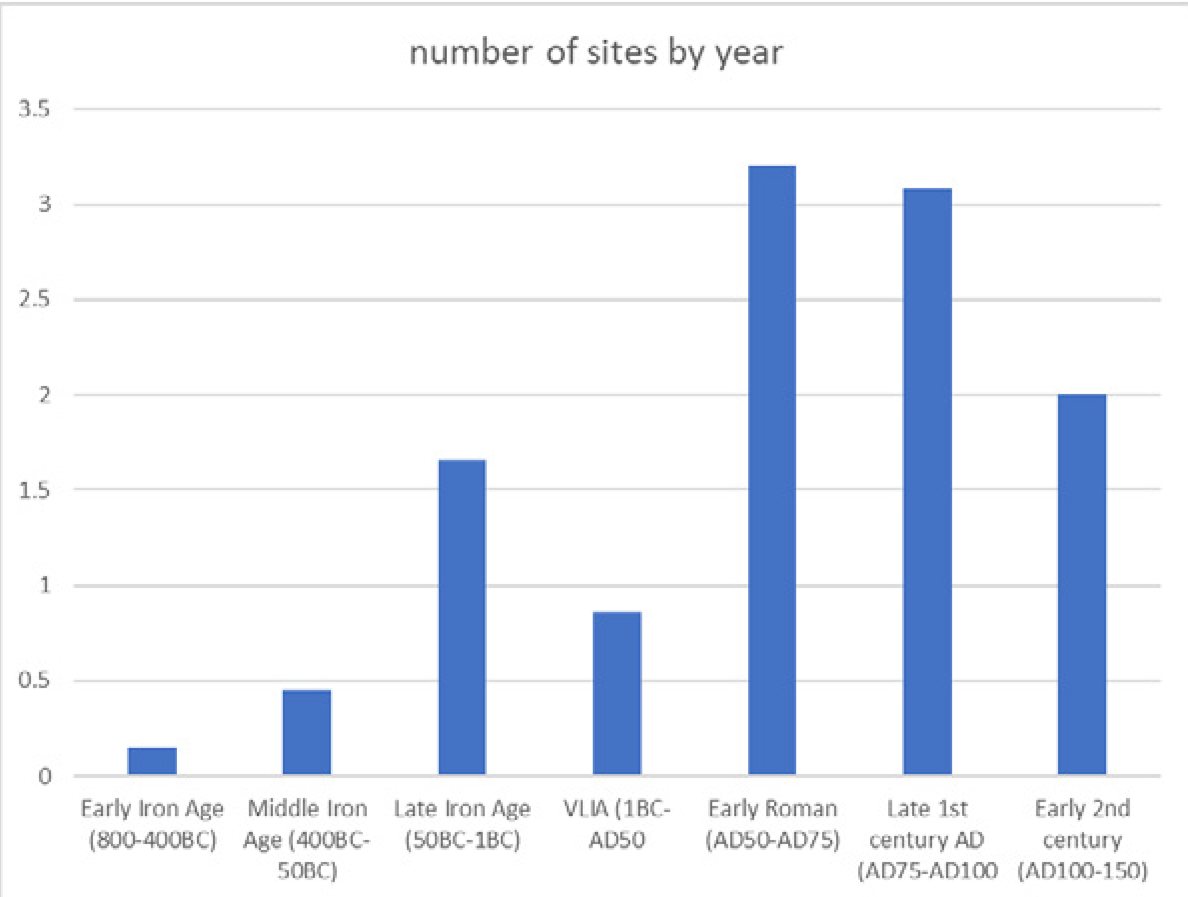

Figure 23.11. Chart showing frequency of sites adjusted by length of period, from Early Iron Age to early 2nd century AD.

and Barber 1985). This picture is partly corroborated by a more recent study of the environment at Longdon Marsh near Tewkesbury (Simmonds *et al.*2010: 51). Palaeoenvironmental samples here demonstrate that after a substantial impact from farming in the Mid-Late Bronze Age, the Iron Age then witnessed a period of significant sedimentation, probably the result of cultivation activities leading to greater run-off. The extent to which this process was gradual or increased in the Middle Iron Age is unclear, but the implication is of a more widespread use of the landscape, especially for arable, over the later 1st millennium BC.

The causes for both the changes in settlement patterns and impact on the environment may well relate to an apparent population increase. For the Thames Valley, it has been argued that a steady growth in population across the 1st millennium BC placed increasing pressure on pastoral resources (Lambrick *et al.* 2009: 379), leading to more permanent settlements and intensive management. This might explain the increasingly well-defined settlements and ditched arrangement in the Thames Valley which allowed a number of settlements to manage access to resources. Across the region it seems that demarcating settlement through enclosure seems to have been increasingly important and was not solely related to a need for drainage (Moore 2007b). The reasons for this are likely to have been an increasing population and competition over land requiring greater definition of communities and resources. The pattern seen here reflects a more widespread trend across a swathe of Britain, from the west and east Midlands to north-eastern England, where a move from unenclosed settlement to enclosure is witnessed (e.g. Bradley *et al.* 2016: 281; Hodgson 2012; Knight 2007; Wigley 2007). This may suggest that large scale forces of population increase, perhaps related to a warming climate from around 400 BC (Armit *et al.*2013; Bevan *et al.*2017), are reflected in an increasingly densely occupied landscape. The process of enclosure whilst defining the community need not have been one based on status, however. Although Marshall (2004: 23) regarded The Bowsings as a 'stronghold of higher-ranking individual or local chieftain' there is little to suggest it had any significant status distinction.

The social context

The social implications of this changing landscape are also important for understanding the context of the Cutham and Scrubditch enclosures at Bagendon. Despite the occupation of some hilltop enclosures in the Middle Iron Age, these (so-called) hillforts have witnessed relatively limited investigation compared to those in Wessex (e.g. Cunliffe 1984; Hill 1996; Sharples 2010), making analysis of, for example, their storage capacities impossible. Claims, for example, that Bredon Hill and Conderton had storage capacities suitable for roles as redistribution centres (Thomas 2005a: 248) are hard to justify. The presence of a relatively rich range of finds (such as currency bars) at the former might be compelling evidence of the site's wider importance, but there is little indication that these hillforts were necessarily residences for elites or at the top of a settlement hierarchy (Moore 2006).

Evidence for the existence of other central places is also limited. There have been claims of specialised grain storage settlements in the Severn Valley, for example at Severn Stoke (Mann *et al.* 2018) and Saxon's Lode, Ryall Quarry (Pearson in Nichols 2006). The former seems to be largely on the basis of the large number of four-posters but the evidence for this remains to be fully articulated, with the nature of activity here perhaps reflecting a large unenclosed agglomeration rather than specialist site. Instead, as discussed above, it seems most communities remained relatively self-sufficient whilst integrated into region-wide exchange networks (Moore 2007a). That some locations, including certain hillforts and other places in the landscape, acted as foci for exchange and negotiation is possible however. Hingley's (1999) suggestion that the area around Stanton Harcourt represented a neutral space between various communities reminds us that places in the landscape where such interaction between relatively independent communities took place might not be the monumental sites, such as hillforts, as so often assumed (Moore and González-Álvarez forthcoming).

One of the noticeable trends for the reorganisation of the landscape in the Middle Iron Age is that a number of the enclosures constructed at this time were situated on earlier, Late Bronze Age or Early Iron Age boundaries. Many of these, for example at Cotswold Community (Powell *et al.*2010), Roundhouse Farm (Cass *et al.*2015: 118) and Frocester (Moore 2006), were likely to have largely disappeared as features, but it seems the boundaries themselves remained relevant in dictating landscape organisation. In some cases, these enclosures demarcated unenclosed settlements, defining these communities more overtly in the landscape (Moore 2007a).

The Cutham and Scrubditch enclosures at Bagendon emerged at a time of widespread settlement increase and transformation. Throughout the region, a more extensive (and perhaps intensive) use of the landscape appears to have taken place. The Cotswolds also saw settlement expansion with some areas potentially remaining wooded in the Early Iron Age, but other areas, perhaps like that around Bagendon, exploited in different ways. Whilst greater arable farming on the Cotswolds seems likely, there is evidence, from the Bagendon area at least (Chapter 3), that areas of wood-pasture may also have been present. The social role of the enclosures at Bagendon is less clear. The implications are that these enclosures may not have been permanently occupied and had relatively specialised agricultural roles within a landscape that remained distinctive, despite the intensive nature of landuse across the region (see Chapter 24).

The Late Iron Age: continuity or transformation?

There are significant challenges in assessing settlement and landscape change from the Middle to Late Age. The use of Malvern and limestone tempered wares in the region as late as the second half of the 1st century AD means that often only broad dates for settlements are possible using ceramics alone. Annette Hancocks (1999) and Elaine Morris (in Vallender 2005) have suggested that a chronological distinction within ceramic assemblages can be made on the basis of the proportions of non-local ceramics and this can be used to subdivide Middle-Late Iron Age phases. At present such assessments have, however, not been widely attempted. A reliance on dating Late Iron Age occupation on the presence of grog-tempered (so called 'Belgic') wares also raises problems. Not all sites may have been receiving this material and its adoption was likely to reflect cultural as much as chronological, changes (Moore 2006: 34). Jane Timby (1990; 1999) has convincingly argued that Early Severn Valley wares, and perhaps Savernake wares, were in circulation by the early 1st century AD but the extent to which their use was widespread across all communities is not yet clear; many communities probably continued to predominantly use locally made ceramics. One or two sherds of grog-tempered ceramics from sites like Scrubditch and Highgate House could signal Late Iron Age activity, but conversely its absence may not infer a lack of occupation. The presence or absence of imported ceramics is also problematic. Frocester and Duntisbourne Grove are often used as evidence that imports 'trickled down' to rural settlements. Both settlements may be unusual however, with Duntisbourne Grove in particular more likely part of the Bagendon complex than a normal 'farmstead' (see Chapters 4 and 24). An apparent absence of Late Iron Age phases on sites which otherwise give hints of continuity, such as Birdlip (Parry 1998), may relate to the imprecision of our ceramic chronologies, leading to underestimating Late Iron Age settlement.

The Cotswolds

Despite these chronological issues some general trends can be drawn from the dataset available (Figure 23.12). On the Cotswolds, a number of settlements provide evidence of a disjuncture towards the end of the Middle Iron Age. At Birdlip, Parry (1998: 49) claimed the possibility of a hiatus between the Middle Iron Age and 1st century AD, although occupation may have shifted between enclosures. Huntsman's Quarry (Marshall 2004), although revealing evidence of continuity from the Middle Iron Age, shows similar evidence of redevelopment with the main enclosure seemingly contracted into smaller enclosures in the Late Iron Age, and then reorganised again in the early Roman period (Marshall 2004: B27b). At both enclosures, the inference is for some form of dislocation, perhaps in the 1st century BC.

Other sites suggest continuity from the Middle to Late Iron Age, but often on limited evidence. The enclosure partly investigated at Highgate House revealed somewhat similar evidence to Scrubditch, with some possibility of continued occupation in to the Late Iron Age, based on a single piece of grog tempered ware and a high percentage of Malvern wares (BE135: Mudd *et al.*1999: 66). Cutham, by contrast, appears to show definitive evidence that the enclosure remained in use, or was reoccupied, as late as the early 1st century AD (see Chapter 3).

Elsewhere, the abandonment of existing enclosures by the Late Iron Age frequently appears to be the case. The enclosure at Manor Farm, Guiting Power (Saville 1979; Vallender 2005: 48) has been dated (on the basis of ceramics) to the 'late Middle Iron Age to early Late Iron Age'. Further south, the polygonal enclosure at Preston (BE38: Mudd *et al.*1999) also shows no evidence of Late Iron Age occupation. Similarly, the small rectilinear enclosures at Ermin Farm, probably dating to the 4th-3rd century BC, appear to have been abandoned by this time (BE81: Mudd *et al.*1999: 59). Closer to Bagendon, at Kingshill North (Biddulph and Welsh 2011), an unenclosed Middle Iron Age settlement saw major changes in the Late Iron Age, with construction of an enclosure (probably in the late 1st century BC or early 1st century AD). It seems the site was then remodelled again, with a larger enclosure, in the early 1st century AD. There is evidence elsewhere of significant settlement shifts. For example, at the settlement at Griffin Close, near Stow-on-the-Wold, Middle Iron Age occupation was seemingly replaced by a Late Iron Age double-ditched enclosure (Barber 2013).

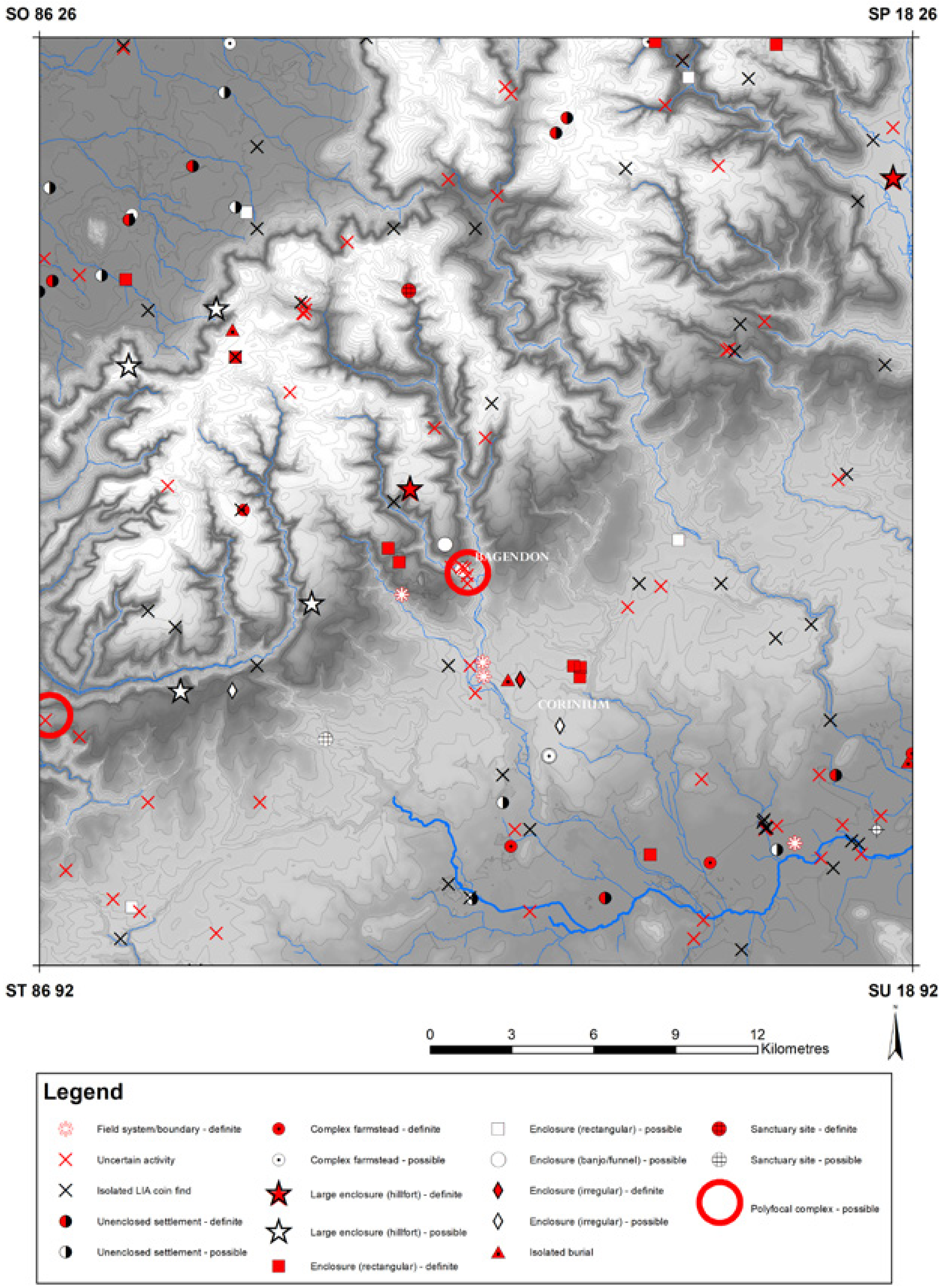

Figure 23.12. Distrubution of Late Iron Age settlement in the detailed study area.

Some new sites appear to have emerged in the Late Iron Age on the Cotswolds, but the evidence for this is relatively limited. Although only having witnessed evaluation, a set of enclosures to the east of Cirencester at Crucis Park Farm (BE192; Figure 23.6), one of which resembles the small enclosure at Bagendon in field B1 (see Chapter 2), has produced Late Iron Age material. At Miserden recent investigation of what appears to be a complex farmstead (BE265: Roberts 2015) has revealed a collection of Late Iron Age and Roman material which suggests it was occupied in the Late Iron Age. Recent investigations in the Tetbury area have identified the presence of Iron Age activity, much of it apparently of Late Iron Age to early Roman date, which includes possible stock enclosures at Highfield Farm (Garland and Stansbie 2018). Some of these share affinities to the use of enclosures at Bagendon and add to an impression that exploitation of the Cotswold plateau may have had an emphasis on pastoralism.

Other settlements of uncertain character are identifiable from Late Iron Age material within their assemblages. For example, at the small Roman settlement of Wycomb-Andoversford (BE179; BE216), evidence of possible Late Iron Age ditches, a possible coin mould, along with a large assemblage of coins, indicates the probability of a Late Iron Age settlement (see Haselgrove, Chapter 10; RCHME 1976: 125; Timby 1998). The presence here of pre-conquest imported *Terra Rubra* (Timby 1998: 330), rare in the region, might even suggest a site of relatively high-status. Other sites which emerged in the Late Iron Age, or possibly somewhat later, including an unenclosed settlement at Baker's Wood, probably dating to the mid-1st century AD, which was then radically re-organised at some point in the early Roman period (Hart *et al.*2016: 92).

Around Bagendon itself (discussed in more detail in Chapter 4) the evidence emphasises that, aside from the enclosures at Cutham and Scrubditch, much of the rest of the occupation emerged in the Late Iron Age. The large enclosure at The Ditches displays little evidence of Middle Iron Age activity, but may have originated as early as the 1st century BC (Trow 1988a: 37), although it could have conceivably taken place as late as the early 1st century AD (Trow *et al.* 2009: 48). Middle Duntisbourne and Duntisbourne Grove both show little evidence that they contained Middle Iron Age phases and probably date almost entirely to the Late Iron Age, perhaps even solely within 1st century AD (Mudd *et al.*1999: 95). The small-scale sample of areas examined (especially at Middle Duntisbourne) should be borne in mind and whether earlier activity awaits discovery is worth considering, however. Hints of another potential enclosure with evidence of occupation contemporary to Bagendon's mid-1st century AD phase was located to the north at Shawswell (BE309; Parry 2010) and may suggest other satellite settlements existed.

The upper Thames Valley

To the south of Bagendon, in the upper Thames Valley, far greater evidence of significant landscape transformation in the Late Iron Age is evident. The date of these changes is, however, somewhat complex with a number of settlements indicating the possibility of a relatively tumultuous period over the 1st century BC and 1st century AD.

At Cotswold Community, a palisaded enclosure dating to the latter part of the Middle Iron Age appears to represent a shift in settlement from the south (Powell *et al.*2010: 99). Finds, such as an unusual La Tène III Gaulish brooch, suggest this enclosure and associated unenclosed settlement was occuped in the 1st century BC. Significant changes took place at some point in the early-mid 1st century AD, with the palisaded enclosure replaced by a more substantial ditched enclosure (Powell *et al.*2010: 110 and 117) seemingly representing a more nucleated and well-defined settlement. Radical re-organisation took place at a number of other sites too. At Thornhill Farm (Jennings *et al.* 2004) and Coln Gravel (Stansbie *et al.* 2008), near Fairford, the unenclosed roundhouses of the Middle Iron Age were replaced with a more complex arrangement of paddocks and other enclosures, at some point in the early 1st century AD or late 1st century BC. These appear to have demarcated separate activity areas possibly related to greater specialisation in pastoral farming. This is supported by environmental evidence that the land around was mainly grassland, although earlier claims of specialised horse-rearing seem unfounded (Jennings *et al.* 2004: 147). A second reorganisation probably took place in the mid-late 1st century AD representing the apparent nucleation of the settlement in to a more well-defined cluster of enclosures. Elsewhere, at Totterdown Lane East the unenclosed Middle Iron Age roundhouses were reorganised in the late 1st century BC or early 1st century AD into a more nucleated settlement with well-defined, interconnected enclosures (Pine and Preston 2004: 18).

At Latton Lands, the ring gully roundhouses associated with linear field boundaries were restructured in the Late Iron Age with an enclosure of *c.* 30 m across constructed in the central area of the settlement (which seems to relate to an existing Middle Iron Age enclosure boundary). As seen elsewhere, at Thornhill Farm and Cotswold Community, it is possible this enclosure was not for habitation but for livestock. Ceramics from this settlement were dated to '75 BC – early 1st century AD' suggesting restructuring here was roughly contemporary with reorganisation elsewhere (Powell *et al.* 2009: 51). At Cleveland Farm (Powell *et al.*2008) there is greater evidence of continuity from the Middle to Late Iron Age, but the stratigraphic sequence of the complex is not very clear.

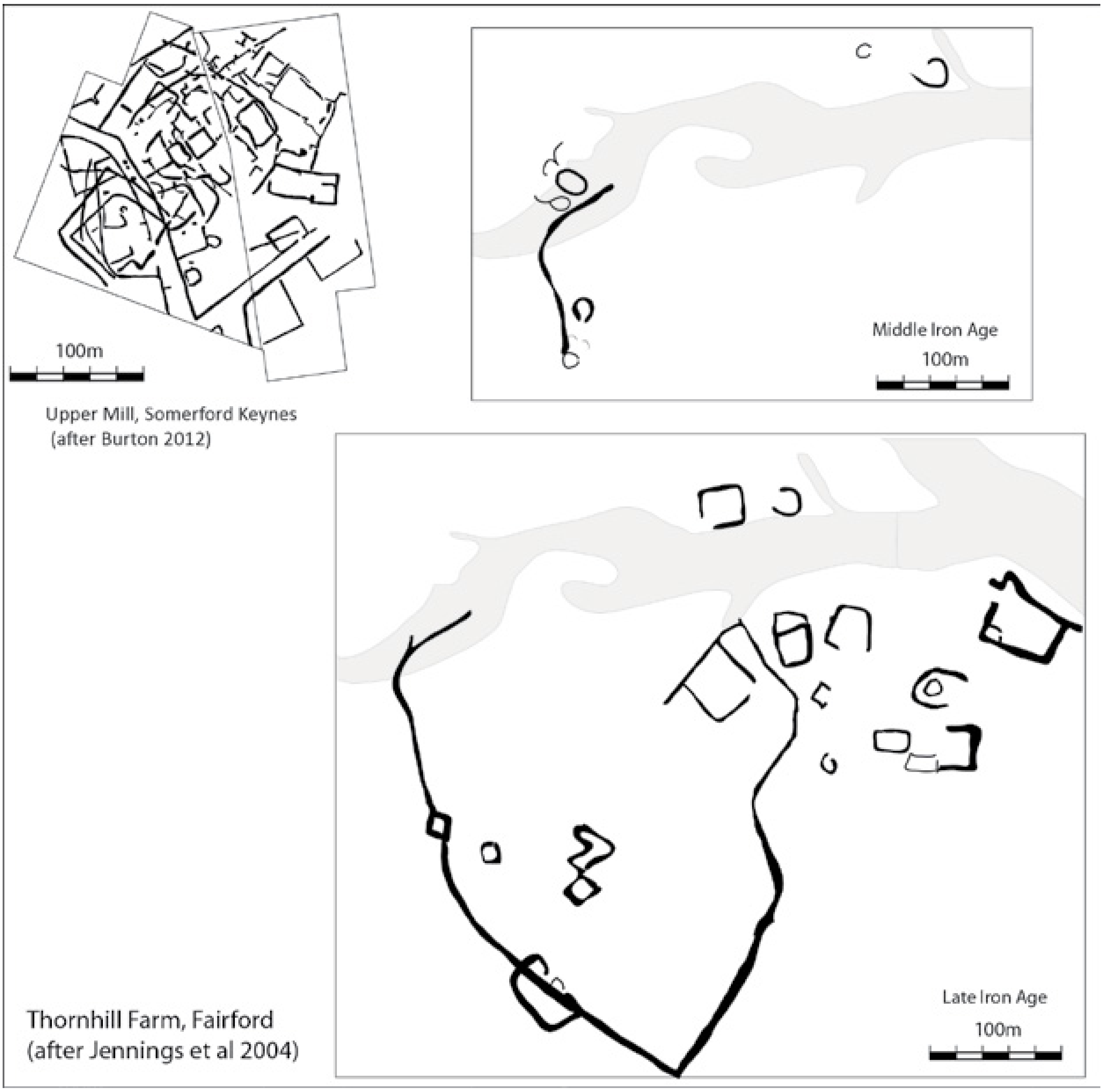

Figure 23.13. Examples of Late Iron Age 'complex farmsteads' at Thornhill, showing development from Middle to Late Iron Age (after Jennings et al. 2004), and surveyed examples at Somerford Keynes (after Burton 2012).

This broad pattern of landscape change in the Late Iron Age and early Roman period can be seen elsewhere, although it is not always as well dated. At Dryleaze (BE168) the intensive activity of the Middle Iron Age appears to have ended before the 1st century AD (Millbank *et al.*2011). The field systems may have stayed in use in some places, however, with Middle Iron Age boundaries respected by Roman field systems. Many other Middle Iron Age settlements, such as Spratsgate Lane (Vallender 2007), Horcott pit (Lamdin Whymark *et al.* 2009), and Horcott Quarry (BE87: Hayden *et al.* 2017), display a lack of Late Iron Age phases, but exactly when they were abandoned is unclear. Similarly, the field system and settlement at Roundhouse Farm (BE283/284/285) was abandoned at some point in the Late Iron Age, with a significant reduction in the number of houses and realignment of the field system (Cass *et al.*2015).

New sites also seem to appear around this period, such as Neigh Bridge, Somerford Keynes (Miles *et al.*2007), with its earliest occupation in the early-mid 1st century AD. Settlement looks similar to Thornhill Farm, with establishment of more enclosed elements and at Roughground Farm, Lechlade, ditched roundhouses appear to mark a settlement which emerged in the mid 1st century AD (Allen *et al.*1993).

The processes and chronology of transformation are clearly complex, but some broad patterns can be discerned. In many cases there appears to have been settlement nucleation or change in the role of the settlement, represented by the emergence of what can be defined as 'complex farmsteads' (Figure 23.13). At Thornhill Farm, the shift in the location of settlement appears to also represent a change in its role, probably related to an increasing focus on cattle farming (Jennings *et al.* 2004: 151) and perhaps a role in horse rearing (Jennings *et al.*2004: 152). At Claydon Pike too, the shift from Warrens Field to Longdoles Field (Miles *et al.* 2007) appears to have taken place in the early 1st century AD and relates to an increasing focus on pastoralism. At Horcott Pitt the shift may relate to settlement nearby, with Late Iron Age activity dating to the early 1st century AD clearly taking place somewhere in the vicinity (Lamdin-Whymark *et al.* 2009: 125), perhaps centred at Totterdown.

This shift in the focus of occupation and increasing specialisation may explain the negative evidence for continuity at some of the Middle Iron Age settlements discussed above, with a similar process of nucleation true elsewhere but yet to be identified. At Roundhouse Farm, for example, less than a half a kilometre from the focus of Middle Iron Age settlement, a cluster of coins and other stray finds (BE268-276) to the west of Marston Meysey seems likely to denote an, as yet uninvestigated, Late Iron Age settlement. We need to be aware, therefore, that if settlements shifted around the landscape effective continuity of communities may be missed (Morrison 2016: 55).

The reasons for these shifts in the location and character of settlements may, in some cases, relate to relatively prosaic causes. At Dryleaze Farm, for example, the explanation for the abandonment of the settlement has been suggested as possibly related to a rising water table (Milbank *et al.* 2011). Certainly, evidence suggests these changes were not just about filling up the landscape but part of a widespread settlement disruption and transformation (Miles *et al.*2007: 7). Understanding the reasons for these changes, especially when it appears that many settlements shifted to locations not far from where they had already been, is fundamental and is discussed further below.

Late Iron Age in the Severn Valley

The nature of Late Iron Age settlement in the Severn Valley is less well understood. Recent excavations are providing a clearer picture of trajectories here too, however. Similar evidence for dislocation is evident, although Hurst's (2017: 115) description of an 'evacuation' of Middle Iron Age settlement perhaps simplifies a complex picture of landscape transformation.

Along the Carrant brook, some enclosures were remodelled in the Late Iron Age, even if settlement continued into the 1st century AD (e.g. Bank Farm, Dumbelton: Coleman *et al.*2006: 24). The evidence from Wormington Farm indicates some continuity in landscape management despite an apparent hiatus. The Middle to Late Iron Age trackway here was seemingly recut and, despite a new enclosure being constructed, the framework of the landscape persisted (Coleman *et al.*2006). Elsewhere, the lack of Late Iron Age material at Aston Mill and the apparent abandonment of Conderton, probably in the 2nd century BC (Thomas 2005a: 256) perhaps mirrored at Bredon hillfort (Weston and Hurst 2013), suggests a transformation around the beginning of the Late Iron Age. Changes in settlement form were also witnessed at Walton Cardiff, Tewkesbury with a move from a Middle Iron Age enclosure to a more dispersed settlement in the late 1st century BC or early 1st century AD. A more enclosed settlement appears to have then been re-established in the later 1st century AD (Holbrook 2008c). The enclosures at Beckford (Oswald 1974; Britnell 1974) appear to have remained in use into the 1st century AD (Moore 2006: 134) although a campaign of redating, yet to be published, is likely to throw further light on their chronology. At Frocester (Price 2000), a Middle Iron Age enclosure displays evidence of continuity throughout the Late Iron Age and into the early Roman period.

Further south, once a relatively poorly understood area, there is now relatively plentiful evidence that new sites were also emerging in the Severn Valley around Gloucester in the Late Iron Age. A number of these settlements appear to have been unenclosed, such as that at Churchdown Area D2 (Burgess *et al.* 2016) and at Longdon Marsh (Simmonds *et al.*2010). The scattered pits at Saxon's Lode near Upton on Severn may also represent an unenclosed settlement (Barber and Watts 2008).

To the east of Gloucester a period of shifting between Middle Iron Age settlement and the Late Iron Age is also evident (e.g. at BE177: Saintbridge; BE142: Abbeymead Roman fields; BE72:2 Hucclecote). Another, farther south at Mayo's Land, Quedgeley (Hart and Massey 2018) indicates the likely common type, consisting of unenclosed gully roundhouses set amongst ditched field systems. North of the Brockworth Roman settlement, evaluation has revealed various gullied roundhouses, one within an enclosure of apparently Late Iron Age date (BE187: Barber and Havard 2011). Recent excavations close to Churchdown Hill Area D1 (BE161/ 162) revealed newly founded Late Iron Age settlements in the 1st century AD which then developed into a small corridor style 'villa' in the mid-2nd century AD (Burgess *et al.*2016). The same shift from a Middle Iron Age occupation area to a new enclosure in the early 1st century AD also appears to take place at Bishops Cleeve (Havard 2016).

It appears that some unenclosed settlements, consisting of roundhouses, only began after the conquest, such as that at Brockworth (BE178: Rawes 1981); similarly, settlement close to Leckhampton (BE164) was reconfigured at this time. Atkin (1987) saw this as continuity from Iron Age to Roman but there appears to be a more complex re-organisation of settlement over this period. Most of these sites do not appear to have had Middle Iron Age precursors, although the presence of Glastonbury ware at Abbeymead Roman fields (Atkin 1987) suggests activity began at least as early as the 1st century BC, with a similar date likely at Mayo's Land, Quedgeley (Hart and Massey 2018). Similarly, at Arle Court (BE79), Cheltenham (Cuttler 2010) there is tentative evidence of continuity from Middle to Late Iron Age but with an apparent hiatus before re-occupation of the area in the 1st century AD (Cuttler 2010). Elsewhere, potential shift or hiatus between the Middle Iron Age and Late Iron Age might be indicated at Greet Road, Winchcombe where activity appears to have ceased in the 2nd century BC with redevelopment probably in the 1st century AD (Nichols 2016: 150).

New rectilinear enclosures also emerged, for example at Leckhampton (Adam 2006; see also Welsh 2016: BE164). The recently excavated complex of enclosures at Elms Park Farm (BE307:1) appears to begin in the Late Iron Age and may have been of some status having produced a currency bar (Havard 2018). Some of these sites also seem to indicate continuity into the early Roman

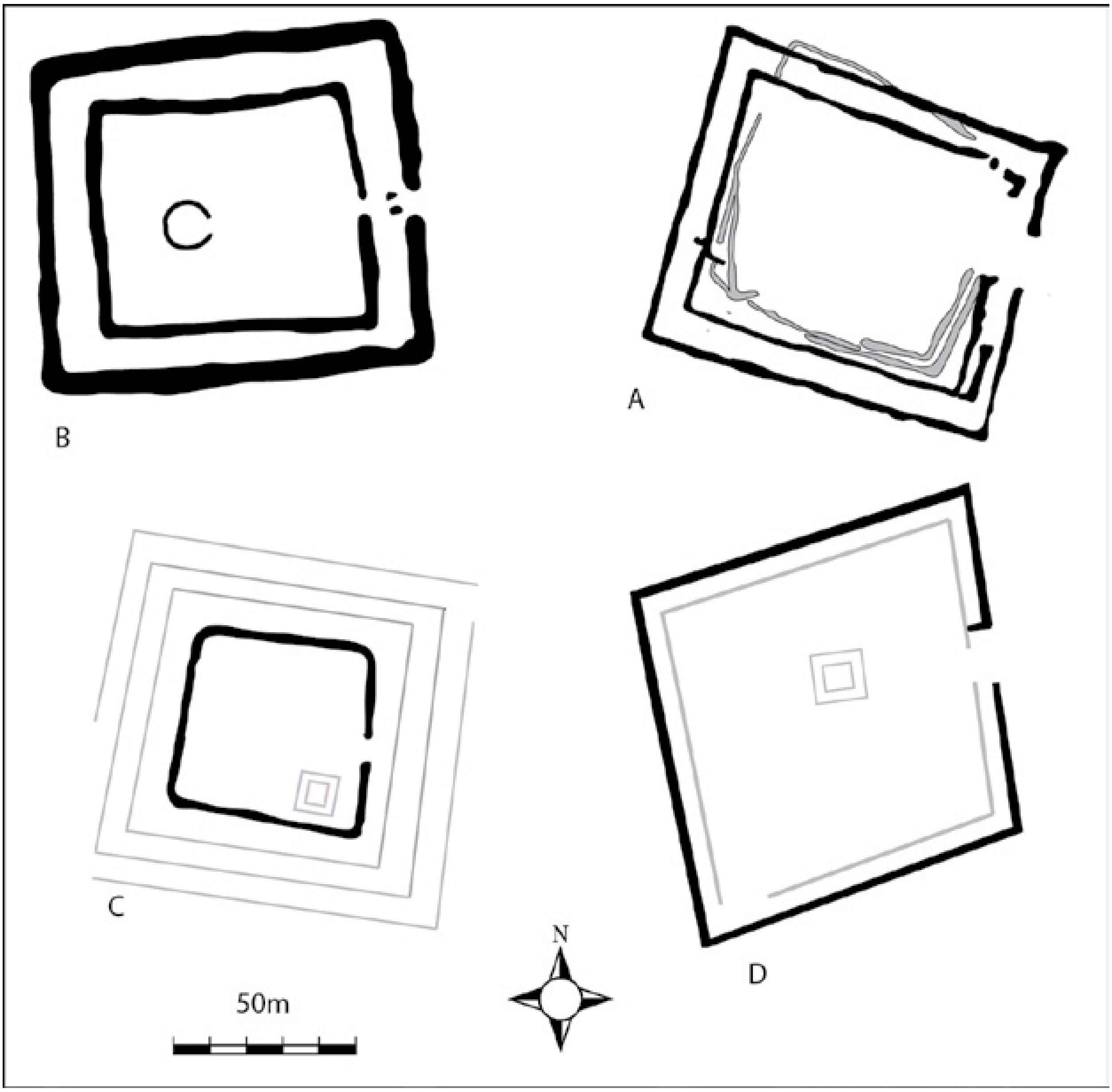

Figure 23.14. Comparative plot of (A) Hailey Wood temple temenos and earlier sub-rectangular enclosure (in grey) with other sanctuary enclosures: (B) Fison Way, Norfolk (phase 2); (C) Gosbecks, Essex; (D) Great Chesterford, Essex.

period. Further south, close to Stonehouse, a set of pits of Late Iron Age date preceded an enclosure of the late 1st century AD, representing ill-defined Late Iron Age settlement with no Middle Iron Age pre-cursor (Brett 2013). Meanwhile, a range of Late Iron Age and early Roman settlements of the complex farmstead type have been identified at New Moreton Farm, Standish (Wessex Archaeology 2004) and Tewkesbury (Walker *et al.* 2004) representing similar sequences to some of those around Brockworth, seemingly emerging in the Late Iron Age and continuing through the Roman period (Holbrook 2005: 110). The presence of imports, such as *terra rubra*, at a few smaller enclosures in the region, such as Frocester and, farther south, at Brinsham East, Yate (Figure 24.11; Holbrook *et al.* 2015) may denote status distinctions, particular roles, or that these communities were well-connected within the landscape.

In the Late Iron Age, for the first time, there is some evidence for the emergence of sites which had specialist religious functions. The lack of evidence for a sanctuary at Bagendon is in contrast to some other so-called *oppida* complexes, such as *Camulodunum* (see Chapter 24) but evidence for possible Late Iron Age ritual foci nearby is beginning to emerge. At Tar Barrows geophysics has indicated that the barrows may have been part of a Roman sanctuary complex with the barrow having had potentially Late Iron Age origins, similar to Folly Lane at *Verlamion* (see Figure 24.7; Holbrook 2008c). To the west of Cirencester, geophysical survey (as part of this project) of what is likely to be a Roman temple complex at Hailey Wood, Sapperton, revealed evidence for a sub-rectangular predecessor to the double-ditched enclosure (Figure 23.14; see Chapter 21). Stray finds of Iron Age ceramics and Iron Age coins (Moore 2001) imply the Roman temple had an earlier precursor and was in use by the mid-late 1st century AD. It seems to have been located at what was then the source of the River Thames, a typical location for Roman temples, but how it might have related to occupation at Bagendon is unclear.

More well-known evidence for a potential Late Iron Age 'sanctuary' in the region has been identified at Romano-Celtic temple complex at Uley West Hill. Here, an irregular enclosure, dating from the mid-1st century AD onwards may imply a pre-conquest precursor (Woodward and Leach 1993). Evidence for other ritual sites is even more enigmatic, but might be indicated at Neigh Bridge, Somerford Keynes (BE69) where the collection of stray Late Iron Age coins (BE247) and other metalwork may imply a ritual site nearby (Miles *et al.* 2007: 271). Similarly, a possible ritual, site has been suggested at Pinchley Wood (BE90) where a cluster of pits contained a number of seemingly structured deposits, dating to around the mid-1st century AD (Hart *et al.*2016a: 205). Meanwhile, Late Iron Age activity at the Wycomb-Andoversford Roman small settlement (BE179), which appears to have been related to a temple complex, might indicate it too had a precursor. Both structural and dating evidence for these sites is relatively limited, but if they had a role prior to the Roman conquest they appear to have emerged very late in the Iron Age, perhaps early-mid 1st century AD. Further afield, but seemingly within '*Dobunnic*' territory, Late Iron Age ritual centres have been claimed at Bath and Nettleton. At the former, coinage associated with a possibly artificial platform may suggest a role as a Late Iron Age ritual foci, although this too may not date much earlier than the AD50s (La Trobe Bateman and Niblett 2016: 38). At Nettleton, Wiltshire, Wedlake's (1982) excavations indicated the presence of some form of Late Iron Age activity which may have been ritual in nature (Moore 2006: 165).

The significance of these ritual sites is both in marking changes in religious behaviour, perhaps to one more focused around dedicated sanctuaries and their potential role as meeting places in the wider landscape. Defining the activity at many remains problematic, but any distinction between sanctuaries and assembly places may be hard to define.

Bagendon and other power centres

What then was Bagendon's relationship to the settlement patterns of the Late Iron Age? For some time, it has been assumed that Bagendon was the 'capital' of the *Dobunnic* tribe which occupied the region by the Late Iron Age (Cunliffe 2005: 191; see Chapter 24). The designation of Bagendon as an '*oppidum*' and its social role are explored more in Chapter 24, but to what extent is there evidence for the existence of other significant social centres at this time? Elsewhere in southern Britain most hillforts appear to have been abandoned or significantly diminished as population centres by the 1st century BC and that general trend may also be the case on the Cotswolds. For example, despite suggestions that Bredon Hill was attacked by the Roman army in the 1st century AD (Thomas 2005a: 257), recent analysis suggests an earlier end to the enclosure in the 2nd-1st century BC (Hurst and Weston 2013).

Activity in the Late Iron Age has been recognised at some other hillforts, for example at Crickley Hill (Dixon 1994; Philip Dixon pers. comm.) where a single hearth has produced a Late Iron Age Thermoluminescence date, and through stray finds of Late Iron Age coins from Dowdeswell (BE92). Neither seem likely to have had roles as major social centres, however. Only at Uley Bury, where there is some evidence for Late Iron Age activity (Evans 2005), does the arrangement of inner enclosures appear redolent of enclosed Late

Iron Age centres such as Dyke Hills in Oxfordhsire (Moore 2007b). Dyke Hills itself is often regarded as a classic enclosed *oppidum* but it is impossible to establish whether the dense occupation in the interior represents contemporary occupation or the enclosing of an existing Later Iron Age settlement (Lambrick *et al.*2009: 362). Just a few kilometres away at Abingdon another large enclosure was constructed sometime between the 2nd century BC and 1st century AD, related to a settlement which had been occupied since the Early Iron Age (Lambrick *et al.*2009: 362). The chronology of all these enclosures is relatively poorly understood, as is the nature of internal occupation.

The large enclosure at Salmonsbury, encompassing some 22ha with an annex of about 6ha has been argued to represent an 'enclosed *oppidum*' (Cunliffe 2005: 191), although Darvill (2010: 226) has contended that it is not much different from other hillforts (Figure 23.15). As discussed earlier, the chronology of the site remains somewhat uncertain, with the ramparts themselves perhaps Middle Iron Age although occupation continued into the Late Iron Age (Dunning 1976). There is no reason not to regard Salmonsbury (and perhaps even Uley Bury) as similar to large enclosures dating to the Later Iron Age, such as Dyke Hills; Abingdon and Oram's Arbour (Cunliffe 2005: 403). The role of such sites requires greater investigation but, as Cunliffe (2005: 406) has argued, their siting on routeways and low-lying locations suggests they had a different function to hilltop enclosures and appear to have persisted as settlements, and perhaps assembly and exchange centres, into the Late Iron Age.

The only other postulated Late Iron Age 'territorial *oppidum*' in the region is at Minchinhampton (Figure 24.16), but here too the evidence is complicated. The large dyke systems, known as the Bulwarks (RCHME 1976), were subject to investigation in the 1930s (Clifford 1937) revealing finds of Middle and Late Iron Age ceramics (Clifford 1937; RCHME 1976: 84). Rather like Bagendon, the arrangement of earthworks is hard to comprehend, and they certainly did not form an enclosure. Subsequent studies (Parry 1996) have

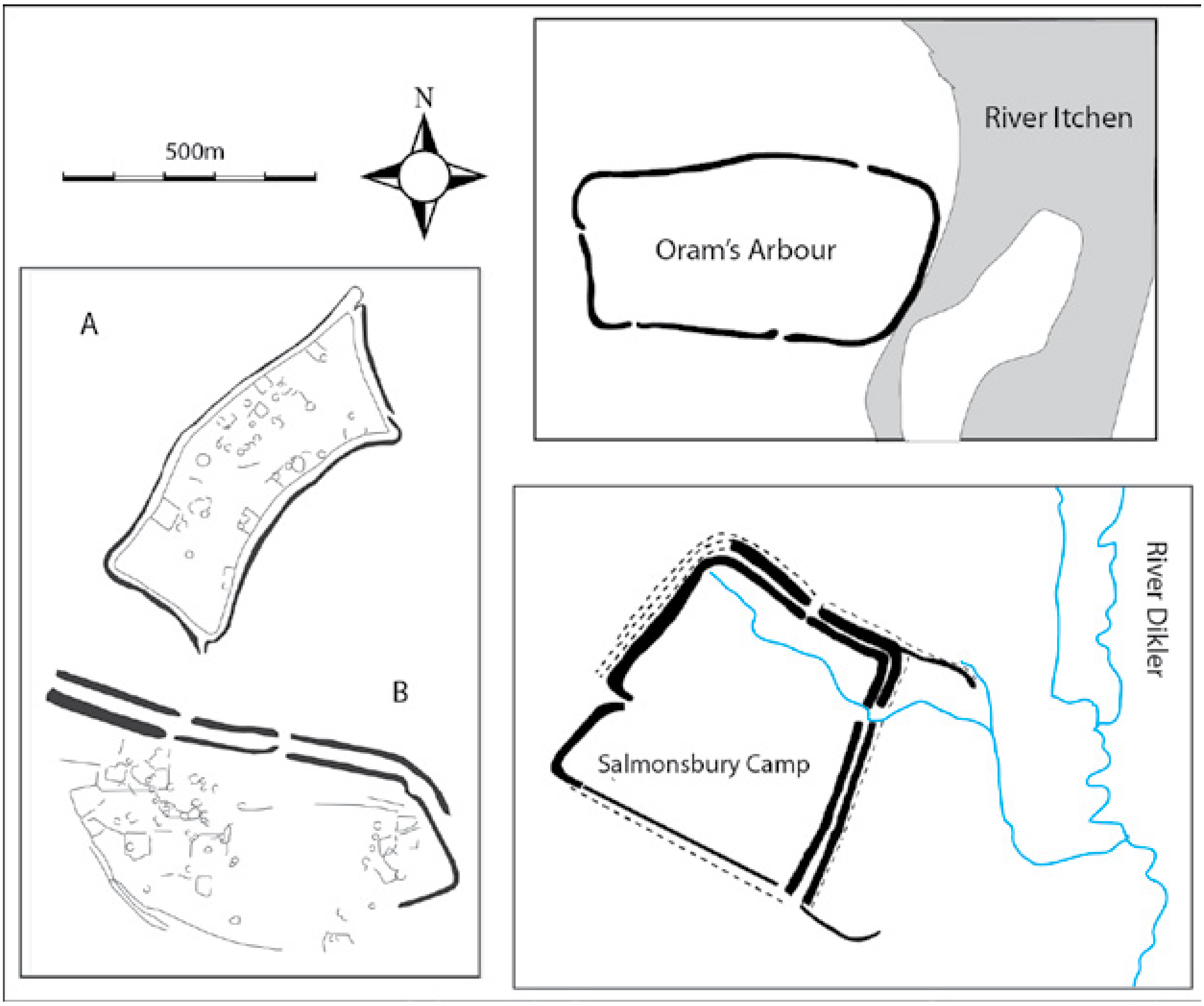

Figure 23.15. Plans of Salmonsbury, Orams's Arbour (Winchester), Uley Bury (A) and Dyke Hills (B).

argued that most of these earthworks are of medieval date, with the Bulwarks possibly the remains of a park pale. The limited amount of Iron Age material from the, admittedly few, recent investigations in the area is certainly noticeable and might support such a viewpoint (Manning 1995). Recent discovery of features, dating to the mid-1st century AD, close to Clifford's excavations (King 2004) however, as well as the material from her investigations, does suggest the presence of some form of Late Iron Age occupation. It is worth remembering how much of the area at Bagendon appears relatively empty and produced no material. Parry (1996) seems correct in recognising that these earthworks have seen augmentation and modification, but that they originated in the Late Iron Age appears likely. The placement of the major dykes is certainly intriguing, sharing some parallels to Bagendon. The Bulwarks dyke is situated alongside a natural hollow way, creating an apparent entrance with dyke '2' (RHCHME 1976: 82), somewhat similar to the arrangement seen with Scrubditch and Perrott's brook dykes at Bagendon (Figure 24.8) Combined, it appears to create a cross-dyke arrangement controlling access along the ridge whilst funnelling movement from the adjacent valleys.

A large enclosure at Rodborough common, to the west of the Bulwarks, was once claimed as evidence of a Roman camp (Rennie 1959; RCHME 1976: 98) but here too a medieval origin has been suggested (Parry 1996). Yet, whilst some of the evidence suggests medieval activity, the Late Iron Age and early Roman nature of the finds recovered by Rennie (1959), and later (Clifford 1964), is clear, as is the potential association with discovery of a Late Iron Age bucket mount (British Museum 1925) nearby. The latter could be suggestive of a rich Late Iron Age burial, perhaps similar to those at Baldock (Stead and Rigby 1986). The assemblage of Late Iron Age material implies some form of important settlement nearby and that elements of what Rennie uncovered were of Late Iron Age date. Whilst Rennie's (1959: 26) reconstruction of the site should be treated with some scepticism (Parry 1996: 153), it is interesting to note how her plan, combined with evidence from a geophysical survey (Ecclestone 2004), reveals an enclosure of similar form and size to that at Duntisbourne Grove (see Figure 24.11). Overall, it is impossible to determine from this evidence the nature of activity but that a Late Iron Age settlement existed in the Minchinhampton-Rodborough area seems likely, even if most of it has been destroyed or reworked in later centuries. The placement of a Late Iron Age centre close to the Frome Valley, which is likely to have been a major routeway into the Cotswolds and which shows hints of long-distance exchange (Moore 2006: 209), would be logical. Indeed, it shares a similar topographical location to Bagendon, controlling movement through the Cotswolds (see Chapter 20 and 24).

Another candidate for a Late Iron Age dyke complex has been argued for at High Brotheridge (Harding 1977; Wingham 1985) although this has been disputed (Darvill 2010: 228). The presence of a Late Iron Age centre in this general area would go some way to explaining the presence of the apparently high-status burials at Birdlip (Staelens 1982), although they are located 3 km away. Some of the earthworks here do appear to be Iron Age, although the cross dyke at Coopers Hill is perhaps more likely to be Early Iron Age. No Late Iron Age finds have been recorded from the area and, as Tim Darvill (2010: 228) has rightly suggested, not all of these earthworks appear to be related. More promising in this area perhaps is evidence of pre-Roman occupation close to Kingsholm Roman fort which Henry Hurst (1999a: 119) suggested represented a 'major' Iron Age settlement. His suggestion was based primarily on the presence of Late Iron Age ceramics and a significant coin assemblage, suggesting occupation of the immediate pre-Roman conquest period. Late Iron Age settlement in the area is, however, enigmatic, much of it unpublished, and known from small investigations like those at Sandhurst Lane (Greatorex 1989). Sandhurst Lane has been interpreted as an area of ritual or market activity but this, and the rest of the pre-Roman activity around Kingsholm, remains hard to characterise, there is certainly no evidence of an enclosure of any kind. The importance of major river crossings as meeting places in the Late Iron Age has been recognised elsewhere (Hingley 2018: 23) even if the evidence for permanent occupation is limited. Many such locations went on to become Roman towns, and this may be the case at Kingsholm. An alternative is that the evidence from Kingsholm merely reflects the picture of a densely occupied Late Iron Age landscape at the time the Roman fort was established and that many of the Iron Age coins might also derive from use by Roman soldiers (Holbrook 2015: 93; see Haselgrove, Chapter 10).

On the opposite side of the Severn, the Roman town of *Ariconium* in Herefordshire also had Late Iron Age antecedents and here a more convincing argument for some form of important social centre can be made. It seems likely to have been a dispersed settlement and had a status perhaps comparable to Bagendon, having produced a large Late Iron Age coin assemblage. The site appears to have been related to iron production and there are indications that it was an important trading centre. Jackson's (2012: 181) comparison of this site, to the Late Iron Age unenclosed agglomeration at Baldock, Hertfordshire (Stead and Rigby 1986) seems appropriate. The lack of a dyke system certainly need not detract from its importance and other potential parallels might also be considered, such as the agglomeration at Braughing, Hertfordshire (Bryant

2007), although the latter is generally probably earlier in date.

Farther afield, other 'tribal' centres have been postulated (Cunliffe 2005: 190), including at Camerton, Worcester, Mildenhall and Bath. Evidence for any of these as major settlements, let alone that they had important socio-political roles is largely circumstantial, based on the assumption that Roman centres were likely to have replaced existing important settlements and that the presence of Late Iron Age coin finds might be indicative of such centres. All, however, such as Camerton, Somerset (Wedlake 1958), show little evidence that they were comparable in form or function to Bagendon. Some may well have been small settlements, others may have been social gatherings places, as perhaps at Bath, but establishing of what exact nature is difficult (Moore 2006: 166).

The possibility of a Late Iron Age focus beneath Cirencester itself has also long been mooted, and even argued, by antiquaries such as Atkyns (1712), Playne (1876: 215) and Beecham (1886), to have been the location of the pre-Roman capital of the *Dobunni*. Such earlier ascriptions seem likely to have been partly influenced by William Camden's (1610) account, which suggested evidence of a pre-Roman settlement here. The current scraps of evidence for Late Iron Age activity are insufficient to convincingly argue that this, rather than Bagendon, was the location of the pre-Roman central place, however. Significant numbers of coins and some features of Late Iron Age date, such as that at Stratton Meadows (BE28; Holbrook 2008b), suggest occupation contemporary with Bagendon, but of what nature is unclear. Geophysics survey of the area around the Late Iron Age finds from Stratton Meadows, as part of this project, may suggest an unenclosed settlement (Chapter 22). A complex of cropmarks (Figure 23.16), a few hundred metres to the south-west of Stratton also indicates trackways and enclosures suggestive of Later Prehistoric settlement, although they are undated. Finds from metal-detecting in this area, including ceramics, coins and a brooch (CCI-650001; CCI-30495; Carol Butler pers. comm.), suggest Middle–Late Iron Age occupation. All of this might be rural settlement, similar to Kingshill North, rather than having any particular special role, but its location here is intriguing.

Suggestion that the Tar Barrows may be of Late Iron Age date, with the town and road situated to avoid existing burial monuments (Reece 2003; Creighton 2006; Holbrook 2008a) is an intriguing one and could be used to support the notion of a pre-Roman centre beneath modern-day Cirencester. The location of Tar Barrows would certainly have some affinities to the situation at Folly Lane and *Verlamion/Verulamium* with a Late Iron Age burial site overlooking a low-lying settlement. The positioning of the Roman town at *Corinium* is very different, however, in the middle of the flood plain, suggesting that both the cross-roads of the Roman roads and town deliberately avoided that area rather than it having anything to do with a pre-Roman centre (Reece 2003). It seems likely, on the basis of significant work done to date, that if a centre equivalent to somewhere like Canterbury or *Verlamion* existed beneath Cirencester, it would have been recognised by now with few Late Iron Age finds from the area despite the amount of archaeological investigation. One issue is that we may be in danger of attempting to place the Bagendon-Cirencester area in too much of a straightjacket of what happened to the south and east at locations like *Verlamion/Verulamium*. The possibility that the Late Iron Age activity around Cirencester was related to Bagendon and that Bagendon was a more dispersed centre is discussed further in Chapter 24.

Just as poorly understood is the relationship between Bagendon and possible centres in the upper Thames Valley. To the south, between Cotswold Community and Ashton Keynes, is a remarkable array of relatively high-status finds. These have normally been interpreted as oddities, heirlooms or reused from elsewhere (see e.g. Booth forthcoming). The possibility that these might instead signify occupation of high-status, or at least communities that were more connected than simple farmsteads, has rarely been considered. The presence of Dressel 1 amphorae at Late Iron Age sites in this area, including Cotswold Community, Cleveland Farm and Latton Lands (Powell *et al.*2009: 70), is intriguing. Dressel 1 is a rarity in this area of Britain and that all were found in settlements in close proximity suggests these represent more than chance reuse. At Cleveland Farm the sherds are from three different vessels, also suggesting they are unlikely to have been one-off oddities (Powell *et al.*2008). There are other unusual finds from this set of settlements, such as a Gaulish Unguiforme brooch of late 1st century BC date from Cotswold Community (Powell *et al.*2010) and a rich collection of pre-conquest brooches from Cleveland Farm (Powell *et al.*2008), which might suggest an unusually well-connected community. Does this imply a process of redistribution of high-status materials to lower status settlements (Biddulph 2010: 167) or something else? Considering that Dressel 1 is uncommon in the region, and that Bagendon seems not to have been a major settlement at the time such amphorae was in circulation, it is hard to determine exactly where this material might have been redistributed from, unless it is a site far to the south or east. Whilst the excavators of the sites in these areas rightly stress that none of them appear to be particularly unusual (e.g. Powell *et al.*2010: 109) the material culture consumed may imply either that a more high-status focus exists in the vicinity,

Figure 23.16. Aerial photograph of enclosures and trackways to the west of Stratton Meadows, taken in 1999 (NMR 18419/06 SP 0102/42 12 JUL 1999. © Crown Copyright, Historic England).

but has yet to be excavated (for example the complex of banjo enclosures at Ashton Keynes: Figure 23.7). Alternatively, we might consider the possibility that an important centre could consist of dispersed activity that appears relatively unspectacular. It is possible, for example, that rather than assume that enclosures such as that at Cotswold Community operated as independent farmsteads, they may have been part of a larger social entities, where status was predominantly expressed through numbers of animals rather than material culture. In this respect parallels might exist in the dispersed banjo complexes such as Gussage Cow Down, Dorset, which has also produced imported amphorae and other Late Iron Age finds (Figure 24.18; Corney 1989; Moore 2012). An alternative is that this material merely reflects that these settlements were located on what was already an important routeway between the south coast, where Dressel 1 amphorae and interaction with Gaul was more common, and communities in central Britain.

The Middle to Late Iron Age transition

The Late Iron Age clearly witnessed significant transformations in settlement patterns, but what does this signify in terms of overall population and social organisation in the final decades of the Iron Age? Elsewhere in southern Britain there have been claims of a decline in settlement in the Late Iron Age. Sealey (2016), for example, has argued, on the basis of fewer houses, that there was a significant population decline in the 1st century BC in Essex. For the Severn Valley, Cotswolds and Thames Valley, when the short duration of the Late Iron Age is taken into account, assessment of overall settlement numbers suggests the opposite, an apparent increase in settlement (Figures 23.10 and 23.11). This is the case even after removing all Late Iron Age sites identifiable only from stray finds, some of which, such as Marston Meysey (BE268-276), almost certainly denote occupation. This reflects a broader pattern across the central belt of the English midlands, witnessed by the Roman rural settlement project (Smith *et al.*2016: 148).

Considering the vagaries of ceramic dating and relatively limited application of radiocarbon dates by most investigations some caution needs to be exercised, however, in regarding this as necessarily a Late Iron Age settlement increase. Paul Sealey's (2016) period of decline (125-25 BC) covers much of what would be regarded in this region as including parts of the Middle Iron Age and would therefore be less obvious within our chronological frameworks. In addition, the number of Late Iron Age settlements in this survey may have been bolstered by developer-funded sites where vague chronological identifiers such as 'Late Iron Age/Early Roman' have been used, but where most of the occupation is actually early Roman. Accepting these issues, as discussed earlier, the fact that, conversely, Late Iron Age phases may also have been missed on some sites, because of continued use of 'Middle Iron Age' ceramic forms, suggests this is unlikely to be a factor.

We may also need to take issue with one of Sealey's (2016) pieces of evidence for the apparent decline of the population in the Late Iron Age: the lack of houses of this date. A lack of Late Iron Age houses is also true to an extent in this region. This is, however, almost certainly due largely to them being harder to detect archaeologically. On a number of sites of Late Iron Age date in the Severn Valley and Thames Valley houses are only known from fragments of drip-gullies, often without any associated postholes (e.g. Hart and Massey 2018; Stansbie *et al.*2008). This has suggested to many that houses at this time may well have been turf- or cob-built (Thomas *et al.*2003: 72), leaving little in the way of subsurface traces. It is worth considering that, if this was the case, in those areas where drainage gullies were not required (for example on the well-drained Cotswolds Hills) such houses will be extremely hard to detect. Indeed, this is likely to be a problem at Bagendon itself where, despite recognising intensive Late Iron Age activity, we have struggled to locate house structures (see Chapter 4). Indeed, many of the features which make Middle Iron Age settlements so distinctive (post-built roundhouses, storage pits) appear to become increasingly rare in the Late Iron Age (Hart *et al.* 2016a: 204). Overall, the evidence suggests, rather than a decline, that there was a transformation of the landscape over the 1st century BC and 1st century AD which led to many sites being abandoned or moving to different locations, and new settlements emerging.

The overall picture is a complex one, but there is sufficient evidence to suggest that the period between *c.* 100 BC and mid-1st century AD was relatively turbulent. Numerous sites appear to show a transformation at the end of the Middle Iron Age, perhaps at some point in the 1st century BC, with more showing changes in the early-mid 1st century AD. The problems of chronology, discussed above, and the absence of wheel-thrown wares in the Cotswolds and Thames Valley until at least the early 1st century AD (Booth *et al.*2007: 33) mean that identifying the presence or absence of Late Iron Age phases is problematic. None-the-less, it seems likely that the more widespread use of Savernake and Early Severn Valley wares by the mid-1st century AD gives an indication of whether sites were still occupied at this time. On this basis, there appears to have been the widespread abandonment of many Middle Iron Age settlements in the early 1st century AD, as seen at Cutham and Scrubditch, pointing to a widespread settlement dislocation.

Reasons for settlement change

Even if the picture above represents settlements moving location, rather than their complete abandonment, it still begs the question as to why. The picture from the Thames Valley may be instructive; here a process of increased enclosure took place with creation of what are termed complex farmsteads (Figure 23.13). At Thornhill Farm the settlement was reconfigured with the creation of smaller, well defined enclosures, apparently marking an increasing emphasis on provision for livestock. Changes elsewhere might mark similar transformations in the economic basis of settlements.

The reasons for these transformations may largely relate to a changing agricultural regime. The period between the early 1st century and 2nd century AD has been claimed as one of agricultural intensification, with an increased focus on cattle rearing and adoption of hay-meadows (Lambrick *et al.* 2009: 49). At Thornhill a greater focus on cattle farming and radical changes in early 1st century AD may suggest increased specialisation (Jennings *et al.* 2004: 147). A greater interconnectedness of settlements, with the majority of cereal crops coming from other settlements may also have been the case, enabling increased specialisation (Booth *et al.*2007: 278).

The changes in the upper Thames Valley may relate to changing farming practices across a much larger region. The Late Iron Age appears to have been a period of increased alluviation in the Thames Valley (e.g. Jennings *et al.*2004: 155), with it argued that increased arable farming on the Cotswolds was leading to greater erosion and run off with the result of more flooding (Lambrick *et al.* 2009: 33). It is not entirely clear whether this was just the immediate soils adjacent to the upper Thames Valley or also the higher ground of the Cotswolds (Lambrick *et al.*2009: 34). The Bagendon complex aside, there is relatively little evidence for a rash of Late Iron Age sites on the Cotswolds, although new sites, such as that at Highfield, Tetbury are beginning to change this picture and there are hints from the Bagendon environmental data of a more open landscape in the later phases (O'Brien and Elliott in Chapter 18). If there was an intensification of arable across the region this is likely to have created a need for more traction animals for cultivation, which in turn might lead to a greater focus on pastoralism in upper Thames Valley to supply them (Jennings *et al.*2004: 155). At present evidence that communities in the upper Thames Valley focused more on pastoral farming and this might have been part of exchange with other communities remains relatively speculative, but the coincidence with these developments and Bagendon transformation suggests perhaps a connection.

The transformation in agricultural regimes cannot be divorced from wider social change. The more bounded nature of settlements in the Thames Valley constructed in the early 1st century AD has been suggested as indications of displays of status at a time of stress (e.g. Marshall 2004; Powell *et al.* 2010: 117). Some have even regarded this as a period of warfare in the region due to the 'destabilizing influence' of external groups identified as the 'Belgae' (Weston and Hurst 2013: 179). Explaining such changes as related to an increase in warfare or the influence of external groups (let alone the existence of the 'Belgae') is problematic. A move to increased boundedness had begun far earlier, in the Middle Iron Age and was part of a longer-term development. Some form of realignment of the landscape, with increased dislocation and specialism for some settlements, does however seem to indicate changing power relations. The apparent interconnectedness of communities in the upper Thames Valley, perhaps also with specialist use of parts of the Cotswolds suggests that, as early as the 1st century BC, communities were operating at a larger social scale than merely the local farmstead. It is hard to dismiss the coincidence of the changes taking place around the end of the 1st century BC and beginning of the 1st century AD with appearance of the dyke complex at Bagendon around this time. That some transformations may have occurred in relation to such a settlement around the beginning of the 1st millennium BC does seem likely however (Lodwick 2017) as certain groups needed supply from elsewhere. The social changes, however, perhaps in creating greater surplus for exchange and tribute to regional elites seem a possibility.

The impact of Roman conquest and the early Roman province

It is clear from the evidence above that major transformations were already underway by the 1st century AD. So, what impact did the Roman conquest have on the region? As discussed for Bagendon itself (Chapter 4), attempting to distinguish between a pre- and post-Roman conquest occupation is often problematic for most settlements. This in itself may be instructive, however, supporting an impression from other evidence that for most rural communities the events of the AD 40s had little impact.

Military impact and road system

Following the capture of *Camulodunum*, and the subjugation of the *Catuvellauni* (probably focused on *Verlamion,* St. Albans), Roman forces campaigned towards the west under Aulus Plautius. It seems likely that the communities around Bagendon, possibly known as the *Dobunni*, were perhaps already clients of the *Catuvellauni* (see Chapter 24) and did not oppose this advance. Campaigns against the *Silures*, in south Wales, appear to have continued in the late AD 40s, and are likely to have led to the earliest garrisoning of this area with forts (Mattingly 2006: 101). A Roman Legionary fort at Alchester, Oxfordshire, was seemingly constructed in AD 43-44 (Sauer 2001) and appears to have marked control of the territory as the army moved westward.

As discussed in Chapter 4, it has been suggested that at some point a Roman cavalry fort was established at Leaholme, Cirencester (Wacher and McWirr 1982; Wacher 1974: 30), although the chronology and even existence of this fort remain controversial (see Chapter 14; Holbrook 2008a: 311). If it existed at all, the Leaholme fort seems likely to relate to military incursions into Wales (Darvill and Holbrook 1994: 53-55) rather than controlling the landscape around Bagendon. Any military presence in the vicinity also seems likely to have been to support the community at Bagendon, in similar fashion perhaps to those close to such centres elsewhere, like *Camulodunum* (Creighton 2006: 63; Holbrook 2008a). Indeed, the fort's location, situated discreetly away from activity at Bagendon, suggests little desire to dominate activities. Meanwhile, the small number of forts in the wider region suggest the army had little need to control the local population (Neil Holbrook pers. comm.).

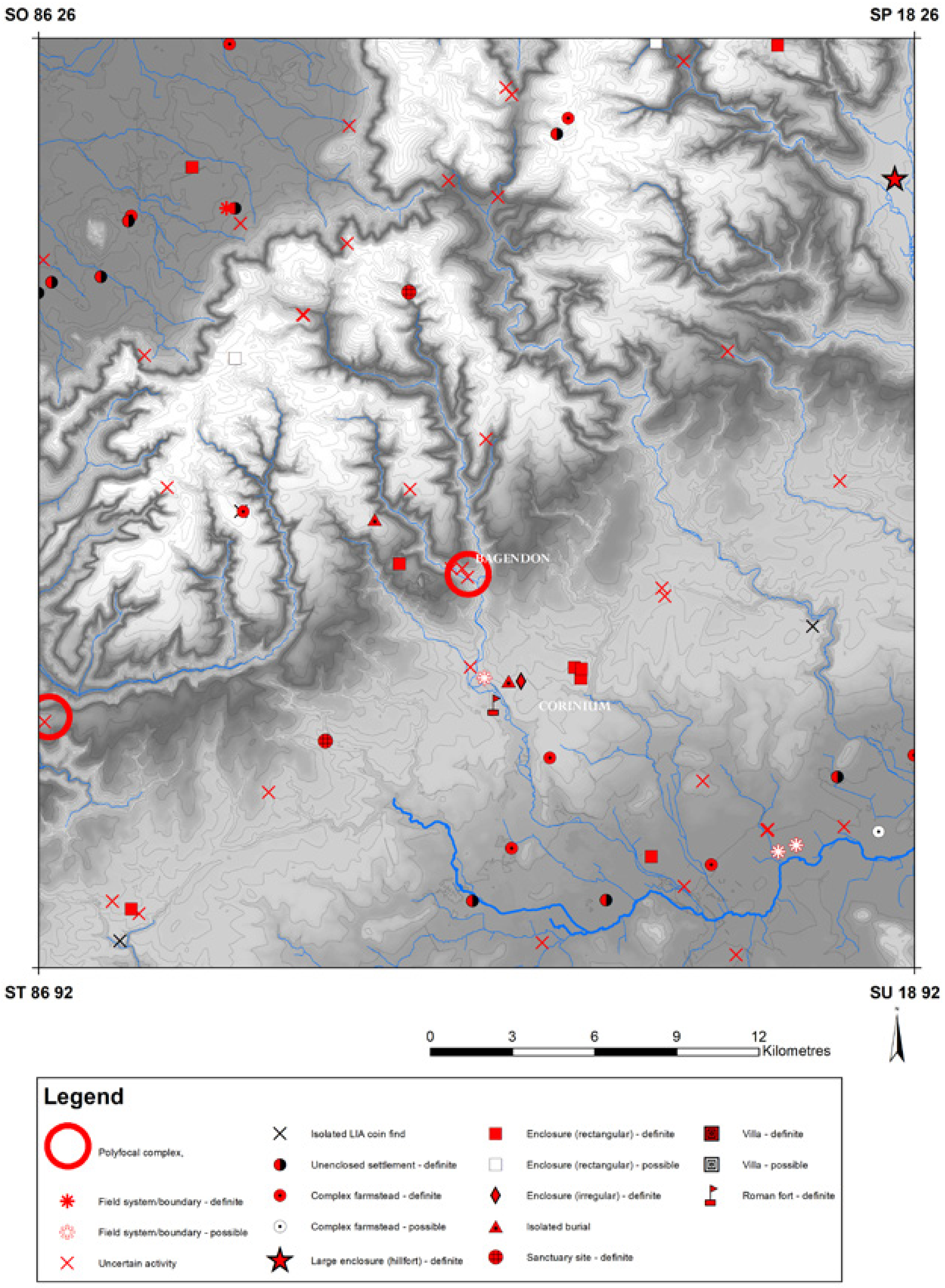

Figure 23.17. Distribution of early Roman (AD 50-75) settlement in the detailed study area.

More certainly, a Roman, possibly vexillation, fort was established at Kingsholm on the crossing point of the River Severn and occupied between around *c*. AD 50-66 (Holbrook 2008a: 311). It has been speculated, based on a relatively early cremation burial, that an additional early fort may have been situated in the Barnwood area, although this seems less likely (Brindle *et al.*2018: 172). The Roman road system appears to have been laid out in the AD 40s or AD 50s (Mudd *et al.*1999: 278; Hargreaves in Holbrook 1998) but only constructed as metalled roads within the following two decades (Brindle *et al.*2018: 168), certainly by the AD 70s.

The impact of Rome's military campaigns on settlement in this part of Britain appear to have been slight (Figure 23.17; Booth *et al.*2007: 42; Holbrook 2008c: 314). After the conquest many of the pre-existing settlements appear to have continued in occupation with little or no change. Within the main study area approximately 65% of early 1st century AD sites display evidence of activity between AD 50-75. Around Salmonsbury for example, areas of Roman occupation suggest that, although the Roman small town shifted occupation to the north-west, activity effectively continued from the 1st century AD with probably little break in occupation (Timby 1998). A similar picture seems evident in the Severn Valley. Around Gloucester, Late Iron Age settlements show little sign of disruption by the emergence of the Roman fort at Kingsholm, with continuity of roundhouses until the 2nd century AD, for example at Brockworth (BE178). Evidence from the Thames Valley also suggests relative stability over the 1st century AD (Booth *et al.*2007: 42), many settlements, such as Cleveland Farm, Thornhill Farm, Coln Farm, and Claydon Pike, demonstrating continuity from the Late Iron Age to late 1st century AD.

A few sites show abandonment around the time of the Roman conquest or soon after, but these might relate to particular trajectories. Within the Bagendon complex in particular it seems the Middle Duntisbourne and Duntisbourne Grove enclosures were abandoned at the time of, or just before, the Roman road of Ermin street was constructed, perhaps in the AD 60s (see Chapter 4; Mudd *et al.*1999: 85). It seems, however, their abandonment was part of an overall reconfiguring of the Bagendon complex in the AD 60s or AD 70s, rather than simply due to the building of the Roman road.

Another settlement which shows disruption relatively soon after the conquest is Kingshill North, close to Cirencester (Biddulph and Welsh 2010), which was abandoned by the third-quarter of the 1st century AD. Its abandonment seems to have taken place before *Corinium* became a meaningful urban centre (Biddulph and Welsh 2010: 109). At the Bowsings too Marshall (2004: 18) argues that the settlement was abandoned in the mid-late 1st century AD, based on a radiocarbon date from the main enclosure ditch. It is not clear if this was deliberate slighting, as Marshall (2004) argues, or simply that the enclosure was no longer required; 1st and 2nd century AD material from the vicinity suggests occupation continued nearby. Elsewhere on the Cotswolds, possible re-establishment of a settlement is evident at Birdlip (Parry 1998) whilst other sites appear to show continuity, even if they witnessed remodelling, for example at Huntsman's Quarry (Marshall 2004). Most obvious is evidence from The Ditches enclosure, part of the Bagendon complex. From probable 1st century BC origins (Trow 1988a; Trow *et al.*2009), it shows signs of continued occupation and elaboration through the Late Iron Age culminating with construction of an exceptionally early Roman villa in the AD 70s or 80s.

Even the establishment of the Roman town in the late 1st century AD seems to have had little impact on the rural population (Figure 23.18). The abandonment of Bagendon in the AD 60s or 70s has been argued as the movement of the population to the emerging vicus around the Roman fort at Cirencester (Wacher 1974: 31), although the existence of such a vicus has been disputed (Holbrook 2008a: 312). The establishment of something approaching an urban centre at *Corinium* appears to have occurred no earlier than the Flavian period (Darvill and Holbrook 1994: 55). The concurrence between this and Bagendon's probable abandonment still seems significant. Although there appears to be a relatively small population at Cirencester in the second half of the 1st century AD (Holbrook 2008a: 313), the number of permanent residents within the Bagendon complex might also have been limited (see Chapter 4). Thus, the transfer may have been more one of role, the artisanal and exchange focus moving from Bagendon to *Corinium* but did not mark a significant population shift. The reasons for this might have been political, but also reflected the better siting of the town and proximity to the Roman road system. The relocation of populations and activities from Late Iron Age *oppida* to newly founded towns nearby was a common process of Roman reorganisation in the provinces and is seen as far apart as the movement from Stanwick to Aldborough, in northern England, and from Bibracte to Autun, in Gaul. Overall, it seems likely that the Roman conquest had relatively little direct impact on the countryside. If the region was indeed regarded as friendly to Roman advance, much of the early road and military infrastructure may have had little impact in changing the countryside of the southern Cotswolds and upper Thames Valley.

Second century AD transformation

For most of the region it was the early 2nd century AD when significant transformations in settlement

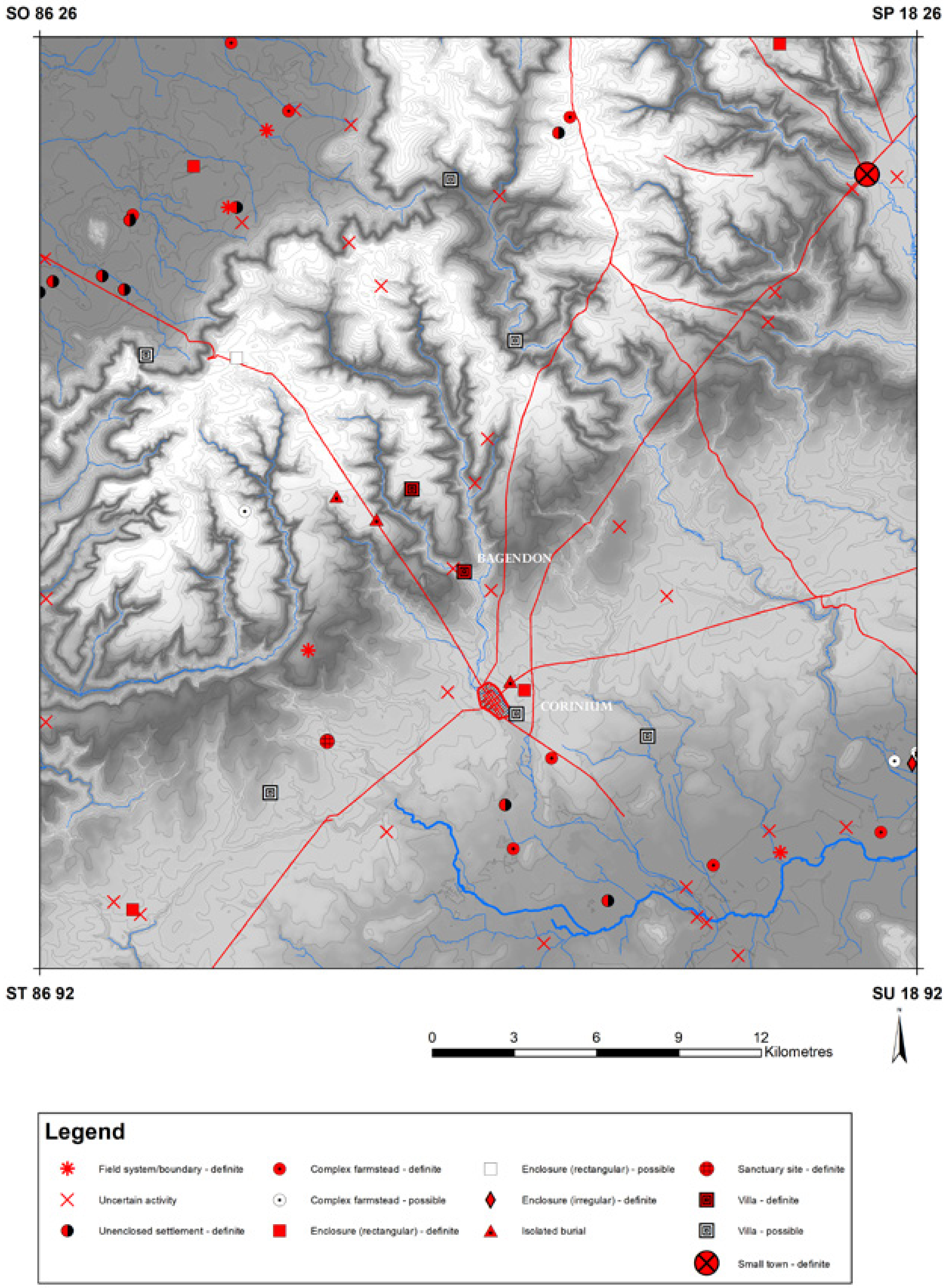

Figure 23.18. Distribution of late 1st century AD settlement in the detailed study area.

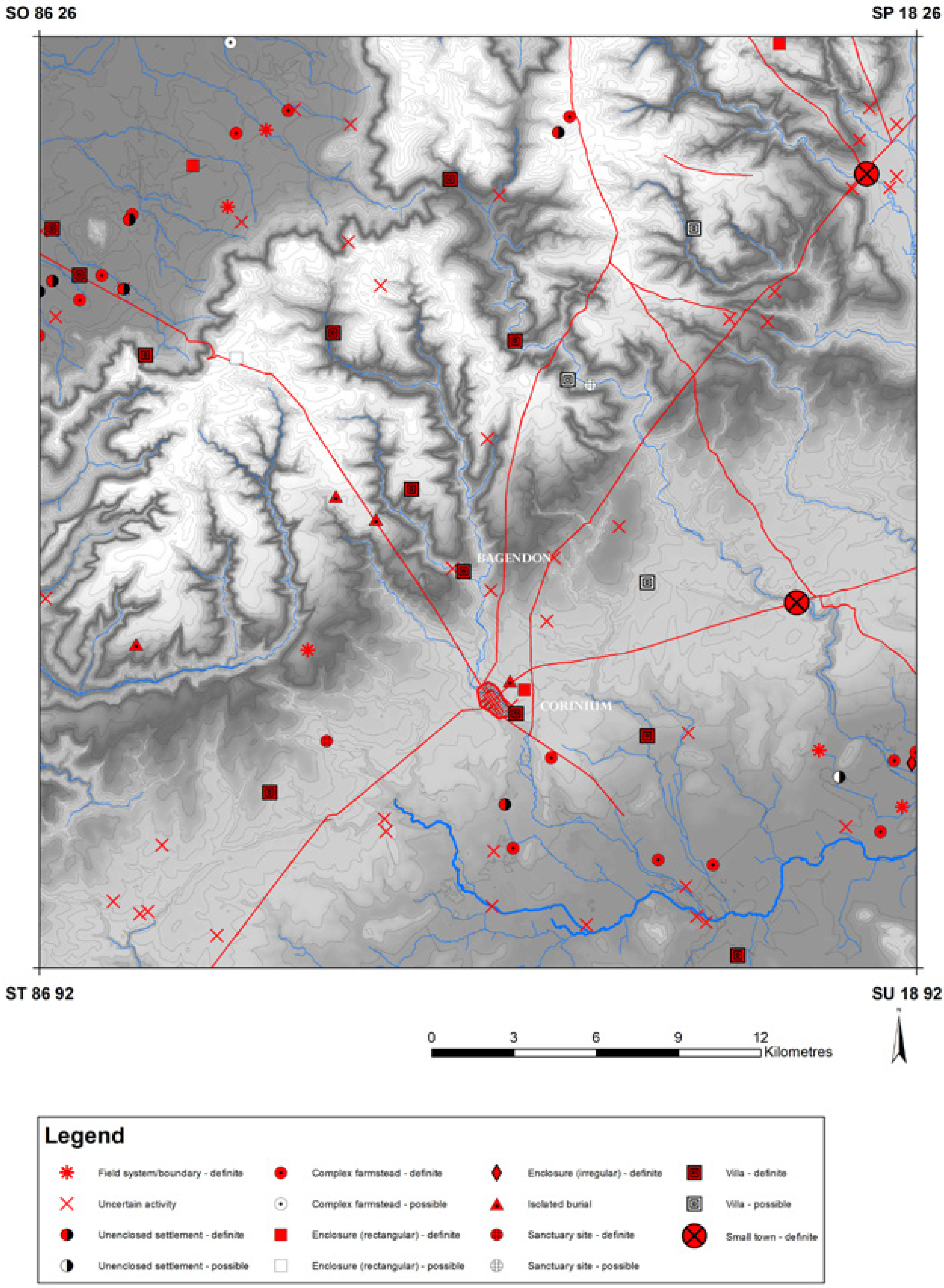

Figure 23.19. Distribution of early 2nd century AD settlement in the detailed study area.

appear to have taken place (Figure 23.19). Although the chronological chart of sites from this period (Figure 23.11) seems to show a slight drop in the frequency of sites from this period, in contrast to the picture evident in the Roman rural settlement project (Smith *et al.*2016), this is unlikely to be a real decline, rather it reflects the large number of developer funded sites for which no dating other than 'Roman' is currently available, and therefore have not been included in the detailed study. The map here is likely to be a significant under-estimate of the density of settlement.

That the period was also one of transition is most noticeable in the upper Thames Valley (Booth *et al.*2007: 50). Here, sites such as Roughground Farm witnessed the building of a villa and there was reorganisation at others, such as Neigh Bridge and Cotswold Community. There are also substantial numbers of sites occupied in the Late Iron Age and early Roman period which were abandoned in the 2nd century AD (Booth *et al.* 2007: 43). This change varies from abandonment (as at Thornhill Farm, Barton Court and Gravelly Guy) to reorganisation of the form and structure of settlements, as at Claydon Pike, where occupation was remodelled with the construction of an estate, possibly based on hay-meadows (Miles *et al.*2007). Elsewhere, new settlements emerged, as at Horcott Quarry (BE87:1) where a complex farmstead developed in the early 2nd century AD (Hayden *et al.*2017: 31).

Such upheavals are less clear on the Cotswolds. This may partly be because of a relative lack of detailed fieldwork compared to the Thames Valley. However, many of the Roman sites investigated here do appear to have emerged in the 2nd century AD, such as the settlement at Birdlip Quarry (Mudd *et al.*1999). Other existing settlements, such as Baker's Farm (BE45), appear to have been remodelled at this time (Hart *et al.*2016a: 93). Nearer to Bagendon, a stone building at Kingshill South was constructed around AD 120 (Simmonds *et al.*2018), contemporary perhaps with the construction of the main stone buildings at Black Grove (Chapter 5). Whilst a rash of 2nd century AD villas are not evident on the Gloucestershire Cotswolds, the earliest date of many is uncertain (Holbrook 2008a: 318) and those that do occur appear to be part of a wider settlement transformation. That other villas, in addition to the The Ditches, had early phases of activity and represent continuity, in some form, from Iron Age settlements seems probable. Waltham (Whittington) and Withington, for example, are two examples with tentative evidence of continuity from the Late Iron Age (Trow *et al.* 2009: 317). Holbrook (2008a: 318), however, has pointed out the evidence is often limited and does not imply a rash of early Roman villas comparable to that seen around *Verulamium* (although see Chapter 5). Early villas, such as The Ditches were remodelled around this time, being transformed into a corridor house similar to that at Kingshill South, and small villas also increased in the Thames Valley (Smith in Miles *et al.* 2007: 378). It is also possible that others existed but the early phases of some villas is not well understood because of the ways they were investigated in the 19th century, as for example at Chedworth (Esmonde-Cleary 2013), and because some witnessed major expansions in the 3rd and 4th century AD. Interestingly, The Ditches appears to have gone into decline in the later 2nd century AD and never developed into the grand Cotswold villas seen elsewhere, although there was clearly occupation in the vicinity into the 3rd and 4th centuries AD (Trow *et al.*2009).

Transformations in the landscape at this time were also witnessed in the Severn Valley with newly established sites, such as Longdon Marsh, remodelled in the 2nd century AD (Simmonds *et al.*2010). At Greet Road, Winchcombe, a Late Iron Age and early Roman settlement, which had emerged from a Middle Iron Age settlement, was redeveloped in the 2nd century AD with the construction of a small villa (Nichols 2016: 151). A similar sequence has been noted along the Carrant Brook with older settlements abandoned and new settlements established (Coleman *et al.*2006: 92). Further north, around Tewkesbury the enclosed settlements farming the Severn floodplains appear to have emerged in the Late Iron Age and continued through the Roman period (Holbrook 2006). Where large scale investigation is taking place, for example at Elms Park, near Cheltenham, mapping the potential of shifting settlement as in the upper Thames Valley is becoming increasingly possible. Here, the Late Iron Age/early Roman settlements focus may have moved *c.* 1 km to the south. At Quedgeley settlement and landscape appear to have been reconfigured at some point in the early Roman period (probably the late 1st or early 2nd century AD) replacing an unenclosed settlement with a double-ditched enclosure, interpreted by the excavators as possibly of ritual nature (Hart and Massey 2018). To the east of Gloucester, at Link Road (BE72:2; Thomas *et al.*2003: 74) and Arle Court (BE79), existing Late Iron Age settlements appear to have been reconfigured or shifted (Cuttler 2010). At many of these recently examined sites the chronological phasing is relatively vague but supports the impression of changes in the 2nd century AD. As has been noted for early villas on the Oxfordshire Cotswolds, some settlements appear to have been largely unaffected by the dislocations and transformations of settlement elsewhere, however (Booth *et al.*2007: 50).

The date for the 2nd century AD transformation has been narrowed down in the Thames Valley to around AD 125-150 (Booth *et al.* 2007: 52). Booth argues these changes marked social or political changes, the result of a relatively sudden reallocation of landholding which was possibly centrally directed. This may, in part, relate to the urban expansion of centres such as *Corinium* with the town expanding significantly in the early 2nd century AD (Holbrook 2008c: 320). It is now clear (Smith *et al.*2016: 410-414) that this regional picture was part of a much wider disruption and general expansion in settlement across various parts of Britain and as far afield as the near continent. By this time then the region was clearly subject to wider, Empire-scale forces of change.

The focus of discussion in this volume is the Iron Age and early Roman context for Bagendon, but brief mention should be made of the context for Bagendon in the late Roman and early medieval period. As discussed in Chapter 5, the apparent decline of the villas in the Bagendon areas in the later Roman period contrast the rise in palatial villas farther afield, at sites like Chedworth (Esmonde-Cleary 2013). The apparent lack of large villas in the Churn Valley might also be significant (Neil Holbrook pers. comm.), although how much such an absence relates to our relatively limited understanding of the villas at Combend, Stancombe and Coberley, compared to those in the north Cotswolds is worth considering. It is clear that communities remained at The Ditches and Black Grove villas well into the 4th century AD, but at both they seem to be less-prosperous farms than they once had been; why the fortunes of these communities had declined remains an enigma.

The difficult nature of understanding activity in Gloucestershire in the 5th and 6th centuries AD has been emphasised (Holbrook 2006; Reynolds 2006). Cirencester appears to have remained an important central place in the post-Roman era at a time of increasing influence from the Germanic world. The nature of settlement in the Bagendon area across this period is extremely difficult to define. The archaeological investigations undertaken as part of this project provide intriguing hints of Anglo-Saxon activity, at Cutham for instance (see Chapter 3). These possible postholes and ceramics might relate to Black Grove villa in similar fashion to activity associated with some villas elsewhere in the region, such as Frocester (Price 2000). The evidence is far too limited to say much about such a connection and simplistic ideas that these settlements simply continued have been challenged (Reynolds 2006: 134). Alongside hints that the present-day church had Anglo-Saxon origins (Rees 1932), the early Medieval development of the Bagendon landscape remains opaque.

Conclusions

Assessment of the wider landscape indicates that Bagendon's settlement reflects many of the longer-term trajectories of change. The emergence of enclosures at Cutham and Scrubditch was part of a widescale expansion of settlement and exploitation of the landscape in the Middle Iron Age, between the 4th and 2nd century BC. Similarly, transformations in the early 1st century AD coincided with a wider dislocation of settlement. Meanwhile, the appearance of Roman villas was part of settlement change in the early 2nd century AD. Elements of Bagendon's story clearly stand out as distinctive, however, most notably the narrow flourish of activity in the valley and at Duntisbourne in the early–mid 1st century AD. The extent to which Bagendon's developments prior to the conquest were part of, or even the cause of, the changes evident in the Late Iron Age requires greater understanding of the role of the complex at this time, a topic returned to in the next chapter.

Overall, the picture of landscape change in the region (Figure 23.10 and 23.11) and its trajectory can be regarded as a long-term process, probably related to an increasing population's impact on the landscape. It is likely, however, that such a model obscures a more complex picture of landscape change and is largely a product of our ill-defined chronologies. For example, the apparent increase in settlement between the Middle and Late Iron Age may be part of a more nuanced process than a simple pattern of exponential growth. A picture of steady settlement increase may well mask, in Annales terms (Knapp 1992), the *événements* within these landscapes which may have resulted in some of these transformations, which were themselves in reality more rapid, punctuating more stable settlement patterns (Moore 2006: 216). As Bayesian statistics increasingly allow for more refined, site-based and regional chronologies is it possible that the short-term nature of some of these transformations will become evident (cf. Hamilton and Haselgrove 2019).

Despite the lack of nuance in this model, existing evidence points to two periods of relatively short landscape transformation, although these may have taken decades and been evident at different times in different areas. The first was around the 4th-3rd century BC represented by increased enclosing of settlements, echoed in the appearance of the enclosure at Cutham and Scrubditch at Bagendon. This appears to have been part of a much wider transformation witnessed across much of Britain, from the south-west Midlands to south-east Scotland. It is possible that this relates to a climatic upswing from around 400 BC onward (Bevan *et al.*2017). The chronological resolution of this transformation may be more complex, perhaps both a longer process of increasing enclosure and/or one that occurs closer to 200 BC than 400 BC (Hamilton and Haselgrove 2019).

The second transformation appears to have taken place between the Middle and Late Iron Age. Poor chronologies mean the date of this transformation is harder to refine but appears to have occurred around the end of the 1st century BC and beginning of the 1st century AD, with Bagendon emerging as part of this process. That this change occurred alongside the appearance of inscribed Western coinage, around the end of the 1st century BC, is potentially significant. Was this the emergence of the *Dobunni* as a social and political entity? Whilst the validity of defining cultural groupings on the basis of coinage is questionable (see Chapter 24), its appearance indicates the increasingly interconnected nature of these communities. Emerging from the exchange networks which had developed over the Middle Iron Age, seen in the distribution of various forms of material culture, coinage connected communities to wider levels of social organisation. How this social-political construct functioned is discussed more in Chapter 24, but the increase in settlement over the Middle and Late Iron Age emphasises the need for society to require greater centralised forms of power. This seems related to a dislocation and transformation of some settlements alongside a move to increased specialisation by some communities, particularly in the Thames Valley.

Where Bagendon differs from wider settlement trajectories is in its abandonment in the late 1st century AD. This emphasises its distinctive socio-political role, one presumably no longer required once Roman urban and political infrastructure began to be established. The emergence of at least one early Roman villa in its bounds, and probably two more, illustrate too that this landscape followed an unusual trajectory. Its role as a focus for elite settlements in the Roman Empire, villas, suggests that within the wider transformations of the late 1st and early 2nd century AD, Bagendon maintained its importance imbuing a memory of power, connecting the provinces new Roman elites to their former centre through the development of the new *civitas*. Bagendon marks not just a belle-weather for wider transformations, but appears to have been driver for some of the changes taking place.

Part VI

Narrative and Discussion

Chapter 24

The Bagendon complex: a biography

Tom Moore

Introduction

The combination of survey and excavations (Figure 1.6) with the wider context of landscape change in the region (Chapter 23) allows for consideration of the development of the Bagendon landscape and an appreciation of how the Late Iron Age phase of activity there fits into a longer trajectory of social change. Drawing on the analyses discussed in previous chapters, this discussion presents a narrative of the changing Bagendon landscape and the roles of the monuments it comprised; it then situates Late Iron Age Bagendon within the context of other such complexes. Bagendon's status as an '*oppidum*' is also evaluated here, questioning whether, in its Late Iron Age incarnation, it may be better described as a 'powerscape'. Finally, this chapter examines Bagendon's development in the context of the early Roman province arguing that it remained a focus of power even after the town of *Corinium* was established.

Origins: the Middle Iron Age landscape

Studies of the Late Iron Age centres (often referred to as *oppida*) have been dominated, perhaps unsurprisingly, by a focus on their role in the Iron Age–Roman transition. Relatively few, however, have undergone an examination of their wider landscape or detailed assessment of their origins, although that is beginning to change (e.g. Creighton and Fry 2016; Garland 2016a; Haselgrove 2016; Barnett and Fulford forthcoming). In the Bagendon landscape an assemblage of lithics from the Mesolithic to Bronze Age suggests activity in the area, although no definitive settlement locations or foci of activity can be determined from these. The recognition from aerial photography of a Neolithic causewayed enclosure and probably related Neolithic hand-axes close to The Ditches at Woodmancote (Trow 1985) may imply, however, that even earlier than the Iron Age this part of the Cotswolds represented a significant focus in the wider landscape. Research on the Bagendon landscape has been most significant, however, in casting new light on the nature of Middle Iron Age activity in the region prior to the 1st century AD. Indeed, it has provided insights on the type of landscape in which the complex emerged, with potentially important implications for understanding developments in the Late Iron Age.

The excavations discussed in Chapter 3 indicate that two banjo-like enclosures were constructed in the Bagendon landscape in the 4th–3rd centuries, probably *c.* 300 BC (Figure 24.1). Evidence that one of the dykes (dyke 'e') was probably first constructed in the 4th or 3rd century BC (Chapter 4), contemporary with these enclosures, supports other indications that the Cutham and Scrubditch enclosures were part of an integrated complex. These developments were part of a much wider transformation in the Severn and Thames Valley landscapes, with growing numbers of settlements emerging at this time, many of them of an increasingly bounded nature (Chapter 23). The environmental evidence gleaned from excavations at Bagendon suggests that these two enclosures were situated in landscape which combined woodland and grazing, perhaps akin to wood-pasture allowing for exploitation though pannage (Chapter 18). Mollusc data from the related enclosures at Middle Duntisbourne and Duntisbourne Grove, as well as from the pre-Roman buried soil at Dartley Bottom, also suggest that the area was relatively wooded in the Middle–Late Iron Age (Robinson 1999: 495–497). Other environmental evidence suggests an emphasis on pasture, rather than arable land (Chapter 19), in the Middle Iron Age and this possibly remained the case into the Late Iron Age. The faunal assemblage from Scrubditch and Cutham, while small, contains hints of relatively specialist agricultural roles, with a higher proportion of pigs at these sites compared to most Iron Age sites in the region (Chapter 16). Such an assemblage could also be consistent with a wooded environment, and reflects similar evidence from Duntisbourne Grove (Powell, in Mudd *et al.* 1999). The potentially wooded nature of the landscape is supported by the unusual carbon isotope results from one of the pigs from the Scrubditch enclosure, which are potentially explained by pannage (allowing pigs to forage in woodlands) (see Chapter 17); although anomalous for the British Iron Age, it echoes medieval results where the practice was common (e.g. Rackham 1980).

Of further significance amongst the evidence from the Middle Iron Age enclosures are traces that animals, including some of the pigs and all the horses, had been moved substantial distances to the area (see Chapters 3 and 17), most probably from Wales,

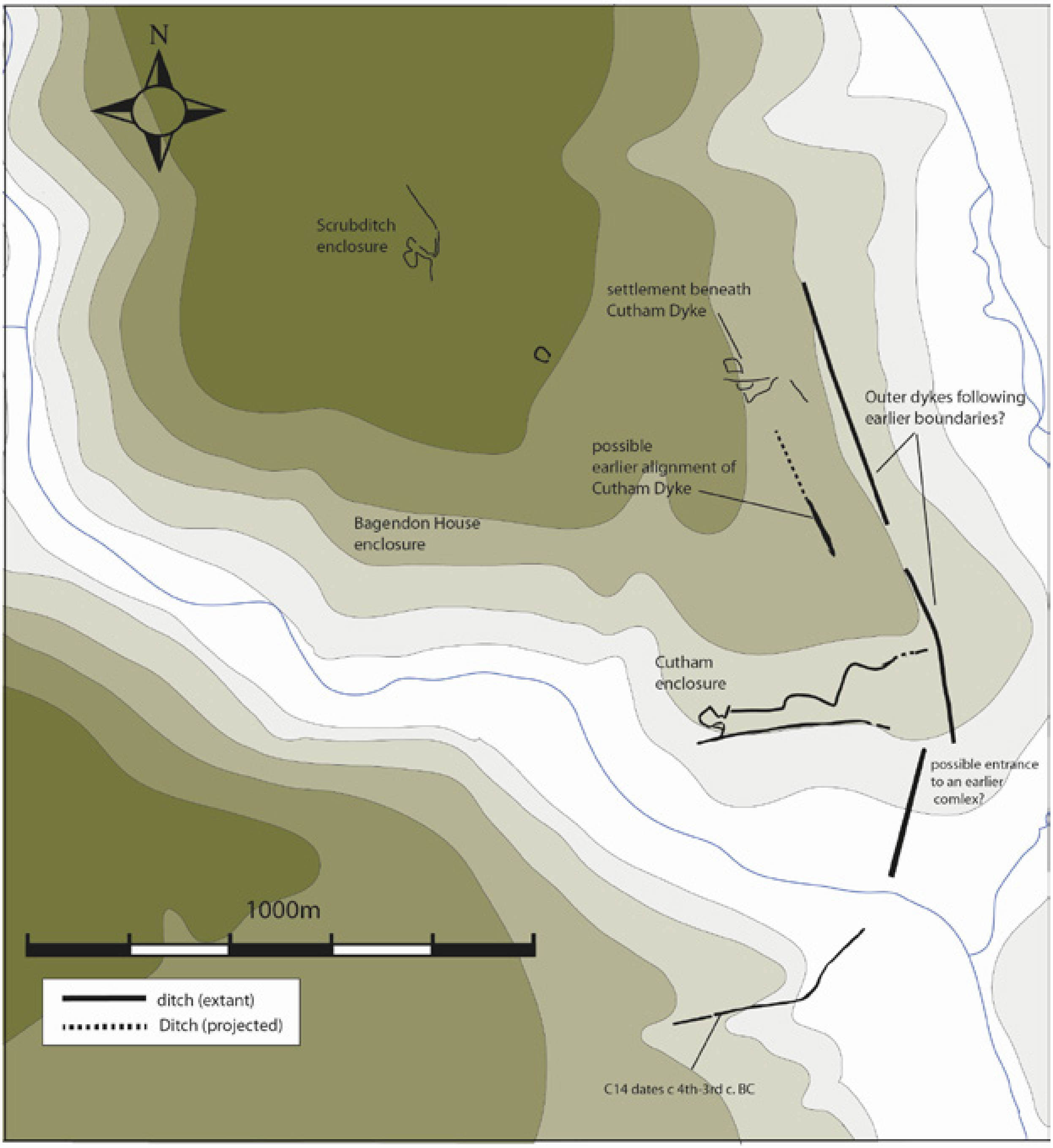

Figure 24.1. Reconstruction of the Bagendon complex in the Middle Iron Age.

although alternatives are possible. Such evidence, combined with the possibility that the female buried in the final, Late Iron Age phase of the enclosure at Cutham (discussed in greater detail below) had also moved from outside the immediate region (probably from west of the Severn), reveals that far from being peripheral, these communities were embedded in a range of long-distance contacts. Thus, this is the first indication from the region that, alongside material culture such as Malvern-derived ceramics, people and animals were moving across the Severn. The occurrence of Malvern ceramics, Droitwich briquetage[1] and quern stones from May Hill near the Forest of Dean is not unusual at sites in the region (Morris 1985, 1994; Moore 2006), although Scrubditch and Cutham are closer to their eastern periphery (see Figure 24.2 and 24.3). The use of Droitwich briquetage in the region, highlighting long-distance networks to obtain salt, had begun at least by the Early Iron Age

[1] The lack of briquetage from Scrubditch and Cutham, as well as The Ditches and Duntisbourne sites, might be significant but may also reflect their relatively small assemblages; Droitwich briquetage did occur in Clifford's material and in possible Late Iron Age contexts at Highgate House (Barclay, in Mudd *et al.* 1999; Morris 1985).

(evident at sites such as Bourton-on-the-Water: Hart *et al.* 2016b). The widespread exchange of ceramics from the Malverns appears to have increased markedly in the Middle Iron Age, however, increasing both in quantity and its distribution network over the later centuries of the millennium (Moore 2007a).

At present, the isotopic results are exceptional for the region; whether other communities were also exchanging animals over long distances remains to be seen, yet while other sampled animals may appear 'local', the isotopic signatures are vague enough to connote movement from elsewhere, either the Cotswolds or from the south-east, such as the Thames Valley. Indeed, some of the environmental evidence (Clegg, in Chapter 16) suggests that animals were being moved from more well-watered areas, such as the upper Thames Valley, to Bagendon. That exchange networks also extended eastwards, as well as westwards, seems highly probable, and is implied by the presence of some imported flint-tempered ceramics at Cutham (Chapter 6), but this is generally harder to prove. Evidence that crops from the Thames Valley did find their way to enclosed settlements on the Cotswolds (Stevens 1996) suggests greater levels of interaction between these areas in the exchange of agricultural resources than

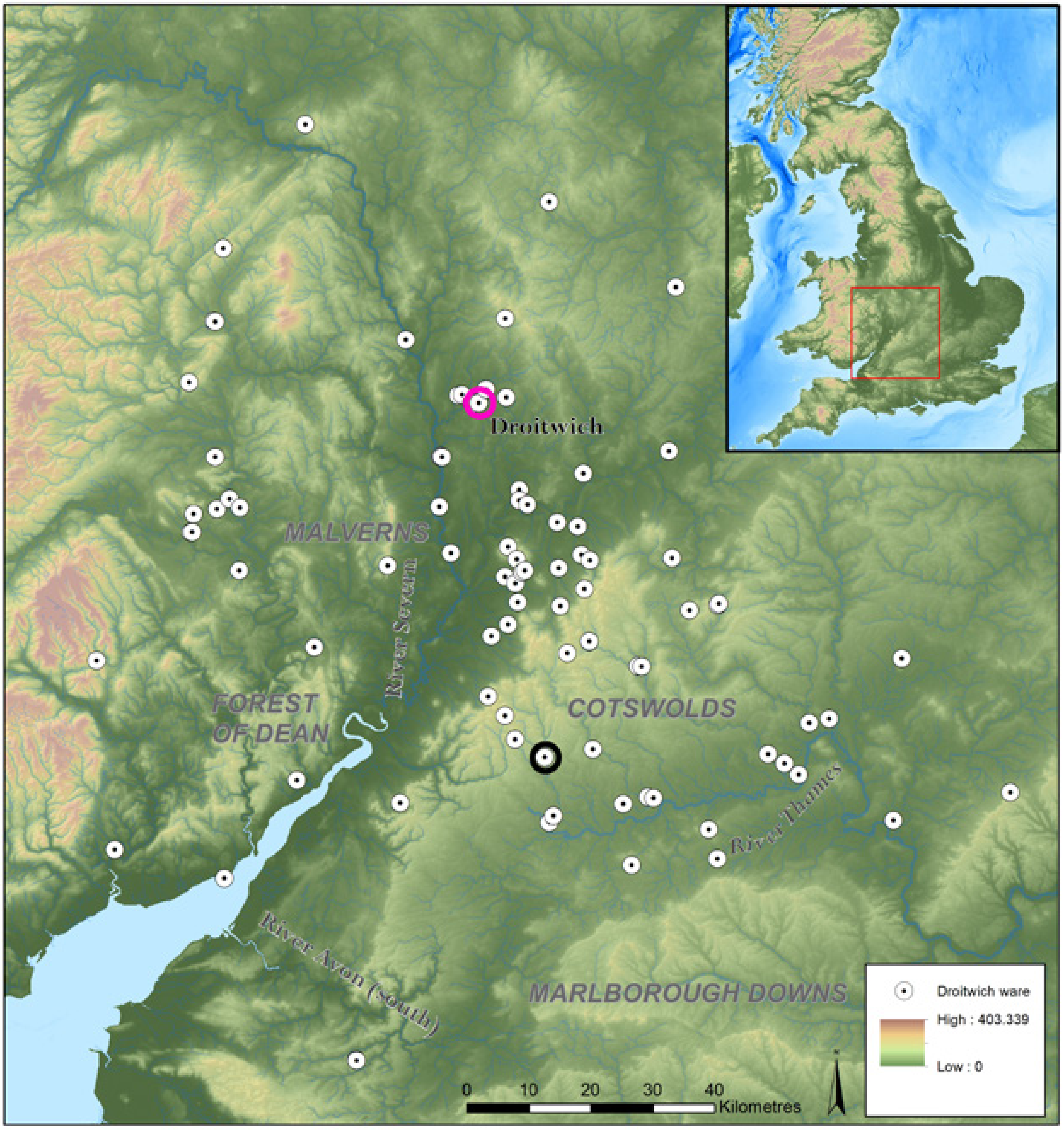

Figure 24.2. Distribution of Droitwich briquetage from Early, Middle and Late Iron Age sites in the Severn Cotswolds (after Moore 2009d and Kinory 2012, with additions) in relation to Bagendon (black circle). (Drawn by Tudor Skinner).

is usually given credence (Moore 2006). Overall, these findings, building on mounting evidence (e.g. Hamilton *et al.* 2019; Madgwick and Mulville 2015), suggest that the movement of animals over significant distances in the Iron Age was far more common than previously recognised.

Defining the exact roles of the enclosures at Scrubditch and Cutham is not an easy task, but, as discussed in Chapter 3, the lack of intercutting features may point to a seasonal role, although the faunal assemblage is unclear on this point (see Chapter 16). If this were the case, it would correspond with evidence from some other banjo-like enclosures (with which the Bagendon examples share affinities), which also appear to have had seasonal occupation (Cunliffe and Poole 2000a: 135; Moore 2012: 410). Meanwhile, the scooped pits identified at both Cutham and Scrubditch are suggestive of some form of cooking practice. The relatively high proportion of pigs from Scrubditch, while possibly indicative of their rearing in woodland (as suggested by the isotopic evidence), could also represent evidence for feasting (see Chapter 16; Grant 1984a). This too reflects evidence from other banjo enclosures where large quantities of pig remains have been similarly interpreted (Cunliffe and Poole 2000a:

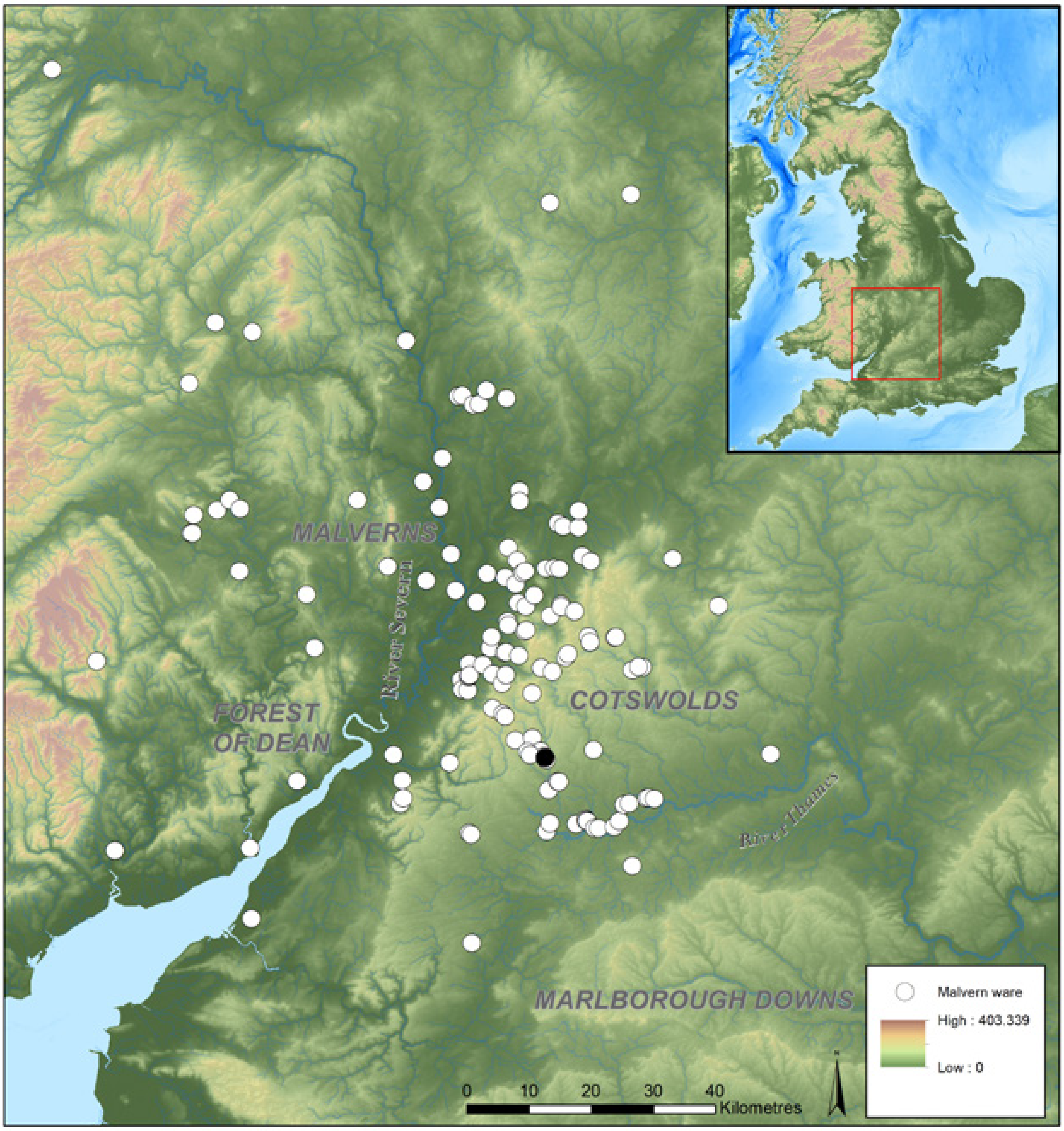

Figure 24.3. Distribution of Malvern derived ceramics from Middle and Late Iron Age sites in the Severn Cotswolds (after Moore 2009d, with additions) in relation to Bagendon (black dot). (Drawn by Tudor Skinner).

Figure 24.4. View from Scrubditch enclosure looking south towards the Marlborough Downs (Photo: Tom Moore).

134). The positioning of the Scrubditch enclosure may also indicate its importance in the wider landscape, as the views from it are noticeably impressive (Figure 24.4, see also Figure 20.4), with the potential to see any fires within the enclosure from significant distances to the south, as far afield as the Marlborough Downs. If, as suggested in Chapter 3, feasting events took place within the enclosures which included communities from the wider region, the ability to see these fires from distant communities might have been important. The assemblage of material from Cutham and Scrubditch is not, however, particularly exceptional in regional terms, although the discovery of two Middle La Tène brooches from the Cutham enclosure (see Chapter 7) is relatively unusual.[2] Overall, the evidence does not necessarily indicate that these settlements were 'high status', but they may have had specialised roles.

The morphology of both enclosures suggests that, at least one of their roles was to divide livestock, and the place of these activities within wider society is significant. Identification that the three horses sampled for isotope analysis from Scrubditch were probably non-local (see Chapter 17) raises important questions about the role of livestock at the enclosure. Relatively little analysis of horse isotopes has been undertaken for Iron Age Britain, but it is instructive that another analysed site, Rooksdown in Hampshire, has also revealed non-local origins for horses, one of which appears to compare closely to an individual from Bagendon (Bendrey *et al.* 2009). Rooksdown also appears banjo-like in form (Bendrey *et al.* 2009), perhaps suggesting the need for reappraisal of the role of such enclosures, especially in light of earlier claims that they were used for horse management (Perry 1986), even if it is clear that this was not their only role (Lang 2016).

Cutham and Scrubditch appear to represent part of a complex of enclosures and linear features (See Figure 24.1). The Middle Iron Age dates from dyke 'e' emphasise that some elements preceded the dyke system and linked the enclosures into a larger landscape management (see Chapters 3 and 4). Such a complex best resembles the uninvestigated (and seemingly larger) complex close to Northleach (see Figure 3.30 and Chapter 3). At both sites, it appears probable that the diversity of enclosures relates to their differing roles within an integrated complex. As discussed in Chapter 3, although the banjo-like enclosures within these complexes have parallels elsewhere in the region, they are uncommon and seemingly embody a distinctive agricultural or social regime.

There are indications that this complex of banjo-like enclosures at Bagendon was not alone within the wider landscape; that its closest comparisons are also situated along the Cotswold/upper Thames Valley interface seems significant (Figure 24.5). The placement of these enclosures with entrances pointing towards adjacent valleys, alongside their antenna ditches, strongly suggests a role for dividing livestock (Moore 2012: 405), as well as creating visually impressive entrances. The location of the Bagendon examples in relatively wooded pasture country might indicate that they were deliberately placed on the margins of what, by the Middle Iron Age, was an intensively farmed landscape

[2] A note of caution should be offered here: although attributed to this location by the PAS, one of the brooches (see Chapter 7) could come from elsewhere in the parish.

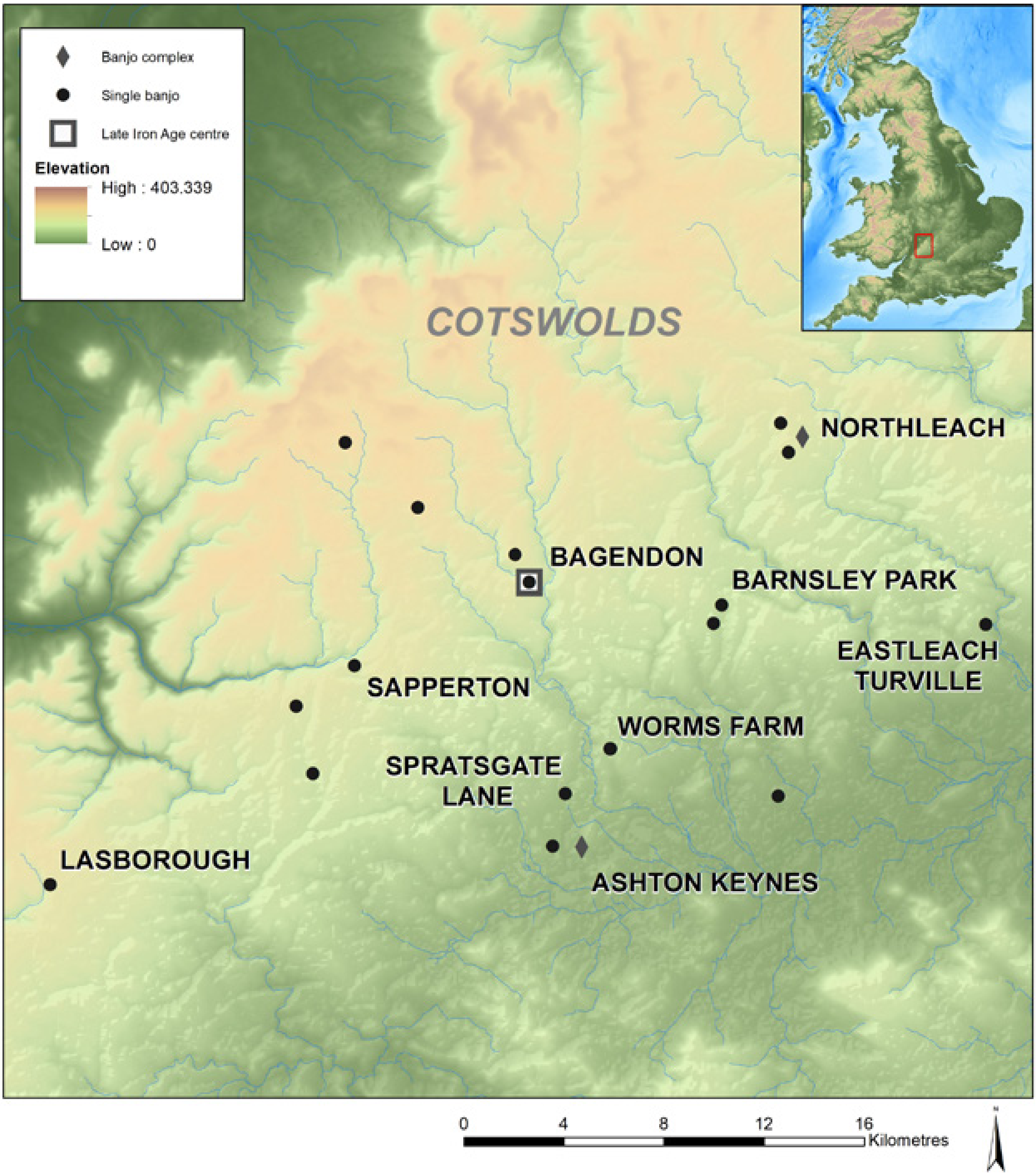

Figure 24.5. Distribution of banjo complexes along Cotswold interface (after Moore 2006, with additions).

to the south in the Thames Valley (see Chapter 23). It would further suggest that such areas contained woodland, necessary for all Iron Age communities in the creation of charcoal and the provision of building materials, but the locations of which are hard to establish.

The extensive evidence from the Bagendon enclosures hence indicates that they were connected to long-distance exchange networks, including the movement of horses. This evidence and their location on the interface between different landscape types therefore suggests that these enclosures potentially had specialist roles distinctive from the enclosed farmsteads to the north and unenclosed settlements to the south. It seems probable then that such locations were deliberately chosen to enable interaction between communities on the Cotswolds and the Thames Valley.

How did this complex of enclosures relate to the organisation of wider society? It is generally accepted that Middle Iron Age society in the wider West

Midlands area shows little evidence for a well-defined hierarchy (Moore 2006, 2007a; Wigley 2007). Although a variety of forms of power probably existed (Moore and González-Álvarez forthcoming), its locus appears to have remained at the household level, primarily articulated through agricultural production (Hill 2011: 253). While increasingly densely settled and relatively intensively used (see Chapter 23), the Middle Iron Age landscape remained one comprised of comparably self-sufficient communities that were, however, intimately connected through exchange networks (Moore 2007a). The dynamic through which households negotiated access to resources seems likely to have been through labour reciprocity (e.g. Moore 2007a), sometimes evident in 'gang-working' by different families or households (Wigley 2007), and possibly through forms of gift exchange (Moore 2007a). Although much of this interaction may have taken place through exchanges of labour at individual farmsteads, the existence of meeting places and neutral locales in the landscape, where negotiation, exchange and social reproduction could take place, seems probable. Hingley (1999) and Oosthuizen (2016), for example, have argued for the presence of areas of the landscape that remained communal, where access to resources could be negotiated. This might have occurred at hillforts, which seem unlikely to have been the residences of elites (cf. Lock 2011: 360), but other locations may also offer viable alternatives; Hingley (1999), for example, has suggested the landscape around the earlier prehistoric monuments at Stanton Harcourt in the Thames Valley, which was seemingly left empty of settlement and arable agriculture, might have been one such location. Elsewhere, locations such as the findspot of the Chiseldon cauldrons (Baldwin and Joy 2017: 116) could represent places in the landscape for feasting, but were not centres of settlement. Identifying such spaces archaeologically is likely to be extremely difficult, but the absence of 'normal' settlement forms may be instructive. Did the enclosures at Bagendon fulfil such a role? They would have allowed access to resources such as woodland, situated away from densely occupied landscapes, while positioned on routeways to enable interaction with communities farther afield. Without fuller examination, this possibility remains speculative, but the significance of such places in Middle Iron Age society may have been underestimated.

From Middle to Late Iron Age: the origins of Late Iron Age centres

Considering the evidence for activity within the Bagendon complex prior to the Late Iron Age, what implications does this have for understanding the locations in which Late Iron Age social centres emerged? The development of *oppida* in Britain has been regarded as key to explaining the social changes between the Middle and Late Iron Ages (Figure 1.1). As hillforts have dominated social models of the Middle Iron Age (Cunliffe 1984, 1991; Hill 1995b), understanding their abandonment and relationship to the subsequent emergence of Late Iron Age *oppida* has been regarded as fundamental to explaining social change. Did Late Iron Age kingdoms emerge from existing social structures focused on hillforts, or did they represent an entirely new organisation of power? Were such monuments deliberately situated outside of existing settlement and power structures, or were they sited to dominate existing social discourse? These issues have been key to many recent discussions on the role and location of *oppida* in Britain and farther afield (e.g. Hill 2007; Moore 2007a; Rogers 2008; Fernández-Götz 2014). The evidence from Bagendon for immediate antecedents to the Late Iron Age complex therefore raises important questions as to what extent, and how, Middle Iron Age occupation was related to the transformations that took place in the 1st century AD.

Late Iron Age social centres (often referred to as 'territorial *oppida*') were situated in different locations to Middle Iron Age hillforts (Cunliffe 1976). Barry Cunliffe (1976: 149, 2005: 406) suggested that this could be explained by an essentially evolutionary sequence of development from hillforts, which in southern and south-eastern Britain were largely abandoned by the 1st century BC, to territorial *oppida* emerging in the 1st century AD. The presence of enclosed *oppida*, seemingly dating to somewhat earlier than the territorial *oppida*, acted as a link between the latter and hillforts. Enclosures such as Salmonsbury and Oram's Arbor, Winchester, were regarded as marking a shift from upland hillforts, which had been focused on controlling agricultural territories, to a new role controlling exchange routes. These large enclosures were argued to be an intermediary stage prior to the development of the territorial *oppida*, with Cunliffe (2005: 406) suggesting in many cases a developmental sequence, such as between The Ditches and Bagendon, Wheathampstead and *Verulamium*, and between Bigbury and Canterbury. Where such enclosures were mostly absent (the East Midlands, for example), Cunliffe (2005: 406) posited that nucleated unenclosed centres fulfilled similar roles. These models of *oppida* development reflected a perception that societies from the Middle to Late Iron Age were on a trajectory of ethnogenesis and state formation, with increasingly larger social entities emerging (Figure 24.6; Cunliffe 2005: 592). In this model, cultural groups in the Severn-Cotswolds region, denoted by Middle Iron Age ceramic distributions, merged into the state-like entities represented by the named 'tribe' found in classical texts: the *Dobunni*. This was seen as both a social development, centralising disparate, smaller communities, and an economic one, with at first enclosed and then territorial *oppida* used to control important trade networks and act as centres of political and social power. The transformation was also perceived as one largely stimulated by economic changes, which drew southern Britain into long-distance exchange with the Roman Empire, thereby requiring the location of social centres closer to riverine trade routes (Haselgrove 1976; Cunliffe 1988).

Such a model has become increasingly problematised (e.g. Hill 2007; Moore 2011), with the nature and coherency of these cultural entities somewhat questionable (as discussed for the *Dobunni* below). Many large enclosures associated with territorial *oppida* do not seem to have well-defined, hillfort-like enclosures at all (for example, Wheathampstead: Haselgrove and Millett 1997: 286), while others, such as The Ditches at Bagendon (as discussed more below), are better regarded as integral parts of the Late Iron Age complex rather than its antecedents. Some of the claimed 'enclosed *oppida*' (e.g. Salmonsbury; Abingdon) are also clearly contemporary with the 'territorial *oppida*' but part of separate social and settlement trajectories. Meanwhile, the economic impact of Rome on these transformations has been challenged (Fitzpatrick 2001; Hill 2007; Sharples 1991a), with many such centres showing insufficient evidence that they functioned as markets or redistribution centres.

Emergence of 'oppida' in empty places in the landscape

Although the trajectory of enclosed to territorial *oppida* has been undermined, the limited evidence for Middle Iron Age activity in the vicinity of many Late Iron Age complexes has remained a focus of debate. Assessment of the material from a number of *oppida* landscapes indicates that while these areas were sometimes occupied in the Middle and Late Bronze Age, Middle Iron Age occupation is often lacking (Hill 2007; Sharples 2010: 163). The complex at St Albans (*Verlamion*), for example, appears to have been located in what had been a relatively empty area in the Middle Iron Age, with little pre to late first-century BC occupation (Bryant 2007: 78; Haselgrove and Millett 1997: 283). The picture at St Albans

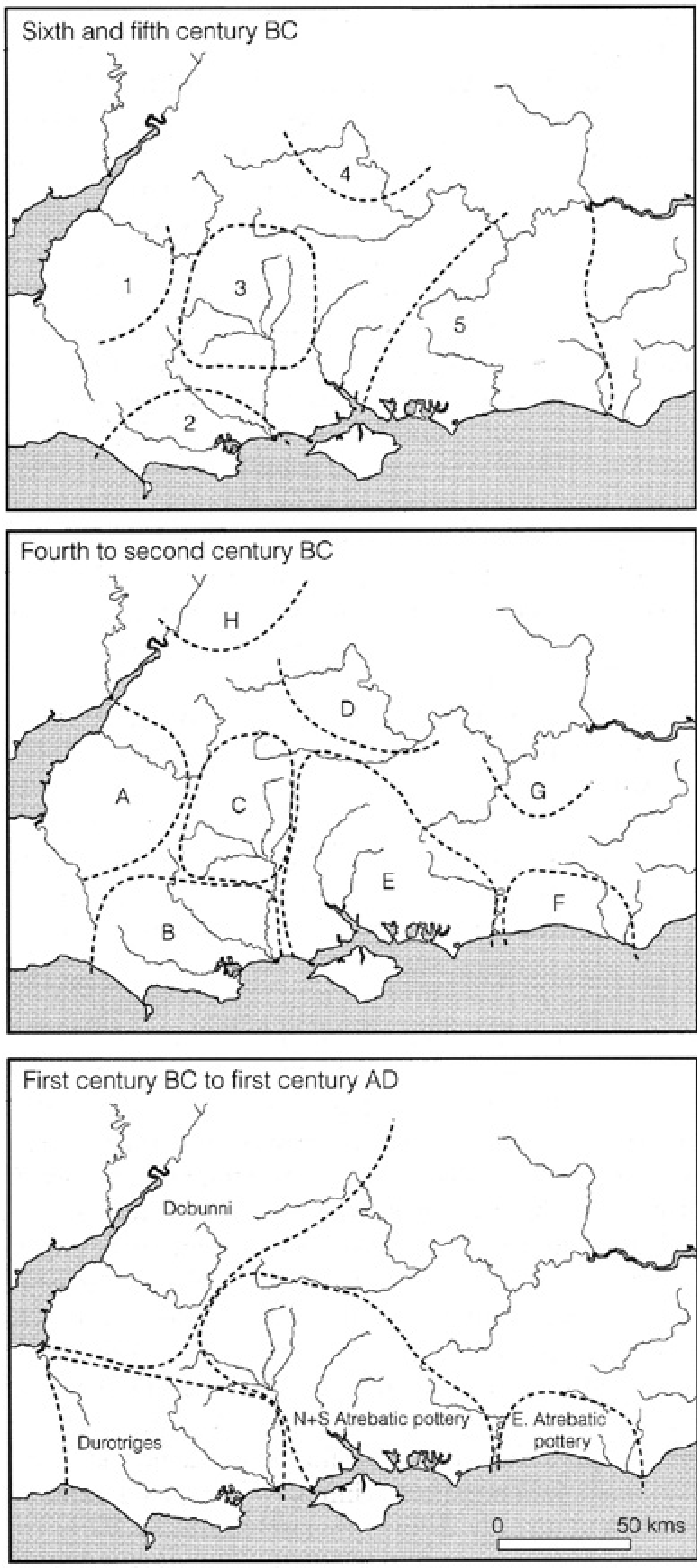

Figure 24.6. Barry Cunliffe's model of ethnogenesis between the 4th – 1st centuries BC (after Cunliffe 2005: 592). The letters represent distribution of regional ceramic types (e.g. H: Malvern/duck-stamped wares).

is complex, however, with *Verlamion* being related to a landscape of Late Iron Age 'centres' at Braughing, Baldock and Welwyn, which had longer sequences of activity. The probable unenclosed agglomeration at Braughing, for example, emerged in the early 1st century BC (Bryant 2007: 64). The presence of dyke systems and the later construction of the Roman town of *Verulamium* may blind us into regarding it as having held the pre-eminent position prior to the Roman conquest, yet it was one of several significant locations whose roles fluctuated over time.

At Silchester too it has been suggested that the complex emerged in a previously empty area of the landscape, with little evidence of activity from the *oppidum* itself dating before the late 1st century BC (Fulford and Timby 2000: 546; Fulford *et al.* 2018: 374). As with Bagendon, there are also indications that this complex was constructed in what had previously been a relatively wooded landscape (Barnett 2019). Its Roman place name, *Calleva*, appears to mean wooded place (Fulford and Timby 2000), with further pollen and charcoal evidence pointing to a diverse landscape that may have contained significant stands of woodland prior to the construction of the Silchester earthworks (Barnett, in Fulford *et al.* 2018: 326; Barnett 2019).

Such evidence has produced interpretations that these parts of the landscape were largely empty of settlement prior to the late 1st century BC or 1st century AD (e.g. Hill 2007; Rogers 2008). Some have argued that these landscapes, because of their heavier soils, were inappropriate for arable agriculture and only suitable of supporting heath or woodland (Sharples 2010: 163). Their exploitation in the Late Iron Age has subsequently been regarded as part of a more general agricultural expansion at this time (Haselgrove and Millett 1997: 283).

The construction of the dyke complexes in these landscapes, however, has also been cited as evidence for a fundamental social change in the Late Iron Age. In contrast to the more evolutionary trajectories described earlier, these models suggest that by situating newly emergent elites away from existing land rites and power structures in the more densely settled landscapes of the Thames Valley and downlands of Wessex, enabled a break with the past and the establishment of new places and mechanisms of power (Hill 2007; Sharples 2010).

Other explanations have envisioned this 'emptiness' as related to the special nature of these locations. Many complexes, such as *Verlamion*, emerged around wet, marshy areas (Figure 24.7), with the latter focused around the crossing point in the valley (Niblett and Thompson 2005: 38); other locations that later became Roman towns, such as *Londinium*, also appear to have contained similar terrain with possible social and symbolic significance (Hingley 2018: 23). Bagendon too developed around an area that might have periodically flooded (Moore 2006: 220), although it does not appear to have been permanently waterlogged at any time (see Allen in Chapter 19). These watery areas may have had ritual significance in preceding centuries (Haselgrove 1995, 2016: 456; Rogers 2008; Willis 2007), with this argument echoing those made for *oppida* on the continent where their earliest origins often appear to be represented by sanctuary enclosures, sometimes close to springs and watery places (Fichtl *et al.* 2000; Fernández-Götz 2014; Haselgrove 1995). Late Iron Age communities thus coalesced around existing meeting places and/or controlled the wider population through these already socially significant locations. Identifying a ritual role for the British locations is more difficult and based largely on circumstantial evidence. There is little evidence provided by material remains to support the notion that such places had symbolic roles, although there is clear evidence that watery sites, river crossings and marshy areas in general had ritual significance in the Iron Age (e.g. Bradley 1998).

Understanding the nature and role of these landscapes prior to the construction of the Late Iron Age complexes is therefore crucial in assessing *oppida* development. We first need to examine critically what we mean by terms such as 'empty', 'marginal' or 'peripheral' when analysing these areas and their place within wider social and agricultural landscapes (cf. Campana 2017). Studies such as this one are indicating that these landscapes were not simply devoid of activity, although their nature may suggest other uses than arable agriculture and permanent settlement.

Until recently, the evidence from around Bagendon seemed to reflect a similar trajectory to other complexes. Indeed, the identification of Late Iron Age occupation not only in the valley but at Duntisbourne and The Ditches (yet with little evidence for Middle Iron Age activity), in contrast to the wealth of Middle Iron Age settlement in the nearby upper Thames Valley, appeared to suggest that Bagendon too emerged in what had previously been a largely empty landscape (Moore 2006: 220). The presence of the enclosures at Cutham and Scrubditch, alongside excavation at dyke 'e', now reveals that this was not the case, with significant activity taking place between the 4th and 1st centuries BC.

Investigation is also revealing a more complex picture at other Late Iron Age centres previously considered as emerging in 'empty' landscapes. Within the environs of Silchester, excavations at the hillfort at Ponds Farm suggest that its rampart was constructed in the 2nd–1st centuries BC, although an initial examination indicates that it was largely empty of occupation (Fulford *et al.* 2015). Similarly, the presence of enclosures dating

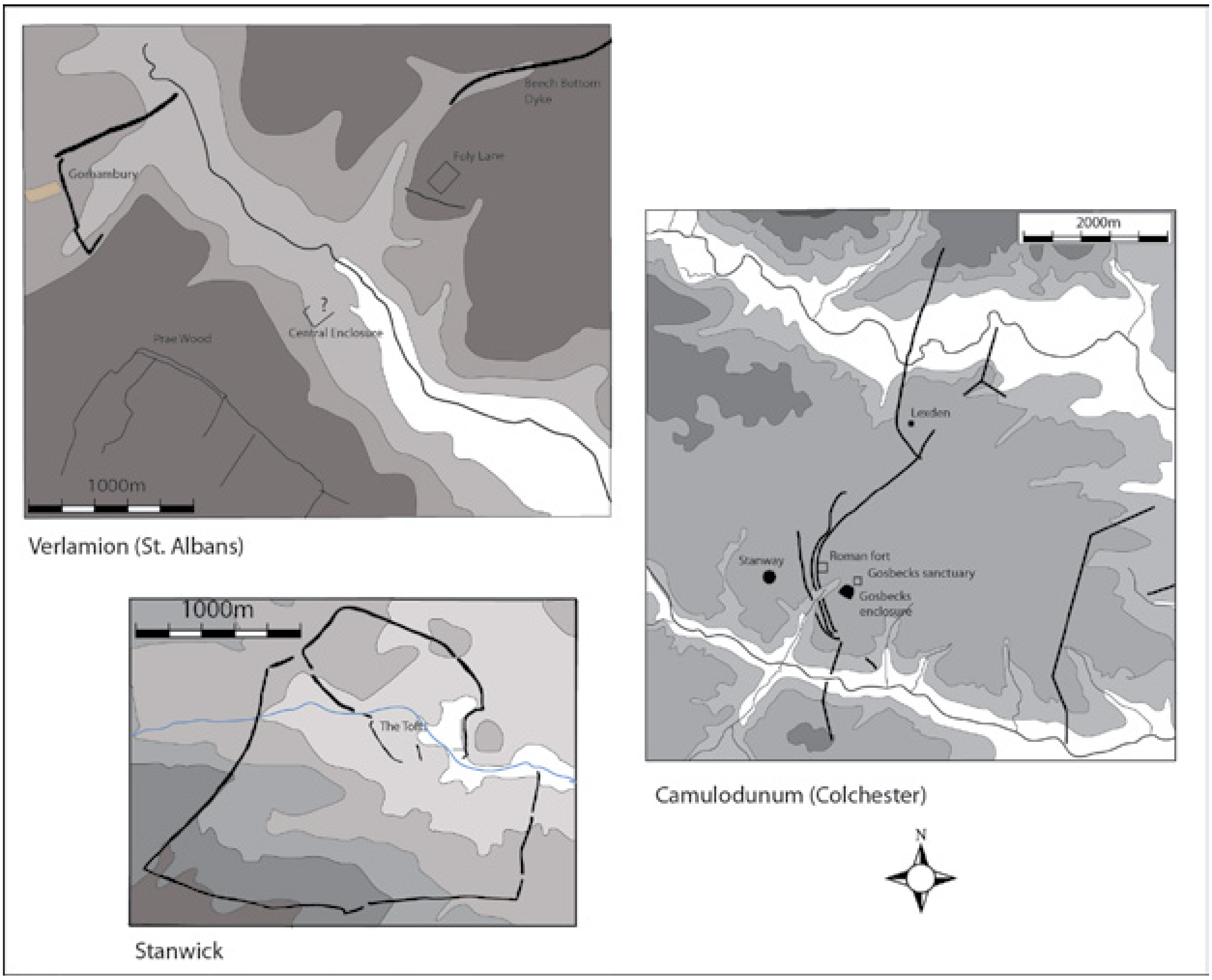

Figure 24.7. Plans of territorial oppida complexes at Verlamion, Camulodunum and Stanwick.

to the Middle Iron Age, just a few kilometres to the north and south of the complex, pertain to a landscape that was certainly being utilised (Fulford *et al.* 2017). Recent reviews of the evidence around *Camulodunum* and Selsey/Chichester (Garland 2016a) also emphasise that both areas were not entirely devoid of activity. At *Camulodunum*, the Middle Iron Age landscape was exploited with droveways and enclosures. Some of the elements of this landscape formed foci for later activity, most notably at Stanway, suggesting associations between the two phases of occupation (Garland 2016a: 242), although whether this was a direct or ancestral connection is unclear. At Chichester, the cemetery at Westhampnett, dating to the late 2nd or early 1st century BC (Fitzpatrick *et al.* 2017), appears to represent a focal place, pre-dating the construction of the earthwork system, for a number of dispersed communities where they came together and created networks of association (Fitzpatrick 1997). In both cases, Garland (2016a: 243) argues that these landscapes were sparsely populated, but pre-existing features within them became important foci in the Late Iron Age, perhaps suggesting that these were meaningful locations.

The situation for Stanwick is somewhat different: it emerged not in an area of poor soils, but in one of the better areas of agricultural land in northern England (Haselgrove 2016: 2). The earliest element of the Stanwick complex, the Tofts enclosure, overlooking a marshy area, probably emerged *c.* 80–70 BC. The relationship between activity at the Tofts and earlier use of the landscape in the Middle Iron Age is not entirely clear. The banks and ditches revealed beneath the outer perimeter at Stanwick could be earlier land divisions, possibly of Middle Iron Age date. Assessment of settlement patterns in the region revealed that the Middle Iron Age witnessed an expansion in settlement numbers with a density of enclosures along the Tees Valley, some of which were embedded in large-scale field systems (Haselgrove and Moore 2016). There is little to suggest that the area around the Tofts contained occupation prior to the 1st century BC, however, so that while the wider landscape can hardly be described as under-used, the Tofts itself shows little sign of emerging from an existing settlement.

Overall, there is plentiful evidence for the exploitation of these landscapes prior to the construction of the

Late Iron Age complexes, but this frequently appears to have comprised activities or uses different from the mixed farming more common elsewhere. The presence of substantial woodland around Silchester, for example, may indicate that while not 'empty', these landscapes represented locations for important resources, such as timber and charcoal. The same appears true of Bagendon where the enclosures at Cutham and Scrubditch appear to signify a particular role, probably as a meeting place. Such activities may indicate that the apparent 'marginality' of these locales, rather than being indicative of peripherality, signifies their social importance, situated outside the social norms of the farming landscape. The location of Bagendon, on the interface between different agricultural landscapes and on the margins of the exchange networks in the Cotswold-Severn and upper Thames valley (Figures 23.1 and 23.2), may point to a role in the Middle Iron Age as a meeting place, situated between economic and cultural landscapes (Moore 2007a), one that anticipated its function in the Late Iron Age.

Whether these areas were placed away from dense settlement landscapes because of their particular agricultural roles, requirement as neutral social spaces, or ritual significance, or a combination of all of these, that they witnessed such transformation in the Late Iron Age is significant. The Late Iron Age changes appear to illustrate control and domination over spaces that, although previously lacking impressive structures, continued existing social importance.

Transforming the landscape: the Late Iron Age

The first half of the 1st century AD marked a radical transformation of the Bagendon landscape. At Cutham it seems that the outer enclosure ditch was partly recut along some of its length, possibly part of a reconfiguring of the enclosures in this area. Probably not long after, the enclosure ditches at Cutham and Scrubditch were backfilled, perhaps ceremonially with the deposition of an inhumation burial in the former. As discussed in Chapter 3 (see also Chapter 15), many of the indicators from this female burial (the positioning of the body and her age, geographic origin and possible diet) point towards a woman of unusual standing, perhaps of high status or having had a noteworthy role in the community. Her death may therefore have precipitated the abandonment (decommissioning) of the Cutham enclosure or was perhaps part of the transformative processes that took place within the area.

The modelling of the radiocarbon dates (Chapter 13) coupled with the ceramic chronologies (Chapter 6) suggests that the abandonment of the Cutham enclosure probably took place around the commencement of occupation in the valley. Steven Willis's assessment of the *terra sigillata* is most informative here, emphasising a distinctly pre-conquest focus to the 1950s and 1980s assemblages, with activity being sufficiently developed to include major samian imports by *c.* AD 30. This activity appears to have had two discernible stages of development: a trackway constructed along the valley side with associated enclosures; and the creation of a stone road and culverts representing an intensification of activity. These events overlapped, at least for a period, with some form of activity at the Cutham enclosure; or at least Cutham's avenue ditches seem to have defined the Late Iron Age settlement area to the south (see Figure 24.8; Chapter 4). The recutting of the ditch, probably in the 1st century BC at Cutham, seems to have been part of a remodelling of the enclosure – perhaps comparable to the remodelling of the Middle Iron Age banjo enclosure at Owslebury Hampshire (Collis 2006: 156).

Many elements of the dykes were also probably largely constructed at this time. This represented in some cases remodelling or reusing existing ditches, as seen with dyke 'e' for example, which certainly had Middle Iron Age origins (see Chapter 4 and 13). It also seems that Cutham Dyke cut across an earlier route towards the Cutham enclosure, possibly blocking a previous entrance (see Chapter 4). It seems that The Ditches enclosure was constructed around this time, or slightly earlier, as were those at Duntisbourne Grove and Middle Duntisbourne. The surveys undertaken as part of this project emphasise that the area of occupation in the valley was just one element of an elaborate Late Iron Age landscape. These investigations emphasise that conceptions of Bagendon's centre as located solely around the area explore by Elsie Clifford now seem incorrect, with evidence instead for a much larger and more dispersed complex (Figures 24.8, 24.9, and 24.10). On the basis of available evidence, a date for the latter phase of activity in the valley *c.* AD 40 seems reasonable, with the earlier phase probably pre-conquest, perhaps as early as AD 20 or 30, suggesting that Clifford's (1961) dating was not, in fact, unreasonable (cf. Swan 1975).

Activities within the complex

We can now begin to develop a picture of the nature of activities across the complex. Excavations at The Ditches and Duntisbourne revealed the presence of two large enclosures, overlapping chronologically with occupation in Bagendon valley. At The Ditches, Augustan Gallo-Belgic finewares (Rigby 1988) and stray finds, including an Augustan intaglio (Trow 1982b), indicate that the enclosure was occupied by the early 1st century AD and probably in the 1st century BC. The presence of relatively early Gallo-Belgic ceramics here (Trow 1988a), earlier than those from Bagendon, may even suggest that it was the initial focus of the Late Iron Age phase of the complex, although activity in the area of the Cutham and Scrubditch enclosures appears

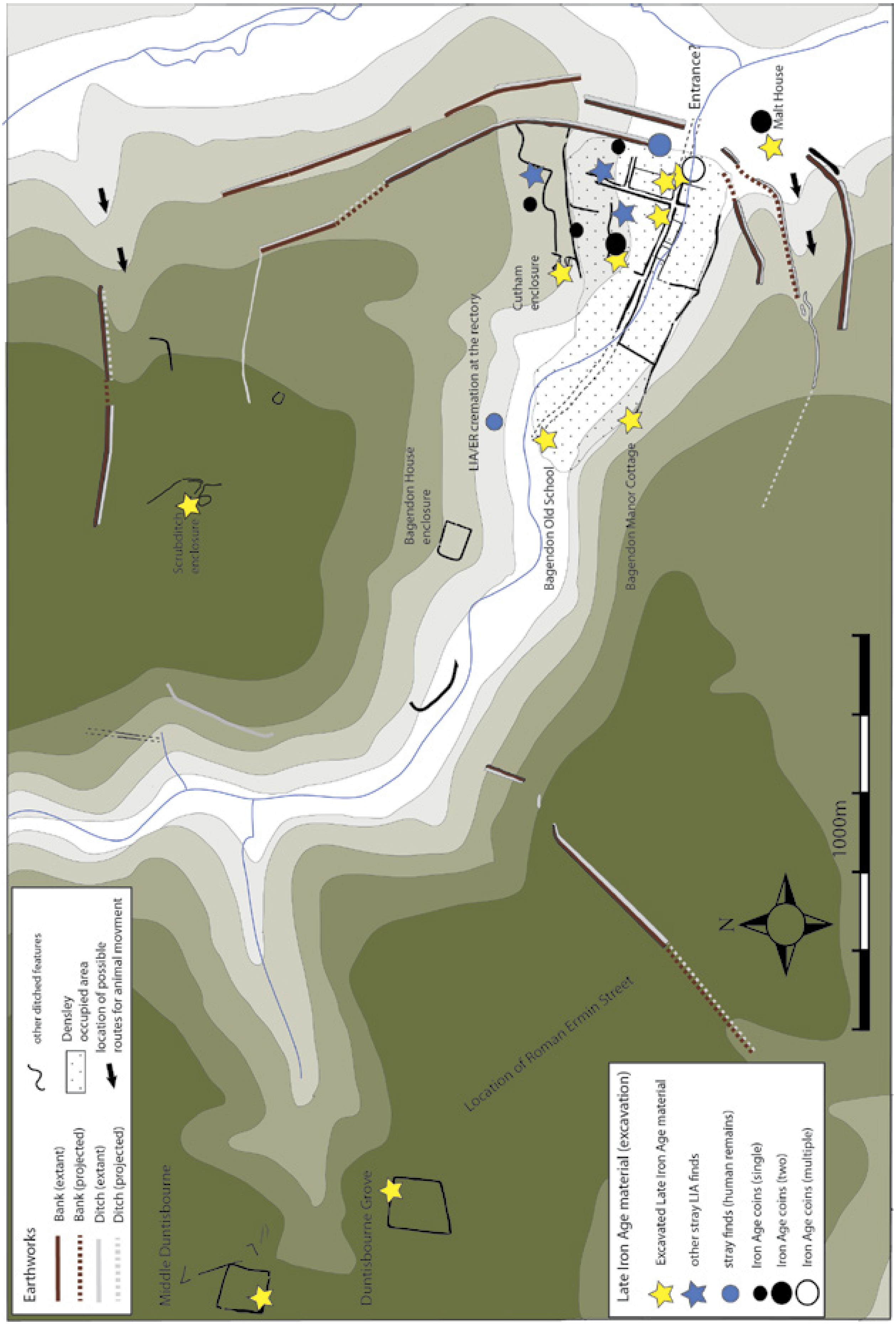

Figure 24.8. Reconstruction of Bagendon complex in the Late Iron Age.

Figure 24.9. Reconstruction drawing of Bagendon as it might have looked c. AD40-50, looking westwards from the Churn valley (by Mark Gridley, © Tom Moore).

to have continued in some form.[3] Despite the presence of Late Iron Age ceramics in the lowest fills of the enclosure ditch at The Ditches, it has been suggested that if the ditches were regularly cleaned then the material within them would only provide a date for backfilling. This may suggest that the inner enclosure at The Ditches was dug as early as the Middle Iron Age (Trow 1988a: 37–39). This is certainly possible, but the lack of any contexts at The Ditches with only Middle Iron Age ceramics (Trow 1988a; Trow *et al.* 2009), in contrast to ditch silts with Middle Iron Age material at Cutham and Scrubditch, indicates that significant occupation there prior to the 1st century BC is unlikely or that its focus has yet to be detected.

At Middle Duntisbourne, elements of various ditches excavated in the 1990s (Mudd *et al.* 1999), as well as various features identified by geophysics (Chapter 2), suggest that the large Duntisbourne Grove enclosure (Figure 24.8) was probably part of a greater complex of additional enclosures. The ceramic evidence suggests most of this is of Late Iron Age date (largely 1st century AD: Timby 1999) and that all of this activity was contemporaneous with occupation in the valley. By the early to mid 1st century AD, therefore, occupation in the area comprised a number of different foci to which others, such as the (unexcavated) enclosure identified close to Bagendon House (Chapter 2), could be added (Figure 24.8 and 24.9).

Assessing the specific roles of different elements of the complex is difficult given their limited investigation; some division of activity can, however, be suggested. The higher proportion of cattle bones at The Ditches compared to that from Bagendon (Trow 1988a: 40; Chapter 16), for example, may suggest that they had somewhat different roles or consumption patterns. The

[3] The presence of Late Iron Age material from both sites suggests activity continued at both enclosures, probably into the 1st century AD, even if the enclosure ditches were largely backfilled.

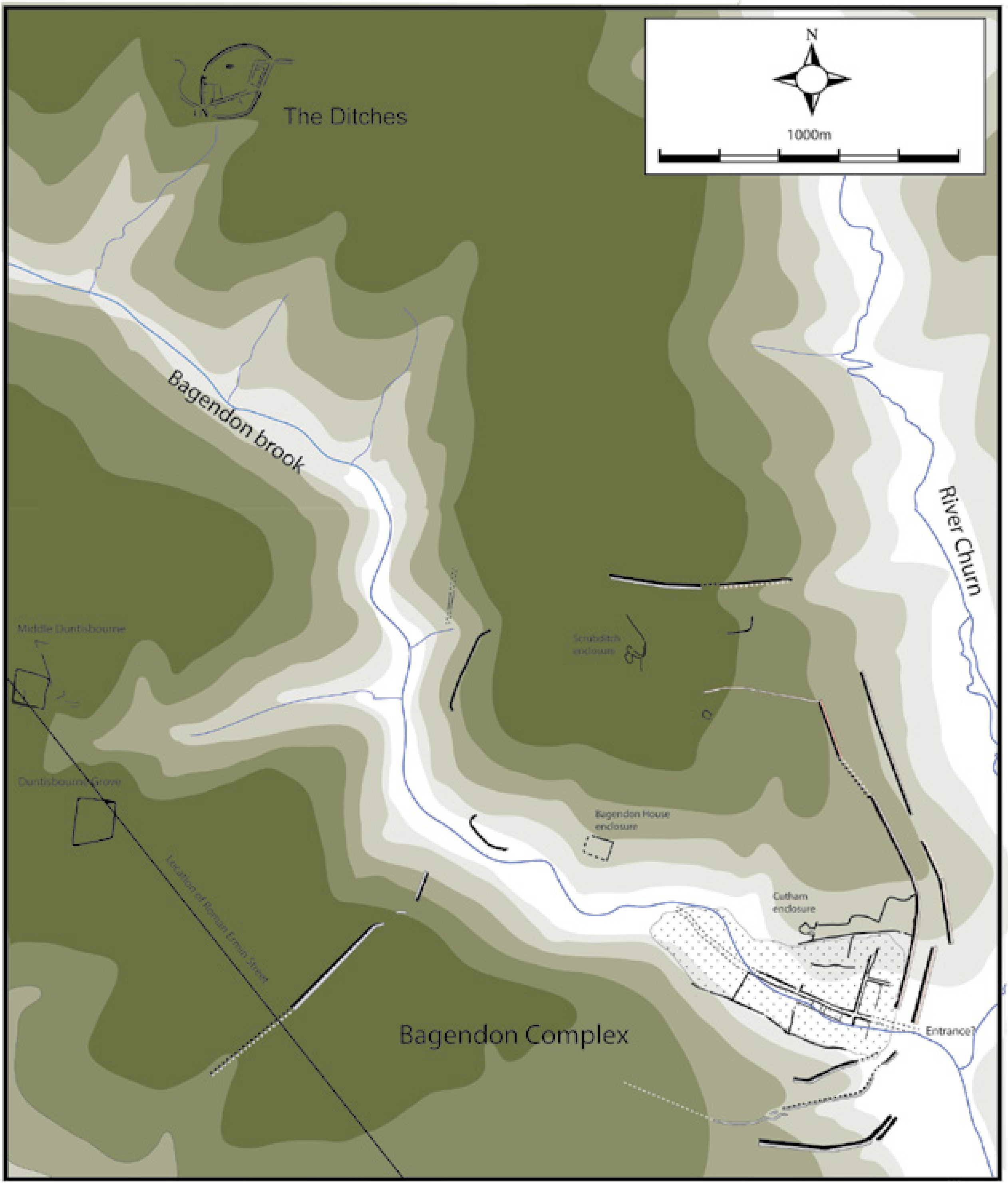

Figure 24.10. Plan showing relationship between The Ditches and the wider Bagendon complex.

high proportion of cattle bones has been previously used to suggest that the community at The Ditches had a more 'Romanised' population (Rielly and Trow 1988; Rielly 2009) and a consumption pattern reflective of more elite dining. Meanwhile, the Augustan intaglio found within the enclosure (Trow 1982b) is potentially the kind of object given as an imperial gift, possibly denoting the presence of elite members of society. The later appearance of the exceptionally early Roman villa at The Ditches, after the conquest, has also been used to argue that this was the focus of occupation of an Iron Age elite (Trow *et al.* 2009). The enclosure at Duntisbourne Grove has witnessed less investigation, but its relatively significant Gallo-Belgic assemblage may also suggest the presence of high-status members of society. Despite these aspects, the brooch and fineware assemblages from these sites do not necessarily indicate a major status distinction between

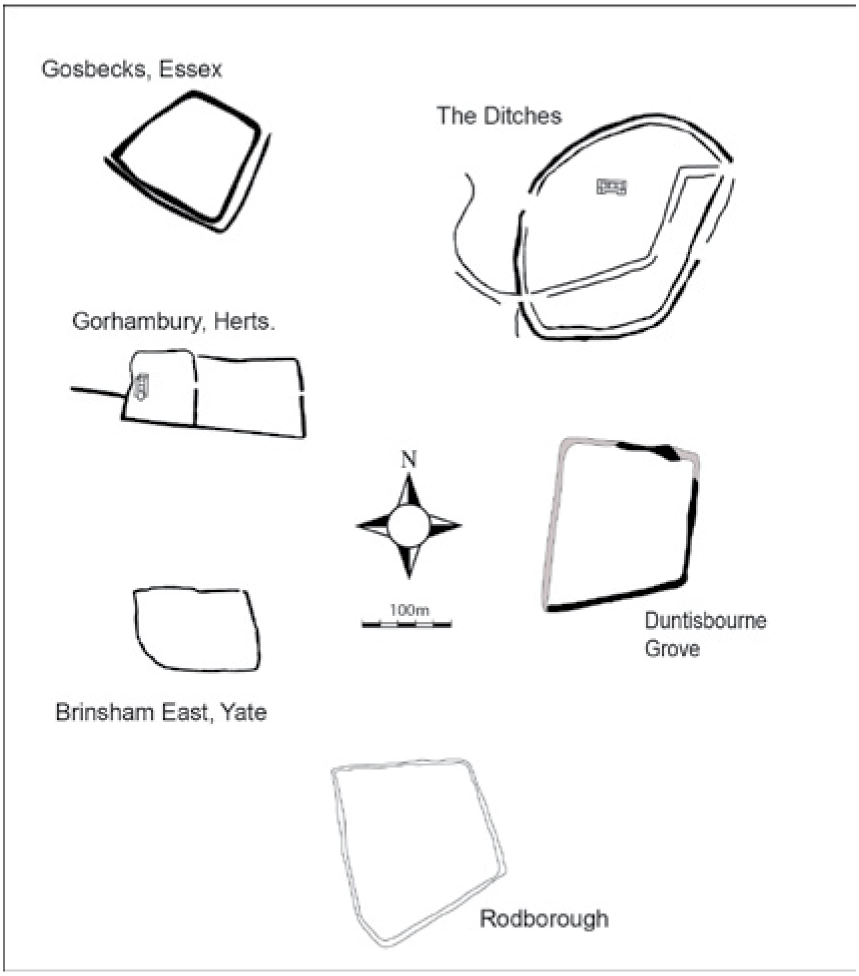

Figure 24.11. Comparison of possible Late Iron Age 'elite' enclosures at Gorhambury, Gosbecks, Yate and Rodborough compared with those from Bagendon at Duntisbourne Grove and The Ditches.

these enclosures and occupation in Bagendon valley, with for example, not significantly more Gallo-Belgic material from The Ditches than Bagendon (Moore 2009b: 128).[4] The brooch assemblages from both sites are also comparable (Chapter 7).

The positioning of The Ditches and Duntisbourne enclosures, overlooking the wider complex, with access to them seemingly restricted through use of the dyke system (see below), as well as evidence of a later villa within The Ditches enclosure, makes their best parallels enclosures such as Gorhambury (*Verlamion*) and Gosbecks (*Camulodunum*). The latter enclosures are regarded as elite farmsteads or residences within these complexes (Hawkes and Crummy 1995: 97; Neal *et al.* 1990). The scale of both the enclosures at The Ditches and Duntisbourne Grove is, however, notably larger than normal farmsteads in the region and that of many of the postulated 'elite enclosures' at *oppida* in southern Britain, such as Gorhambury and Gosbecks (Figure 24.11). We might question, however, whether these enclosures were necessarily elite residences, with their scale instead possibly implying other roles, such as assembly or gathering places.

Considerable evidence for pig consumption within the Bagendon complex may be instrumental in its interpretation, with pig remains found in high proportions at Duntisbourne Grove (Powell 1999: 432), to some extent at Middle Duntisbourne (Powell 1999: 437) and in pre-conquest deposits at The Ditches (Rielly 2009: 193) (approximately 22, 40 and 20 per cent, respectively), and also from the 1979–1981 at excavations Bagendon (18 per cent) (Chapter 16). An argument for feasting in these areas or for groups practising different dining styles thus potentially emerges, with a corresponding high proportion of pig consumption noted at other Late Iron Age centres, such as Silchester (Fulford *et al.* 2018: 269). The enclosure at the Tofts at Stanwick has also been suggested as a focal area for feasting, due to the presence of a surprisingly large amount of animal bone (Haselgrove 2016: 459). Analysis (Chapter 16) indicates that the Bagendon faunal assemblage appears to be largely the result of meat consumption, rather than other farming activities. The comparably high proportions of pig identified throughout the complex could signify that any dining practices they relate to were therefore not restricted to the enclosures. It is also worth noting that relatively similar proportions of pig remains found at some other nearby farmsteads, such as Birdlip, could signify broader dietary changes, with pork becoming an increasingly important part of foodways.

The evidence from aspects such as faunal remains suggest a need to break down distinctions in status between the enclosures and occupation in the valley. However, the layout of the latter indicates that area did have specific roles. The arrangement of enclosures along the trackway indicates they were laid out contemporaneously (Chapter 4) with its closest parallels those found at Silchester. At the latter, these enclosures appear to reveal a planned layout that covered much of the interior, perhaps surrounding a single large open space (Figure

[4] Although the small size of the assemblages makes comparison difficult.

24.12; Creighton and Fry 2016: 303). It is plausible to suggest that the enclosures and occupation area at Bagendon were roughly contemporaneous, delimiting an occupation area of between 16 and 28 ha. The small areas investigated within the valley do, however, make it hard to compare the size of these enclosures, but some could be of comparable scale to those revealed at Silchester, where it is argued that they represent residences for elite members of the community, suggested by the presence of large rectangular long-halls within them (Fulford *et al.* 2018). No such evidence exists from the Bagendon, but material within the pits in Area A could imply that relatively well-appointed occupation was located nearby, perhaps outside the areas excavated. Indeed, the arrangement of space encountered by Area A might have been similar to that recognised in Phase 1 at Insula IX at Silchester (dating to the turn of the millennium), where a cluster of pits was located next to a trackway, with buildings farther inside the compound (Fulford *et al.* 2018: figure 7).

Evidence from the valley occupation area suggests a prominent role for artisanal activity, including the smithing and smelting of iron, coin minting and probable bronze working. A simple silver flan of uncertain function found at Cutham enclosure (see Haselgrove, in Chapter 10) might be similar to one described from Clifford's excavations (Allen 1961: 146); whether related to coin manufacture or some other production activity is unclear. As has been noted at *Camulodunum*, the scale of such production can be overstated (Gascoyne and Radford 2013: 46), and we should be cautious against regarding the levels of production at Bagendon as 'industrial' in scale. If we extrapolate from the evidence of iron working recovered in Areas A and B, however, as well as that from Clifford's excavation, to which we might add the probably redeposited iron slag from Black Grove (see Chapter 12), and hammerscale found in the test-pits (see Chapter 4), it is arguable that much of the valley floor was engaged in this activity, representing significant levels of production. The inclusion here of smelting is intriguing when considering the distance to sources of iron ore (probably the Forest of Dean) and the difficult in transporting ore. It indicates that this was not just about iron smithing. Recycling might have been the case for coin minting and bronze

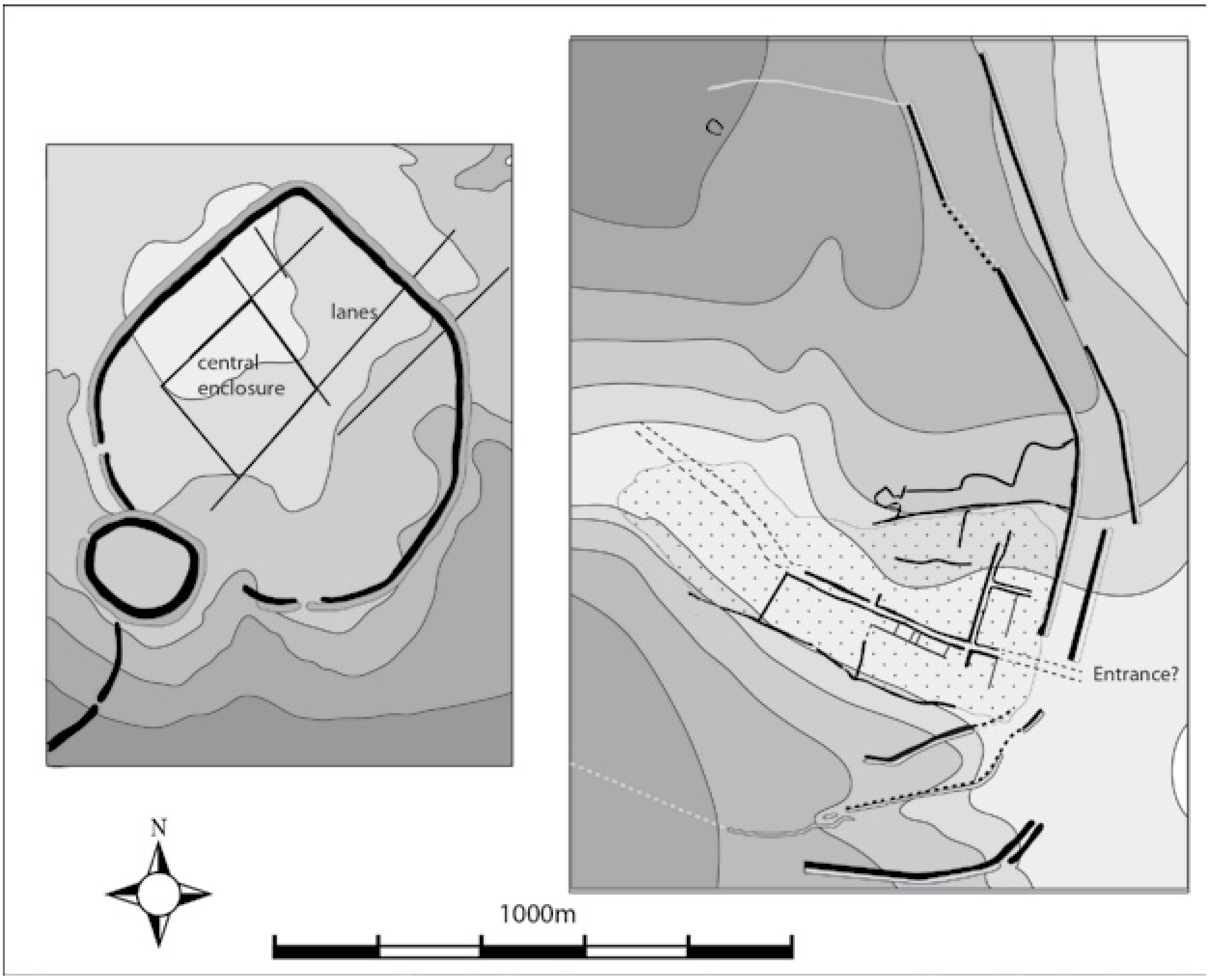

Figure 24.12. Comparison of Late Iron Age Silchester (after Creighton and Fry 2016) with Late Iron Age Bagendon.

working, with no suitable ore sources nearby, but here too material sourced from the wider region (such as Mendips for lead, silver and possibly copper) could be the most probable derivation.

Mark Landon's study of the coin moulds (Chapter 11) suggests the possibility of seasonal production for coin minting, and by extension, that many of these activities could have occurred periodically. To perceive activity in the valley as reflective of the 'peripheral' placement of artisanal areas, as has sometimes been suggested at other Late Iron Age centres (Collis 1984: 132), is one way of interpreting this arrangement. An alternative, discussed further below, is that the situating of production activities alongside the road into the complex was a deliberate display of the consumption of resources.

The high proportion of finewares and brooches in the pits identified in Area A, alongside indications that this material derived from middens nearby (Chapter 4), may suggest that 'high status' occupation of comparably was present in the valley. Similar to the evidence from the faunal assemblage (discussed above), this illustrates that simplistic distinctions between 'artisanal' and 'high-status' areas within the complex can be misleading (Trow 1988a: 39). Evidence for iron smithing, copper-alloy working (evident from a number of crucibles: Clough in Trow 1988a) and coin minting and gold working at The Ditches is also present, stressing caution in assuming the status of certain activities. We may be in danger of imposing a binary model irrelevant to such complexes and societies, and instead need to breakdown assumptions over 'elite' and 'commoner' areas at monumental complexes (cf. Chirikure *et al.* 2018). Certainly, the secular and ritual were often integrated in the Iron Age (Hingley 1997). Coin minting, for example, could combine ritual with the manifestation of secular power (Creighton 2000: 53). Willis (2007: 121) has suggested something analogous for another Late Iron Age complex, arguing that the so-called industrial area at Sheepen, part of *Camulodunum*, might also have combined aspects such as metalworking with ritualised consumption. A similar combination can potentially be witnessed in the association of the apparently largely artisanal settlement at Scotch Corner, which included possible coin minting (Haselgrove 2019), with the *oppidum* at Stanwick (Fell forthcoming).The presence of imported finewares in the Bagendon valley occupation could mean that this area too was incorporated in forms of feasting that took place in various parts of the complex. Whether this was an 'elite' practice or a more communal form of feasting (perhaps as some form of potlatch) should also be considered (cf. Dietler 1989).

The presence at Bagendon of a diverse array of ceramics and brooch types, especially imported Gallo-Belgic wares, *terra sigillata* and amphorae, could also relate to its potential role as a centre for exchange or as a market. That Bagendon was a redistribution centre for fineware imports to farmsteads, such as Frocester, appears unlikely, however. The rarity of such material on Late Iron Age sites across the region coupled with the relatively high levels at Bagendon suggest that it seldom reached farmstead communities and was more likely to occur through forms of gift exchange or clientage relations (see below) than through markets. Instead, most imported material was consumed within the Bagendon complex itself, perhaps in relation to the large-scale feasts.

How much of this material came with the Roman army after the conquest, and the army's role in these transformations, has been debated (Swan 1975). Pitts (2010: 44) has suggested that Gallo-Belgic material and samian moved via different exchange networks in the mid-1st century AD and thus their presence insinuate varied connections for the Late Iron Age complexes. Willis's (Chapter 6) assessment of the samian also notes that much appears to be pre-conquest in origin. There are, however, hints of possible Roman military items in the wider Bagendon complex (see the discussion in Chapter 4), but none that need signify anything more than indigenous service in the auxiliaries or military units passing through, and not a role as a prime instigator in the complex's development.

Instead, much of the fineware ceramics may be more indicative of diplomatic gifts than 'trade'. This is especially true of the relatively rare items, such as the unusual Claudian glass-bowl (Shepherd in Chapter 12). Some individual artefacts, such as the puddingstone quern from Hertfordshire (Green in Chapter 12), also seem more likely to denote individual relationships and the movement of individuals, rather than large-scale trade networks (cf. Moore 2007a). The large amounts of Savernake and Severn Valley ceramics transported to the area could represent increased bulk trade, but these too might just as likely have come with the movement of people to the complex at certain times of year and, as Jane Timby (2001: 81) has noted, echo well-established long-distance networks of ceramic exchange from the Later Iron Age.

How permanent occupation was in the valley is also hard to determine. As discussed in Chapter 4, the apparent lack of buildings could imply temporary or ephemeral structures. A transformation in occupation may also be indicated by the evidence of two phases of activity. The earlier phase with seemingly sporadic or low-intensity use replaced, probably around the time of the conquest or shortly after, with occupation of a much more intensive character. Such a sequence would seem to have parallels at Silchester where it has been suggested that the earliest phase of activity, before the turn of the millennium, was more ephemeral (perhaps seasonal) than that which followed (Fulford *et al.* 2018: 375).

Survey (Chapter 2) indicated that large parts of the Bagendon complex were empty. It also revealed that the occupation area in the valley was divided from these relatively open spaces by large ditches to the north and south (Figure 24.8, see Chapter 2). Although a lack of archaeological features in these 'empty' areas cannot be completely confirmed through such survey, it seems unlikely that they contained any major structures. The possibility that much of the area within the earthworks might have been largely open has previously been raised. Richard Reece (1990: 37), for example, suggested that the complex was some form of 'royal park', although such an analogy seems anachronistic. An alternative is that such areas were for arable agriculture, with evidence from other *oppida* that these centres were largely self-sufficient in terms of arable products (Lodwick 2018). The environmental evidence (see Chapters 18 and 19), however, seems to argue against significant arable land use at this time. Meanwhile, the slopes in some areas mean that they would have been relatively challenging for arable agriculture, while a more likely focus on keeping livestock in the open areas would explain the presence of deep, ditched boundaries separating them from occupation along the valley floor and lower slopes.

It is, therefore, more probable that empty spaces in the complex were for livestock. Understanding the role of animals within the Bagendon complex is somewhat restricted by the size of the faunal assemblage, but inferences can be made. Most of the Late Iron Age deposits indicate an emphasis on sheep, which is typical of Iron Age sites in the region, although there are, as discussed above, a significant proportion of pig remains from across the complex (Chapter 16; cf. Rielly 2009). There are also high proportions of cattle remains from parts of the complex, such as at The Ditches, potentially signifying a change in consumption in the mid-1st century AD (Rielly 2009) and perhaps related to the increasing prevalence of cattle on settlements in the upper Thames Valley (Allen *et al.* 2017: 92; Lambrick *et al.* 2009: 244). It has been suggested that Savernake ware vessels, which are so prevalent at Bagendon (Timby in Chapter 9), might have been used to store milk (Jane Timby pers. comm.). This is unconfirmed, but if correct, the large numbers of such vessels at Bagendon could reinforce the argument for the large open areas as corralls for animals. Bagendon's location around the wet marshy valleys of the Churn and Bagendon Brook make it ideal for livestock access to water and rich pasture. The movement of sheep between the valleys and upper plateaus in the summer and winter months is another possible scenario.

The arrangement of the dykes at Bagendon also implies that controlling the movement of livestock was a significant role of the complex. On the southern side of the complex, Perrott's Brook Dyke and dyke 'e' are located either side of a natural dry valley (or coombe) with an entrance at the top (see Chapter 2; Figure 24.8). This situation created a funnelling arrangement towards the plateau enclosed by Perrot's Dyke and the southern ditch of the settlement area. Identification of an apparent trackway or hollow-way in this location (see discussion in Chapter 4) supports the idea that this was a route up the hill. Further, the placement of the Scrubditch dyke on the northern side of another coombe, with Cutham Dyke (dyke 'a') and dyke 'j', along with the ditch of the Cutham extension to the west, also created a funnel-like arrangement towards the plateau to the south of the Scrubditch enclosure.[5] This area was defined on its southern side by a trackway and an enclosure ditch related to the Cutham enclosure. As cattle do not like more than a 40 per cent gradient (Fioccoprile 2016), moving animals between the good pasture of the well-watered valleys and the upper plateau would require the use of such coombes. This use of the dykes appears to echo the role and placement of the ditches associated with the earlier enclosures (see Chapter 3), which also seem to have been involved in channelling the movement of animals. While those enclosure had largely gone out of use by the 1st century AD, some overlap in occupation suggests that rather than represent a complete contrast in activity, this dykes effectively remodelled these earthworks to steer the movement of animals (and possibly people) into the complex.

To suggest that these seemingly 'empty' areas were probably used for corralling animals does not contradict the possibility that they held other roles. On the basis of the environmental evidence, such areas could have included stands of woodland, wood pasture and plots of arable agriculture. The scarce evidence for structures may suggests relatively limited permanent occupation in these areas but the possibility these were also temporary gathering places cannot be dismissed. Despite the investigations at Bagendon, and at other Late Iron Age complexes (Stanwick, *Verlamion, Calleva*), our understanding of the extent and role of 'empty' areas remains limited, yet this knowledge is essential for deciphering the function of these complexes (Moore 2017a). Survey at Bagendon at least highlights the potential for geophysics to confirm levels of relative emptiness, compared to densely occupied areas. Current work on the *oppidum* of Bibracte, France, which also contains relatively large areas seemingly devoid of structures, emphasises that a battery of scientific techniques, including test-pitting and geomorphological analyses, are required to interrogate the role of such areas more comprehensively and with greater clarity (Golanova *et al.* 2020).

[5] The ditches of the Scrubditch enclosure appear to have been largely infilled by this time, however (see Chapter 3).

The extent to which the complex was consuming animals and crops from elsewhere or whether it was largely self-sufficient is harder to determine. The very small number of environmental samples from the 1981 excavations (O'Brien and Elliott in Chapter 18), alongside samples taken from Late Iron Age and mid-1st century AD features at The Ditches (Huntley 2009), means that, apart from indicating the consumption of spelt wheat and possibly barley, relatively little can be said about the arable economy. Analysis of the remains from The Ditches enclosures indicates the storage of cleaned grain, but the relatively small number of features sampled makes it difficult to assess whether this is because the site was only consuming, and not processing, grain. Huntley's (2009: 186) suggestion that wheat at this part of the complex came from slightly damp soils could indicate importation from the Thames Valley rather than derivation from the free-draining limestone soils of the Cotswolds. There is, however, no apparent evidence for a move to the creation of hay-meadows, unlike that recently identified at Silchester (Lodwick 2017).

For Bagendon, as with many other Late Iron Age complexes (Lodwick 2017; 2019), there thus remains a need to understand the social context of agricultural production. Future opportunities to undertake more isotopic analysis of Late Iron Age faunal assemblages and large-scale sampling of crop remains may allow a better comprehension of the proportion of local and imported consumables. The present evidence, together with indications that the permanent population at Bagendon might have been relatively small, implies a combination of local production alongside significant amounts of animals and cereals coming from elsewhere. This external source was most probably the Thames Valley, but, as suggested by the isotopic evidence, possibly also from west of the Severn.

Place in the landscape: routeways and interfaces

Bagendon's location is a microcosm of the regional topography: the well-watered river valleys of the Churn and Bagendon Brook contrasting with the well-drained limestone plateaus of the Cotswolds. At a larger geographic scale, it is located on the interface between the Thames Valley, with its potential for agricultural diversity, and the drier Cotswold Hills, enabling it access to diverse environmental and agricultural resources.

This location was also at the limits of different exchange networks of the Middle–Late Iron Ages, as discussed above (see Figures 24.2 and 24.3). Rather than being central to these exchange networks (previously regarded as 'cultural' zones; Cunliffe 2005: 105), Bagendon was relatively peripheral. Niall Sharples (1991a: 302) has suggested that some Later Iron Age production and exchange locations, such as the Somerset Lake Villages, were deliberately placed on the interface of different polities. This was not necessarily to facilitate access to trade routes, but rather to ensure that they were distinct from existing social and economic networks. This reflects a broader Later Iron Age phenomenon of locating the source and production of resources (e.g. ceramics and querns) outside of direct social control (Moore 2007a). The Late Iron Age centre at Bagendon, therefore, might have been deliberately located so as to be accessible from different parts of the landscape, perhaps in order to control exchange but also to facilitate group interaction, possibly even reflecting something of its roles in preceding centuries.

There are indications from isotopic evidence, ceramics and other material that Bagendon was well connected to the rest of southern Britain (Figure 24.13). Existing connections to the west of the River Severn were maintained, as is evident in the continuing use of Malvern[6] ware ceramics and in the import of iron ore and spit-shaped currency bars almost certainly deriving from the Forest of Dean (Hingley 1990). Similarly, lead (and probably silver) appears to have been obtained from the Mendips (see Chapter 4). Meanwhile, the plentiful Savernake ceramics from Wiltshire suggest close links to the potters who had established themselves in the Oare area. In considering its landscape connections, we also need to reflect on the wider political networks into which Bagendon emerged in the early 1st century AD. Although the vast majority of coins from the complex are Western (*Dobunnic*) types (see Chapter 10), coins from the South-Western (*Durotrigian*) and Southern (*Atrebatic*) regions are known from the Bagendon valley (including a coin of Tasciovanus-Epaticcus), as well as a coin of the eastern region of Tasciovanus, from The Ditches. The latter could reflect the connections to the *Catuvellauni* of the eastern region, implied by Cassius Dio (see below), and emphasises the associations in coin types between the southern and western regions (Hurst and Leins 2013). Pitts (2010: 53) has further argued that the similarities in brooch assemblages between Bagendon and *Camulodunum* could denote close ties between them. The coin assemblage from Bagendon is not especially diverse, however, considering the complex's potential social significance. This may say something about its role as an exchange and power centre; one that was more focused on communities within the region than without.

The nature of the routeways connected to the complex is harder to ascertain. Bagendon's situation just to the north of the junction of major Roman roads at

[6] It appears that the distribution network of Malvern derived ceramics expanded further east in the Late Iron Age, with a number of sites in the Upper Thames Valley having such material in later phases but not in Middle Iron Age.

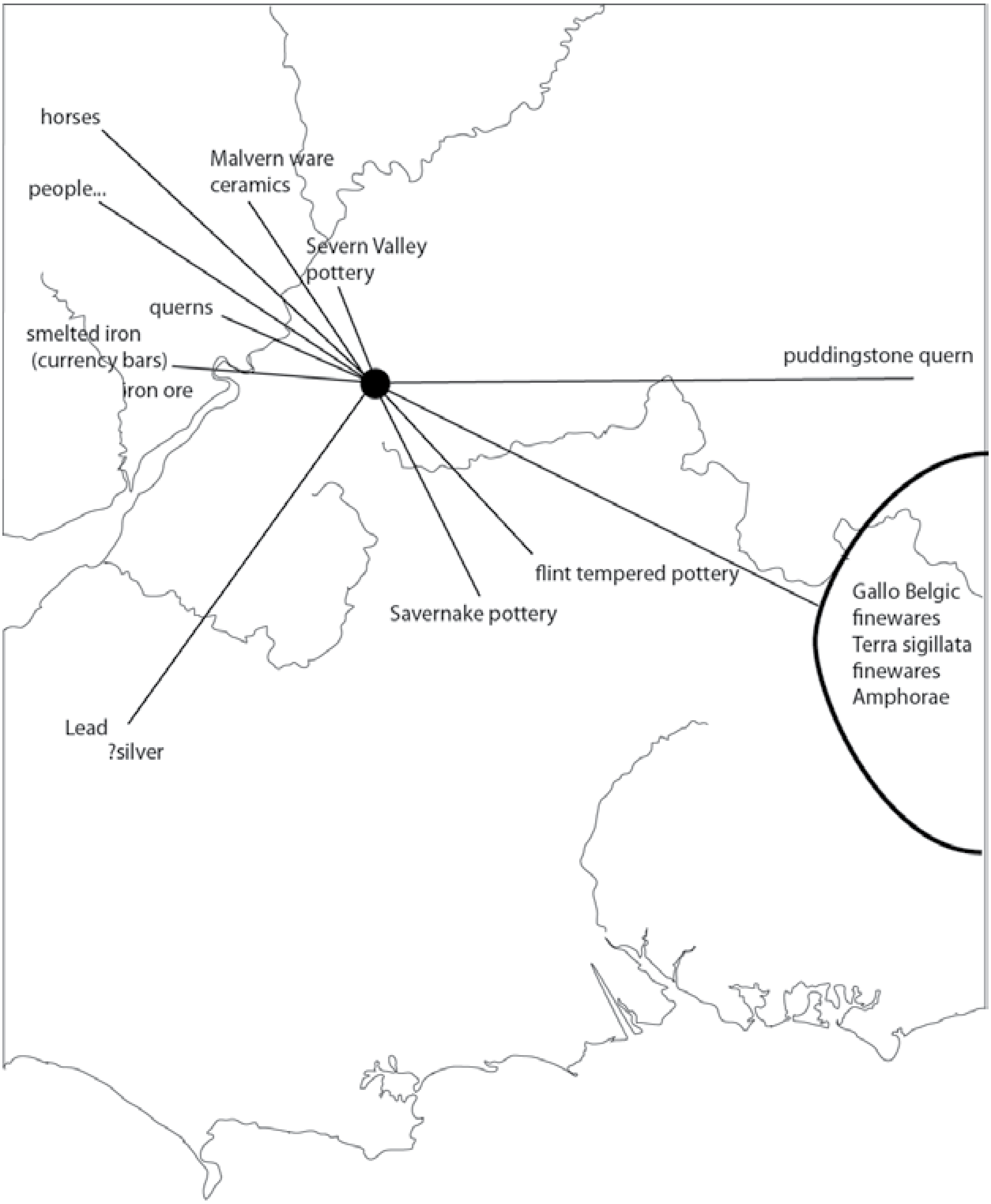

Figure 24.13. Map showing range and source of imports to Bagendon in the Late Iron Age.

Cirencester reflects the location of many 'polyfocal' complexes (even those that did not become Roman towns), suggesting a correspondence between Roman roads and the importance of these pre-existing locales (Moore 2012: 403). The route of Akeman Street, from *Verlamion* to *Corinium*, by taking its route through the North Oxfordshire Grim's Ditch dykes, appears to illustrate the significance of that complex, for example. Roman roads frequently exploited existing Iron Age routes (Haselgrove 2016: 459), and, in some cases, may have even replaced existing metalled Iron Age roads (Malim and Hayes 2010). Evidence of Late Iron Age activity at the crossing points of the River Severn, at Kingsholm, and the Dikler and Windrush, at

Salmonsbury, also imply that the placement of Ermin Street, Fosse Way and Akeman Street may not have simply reflected the movement of the army.

Although Roman roads may follow Iron Age routeways, exact correspondence is unlikely. If animals, as well as people, were moved, as the isotopic evidence seems to suggest, then routes along valleys would have often been the most suitable (cf. Fioccoprile 2016). The distribution of imported material in the region also indicates that even small navigable rivers remained important conduits of interaction and exchange in the Iron Age (Moore 2006: 208; Sherratt 1996). Reconstructing such routeways is challenging, for it is difficult to take into account the impact of areas of woodland, field boundaries and territorial constraints. Assessment of the best routes to move between the Thames and Severn Valleys using least-cost path analyses (see Chapter 20; Figure 20.9-20.11) certainly indicate that Bagendon was located near the most efficient route, which roughly became what is Roman Ermin Street. It is also positioned close to the best route between the upper Thames Valley and the Cheltenham area of the Severn Valley, which is via the Churn Valley. Both remain major routes to the Severn today, as well as between Wales and southern England. It is, perhaps, no coincidence that other (possibly major) Late Iron Age centres in the region are also located close to what were probably significant routes across the Cotswolds: Salmonsbury, situated along the Windrush/Dikler Valley and The Bulwarks/Rodborough at Minchinhampton, situated near the mouth of the Frome Valley, which runs east–west from the Severn Valley towards Bagendon and the upper Thames Valley (Figure 20.10). Resources available to the north and west of the Cotswolds (iron from the Forest of Dean, salt from Droitwich, sandstone quern stones from May Hill) were exchanged along such routes.

The location of Bagendon close to the route known as the 'Welsh Way' may also be pertinent. Still marked on parts of the OS map,[7] the Welsh Way is attested as a medieval and post-medieval drove-way between Wales and London, supplying cattle for urban areas, and was probably in use between the 13th and 19th centuries AD (Colyer 1974: 315; Moore-Colyer 2002: 158; Finberg 1954). It is believed to have left Ermin Street near Duntisbourne and cut across to Lechlade via Perrott's Brook (Colyer 1974). There have been suggestions that it reflects a much earlier Iron Age and/or Roman routeway (Copeland 2009: 49; Painter 1931: 126; Sawyer 1895–1897: 249). As discussed in Chapter 2, the correspondence of this route, which is now identified with the road that runs alongside Perrott's Brook Dyke, with the possible trackway/holloway identified between Perrott's Brook Dyke and dyke 'e', does raise questions as to its antiquity. Confirming continuity is impossible, and there is little to suggest direct connections between the use of this route in the post-medieval period and prehistory. Increasing evidence from the Bagendon complex of connections with people, animals and material culture from the western side of the Severn Valley and perhaps farther afield in Wales could, however, support such an argument. Conversely, these connections may simply emphasise that Bagendon was deliberately located on a natural routeway between the Thames and Severn Valleys, one reused in succeeding centuries.

[7] It is also marked as the 'Welch Way' on the 1792 'inclosure' map (see Figure 1.10).

Evidence for Bagendon as a ritual focus

Late Iron Age *oppida* in Europe have increasingly been argued to represent both places for social assembly and centres of ritual activity (Haselgrove 1995; Fernández-Götz 2014). For some, their development as social and political centres related to their pre-existing roles as ritual foci, places where communities were already assembling (Fernández-Götz 2014). The evidence from British Late Iron Age complexes is more nebulous. Most examples do not have evidence for temples. Although a Roman temple existed at Gosbecks, *Camulodunum*, which seems to have had a Late Iron Age predecessor (see Figure 24.7), the presence of ritual enclosures elsewhere, similar to those on the continent, is lacking. At Stanwick, Haselgrove (2016) has argued that the focus of the complex at the Tofts, close to a marsh-bound island, had a role as a ritual centre. Nothing comparable can be identified within the Bagendon complex, although the function of many elements remains unclear.

The location of these Late Iron Age complexes in wet locations may be ritually significant. *Verlamion* and Stanwick are correspondingly located around marshy or boggy areas (some of which are likely to have been wetter in the past): sites that were arguably more than just a by-product of their placement on waterways (Haselgrove 2016; Haselgrove and Millett 1997: 285; Rogers 2008). Willis (2007) has suggested that the location of Sheepen at *Camulodunum* could mark an important symbolic location on the freshwater/seawater interface of the River Colne, one reflected later in the construction of temples in this area. However, there is a danger in assuming the ritual significance of these locations on the basis of watery locations (Rogers 2008) using broad and imprecise definitions; the association between these complexes and marshy locales could just as easily relate to their place on important river crossings, close to water for metalworking and in landscapes suitable for the grazing and watering of a large number of animals.

It is worth emphasising again, however, that many of the activities taking place at these complexes (assembly, production, gift exchange) potentially combined both the ritual and the secular. We should then be careful in expecting a clear distinction between sacred and secular spaces for such activities. Even in the Late Iron Age, belief and cosmology were expressed through the structuring and use of living spaces. Indeed, much of what may appear artisanal or related to feasting could have included a ritualised component. The continued appearance of what may be termed 'structured deposits' (Hill 1995b), such as the currency bars in the ditch at The Ditches (Trow 1988a), and the presence of disarticulated human remains in features in the valley occupation (see Chapter 15), echoes what had been taking place throughout the Iron Age in the region (Moore 2006). Defining the distinction between structured (or ritual) behaviour and rubbish as midden waste in the material encountered at Bagendon has similar difficulties. Some of the rich assortments of finds in pits in Area A may, for example, represent a form of selectivity (see Mark Landon, in Chapter 11), but the reasons behind such practices are unclear. It appears that many 'ritual' practices at Bagendon largely continued from what had taken place in earlier centuries, part of the organisation of everyday activities within the settlement, and it remains hard to define a separate 'ritual space' within the complex.

Constructing earthworks: a language of power

The most striking element of the Late Iron Age transformation of Bagendon is, of course, the construction of its dyke system. Although many earlier authors (Playne 1876: 212; Witts 1897) regarded these as ramparts thrown up in times of warfare, in reality their role in defence is less clear-cut. The disjointed nature of the ramparts and their placement seem to suggest that defence was not necessarily the prime motivator dictating their arrangement. Late Iron Age warfare, as indicated by classical writers such as Julius Caesar (Moore 2017c: 55), appears to have been predominantly mobile, using horses and chariots. This might have made the placement of dyke systems useful in frustrating and breaking up attacks by mounted warriors (Cunliffe 2005: 148; Haselgrove 2016: 419). The possibility that stands of woodland or hedges were located in what are now gaps in the earthworks could also have made the ramparts more coherent than they now appear. The lack of features on geophysics to the north and west of the complex imply, however, that if any boundaries existed, they were far more ephemeral than those situated to the south and east. Although Julius Caesar's description of the Late Iron Age centres he encountered dates from at least 50 years earlier than the construction of Bagendon's earthworks, and from elsewhere in southern Britain (*De Bello Gallico* 5.21), it is useful in noting the use of natural features, such as marshes, alongside fences to create their defences. This sounds not dissimilar to how we might envisage Bagendon in the early-mid 1st century AD.

The disjointed nature of the earthworks and their lack of a strategic role in the defences does not detract from their potential, through their physical impressiveness, for demonstrating the martial strength of those who commissioned or occupied these complexes. The symbolic role of defences in displaying power and the threat of force, even if they were not designed to be defended from or to withstand sieges, should also be considered (Armit 2007; Sharples 1991b).

Although not all Late Iron Age centres needed to be enclosed (Moore and Ponroy 2014), the significance of boundaries in marking the status of these complexes appears to have been fundamental. The very construction of the dyke systems is, therefore, likely to have had social meaning, in addition to functional roles (cf. Rieckhoff 2014). At Stanwick, their construction appears to have taken place at a time when the enclosing of small farmsteads, so common across Middle Iron Age Britain, seems to have ceased (Haselgrove 2016: 459), perhaps marking a deliberate transference of power from the household to a political and social centre. In other parts of Britain, it appears that the opposite took place; for example, around Maiden Castle there was a shift from a large, communal enclosure to smaller enclosed communities (Sharples 2010: 89). No similar trajectory can be identified in the Bagendon environs in the Late Iron Age, where, even though many settlements in the region were unenclosed, enclosures also remained widespread.

Bagendon was situated in a landscape where earthworks, whether defining individual farmsteads and paddocks or as landscape boundaries, would have been common. The imposing earthworks of many hillforts, some of which had been abandoned but others, such as Salmonsbury, were still in use, would have been an accustomed sight. For centuries, digging ditches and heaping material into associated banks to define communities and social space had been not just a functional necessity, but also one that embodied social relationships (see Chapter 23; Moore 2007a). By the Late Iron Age, it would have represented a familiar repertoire for conveying ideas of access, authority, control and power. People would have been well aware of the materiality of these features, the amount of labour required in their construction and the social meanings that they conveyed. It is therefore probable that the earthworks at Bagendon were part of a common 'language' of enclosure construction, defining space and place with banks and ditches. Further, it is revealing that the form of the Bagendon dykes is not significantly different from the ditches of the smaller enclosures that preceded them, such as those at the

Cutham and Scrubditch enclosures (Chapter 3). What sets them apart is their scale: they are approximately twice as large. This was probably deliberate: most Iron Age individuals would have been aware of how long it took to dig a ditch around a household-sized enclosure; that the Bagendon ditches were twice as deep would have been a clear statement to those constructing and seeing them of the importance of this complex.

Labour and ramparts

If the form of the ramparts at Bagendon do not solely suggest defence and was instead more focused on guiding the movement of animals and people, what do the ramparts themselves tell us about the size of the community that might have been mobilised to construct them? Many have argued that the creation of earthworks on such a scale represented a major consumption of labour, either as a communal effort or directed by an elite (Cunliffe 2005: 591; Giles 2012: 42; Sharples 2007). A number of assessments of *oppida* have sought to understand the scale of resources that might have been expended on these monuments (Haselgrove 2016; Garland 2016a, 2016b), using a variety of methodologies to reconstruct the labour required in their construction and considering a host of variables, including soil types and building techniques. Despite the problems in such estimations, they provide an approximation for the amount of labour expended on the earthworks. Employing these for an accurate assessment of how many people were involved and how long construction took is highly problematic, but these results can be compared on a relative basis with other Late Iron Age complexes and enclosures within the region. The analysis here used the methodology employed by Haselgrove (2016: 458) and Garland (2016a), which calculates the amount of soil removed from cross sections of ditches and multiplies it by their length. This obviously has some drawbacks, not least the potential variability of ditch forms, which was likely to be the case and can be seen in the few sections across the Bagendon earthworks (Figure 4.26). However, this method does allow for comparison between other similar studies, of Stanwick and *Camulodunum*, and that of Bagendon.

Defining the length of the Bagendon ramparts is not necessarily easy. Within the current earthworks there are clearly gaps that have been caused by later truncation (see Chapters 2 and 4), although others appear to reflect a real lack of earthworks in the past. For this estimate, dykes 'b' and 'j' are assumed to have almost met at one time with only a short gap between them. The likelihood that Perrott's Brook Dyke 'f' and dyke 'e' extended farther to the north-west has not been included in this assessment of earthwork size, however, because this remains speculative. For similar reasons, the possibility that dyke 'h' extended farther west has not been included. The large ditches within the valley, which defined the main occupation area, have also not been included either, as such internal features do not appear to have been included in comparable assessments. Taking these judicious omissions into account, this assessment may be on the conservative side in assessing the extent of the scale of the earthworks created in the Late Iron Age. It has reasonably been assumed (based on the geophysics) that the unexcavated dykes were of comparable scale to those that have been sectioned via excavation. The only exception is the extension of Cutham Dyke 'a' to the north-west, which, according to the geophysics, is more likely to be of comparable scale to the ditches from the Scrubditch enclosure. It is also worth considering that a number of the earthworks at Bagendon have certainly suffered plough damage, and might have been deeper and wider than these estimates suggest. In addition, the main dykes probably represent only part of the complex's earthmoving projects. If, as seems the case, The Ditches and Duntisbourne enclosures were constructed roughly contemporaneously, then these would have required the additional movement of *c.* 11,000 m^3 of earth.

Establishing the number of people and amount of time required to construct such earthworks is more difficult. All of the Bagendon earthworks were cut into the oolitic bedrock, which would necessitate moving considerable tonnes of material, although the way in which it fractures may actually make construction easier than when digging through loose gravel or wet clay. Haselgrove (2016: 457–58) and Garland (2016a: 79), on the basis of ethnography and experimental studies, argue that the amount of earth moveable per hour was anywhere between 0.09 and 0.27 m^3, although others suggest much higher rates (for example, 0.80 m^3; Lock *et al.* 2005). These rates depend on variables such as the nature of the tools, the geology and a variety of social factors. An average of around 0.18 m^3 per hour based on those estimates enables comparison between different earthworks, but this figure should be regarded as relative, rather than a true reflection of how long it took to construct these monuments.

Comparison with other large earthwork sites (Table 24.1), such as hillforts in the region, provides some useful insight into the comparative scale of the Bagendon complex. The small 'hillfort' of Conderton only required the excavation of some 1700 m^3 of earth, making it more comparable to smaller enclosures. The nature of the ramparts at Uley Bury hillfort makes establishing the scale of earth moving there somewhat more complicated. Based on Alan Saville's (1983: 23) reconstruction an estimate of as much as 30,000 m^3 is possible if the circuit was truly multivallate. The scale of the Late Iron Age enclosure at Abingdon (Lambrick *et al.* 2009: 362) produces a similar result. Construction of the ditches at Salmonsbury (Dunning 1976), by contrast, would have required significantly greater labour than those at Bagendon and Uley Bury hillfort, emphasising perhaps Salmonsbury's social importance within the region.

The earthworks at Bagendon, unlike some hillforts (especially multivallate examples), were probably constructed during one event, suggesting that these comparisons may be slightly misleading. This would mean that the labour required for such an activity was a short-term process, perhaps even over a single season, compared to the potentially longer-term development of enclosures like Salmonsbury. These figures emphasise, however, that the scale of the Bagendon earthworks was not significantly larger than constructing a hillfort enclosure.

Comparison with the earth moving required for smaller contemporary earthworks in the region also provides insights into the relative scale of labour involved in constructing the Bagendon complex. Construction of the enclosures at Cutham and Scrubditch, which pre-dated the ramparts, represented a small fraction of the labour expended on the later dykes. A crude estimate suggests that Bagendon involved the movement of approximately 43 times the amount of soil compared to all the ditches at the Scrubditch enclosure, for instance (Table 24.1); by comparison, it represented approximately 33 times the effort expended on the ditched enclosure at The Bowsings (Marshall 2004). This is roughly comparable to the difference in earth moving between the earthworks around the Tofts enclosure at Stanwick and the small enclosures in its environs (Haselgrove 2016: 458). In both cases, such figures may reflect similar multiples in the size of the communities involved in the construction of both complexes.

Comparing the labour consumed at Bagendon with that at other larger dyke complexes is also instructive (Table 24.2). At Stanwick, Haselgrove (2016: 458) suggests that constructing the perimeter could have taken as many as 1.90 million person hours, and this

Table 24.1. Assessment of potential number of person hours involved in the construction of earthworks at Bagendon compared with sites nearby.

	Total length of dykes (ditches) - Km	Estimated volume (m3)	Estimated (person hours) (average 0.18m3 per hour)	Estimated (person hours) (average 0.27m3 per hour)
Bagendon(total dykes)	5.62	28,034	155,744	103,830
Bagendon (including Duntisbourne and Ditches enclosures)	7.75	39,004	216,688	144,459
Uley Bury 'hillfort'	2	15,000 (30,000?)	83,333	55,556
Salmonsbury 'hillfort'	4.4	53,024	294,577	196,385
Conderton 'hillfort'	0.4	1,710	9,500	6,333
The Bowsings enclosure	0.28	833	4,627	3,085
Cutham main enclosure	0.1	314	1,744	1,163
Scrubditch enclosures	0.31	652	3,622	2,415
Duntisbourne Grove enclosure	0.6	2,520	14,000	9,333
The Ditches enclosure	1.55	8,450	46,944	31,296

Table 24.2. Assessment of potential number of person hours involved in the construction of earthworks at Bagendon compared with those required for the earthworks at Stanwick, North Yorkshire (latter figures from Haselgrove 2016)

	Total length of dykes (ditches) - Km	Estimated volume (m3)	Estimated (person hours) (average 0.18m3 per hour)	Estimated (person hours) (average 0.27m3 per hour)
Bagendon (total)	5.62	28,034	155,744	103,829
Bagendon (including Duntisbourne and Ditches enclosures)	7.75	39,004	216,688	144,459
Stanwick (total)	17.86	221,000	1,227,777	818,518
Stanwick (The Tofts only)	0.58	15,600	86,666	57,777

is comparable to amount of time required for the construction (and refurbishment) of major continental *oppida*. Garland (2016a: 131) has advocated a total of 2.26 million person hours for the entire 16.5 km of earthworks at *Camulodunum*, although when split into the suggested four phases, these are between 223,000 and 1.09 million hours. Even adding in additional elements of the Bagendon complex, such as the The Ditches, the scale of the earthworks at Bagendon indicates that the required earthmoving was far lower than at these other complexes. At Stanwick and *Camulodunum*, this is due to the greater length and size of their earthworks. Further, in contrast to Bagendon, it seems that at both Stanwick and *Camulodunum*, the earthworks were, at least partly, multiphase monuments (Haselgrove 2016; Garland 2016a: 131), rendering comparisons with Bagendon less clear-cut. The extent to which the earthworks at Bagendon have suffered greater levels of erosion is also an issue, although for many such as Cutham Dyke 'a', this seems unlikely to be a major factor.

Converting these figures into of the number of people and days it took to construct these earthworks is extremely difficult, but in general terms, the entire complex could have been constructed in as little as a month by a team of around 1000. Given the limited evidence for houses identified within the Late Iron Age occupation area of Bagendon (see Chapter 4) and the probably relatively small resident population, it seems unlikely that those living in its bounds constructed the earthworks. The relatively sparse evidence for settlements near Bagendon also suggests that it was not reliant just on communities from the immediate environs. Evidence for an increasingly densely settled landscape across the wider region by the Late Iron Age (see Chapter 23) suggests, however, that mustering a large workforce would have been relatively easy. Indeed, such a construction effort would not necessarily have placed serious strain on these farming communities. Of the hundreds of potential farmsteads and communities across the (so-called) *Dobunnic* area, 500 farmsteads could have each sent just two people. If constructed at a relatively quiet time in the agricultural year, this undertaking would not have put considerable pressure on other activities.

Considered in these terms, the scale of the earthworks would have made a compelling case to a visitor for the strength of the communities that constructed them. As such, it could have acted as a form of psychological warfare, impressing potential rivals with the power of the polity that it represented (cf. Sharples 1991b). Closer examination reveals, however, that the arrangement of the earthworks was far more sophisticated than a mere demonstration of the communities' power through their scale.

Experiencing Bagendon: visibility and movement

The ways in which space was created and manipulated were equally critical to the role of the earthworks at Bagendon. While the scale of the earthworks emphasises a substantial labour force, it is clear from their physical location and visibility that such labour could have been used in more overt ways to express power. Assessing the dispersed elements of Bagendon as a whole, a role for the complex can be proposed that envisages the earthworks not as defining an enclosure, but manipulating movement and experience. Such an arrangement evokes the possible nature of power in the Late Iron Age and illustrates how Bagendon and perhaps other such complexes expressed it. GIS analysis of the visibility and placement of the earthworks may allow us to investigate the rationale behind their positioning (see Chapter 20).

Studies of other Late Iron Age centres have argued that their earthworks were devised to 'look impressive' as much as have a functional role (Haselgrove 2016: 486). The visibility of earthworks is crucial in this process. Unlike hillforts, the positioning of the dykes at Bagendon means that they are not greatly visible from any distance (Figure 20.2). Instead, their visibility suggests that they were designed to dominate the approach to Bagendon valley, as movement was expected from the Churn Valley to the south and east. At other Late Iron Age centres, the earthworks were arguably designed to look more impressive from within the enclosed areas than from without (Garland 2016a: 131). At Bagendon, only Cutham Dyke and dyke 'd' would have been visible from the valley occupation area (Figure 20.5). The positioning of these earthworks enhances the enclosed feeling of the valley. The location of dyke 'd' in particular, which was probably relatively small, on a natural bank, makes it appear, from the interior of the valley, far larger than it is.

The only location within the complex where more than one or two earthworks could be seen simultaneously is when approaching the valley occupation area from the Churn Valley, through the presumed entrance at Perrott's Brook. Here, a view to the left would have displayed at least three earthworks stretching out of sight up the slopes to the west; to the right would have yielded a vista of two earthworks, again stretching out of sight up the slope to the north. The impression, from this location, would have been of greater vallation than really existed around the complex, implying a larger consumption of labour than in actuality. Given the arguments that people were aware of the labour required to construct such earthworks, this scene represented an expedient use of resources to maximum effect in a conspicuous consumption of labour.

At the same time, these earthworks restricted any view of the valley, ensuring a sense of revelation as visitors passed through into the valley occupation area. Other approaches to the complex would also have been visually impressive, with the ramparts on either side of the natural coombe between Perrott's Brook Dyke and dyke 'e' rendering the entrance here an imposing and enclosed experience, even today (see Figures 4.28 and 24.8). The main trackway directed people along the valley floor into the 'interior', probably towards the enclosure at Bagendon House and then on to the Duntisbourne and The Ditches enclosures. Overall, the arrangement of the earthworks at Bagendon was far more sophisticated than that of simple large-scale visual spectacle to impress visitors.

All of these aspects together provide an appreciation of how moving into and through the complex would have been a dramatic experience. The scale of the earthworks visible on entering the complex would have suggested to visitors the considerable number of people required to construct them, emphasising the power of the community that they represented. Moving along the trackway would have meant passing by a hive of (often visually impressive) activity, including iron smelting and smithing, as well as coin minting. Once through the entrance, the bowl shape created by the valley was accentuated by dyke 'd', which snaked to the south on the ridgeline, and Cutham Dyke 'a', arcing away up the slope and out of view to the north (see Figure 20.5). On the valley slopes and partly visible plateaux to the north and south on either side of the main occupation area, open areas containing flocks of animals or even, at certain times of year, perhaps the assembly of people, would have been conspicuous.

Movement towards the enclosures at Duntisbourne or The Ditches would have accentuated the experience. Depending on the nature of any woodland cover, dyke 'g' to the south would potentially have been visible when advancing along the valley. Approaching the large hidden enclosure at the summit of Duntisbourne Grove would have meant climbing up the steep and relatively narrow, funnel like, valley at Stancombe (see Figures 20.1 and 20.2). A longer walk up the main valley would lead to a climb up to The Ditches enclosure at the end of the valley, its external antenna ditches creating an elaborate funnelled entrance reminiscent of the earlier banjo-like enclosure at Scrubditch. In both cases, visibility of what was taking place within the enclosures would have been obscured until the visitor was inside. The effect would have been to emphasise the importance of these spaces and to separate them from the rest of the landscape, an experience that was perhaps restricted to only a few people.

The use of space and movement in this way is often an attempt to display power through its theatricality (Inomata and Coben 2006; Tilley 1994: 27). For Bagendon, this was not just about how the movements of individuals and communities were directed through the complex, but in the associated sights and sounds that greeted them. The location of metalworking along the valley trackway and close to the entrance, for instance, was perhaps deliberately situated to exhibit control over resources. The presence of smelting here might be explained by this arrangement. It seems strange that ores were transported to Bagendon for smelting, despite the difficulties in moving them long distances from, presumably, the Forest of Dean area (see Chapter 4), especially given that wrought iron, in the form of currency bars, was also being transported to the site (see Chapter 4). Smelting, therefore, might have been as much a theatrical act as a necessity, demonstrating both power over the resource itself and, in the ability to transport it from the other side of the Severn, control over nature. Connections elsewhere in the Iron Age (Hingley 1997) between ritual and metalworking were also a means of demonstrating and conveying political and ritual power (Creighton 2000: 53; Inomata and Coben 2006: 29).

Other aspects of the dyke system appear to have been designed to direct movement and suggest that this arrangement operated on a wider, landscape scale (Figure 24.8). The enigmatic dyke 'h' created an effective, cross-ridge barrier between Bagendon Brook valley and the slight coombe at Grove Hill, especially if it had continued farther west (see Chapter 4). This would have created a barrier to moving northwards along the ridge. Analysis using least-cost path assessments (Chapter 20; Figure 20.9) suggests that this is the best route for moving from the upper Thames Valley towards the Severn Valley, and it therefore unsurprisingly became the route of the Roman road (Ermin Street). It would thus appear that dyke 'h' was deliberately located to block easy movement along the ridge. If, as seems probable, Perrott's Brook Dyke 'f' and/or dyke 'e', continued towards the north-west or this area was shielded by woodland, then these features were intended to block access from this direction. Such placement would have combined to force, or direct, movement from the upper Thames Valley into the adjacent valley, towards and through the Bagendon complex.

The arrangement of the landscape might have been even more extensive in its scope. Evidence of Late Iron Age activity around Stratton and the placement of Tar Barrows overlooking the River Churn (Figure 24.14) might also have been part of this broader, theatrical landscape. It is probable that anyone coming to Bagendon from the south would travel along the Churn Valley, passing the area now occupied by Cirencester and witnessing the possible funerary monuments at

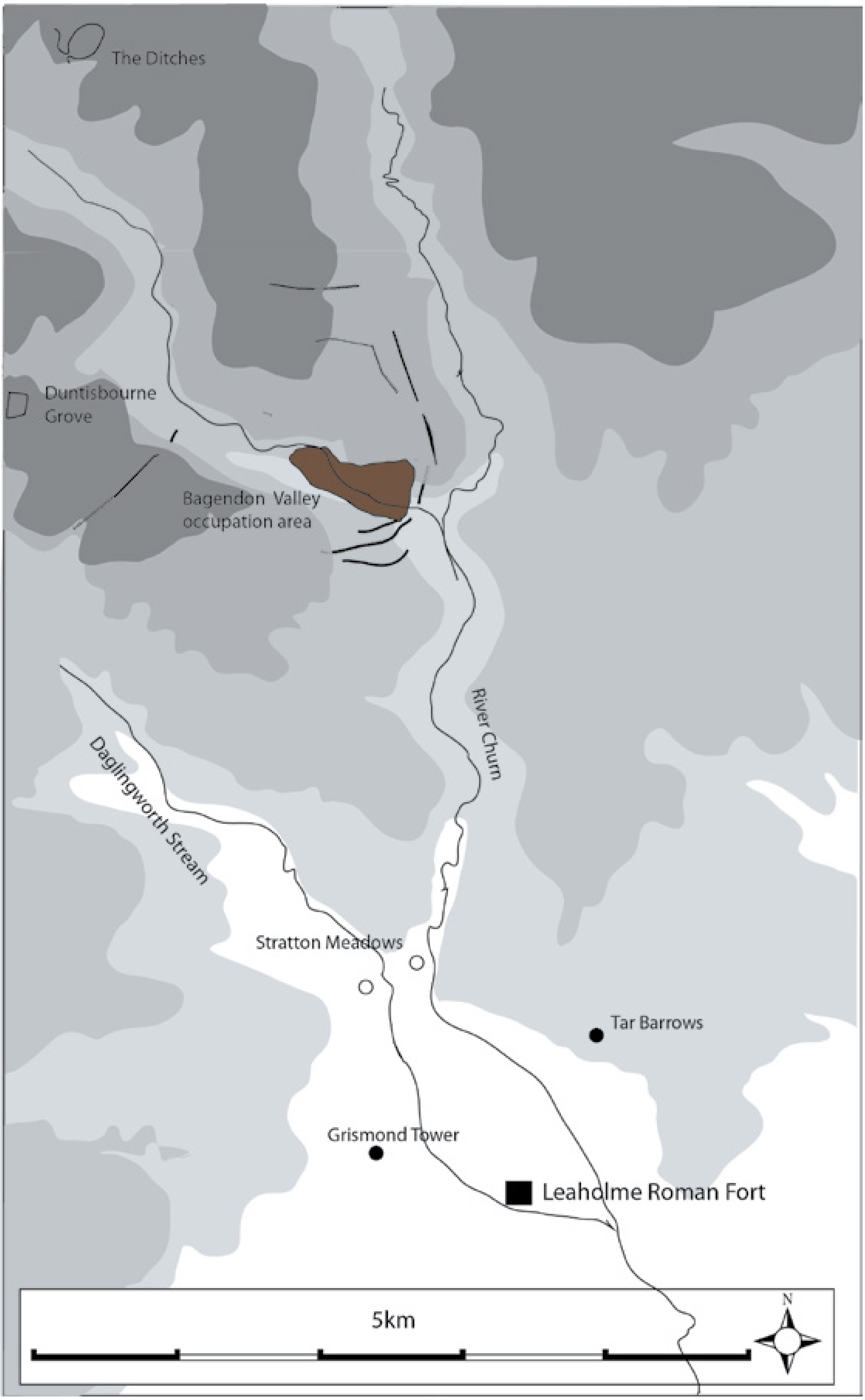

Figure 24.14. Map showing relationship between Bagendon complex and Churn valley, including Tar Barrows.

Tar Barrows to the east. The enigmatic probable barrow at Grismond's Tower could be a Neolithic monument (Darvill 2014), although the possibility that it too had later origins has not been entirely dismissed (Neil Holbrook pers. comm.). Its location, on the opposite side of the valley, would have framed movement northward towards Bagendon. Importantly, there need not have been perceived 'limits' to the Bagendon complex, or at least physical ones that we can define today. These activities may have worked to manipulate, channel and encode movement and experience of the landscape. What was part of this design depends on our perception of how the landscape was experienced.

Bagendon: an '*oppidum*'?

Taking the evidence of activity at Bagendon as a whole, in what terms can the complex be defined? Clifford's discovery of coin moulds and imported ceramics of 'Belgic' style naturally led her to regard Bagendon as an *oppidum*, the precursor to *Corinium*, recognising that such sites need not be directly beneath Roman towns (Clifford 1961: 2). She argued, convincingly, that Bagendon should be placed alongside the Belgic 'cities' or *oppida* already identified (e.g. Wheeler and Wheeler 1936). Clifford's (1961) definition of Bagendon as an *oppidum* has largely been accepted by those examining the Late Iron Age in Britain (Collis 1984; Cunliffe 1976, 1988: 156; Fichtl 2005: 206; Pitts 2010), with it widely regarded as the tribal capital of the *Dobunni* (Cunliffe 2005: 191). Increasingly, the form of the Bagendon complex suggests, however, that what we mean by such an attribution requires scrutiny. To define Bagendon, it is worth considering how interpretations of *oppida* have changed in recent decades, allowing us to re-define Bagendon within Late Iron Age society while explaining the diversity of Late Iron Age complexes more generally.

Since as early as the 16th century, the complexes of earthworks associated with the end of the Iron Age and the beginning of Roman Britain have beguiled and confused archaeologists. Using the term *oppida* to refer to these Late Iron Age centres remains controversial and ambiguous (Haselgrove 2000; Moore 2017a; Pitts 2010; Woolf 1993). This Latin term ultimately derives from classical sources; most significantly, Julius Caesar used it to describe the major Iron Age settlements and social centres he encountered during his conquest of Gaul in the mid 1st century BC. The identification of archaeological monuments that could be equated with Caesar's description led, in the late 19th and early 20th centuries, to *oppida* becoming a pan-European category of monument applicable to Late Iron Age settlements as far afield as Bohemia and Britain (Fichtl 2005; Salač 2012). Most definitions of *oppida* are based on attributes that emphasise their size and proto-urban characteristics (e.g. Collis 1984; Fichtl 2005: 17–18; Buchsenschutz and Ralston 2012).

The extent to which the term *oppidum* and its definitions are relevant to the Late Iron Age centres recognised in Britain has been contentious. Classical writers, most importantly Julius Caesar (*De Bello Gallico* 5.21) and Suetonius (*Life of Vespasian* 4.1), used the term to describe sites that Rome encountered in Britain in the 1st century BC and AD, but whether they were referring to places comparable to those on the continent, in either form or function, is highly debatable (Cunliffe 1976: 135; Fichtl 2005; Woolf 1993). Caesar (*De Bello Gallico* 5.21) and Strabo (probably copying him) imply a significant difference between Gallic *oppida* and those on the British side of the channel. Their description suggests woody locations in Britain for the temporary corralling of men and cattle, rather than permanent centres of population (Moore 2012):

> *The forests are their cities; for they fence in a spacious circular enclosure with trees which they have felled, and in that enclosure make huts for themselves and also pen up their cattle—not, however, with the purpose of staying a long time* (Strabo, *Geographica* 4.5.5)

Almost all of the centres in Britain commonly referred to as *oppida* date later than Caesar's incursions, suggesting that he may be describing something quite different from complexes such as Bagendon. Other sources used alternative terms: Ptolemy's *Geographia*, compiled in the early 2nd century AD, but probably referring to earlier evidence, identifies a variety of places as *poleis*. Their varied nature suggests that he had little clear definition of what this was referring to, and there is significant selectivity in which places are mentioned (Jones and Mattingly 1990: 18; Rivet and Smith 1979: 116). This may indicate that other pre-conquest centres existed which were no longer regarded as important by Ptolemy or were deliberately ignored by the new Imperial administration (Moore 2011). Cassius Dio (*Historiae Romanae* 60.21) identifies *Camulodunum* as a 'royal residence', focusing on its socio-political role rather than its morphology. It seems that classical writers were largely using terms with which they, and their readers, were familiar to describe settlements for which they had no adequate terminology, while also being informed by biases, misunderstandings and propaganda (Moore 2011; Wacher 1974: 36; Woolf 1993: 226). Use of the term *oppidum* by archaeologists for places in Britain, therefore, has as much to do with our perceptions of social organisation in the Late Iron Age, relating to arguments for the appearance of centrally organised kingdoms, as it does with how these complexes compare to those identified in Gaul (Cunliffe 1988; Haselgrove 1987).

An increasingly critical perspective on change in the Late Iron Age as explicable through economic impact via contact with the Roman Empire led to suggestions that the main role of British *oppida* was less as centres of trade and more as centres of royal power. This interpretation thus posited that the amount and type of imports on most British sites is unlikely to represent significant economic trade and is more probably the result of diplomatic gifts or the process of elite gift-exchange (Fitzpatrick 2001; Hill 2007). John Creighton (2000, 2006) has argued that the concept of kingship was emerging at this time, with the use of coins to articulate a new form of power through clientage. The form of 'territorial *oppida*', lacking the nucleation of many of their Gallic counterparts, could therefore reflect their role as arenas for the demonstration of such kingship, rather than as proto-urban or market centres. The presence of elaborate burials, often with imports from the Roman world, and the associations of some sites, such as *Calleva* and *Camulodunum*, with named individuals in classical sources suggested that the core function of the British 'territorial *oppida*' was as centres for the ceremonies and roles of kingship emerging at this time (Hill 2007: 32). Such roles appear to mirror more closely how these locations were described by some classical writers, such as Dio's description of *Camulodunum* as a 'royal residence' (Moore 2011: 341), prompting recent interpretations of that complex as a 'royal farm estate', rather than as an urban centre (Gascoyne and Radford 2013: 42).

These reappraisals have suggested that, rather than sharing similarities with Gallic *oppida*, the dyke complexes of southern Britain are potentially more comparable to a range of dispersed centres in Ireland, such as those at Tara and Navan (Haselgrove 2016; Hill 1995a, 2007). Known as 'royal sites', from their early medieval role as the place for anointing kings, some of these were at least partly contemporary with the complexes in Britain. Discussion of some British sites has gone further, perceiving similarities in some of the structures at these complexes (Haselgrove 2016) and in the ways in which some British sites appear to channel movement through the complexes, seemingly in a similar fashion to some Irish sites (e.g. Moore 2012: 413). These potential Irish parallels coupled with evidence for 'kingship' at this time has led some to argue that the label 'royal sites' is more appropriate than territorial *oppida* (Hill 1995a, 2007; Haselgrove 2016).

In an understandable desire to jettison the often unhelpful and loaded label of *oppida*, dangers in adopting the term 'royal site' may have been overlooked. While arguably appropriate for complexes such as *Camulodunum*, Stanwick or Silchester, with good evidence that they were residences of individuals who appear to have defined themselves as kings or queens (Fulford and Timby 2001; Haselgrove 2016), some caution is necessary in expanding the terminology to include all sites previously identified as '*oppida*'. We might also reflect on the significant reappraisal of Irish 'royal sites' themselves, which suggests a connection to sacral-kingship alone may be simplistic (Becker 2019). One danger in using this nomenclature is in reinforcing notions of kingship for which many Late Iron Age regions show relatively little evidence. To view Bagendon as purely a centre of kingship may overly simplify the nature of power articulated at some complexes.

A number of Late Iron Age centres do not readily fit within Cunliffe's overarching framework—which emphasises the problem. Mark Corney (1989) highlighted a number of such complexes (e.g. Gussage Cow Down, Blagdon Copse), which contained some of the attributes of 'territorial *oppida*' (large linear earthworks, imported material, high-status burials) but lacked others, such as evidence for coin minting or association with subsequent Roman *civitas* capitals. The dispersed nature of many of these complexes and that of many of the 'territorial *oppida*' led Haselgrove (2000) to describe them more fittingly as 'polyfocal complexes', reflecting the ways in which they contained dispersed aspects such as settlement, cemeteries and artisanal areas. This description has allowed a range of other, ill-defined social centres to be discussed alongside the *oppida* (Moore 2012). Such approaches are useful in breaking down the barriers which the term *oppida* creates, based not on a clear definition of their socio-political roles or morphology, but on assumptions over status or back-projection from their roles in the Roman province (Moore 2011).

Comparisons for Late Iron Age Bagendon

How does Bagendon compare with other complexes, including those labelled '*oppida*', royal sites and other settlements? Investigations of the Bagendon complex as part of this project suggest two phases of occupation, the first in the Middle–Late Iron Ages (*c.* 4th century BC–early 1st century AD) (Figure 24.1), and a second dating to *c.* AD 20/30–60; the latter associated with the dyke system and coin minting (Figure 24.8). The first phase is best be compared to the banjo complexes in the region and beyond. It appears, however, that there was some overlapping of activities between the banjo enclosure complex and the construction of the dyke system and occupation in the valley, suggesting Late Iron Age Bagendon should also be compared with a range of other settlements. The changing form of Bagendon reminds us that the dyke complex was transitioning over a relatively short space of time in the early–mid 1st century AD and was unlikely to have been designed to a template. Instead, it reflects influences from its precursors (the banjo enclosures) as well as from other socio-political centres. The polyfocal nature of the complex at Bagendon also emphasises that, akin to other such sites (Haselgrove 2000; Moore

2012), assessing it on the basis of material culture from isolated elements may be misleading. As the current research at Bagendon reveals, our conception of the nature of activity at such complexes can be biased by where and how investigation has taken place.

In contrast to Clifford's (1961) suggestion that Bagendon was an '*oppidum*', others have envisaged it as an elite farmstead or village (Darvill 2010), a Roman industrial area (Trow 1982a: 28) or as some form of 'royal park' (Reece 1990). Some of the reasons for these varying interpretations is Bagendon's apparent lack of the features typical of territorial *oppida* in south-eastern England, such as a sanctuary or cemeteries containing burials with imported grave goods. Such interpretations may also, unwittingly, betray how discussion of Bagendon remains bedevilled by a lingering presumption of the peripherality of the Cotswolds to the core of south-eastern England, with the complex perceived as a poor relation to *oppida* such as *Camulodunum*. These perspectives are also founded on the fact that, even despite increasingly detailed understanding of Bagendon, it still lacks some of the elements seen at other Late Iron Age complexes. Some of these missing aspects may await discovery or the highly dispersed nature of the complex may mask the fact that such elements where just situated farther away. For example, the potential for the Tar Barrows to represent Late Iron Age tumulus burials (Holbrook 2008a: 310; see Figure 24.14) could in turn suggest that, as at some other complexes (cf. Haselgrove 2016: 349), rich burials may be located considerable distances from the dyke complex itself.

Despite differences with other complexes in south-eastern England, one of the closest and most relevant comparisons for Bagendon is the activity around St Albans, Hertfordshire (Figure 24.7). Situated around the area of the later Roman town of *Verulamium*, this pre-Roman centre (*Verlamion*) contained a polyfocal arrangement of dispersed activities, including coin minting situated within what would have been a marshy valley (Bryant 2007: 71). Located on higher ground overlooking the valley were apparent 'elite' enclosures, at Gorhambury and Prae Wood (Bryant 2007: 70), the access to which was restricted by large earthworks (Figure 24. 7; Bryant 2007; Thompson 2005), overlooking a low-lying artisanal area. The topographic relationship at *Verlamion* is perhaps comparable to that between The Ditches, Duntisbourne and Bagendon. Similar to Bagendon, it is also notable that, after the Roman conquest, early villas were built around the newly emerging town at *Verulamium* (see Chapter 5; Trow *et al.* 2009: 55). Meanwhile, there are also possibilities of political connections between Late Iron Age communities in the Cotswolds and the *Catuvellauni*, the kingdom in which *Verlamion* appears to have been located. Such connections are even hinted at by the discovery at Bagendon of the unusual Puddingstone quern from Hertfordshire (Green, in Chapter 12).

One of the most significant similarities with *Verlamion* is in the use of the landscape to channel and direct movement through the complex. Stewart Bryant (2007: 72) has suggested that Beech Bottom Dyke was a processional route rather than a boundary, with people moving into *Verlamion* passing Folly Lane above them as they moved towards the enclosures at Gorhambury or St Michael's enclosure. This might have been similar in some ways to movement through the wider Bagendon landscape (Figure 24.14), where visitors would have passed by Tar Barrows on their way to the complex. Both *Verlamion* and Bagendon appeared to have used burial monuments, hollow-ways, earthworks, artisanal activity and restricted spaces to impress upon visitors the power of the inhabitants and importance of the complexes that they were entering.

At *Camulodunum* too, the focal or elite enclosure at Gosbecks is located close to the source of a spring, with access to it flanked by multiple lines of earthworks (Figure 24.7). If the arrangement of the early phase of the dyke system is to be believed (Hawkes and Crummy 1995: 174), the earthworks created a funnel that was then embellished around the conquest period. Rather like the positioning of dykes at Bagendon, the arrangement of additional dykes dissuaded travellers from approaching Gosbecks from the north or south, while also ensuring that visitors passed the cemetery at Stanway. At Stanwick (Figure 24.7), it also increasingly appears that the main enclosure was part of a much wider complex, extending over many kilometres, and even included a nearby ladder settlement at Melsonby (Haselgrove 2016; Figure 24.15a and 24.15b) and the Late Iron Age/Claudian–Neronian occupation at Scotch Corner (Fell forthcoming). At the latter there was evidence of various artisanal activities, including pellet moulds that could represent coin minting (Fell forthcoming). This occupation and potentially relatively high-status settlements nearby, such as that at Melsonby (Haselgrove 2016: 349), appear to have been connected by wide trackways, whose scale (Figure 24.7 and 24.15a, b) may even suggest that they formed processional routes towards the complex.

At Silchester (*Calleva Atrebatum*), a large enclosure and dyke complex emerged around the last quarter of the 1st century BC (Fulford and Timby 2001: 545; Fulford *et al.* 2018), just a few decades before the transformations that took place at Bagendon (Figure 24.12). The arrangement of trackways and enclosures within the Bagendon valley have few parallels at other *oppida* complexes. This may be partly because most have seen little modern, large-scale investigation, due

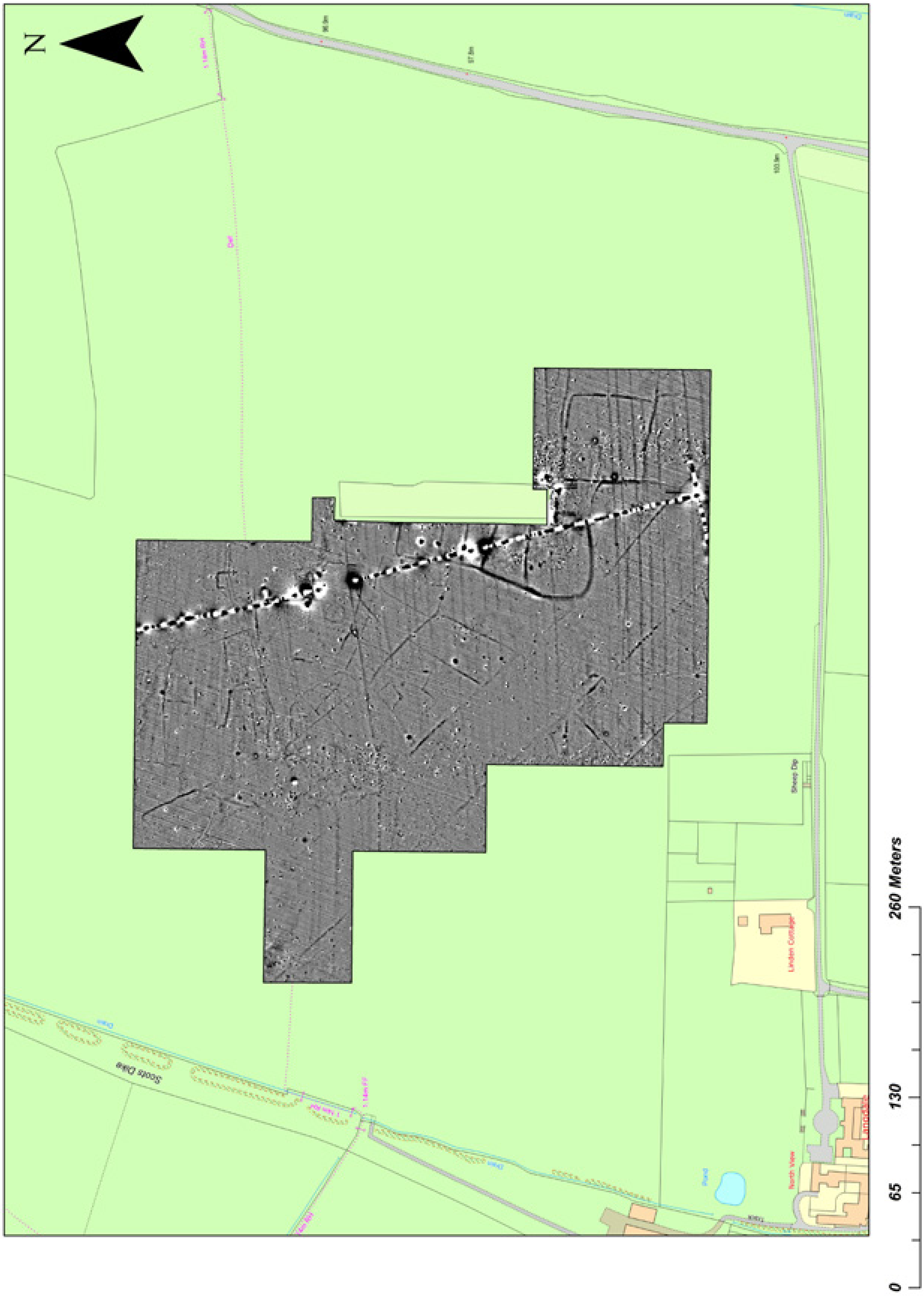

Figure 24.15a. Geophysics results from Melsonby, North Yorkshire revealing monumental trackway oriented towards Stanwick Late Iron Age enclosure (undertaken by Tom Moore).

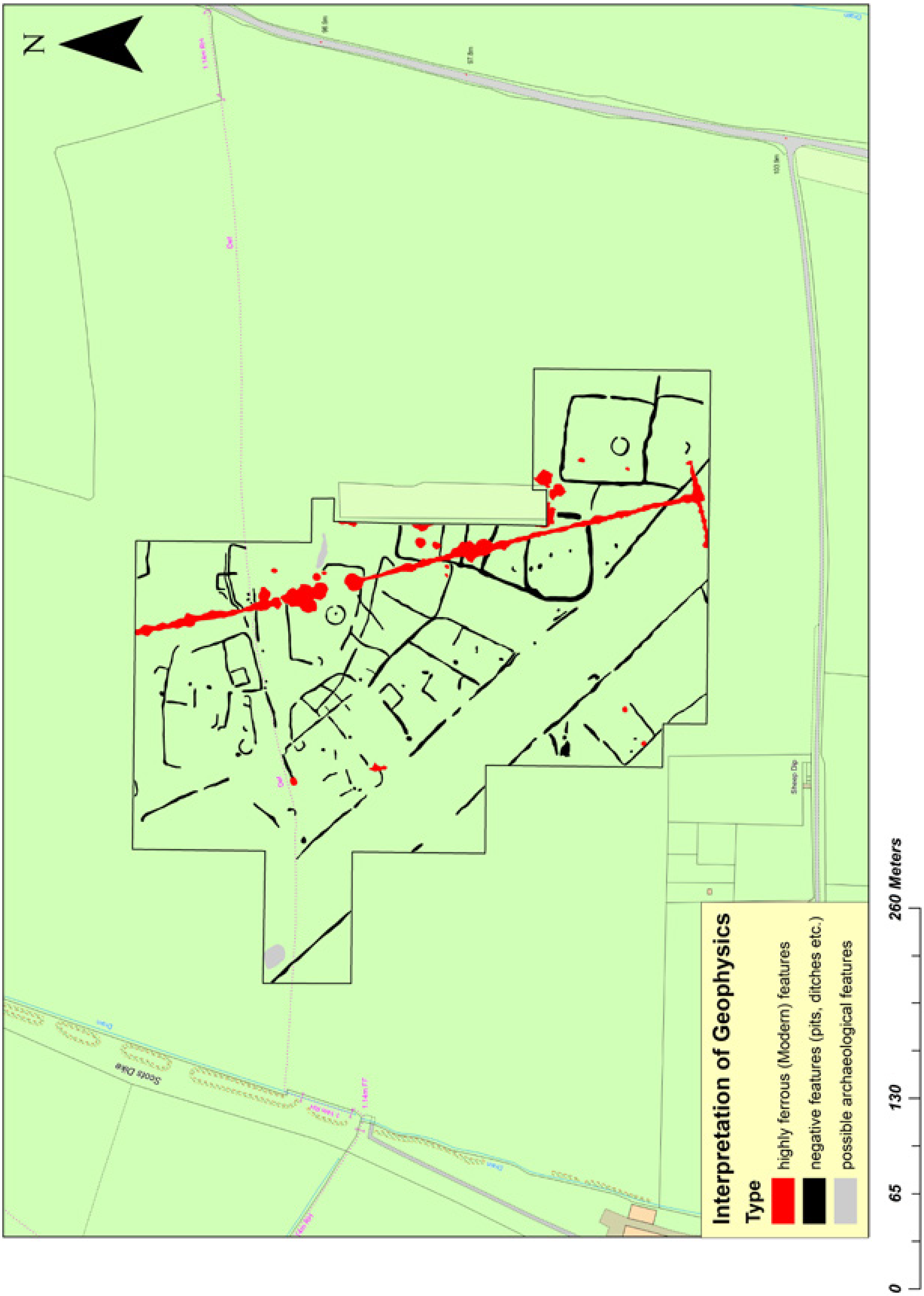

Figure 24.15b. Interpretation of geophysics results from Melsonby, North Yorkshire.

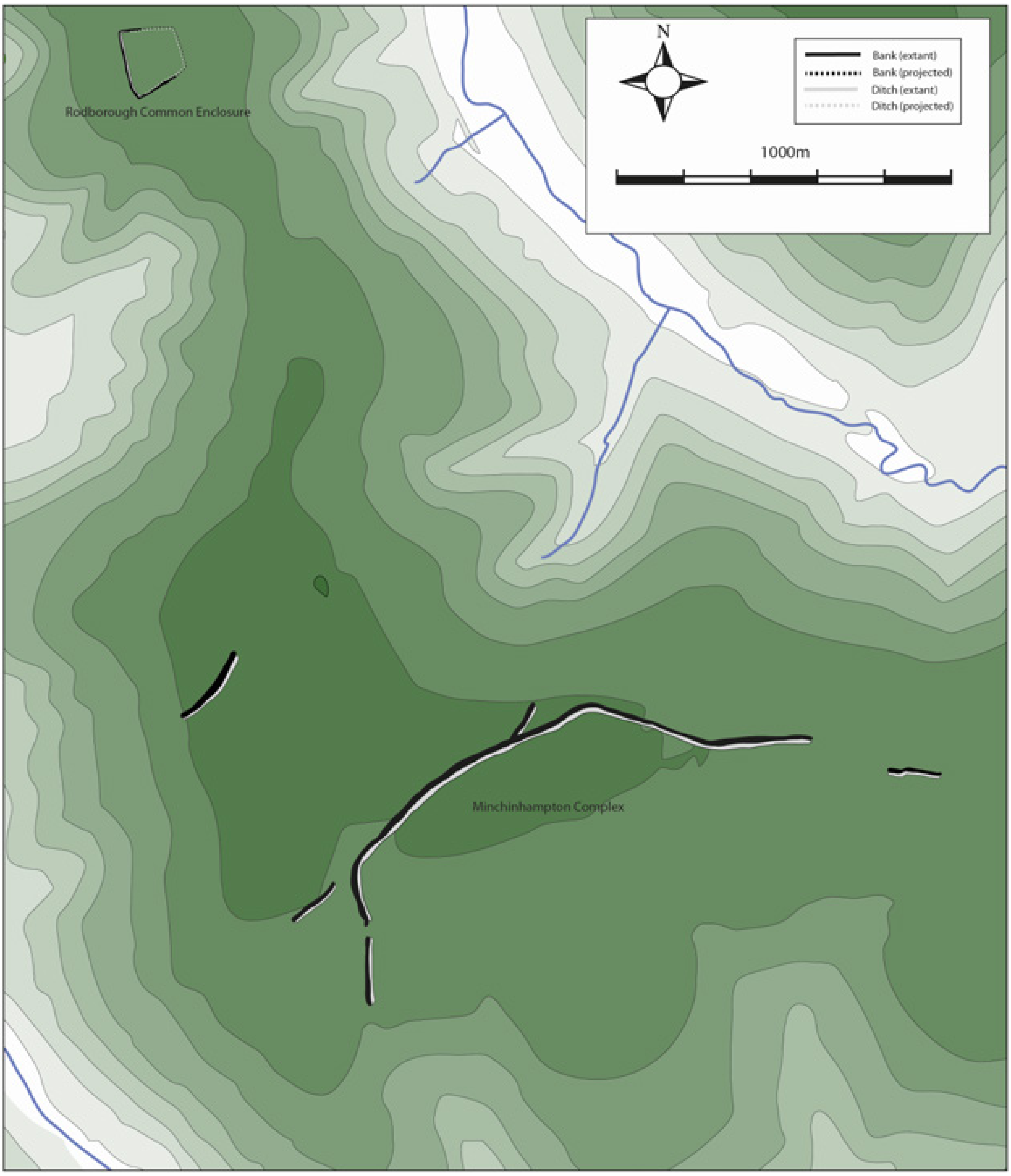

Figure 24.16. Plan of Minchinhampton complex (drawn by Tom Moore and Tudor Skinner).

to their inaccessibility beneath Roman and later urban centres. At Silchester, however, large-scale excavation and geophysics are now revealing a relatively detailed plan of the *oppidum*'s pre-Roman layout (Creighton and Fry 2016; Fulford *et al.* 2018). This has demonstrated the presence of a regular street system with internal enclosures (Figure 24.12; Creighton and Fry 2016). The arrangement of enclosures at Bagendon, although somewhat different, is on a comparable scale and appears to have a regular layout. Although we cannot confirm it, the relatively short chronology of the Bagendon complex suggests the enclosures there were laid out in a single episode. The lack of suitably comparable Mid–Late Iron Age agglomerated settlements in the Bagendon environs, unlike in parts of the East Midlands (e.g. Knight 2007; Masefield *et al.* 2015), indicates that this arrangement did not develop from an existing settlement template, and may instead denote external influences in its design. At Silchester, the laying out of these enclosures, with some affinities to the relatively densely packed enclosures of some northern Gallic *oppida*, such as Conde-sur-Suippe, has been proposed as evidence for a planned settlement (Fulford and Timby 2000: 563; Fulford *et al.* 2018: 384), possibly related to immigrants from Gaul. No such connections are evident at Bagendon, but it is worth considering that if its developers had experienced *Calleva* they may have been inspired to create something comparable.

Rather like the similarities with *Verlamion*, connections to the *Atrebatic* kingdom, for which *Calleva* appears to have been the royal centre (Fulford *et al.* 2018), also seem natural. The presence of *Atrebatic* coins at Bagendon, admittedly in small numbers, reflects the broader stylistic associations between Western (*Dobunnic*) and Southern (*Atrebatic*) coinage (Hurst and Leins 2013), which in turn implies close social and political connections, at least perhaps between those minting them. That *Verlamion* is the complex to which Bagendon shows the closest affinity is perhaps unsurprising. In his description of Roman conquest by Plautius in the mid 1st century AD, Dio thus suggests close links between the *Dobunni* and *Catuvellauni*:

> *after the flight of these kings he* [Plautius] *gained by capitulation a part of the Bodunni* [presumed to be the Dobunni]*, who were ruled by* [or 'subject to'] *the Catuvellauni; and leaving a garrison there, he advanced farther and came to a river* (*Historiae Romanae* 60.20).

Dio's comment implies that communities in the Severn-Cotswold region were increasingly being drawn into the internecine politics and dynastic rivalries that appear to have dominated south-eastern Britain in the early–mid 1st century AD (Creighton 2000). Situated on a vital routeway to important resources (iron, salt, livestock and people), as previous core-periphery models have suggested (Cunliffe 1988: 154; Haselgrove 1976), this region will inevitably have been brought into spheres of interaction with the kingdoms of the south-east. By the mid 1st century AD, it seems highly probable that leaders in the Severn-Cotswold region would want to emulate the mechanisms and displays of power used by their counterparts in southern and eastern Britain, even if there remained considerable differences in the ways that power operated in this region.

Closer to Bagendon, the enigmatic complex at Minchinhampton (see Chapter 23), might have held similar roles. There too, the way in which the earthworks were arranged appears to have resonances with other complexes in seemingly barring movement along the ridge while accentuating a natural coombe to the south as the main entrance onto the promontory (Figure 24.16). Although understanding of this complex remains limited, a similar role and date to Bagendon cannot be dismissed.

The focus on directing and channelling movement also invites comparison with the 'royal sites' in Ireland (Hill 1995a). Newman (2007) has argued the earthworks (of varying date) at Tara were used to create processional routeways that accentuated the process of anointing sacral kings. While the arrangement of the earthworks

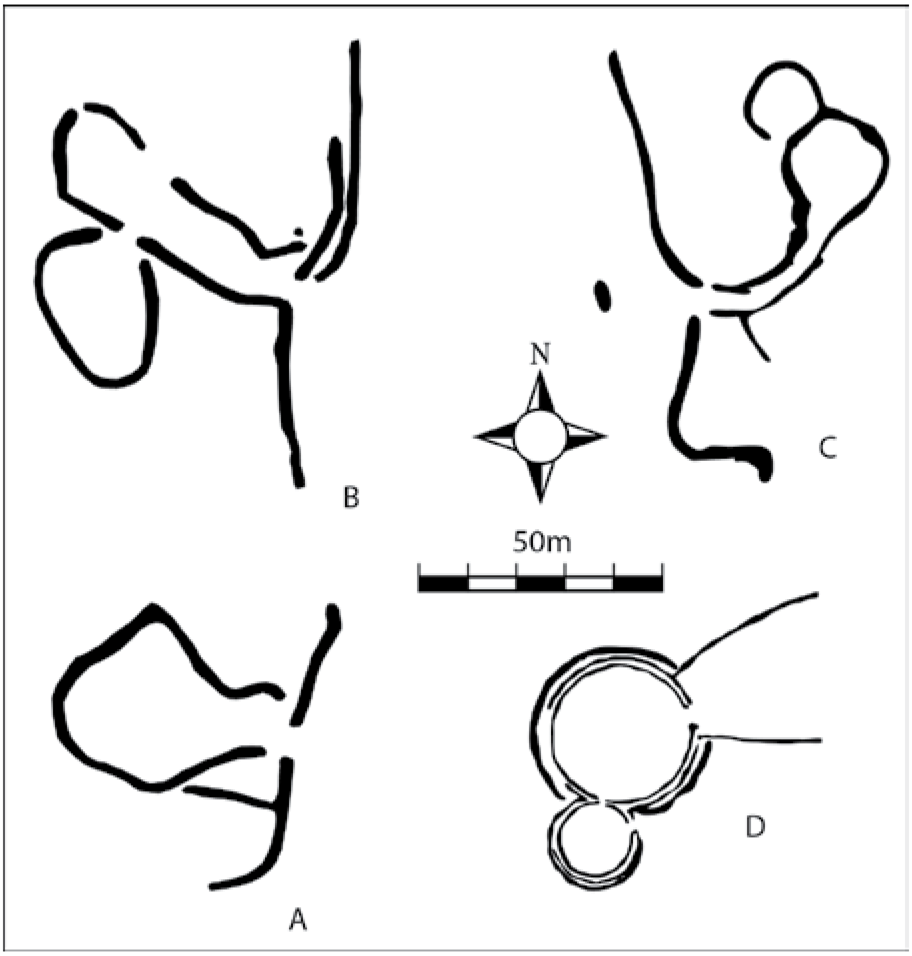

Figure 24.17. Comparison of buildings and funnels at Dún Ailinne, Irish 'royal site' (D) with Scrubditch (A), Cutham (B) and Spratsgate (C) enclosures.

at Bagendon differs morphologically to those at Tara and Navan, there are also similarities. Indeed, the use of earthworks and topography both to obscure and reveal elements of the complex (Newman 2007: 428) is similar, with both seemingly designed to retain the mystery of what took place in areas of the wider complex. Meanwhile, there are parallels in the funnel arrangements at elements of the Irish complexes, such as the large round structures at Dún Ailinne, with the funnelling avenues and enclosures at Cutham and Scrubditch (Figure 24.17). The role of the funnelled enclosures at Irish royal sites has recently been re-examined, arguing for a combination of 'functional' and special social roles (Becker 2019); a similar argument might be made for the Bagendon examples. Whatever the specific roles of the enclosures at Bagendon, they illustrate the ways in which Bagendon, and other contemporaneous centres, were manipulating movement to highlight important areas within these complexes.

Bagendon's arrangement also encourages us to breakdown the artificial distinctions between *oppida* and the 'polyfocal complexes' (cf. Corney 1989; Moore 2012). One of the affinities between Bagendon and polyfocal complexes like Gussage Cow Down is the presence of a complex of banjo and other enclosures associated with linear earthworks (Figure 24.18). The extent of this complex, rather like Bagendon, is hard to define (Moore 2012: 397), but evidence of imported ceramics and other Late Iron Age material (Barrett *et al.* 1991: 232) suggest that it had substantial standing, while its association with the Roman road may also signal its importance at the time of the conquest (Moore 2012: 397). The banjo enclosure and later occupation at Owslebury, Hampshire (Collis 2006), correspondingly presents an interesting process of Middle–Late Iron Age activity, which in its latest phase was clearly of significant social status. Additional similar complexes existed at Nadder-Wyle, Wiltshire, where a range of banjo and other enclosures are associated with a long linear boundary, and another at the assortment of enclosures around Blagdon Copse (Corney 1989; Moore 2012: 397–401).

The association of all these complexes with banjo enclosures, as at Bagendon, is intriguing. What sets the latter apart is the development of its dyke system, probably immediately before the Roman conquest, and its association with the Roman *civitas* capital at *Corinium*. Until this transformation, they may have had relatively similar roles in the landscape. At all of these complexes, the position of the banjo enclosures and associated linear earthworks appears designed to bar movement to certain areas while encouraging the use of existing natural routeways, such as coombes, towards enclosures from low-lying areas. In this form, there is some similarity to the linear earthworks in East Yorkshire, which appear to channel movement along them rather than block movement across (Fioccoprile 2016). It seems probable that the earthworks at such complexes were primarily designed to aid in the movement of animals, yet for what purpose remains unclear (Moore 2012).

The fluid nature of the categories used to define these complexes means that a host of other Late Iron Age monuments and settlements may have had comparable roles. Some of the earliest interpretations of the complex at Bagendon regarded it not as a settlement, but as a set of territorial boundary markers (e.g. Playne 1876). Although no longer sustainable for Bagendon, this perspective highlights an ambiguous distinction between long linear boundaries that defined larger areas of landscape, and those defined as 'territorial *oppida*', exemplified by the massive complex at the North Oxfordshire Grim's Ditch (Figure 24.19). Both uses of linear earthworks embodied a desire to manipulate the movement of people towards certain parts of the landscape, rather than simply delineating social groups. The North Oxfordshire Grim's Ditch complex, approximately 35 km to the east of Bagendon, shows some affinities with it, but is on a far larger scale. The arrangement of earthworks here has been convincingly argued to be of two phases (Copeland 1988), indicating some longevity, although very little of it is well dated. Frequently referred to as an *oppidum* (Copeland 2002: 69; Cunliffe 1976: 131), the complex's huge scale can hardly be argued as representing a defined settlement or even a massive assembly place. Instead, the earthworks appear designed to channel movement across the landscape to important activity areas within the complex. Of these, the best understood and most recognisable are what might have been elite enclosures or assembly places in the Late Iron Age, which were later replaced by Roman villas: a similar trajectory to that seen at Bagendon (Copeland 2002: 67). The relatively close proximity of the early Roman legionary fort at Alchester (Sauer 2001) could suggest that controlling movement across the Grim's Ditch landscape (and that of activities associated with it) was regarded as a crucial part of conquering this area.

A number of other major Late Iron Age earthworks exist in the wider region (Figure 1.1). Some, such as Aves Ditch, have been regarded as territorial boundaries (Cunliffe 2005: 192; Sauer 2005: 33). Other linear earthworks may represent similar associations, but for which we know little of how they worked or their relationship to contemporary settlements. For example, the South Oxfordshire Grim's Ditch cuts off a large loop of the River Thames (Lambrick *et al.* 2009: 369), with its unusual kink perhaps suggesting that it incorporated areas of settlement as well as defining an area of the

Figure 24.18. Plan of Gussage Cow Down complex, Dorset (after Barrett et al. 1991).

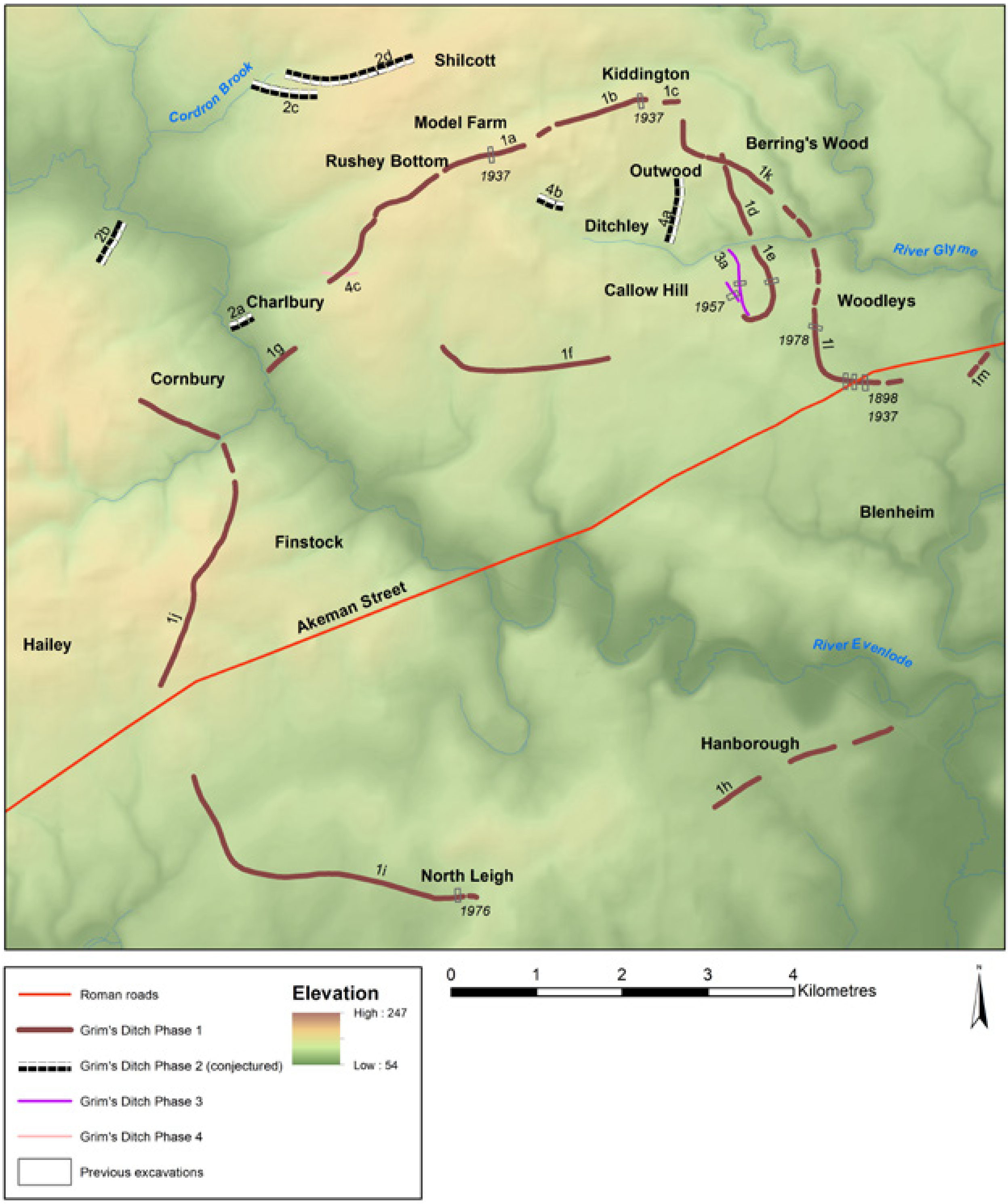

Figure 24.19. Plan of North Oxfordshire Grim's Ditch complex (after Copeland 1988) (drawn by Tudor Skinner).

landscape (Bradley 1968; Hinchcliffe 1975). Farther afield, the War Dyke, near Arundle in Sussex, appears to delineate a large area of landscape that encompassed dispersed areas of activity (McOmish and Hayden 2015). The roles of all of these earthworks remain enigmatic, but they emphasise how those at Bagendon were part of a far wider tendency used to direct and control movement through the landscape as a means of demonstrating power by their commissioners.

The dispersed, yet integrated, nature of the Bagendon complex suggests that other parallels farther afield should be included in a spectrum of comparisons. These include the sprawling complexes recognised in the eastern Midlands, most notably that at Crick-Kilsby, Northamptonshire. Dating primarily to the Middle Iron Age, Crick-Kilsby was previously regarded as distinct unenclosed settlements. Recent assessment has, however, demonstrated the way in which a variety of ditches and landscape features at Crick-Kilsby were used to connect these into an integrated landscape, combining common pasture and access to different resources. The entirety of the Crick-Kilsby settlement was encompassed by an earthwork that defined an area of approximately 150 ha (Figure 24.20; Masefield *et al.* 2015: 275). Although not directly comparable to Bagendon, the interconnected nature of settlements in this way emphasises how communities could often be more than the sum of their parts and that they can only be fully understood at a landscape scale. Robert Masefield's (2015: 306) description of the linear earthworks as 'not [the] enclosure of individual elements but linking them, whilst functioning to contain livestock and preventing them from entering flanking arable' does not sound dissimilar to how we could envisage at least one of the roles of the earthworks at Bagendon. Crick-Kilbsy may not have been as impressive an experience as the Late Iron Age complexes discussed above, but its arrangement underscores the familiarity that people encountering dyke complexes would have to the management of spaces using major earthworks in Later Iron Age Britain.

The diversity of power centres in the Late Iron Age is extended by the continued occupation of major hillforts in parts of south-western England. While the roles of multivallate hillforts such as Maiden Castle had undoubtedly changed (being less densely occupied Sharples 1991c, 2010), some may have had more comparable roles to complexes like Bagendon. The massive hillfort at Ham Hill appears to have had relatively dispersed occupation in the Late Iron Age, including rectangular 'ritual' enclosures, with a role perhaps as a focal meeting place (Sharples 2014).

Bagendon can thus potentially be placed within a broader milieu of complexes at the end of the Iron Age. Some complexes, such as Gussage Cow Down, may not have looked significantly different in their dispersed nature and manipulation of movement, which reminds us that Bagendon is largely distinguishable from these by a handful of aspects: (1) its (relative to the region) wealth of material culture; (2) the presence of coin minting; (3) its (comparatively) large earthworks; and (4) the presence of the nearby Roman *civitas* capital. There is a danger, therefore, that we may categorise some of these complexes as *oppida* purely on their engagement with Rome and appropriation as centres of Imperial administration at the time of conquest, rather than their social significance to Late Iron Age communities (Moore 2011, 2012). Remove the

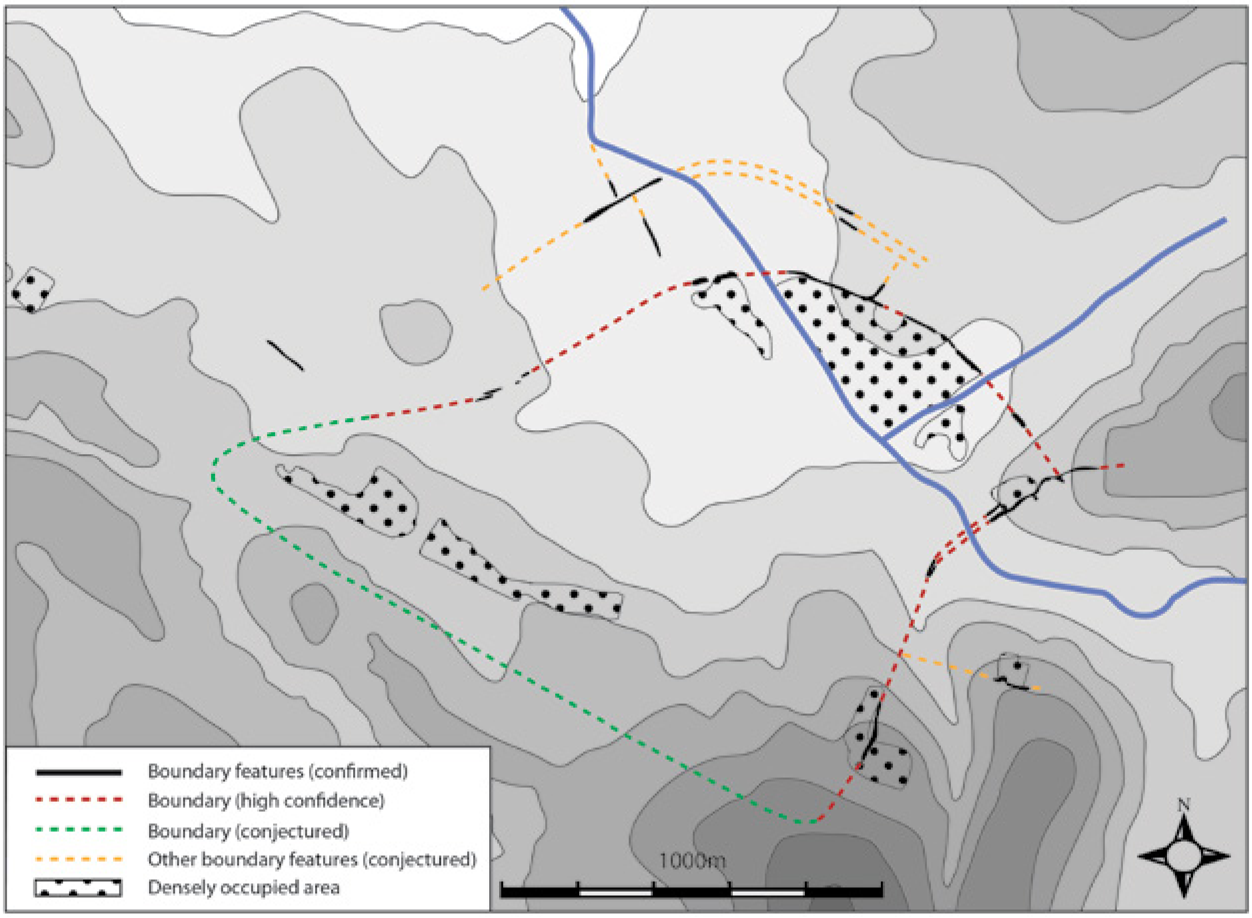

Figure 24.20. Plan of the Crick-Kilsby complex, Northamptonshire (after Masefield et al. 2015).

association with the Roman town from a centre such as Bagendon and how different might it look from places like Gussage Cow Down? As many of the aspects that differentiate Bagendon largely date to the conquest period, how many other complexes could have existed in the last decades of the Iron Age for which we have failed to appreciate the importance? In this regard, existing definitions of 'royal sites' or *oppida* reflect what happened to these complexes in the early Roman period, rather than offer a critical examination of their roles in the Late Iron Age (Moore 2012: 412).

The divergence and combination of elements evident in these Late Iron Age complexes should not surprise us. It represents these societies' reaction to a number of forces, including external threats and opportunities, not least from the Mediterranean world and a probable population growth, and the concomitant pressures these will have placed on resources and the mechanisms of power. These apparatuses were previously on a small scale that was increasingly unsustainable in the intensively occupied and highly connected landscapes of the Later Iron Age (Moore 2017a). The divergence of the places, monuments and centres (or lack of them in some areas) that came to articulate these pressures is unsurprising given the varied nature of the Iron Age societies that existed prior to the 1st century BC. The interpretation of *oppida* as an expression of a broader phenomenon of social change, rather than a morphological category, akin to recent debates over world-wide 'mega-sites' (e.g. Fletcher 2019; Gadyarksa 2017), suggests that they were part of how different societies dealt with the demands of new forms of power though physical spaces (cf. Semple 2018).

Bagendon as 'powerscape'

Increasingly, the term *oppidum* has become problematic for complexes such as Bagendon. On the basis of simple criteria, the complex is both similar to and different from sites labelled *oppida*, just as almost all monuments placed under this category are divergent. The label has become confused and arbitrarily applied while being intrinsically and problematically intertwined with definitions of urbanity (Moore 2017a; Pitts 2010; Woolf 1993). In light of the range of comparisons for Bagendon and the problematic nature of terms such as *oppidum*, how should we describe this complex? The deliberate combination of earthworks, topography and the placement of activities within the complex uses theatricality and choreography to demonstrate the physical presence of power through emotive experience (cf. Leary 2014: 6; Tilley 1994: 28). This appears to have been fundamental to the role of the Bagendon complex. Existing terms for Bagendon ('territorial *oppidum*' or 'polyfocal complex') struggle to define a real purpose and form. 'Polyfocal' (Haselgrove 2000; Moore 2012), while important in emphasising the dispersed nature of such complexes, may, however, downplay their coherency as experienced landscapes. Bagendon may be better described as a 'powerscape'. This term, originally coined for the dispersed royal complex at Great Zimbabwe (Pikirayi 2016), conveys how topography, architecture and activities (such as industry or assembly) were combined to create a landscape (not just a place) embodying the power of its creators (Moore 2017a). Such a perspective resonates with Ingold's (1993) concept of landscapes as taskscapes, a combination of inter-related activities. As with Ingold's (1993: 158) taskscape, the powerscape is enacted rather than static, and one created by experience. It removes the tendency to define these complexes on the basis of their size (cf. Fichtl 2005), and of using earthworks to define their limits; instead, it refocuses consideration of the experience of these landscapes as instruments of power (cf. Ingold 1993: 158). In essence, a powerscape is a taskscape that emphasises holistic creation to enact power, rather than emerging over time through experience and habitus. This is not to undermine the varied experiences of a powerscape, influenced by agency, and individual roles and status (cf. Tilley 1994: 27). Similarly, possibilities of transgression, such as choosing alternative pathways across the complex, and divergent experiences should not be underestimated. This approach recognises, however, the community's and/or individuals' deliberate action in the creation of these landscapes.

Regarding Bagendon as a powerscape acknowledges that the built structures' integration with the topography was fundamental to how the landscape was manipulated into a place of power. Similarly, the construction of the complex itself, probably over a short period, was part of a performance where communities were both participants and audience (cf. Inomata and Coben 2006: 30). At Late Iron Age centres elsewhere, such as Bibracte in Gaul, it appears that the frequent rebuilding of ramparts was one way of uniting communities under new leaders, using construction as a performance of unity and power (Moore 2017a; Rieckhoff 2014). That this only happened once at Bagendon may reflect either the relatively short duration of occupation or the changing nature of its role after the Roman conquest. The possibility that Late Iron Age centres could be highly dispersed has also become clearer in other parts of Europe (e.g. Moore *et al.* 2013; Moore 2017a; Poux 2014: 165), with the understanding that classical names for some of these complexes referred to much larger areas than the individual elements that we recognise today. We may even speculate that pre-Roman *Corinion* (and other British centres) could have been similarly dispersed. In essence, describing Bagendon as a 'powerscape' conveys the nature of its roles in manifesting and expressing power in the Late Iron Age, while moving away from reductionist terminologies based on artificial morphological categories.

Labels such as polyfocal complex or powerscape allow us to move away from forcing comparison with more urban-like centres on the continent in order to focus more on the nature of how these landscapes were used to express power and social organisation. This does not mean, however, that labels such as *oppida* should be abandoned. In its broadest definition, *oppida* was used by classical writers as an ill-defined expression which reflected Rome's realisation (sometimes propaganda) that these were places that significantly diverged from farmsteads and served roles as administrative, ritual, socio-political and economic hubs. That they were not urban in a sense understood in the classical world, or by most comparisons today, does not detract from the fact that they appeared to serve similar social functions and may even represent alternative pathways to common perceived ideals of urbanism (Moore 2017a; 2017b).

Capital of the *Dobunni*?

Comparing Bagendon to other territorial *oppida* also necessitates examination of its suggested role as a pre-Roman *civitas* (or tribal) capital. Reconsidering the nature of both Bagendon's role within the landscape and the apparent unity of the '*Dobunni*' as a political or ethnic unit reveals a far more fluid and complex social reality in the Late Iron Age than has previously been thought, which has implications for the nature of power at the complex.

Bagendon is frequently regarded as located within the pre-Roman tribal region of the *Dobunni* (Figure 24.21, 24.22 and 24.23). Many scholars have created elaborate narratives of the territory and history of this people or 'tribe', which are often closely associated with Bagendon

Figure 24.21. Map of the suggested *Dobunni* civitas and related Roman civitates, usually equated with pre-conquest 'tribes' (copyright Millett 1990, reproduced with permission from Cambridge University Press).

Figure 24.22. Ptolemy's map of Britain (copyright Jones and Mattingly 1990: figure 2.4, reproduced with permission of the Licensor through PLSclear).

(e.g. Hawkes 1961; Wacher 1974). Classical references to the *Dobunni* and their location are relatively scarce, however (see Rivet and Smith 1979: 339). Ptolemy was one of the few to locate this social group, identifying its '*polis*' (or town) as *Korinion* or *Corinium* (Rivet and Smith 1979: 321).[8] Ptolemy's geography of Britain was not compiled until the early 2nd century AD, although his account probably reflects the social and political situation in the mid–late 1st century AD (Jones and Mattingly 1990: 17). It was also likely to have been heavily influenced by contemporary Roman political and social perspectives on the north-western provinces (Moore 2011: 345). Given the context that he was writing in, it is assumed that Ptolemy's polis referred to what was becoming the Roman town at Cirencester. The name for the Roman town, *Cironium Dobunorum* (regarded as scribal error for *Corinium Dobunnorum* but possibly its real Latin name: Coates 2013), was first recognised in the, much later, *Ravenna Cosmography* (Rivet and Smith 1979: 321) and echoed Ptolemy's identification of this as the *civitas* capital. The most notable other reference to the *Dobunni* is in Cassius Dio's discussion of the conquest of Britain (*Historiae Romanae* 60.20). Written in the early 3rd century AD, it describes (discussed above) how part of the *Bodunni* [*Dobunni*] were subject to the *Catuvellauni*. Save for a handful of epigraphic references to the *Dobunni*, all dating from far later in the 2nd–4th centuries AD (Rivet and Smith 1979: 339), these are the only allusions to this supposed 'people'.

From a relatively early date, Iron Age coinage was associated with the names of *civitates* identified in classical sources and by Ptolemy (Wright 1874: 112), and has subsequently been the predominant basis for defining the *Dobunnic* territory (Figure 24.23 and 24.24). Derek Allen (1944, 1961: 75) was the first to make a clear

[8] The name has been claimed to derive from the Gaelic '*Cironion*' (Camden 1610), although there is no clear evidence for this (see Coates 2013).

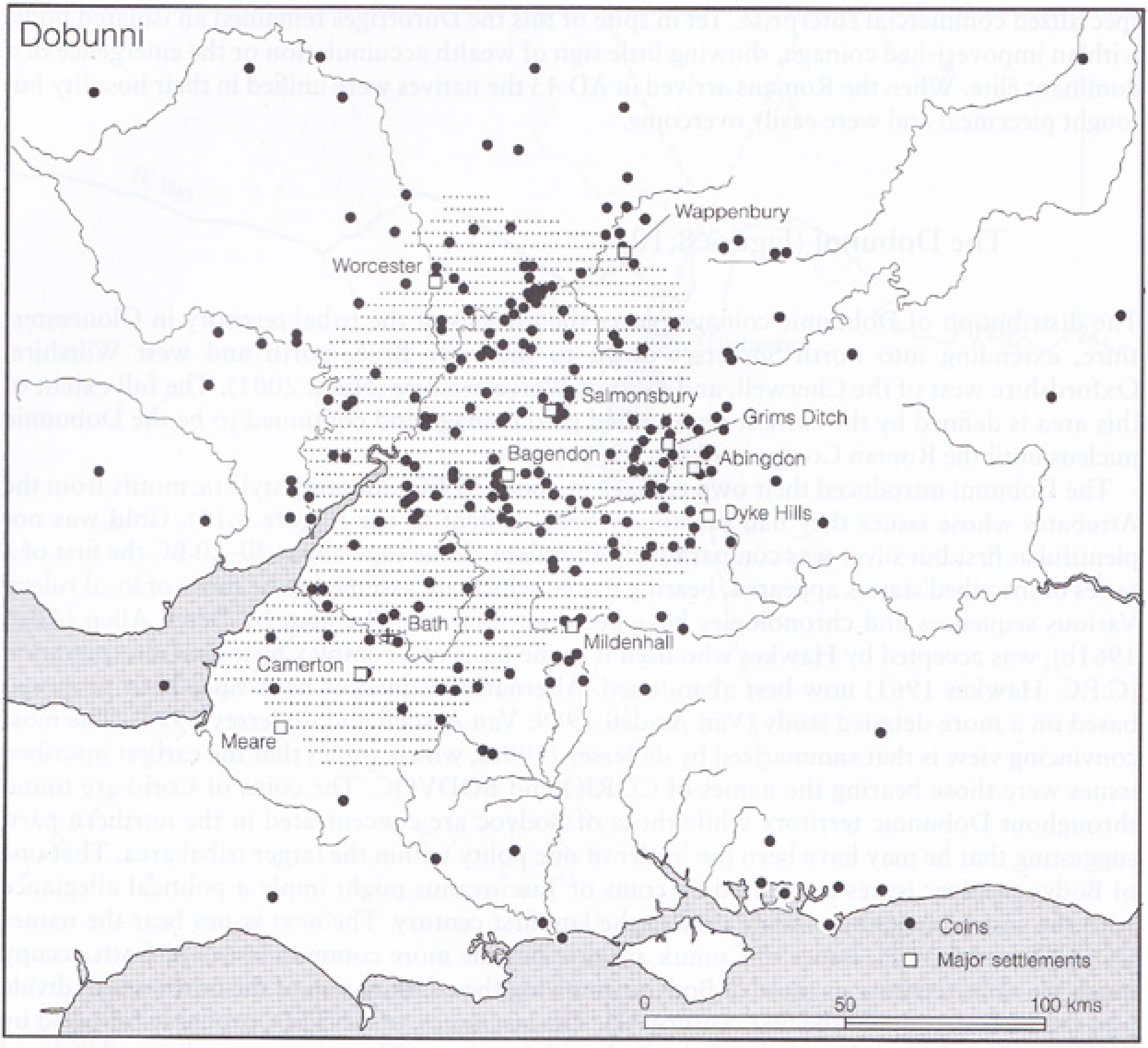

Figure 24.23. Map of Dobunnic region from coin distribution in the region (copyright 2005 from Iron Age Communities in Britain, Barry Cunliffe, reproduced by permission of Taylor and Francis/Informa plc)

connection between coin types and the *civitas*, although he recognised complexities in such associations and the apparent looseness of this relationship (Leins 2008: 101). Others have made a more direct association in which the limits of territories have become increasingly rigidly defined, combining the coin evidence and aspects such as the limited epigraphic evidence (for a summary, see Fulford 2009), despite their ambiguities (cf. Reece 1999b).

The identification of the complex at Bagendon as the 'capital' of the *Dobunni*, replacing the previously speculative location of the 'capital' beneath the Roman town of *Corinium* (see Chapter 23), did not take place until Clifford's (1961: 1) excavations. She argued convincingly that Bagendon was the real location of what she described as their 'cantonal capital', an assertion that has since been accepted (e.g. Cunliffe 2005: 191). Clifford's discovery of significant evidence for coin minting at the site made such an association seemingly self-evident and continues to be used to argue that Bagendon was the central mint, and thus the socio-political centre, of the *Dobunni* (e.g. Bevan 2012; Pudney 2019).

The *Dobunni* have often been defined as a 'tribe', implying ethnic and cultural unity (e.g. Hurst 2001; Yeates 2008), as well as political authority, although definitions of what is meant by the term 'tribe' are often vague (Moore 2011). Many have drawn links between the distribution of Late Iron Age coinage and Malvern ceramic distributions to emphasise a longstanding social and economic cohesiveness to the region (e.g. Cunliffe 2009). The assumption that the *Dobunni* were a centralised and unified socio-political group with a central capital can be questioned, however (Moore 2011). Detailed examination of the coinage reveals that it was far from unified. Analysis of the Western (*Dobunnic*) coinage by Ian Leins (2008, 2012; Hurst and Leins 2013) emphasises that, for some types, Bagendon is relatively peripheral and seems unlikely to have been the central manufacturer for all Western coinage (Figure 24.24 see Chapter 10). The coin evidence suggests that rather than the *Dobunni* being a coherent ethnic and political entity, a far more complex picture existed. The overlapping coin distributions imply fluid power structures, with communities engaging in multiple allegiances and networks over time with certain groups, for whom we may not even have appropriate names (such as in eastern Wiltshire), emerging and disappearing (Leins 2012). The presence of a possible coin mould at Wycomb-Andoversford (Timby 1998), and the small-scale investigation of most other potential Late Iron Age centres, such as Minchinhampton, makes it unclear whether coin production took place at other locations. As certain types of Western coinage are not found at Bagendon, despite its relatively large assemblage, the implication is that they were minted elsewhere. It seems too that, unlike the association between *Verlamion* and Eastern coins, implied by the inscription 'VER', coins inscribed 'CORIO' do not reflect the name of the complex (*Corinium*), largely because the distribution of these coins does not appear to significantly overlap with Bagendon (Figure 24.25). Instead, use of CORIO probably represents the influence of an individual leader, probably one whose influence was focused on the western side of the River Severn (Leins 2008: 107; Rivet and Smith 1979: 321). In some ways, this supports earlier suggestions (e.g. Cunliffe 2005: 191; 2009; Hawkes 1961: 61–64) that the *Dobunni* were likely to consist of a federation of social or political groupings.

To what extent there were a number of 'tribal centres' or *oppida*, as implied by Cunliffe (2005: 191), remains debatable. Other proposed *Dobunnic* centres, sub centres or border markets are settlements such as Bath and Camerton to the south, Mildenhall and Forest Hill to the south-east, Worcester to the north, Weston-under-Penyard to the west and North Oxfordshire Grim's Ditch and Dyke Hills to the east (see Fig 24.23; Cunliffe 2005: 192). The archaeological evidence from many of these sites remains equivocal (see Chapter 23), and they appear to comprise quite different articulations of social life. While Dyke Hill, Salmonsbury and Abingdon can all be argued to have been major settlements and social foci, their socio-political roles remain unclear. This does not mean that other social centres did not exist (as has been argued in Chapter 23 for Minchinhampton and Weston-under-Penyard), but it is difficult to credit them with the same roles as Bagendon. These sites do imply, however, that other centres for social gathering, communal ritual activity and the articulation of power between local communities existed beyond, or in addition, to Bagendon.

This more fragmented and fluid situation is hinted at in Cassius Dio's reference noted earlier (*Historiae Romanae* 60.20). His reference to '*part of* the *Bodunni* [*Dobunni*], who were *subject to* the Catuvellauni' (emphasis added) implies that the group were not a hegemony, but could be splintered and subservient to the will of individuals or small bands. Leins (Hurst and Leins 2013) has similarly noted the confusion that arises from Ptolemy's identification of *Aquae Sulis* (Bath) as a *polis* of the Belgae, despite it being located well within the distribution of Western coinage (Figure 24.24). Rather than simply an error, this may reflect the mutable nature of the social groups of whom they were perceived to be a part at certain times, thereby illustrating a more dynamic notion of what constituted these 'peoples' (Moore 2011). Hawkes (1961: 64) regarded this textual evidence as indicative of the division of the *Dobunni* into two parts, and Cunliffe (2009: 15) too regards it as evidence for a confederacy of at least two *pagi*, sub-divisions of the *civitas.* I suggest that the inference from the fragmentary textual references allied to the numismatics has greater implications, and that modern concepts of these names identifying unified 'tribes', or even subsets of tribes, anachronistically masks the fluid nature of Late Iron Age social structures (Moore 2011). Further, it can be posited that the use of coinage and the nature of power in the western region (and much of southern Britain) was malleable, with different communities potentially engaging in multiple power networks, rather than being simply part of a tribe or *pagi*. Participation in such networks did not simply mark the authority of kings through clientage; both parties could hold power, with coin use signalling affiliation to a group and individual as part of a reciprocity of power. It suggests that the individuals we find inscribed on coins might have been leaders rather than kings, with authority based on negotiated leadership, emphasising the widespread heterarchical nature of power in Iron Age societies (Moore and González-Álvarez forthcoming; Thurston 2010).

Communities and kings

If Bagendon operated as a powerscape and the *Dobunni* were a more fluid entity than sometimes assumed, how did the role of the complex relate to authority within Late Iron Age society? Was Bagendon a 'royal site', a place for the anointing and residence of kings? Addressing this question relies partly on our notions of Late Iron Age 'kingship' (cf. Thurston 2010). It appears that Late Iron Age Britain saw an increasing emphasis on the authority of the individual (Creighton 2000; Hill 1997; 2007), reflected in the minting of inscribed coinage, the adoption of new burial rites and the increasing use of personal adornment. By the last few decades of the 1st century BC, this emphasis crystallised into the emergence of a new political

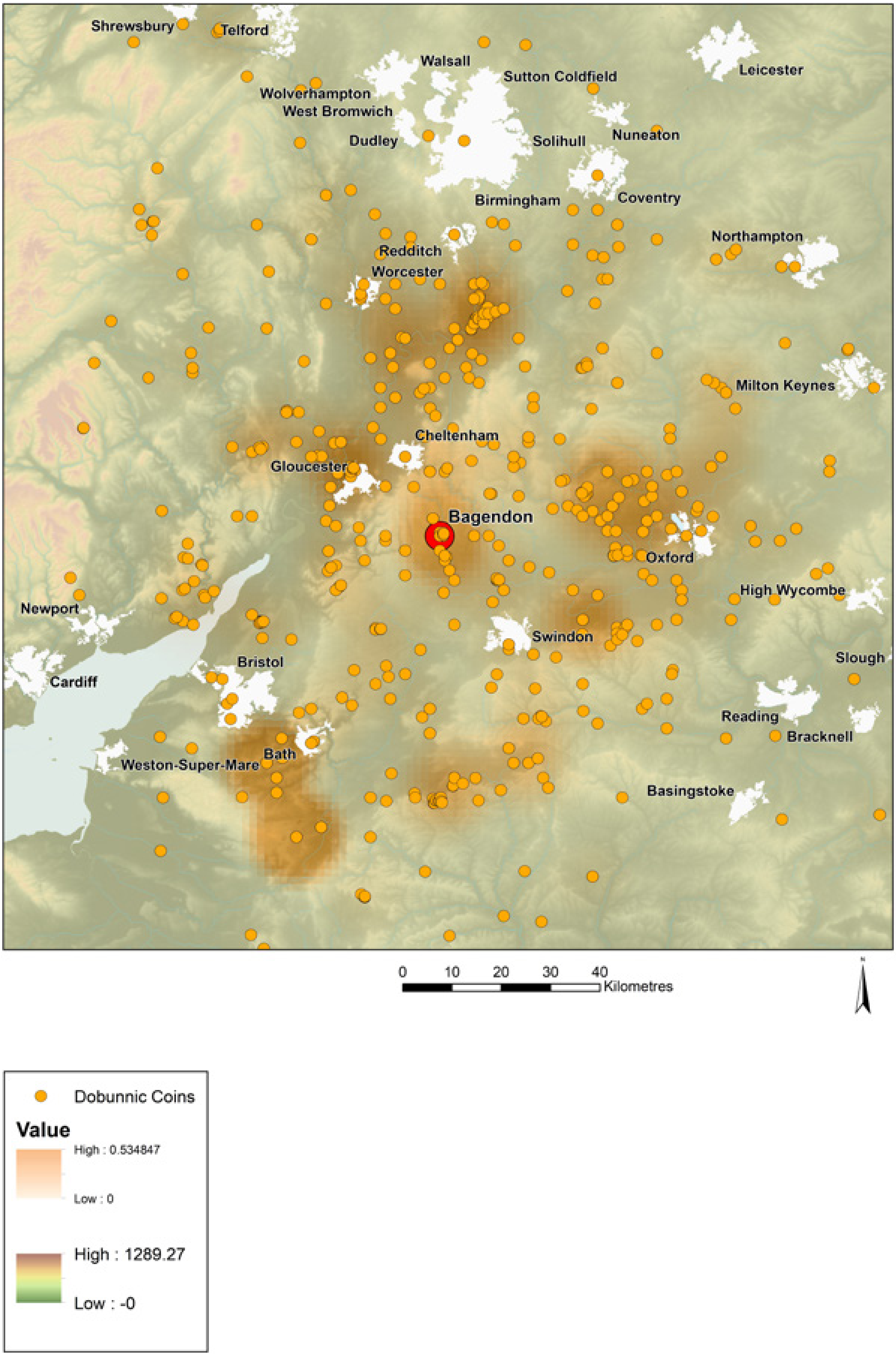

Figure 24.24. Distribution of 'Dobunnic' (or Western region) coins (data courtesy of the PAS/CCI) with Kernel density.

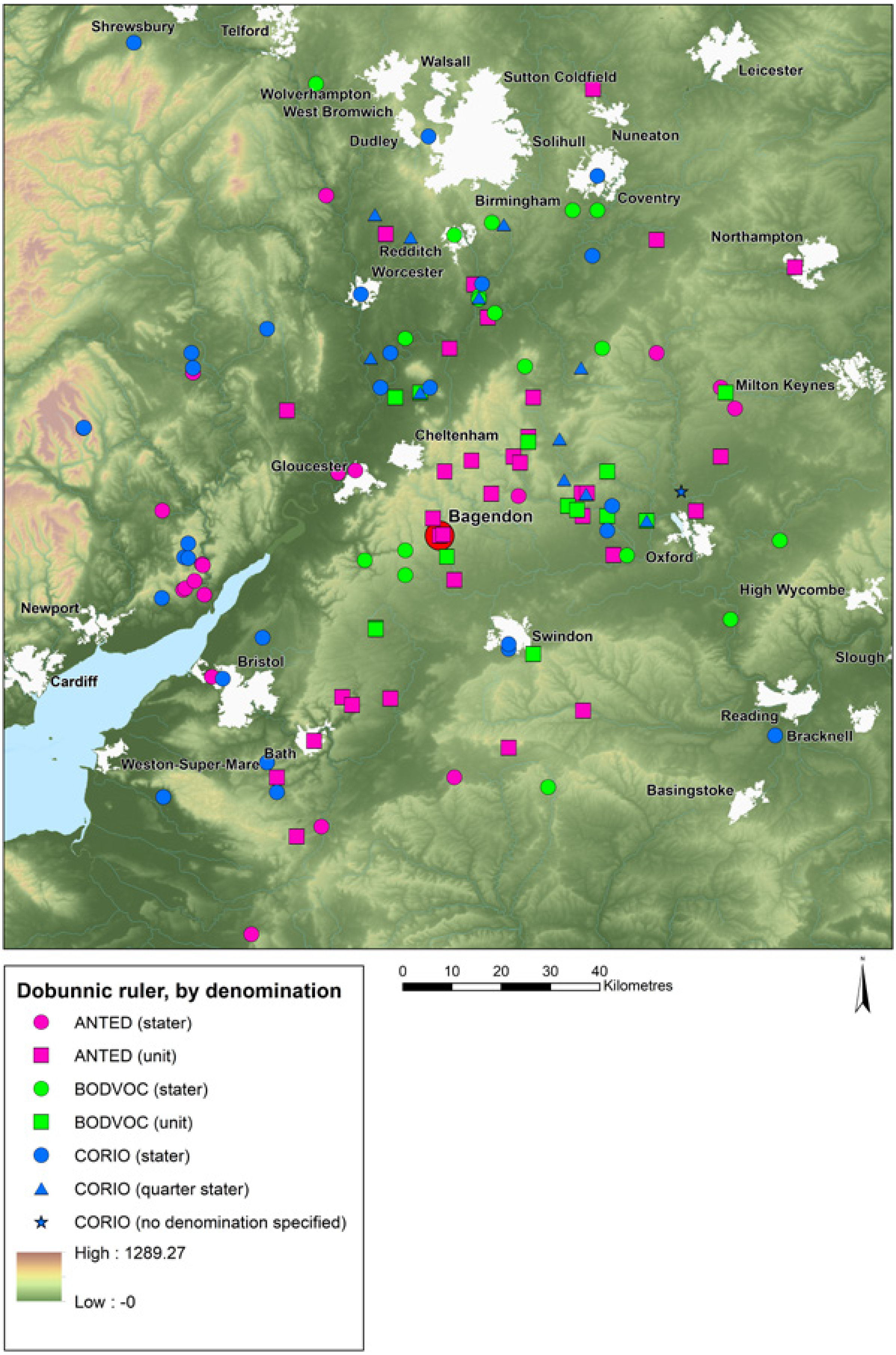

Figure 24.25. Distribution of selected inscribed Western coin types (Bodvoc, Corio and Anted) (data courtesy of the PAS/CCI).

institution: kingship (Creighton 2000; Hill 2007: 36–37). Power relations at this time were arguably largely effected through clientage (Cunliffe 1988; Collis 2000: 233; Creighton 2000), using tribute and bonds of allegiance to maintain social order. While many posit that the Middle Iron Age was largely heterarchical (e.g. Moore 2007a; Hill 2011), with little evidence for centralised power, the appearance of 'royal sites' has been cited as marking the transition to hierarchies, with power centred on an elite and often articulated through martial prowess (Hill 2011: 258).[9] Royal sites are envisaged as centres of kingdoms (Creighton 2000) or 'tribal states' (Collis 2007), relatively centralised polities for which many have perceived (often implicitly) an ethnic or cultural dimension.

Did a 'king' oversee the construction of Bagendon, perhaps while residing in The Ditches or at the Duntisbourne enclosures? One to whom tribute was brought and diplomatic gifts exchanged? Much of the arrangement of Bagendon can be interpreted in these terms. The scale of the earthworks at Bagendon suggests that hundreds, perhaps thousands, of people were involved in their construction, implying wide-ranging authority. Accepting that the use of coinage was less about tribal affiliation and related more to bonds of allegiance, the Western coin evidence may imply client relationships extending over hundreds of square kilometres throughout the Severn-Cotswold region (Figure 24.24, 24.25). Bagendon's apparent centrality to the distribution of Western coinage has also been argued to reflect its role as a political centre of authority (Bevan 2012: 501; Cunliffe 2005: 191). The appearance of exceptionally early Roman villas within the complex could further suggest that the inhabitants soon adopted, or were granted, the mantle of elites within the new province, reflecting their primacy in the pre-conquest era (Trow 1990; Trow *et al.* 2009: 73; see Chapter 5).

It has even been suggested that the region was effectively made a client (or friendly) kingdom after the conquest (Wacher 1974: 293), with the construction of the earthworks an affirmation of *Dobunnic* power under Roman rule (Haselgrove 2000: 107). Hawkes (1961: 64) too regarded Bagendon as key to an alliance with Rome at the time of the conquest. Circumstantial evidence, seen in the limited number of Roman forts in the wider *Dobunnic* region, could echo this notion, with the insinuation that there was little need to control the area and that any military presence was supportive rather than controlling (see Chapter 4; Neil Holbrook pers. comm.).

The evidence from Bagendon may point, however, in this region at least, to a more nuanced power arrangement and concept of 'kingship' at this time. It is largely assumed that the connection between coin production and centres such as Bagendon is evidence of the king's power (Creighton 2000: 31). The regional coinage is, however, significantly different from that in the south and east. Although some coinage depicts named individuals, it did not adopt Roman imagery or use terms such as '*Rex*', despite apparent stylistic links to the Atrebatic kingdom where this was taking place (Leins 2012; 2013). Of the 65 Western coins which can be attributed to the Bagendon complex (Haselgrove, in Chapter 10) only twelve are inscribed, six of 'EISV', five of 'ANTED' and one of 'INAMN'. The rarity of coins with the names of local 'rulers' is shown with one coin of Tasciovanus (of the *Catuvellauni*), and one each of Verica and Epaticcus (of the *Atrebates*) retrieved from the complex. The presence of a small number of inscribed coins is not unusual in the region: they also make up a small proportion of the Pershore and Nunney hoards (Hurst and Leins 2013), for example.

The limited number of inscribed coins could relate to chronological issues. Bagendon was probably flourishing as a centre for minting coinage after *c.* AD 20 (Chapter 4) and thus potentially subsequent to the earlier inscribed coins which Leins (2012) argues date to 10 BC–AD 20, rather than Allens's (1961) original post-conquest dating. Despite claims that Corio was a possible ruler from Bagendon, installed by Roman authorities (Wacher 1974: 293), the distribution of 'CORIO' coin issues (Hurst and Leins 2013: 311) implies that their circulation was not significantly connected to Bagendon (cf. Wacher 1974: 292), yet the distribution of 'BODVOC' issues may be more closely related to Bagendon. Van Arsdell (1994) has suggested that uninscribed coinages can be attributed to the known individuals (Bodvoc, Corio, Anted, Eisv, Comux and Catti); the veracity of this attribution and sequence of rulers has, however, been challenged, resulting in a far more complex pattern of leaders and coin-using networks (Leins 2012: 167–169). The presence of 'ANTED'-inscribed coins within the complex and their broad distribution (Figure 24.25; Leins 2012) could suggest that he was based at Bagendon, but no firm attribution or connection can realistically be made. The presence of such coins may partly reflect the chronology of the complex, with the period between AD 20 and 45, when ANTED inscribed coins were probably issued (Leins 2012), corresponding with the most developed phase of occupation at Bagendon (see discussion by Haselgrove, Chapter 10). The nature of activity when 'BODVOC' and 'CORIO' coins are thought to have been issued (10 BC–AD 20: Leins 2012) is less clear.

The evidence from Bagendon suggests that, despite its apparent role in coin minting, inscribed coinage does

[9] Although it is interesting to note that in Ireland a more nuanced and less hierarchical vision of their social role is emerging (see Becker 2019).

not appear to have been fundamental to the operation of power at the complex. If Bagendon really was the central producer of Western coinage (Bevan 2012) for individuals identifying themselves as 'kings', it seems odd that coins inscribed with the names of rulers are not more common. Van Arsdell (1989) has regarded the Western (*Dobunnic*) coinage region as a relative numismatic backwater, yet the conservative nature of these issues might be explained, not as an ignorance of innovation but by a somewhat different role for coinage. One possibility is that the more limited use of names on coinage, and lack of classical imagery, marked a different concept of 'leader', which resisted symbols that equated power with an individual. The production of coins, even with inscribed names, may be less about the individual demonstrating *power over* those communities and more a mutual acknowledgement of their *power to represent* those communities. This interpretation is potentially echoed by the lack of rich burials at Bagendon, representing a deliberate contrast to the emphasis on the individual seen in south-eastern Britain.

Other evidence from the complex could also imply a more consensual form of leadership. It has been suggested by some that the discontinuous nature of territorial *oppida*, in contrast to earlier hillforts, means that they did not represent a community effort but the power of individuals (Sharples 2010: 173). This does not automatically denote 'kings' extracting peoples' labour of the people for their own advantage; the wider community benefitted from their inclusion in a group project that expressed collective power while acknowledging the role of the individual to act as leader. If the leaders were more in the mould of a 'big man', it is probable that their power would have rested on the ability to organise communities through monumental construction (Roscoe 2012: 42), as a director whose status was reliant on his ability to organise events (cf. Dietler 1989; Roscoe 2012: 49). Such leadership might have been termed 'kingship' by classical sources, but meant very little to the communities involved. Earthworks probably acted as a metaphor for the range of communities involved and the power that imbued, one that all participants understood. The form of the complex, rather than signifying a non-communal role, created a theatrical sphere, channelling movement to assembly places where power was enacted and encoded (Moore 2017a). From the number of imports that are dispersed across the Bagendon complex, it seems unlikely that power was obtained via the control of imports (cf. Cunliffe 1988), and these could have been used in feasting or resulted from gift exchange (Hill 2007).

Although consensual in nature it is worth remembering that, in reality, power might have only been dispersed amongst a number of smaller groups or individuals. The evidence from Bagendon for seemingly multiple foci in the complex which later became the location of Roman villas, at The Ditches and possibly Bagendon House, may indicate that by the late 1st century AD, elements of the community, perhaps individual families, regarded themselves as 'elites'. This may imply an oligarchic' form of power (Collis 2000), with multiple families vying for status as leaders.

Power and assembly

Whether leaders were more like 'kings' in a classical sense or whether authority was more consensually derived, both scenarios emphasise that power was articulated through the gathering of communities. In the increasingly densely occupied landscape, newly emerging leaders required places and mechanisms for assembly, where the wider, dispersed communities congregated to make decisions over war, negotiate relationships, adjudicate disputes over access to resources and conduct communal rituals (Millett 1990: 26; Moore 2017a). Many in Iron Age studies have recognised that communal assembly was a key component of the role of *oppida* (Fernández-Götz 2014a: 390; Fichtl 2005: 121).

The stimulus for such assemblies probably relates to the increasing density of occupation in the landscape and growing scale of Late Iron Age society (see Chapter 23). In states without bureaucracies and based on fluid relations, the creation of spaces and places through which leaders could conduct the performance of power would have been necessary. Open areas at these complexes would have allowed for periodic gatherings, which combined political, ritual and economic functions, enabling leaders to administer a dispersed and divergent populace without direct control or permanent population centres. As farmstead communities grew beyond the ability to negotiate directly with each other for access to resources or mediate disputes, the need for public demonstrations and performances of power would have become increasingly important, binding those communities together (cf. Inomata and Coben 2006: 11). All communities, beyond those that can have face-to-face contact, are effectively imagined and require performances and spectacles to maintain power (Anderson 1991: 22). Assemblies also allow for the (often temporary) forming of supra-identities (Semple *et al.* 2020), which the increasing scale of Late Iron Age societies required. Societies where systems of control cannot easily be exercised from a distance, and where power can rarely be applied directly, depend on assemblies where 'the agents of political power [present] themselves in front of a large number of spectators and the participants [share] experiences through their bodily copresence' (Inomata and Coben 2006: 11). This allows power to be reaffirmed through the acts of performance and witnessing (Anderson

1991: 25; cf. Semple *et al.* 2020). While *oppida* might have been permanent residences for leaders, these places did not automatically result in the consolidation of large-scale, permanent populations, which could indicate that 'power over' the wider population was not their role. Echoing ideas of assemblage theory (Harris 2017), we could consider smaller households that gathered at *oppida*, and the larger social entities they created, not as nested hierarchies, but as elements that coalesced and broke apart, performed through temporary assembly.

In this respect, the complex at Bagendon shares affinities with centres that were used more episodically, such as those in Ethiopia from the 15th–19th centuries AD. These consisted of small, permanent nuclei, occupied by only a few hundred people and augmented at certain times of year by temporary dwellings, subsequently becoming the focus of political-military power (Fletcher 1991; 2009: 8). Despite the obvious economic and environmental differences between these two regions, it is possible to imagine that at Bagendon a relatively small permanent population was augmented at certain times of year by hundreds or thousands of people (and animals). Bagendon's location on a geographic interface and peripheral to 'lived space' could also emphasise its similarity to later assembly places, which were situated at important nodal points on routeways or crossing points but often also ritually and ancestrally imbued places (Semple *et al.* 2020).

Discussion of the nature of assemblies elsewhere, in the Iron Age and beyond, has also emphasised its combination of ritualised forms of power, feasting and other activities (Semple 2018; Semple *et al.* 2020). In this sense, we may want to regard the presence of imported flagons, beakers and platters as part of dining and feasting, perhaps associated with larger social gatherings, than necessarily as a reflection of elite or 'Romanised' dining practices. The role of food consumption as largesse and conspicuous consumption or creating social obligations has been widely discussed in Iron Age studies (e.g. Dietler 1989; Baldwin and Joy 2017), but its social context in Late Iron Age centres remains poorly understood.

That Bagendon's role appears to have been not just one of assembly, but of facilitating movement and directing access to create a powerscape, may indicate how authority of Late Iron Age leaders was reminiscent of sacral kingship elsewhere. For example, the importance of horses within Late Iron Age society and their role in the anointing of kings at certain centres has been suggested by Creighton (2000), based largely on evidence from Irish early medieval texts (see Newman 2007: 434). That the Bagendon complex too had a possible role in the funnelling of animals in to certain areas seems possible and the importance of movement of horses to the complex from long-distance is also evident. Meanwhile, the widespread use of horse imagery on Western coinage arguably has cosmological or ritual connotations (Pudney 2018).

Roger Mercer (2018) has also argued that the enclosure complex at Castle O'er in southern Scotland might have been focused on horse rearing, potentially for supply to the Roman army. Although evidence from that site is rather limited, indications that horses (and cattle) were moved across the Late Iron Age (and early Roman) landscape are increasingly evident. Evidence that horses were connected to forms of choreographing authority remains circumstantial, but a connection between coin production and horse imagery within the Western coinage region (Pudney 2019), and perhaps even control of the animals themselves, does appear justified.

Controlling the past: controlling the future

The choice of location for Bagendon's powerscape seems significant; it appears that while many of the places in which these complexes emerged were relatively marginal from densely settled landscapes, some were already socially significant (cf. Sharples 2010: 89). The control and dominance of existing assembly places, especially ritual centres, appears to be a common trait in the ways in which *oppida* emerged (Fernández-Götz 2014). At Bagendon, its earlier role as a focal place, located in a neutral and/or marginal landscape may have made it eminently suitable for manipulation and control in the Late Iron Age. The location of such complexes on the periphery of existing agricultural and settlement landscapes could relate less to the development of power outside existing social frameworks, and more to power that sought to dominate and build on existing places of social negotiation (cf. Haselgrove 1995; Hill 2007; Millett 1990: 25). If this were already a place where dispersed communities gathered at certain times of year, then its transformation would have acted as a powerful statement of a new social order. It is noticeable, however, that while working to dominate this landscape, many of the complex's characteristics, such as the way it manipulated movement, echoed its previous roles. This may then suggest a nuanced form of power transfer, rather than simply one of dominance.

The cause of these transformations in Late Iron Age society are hard to define. Arguments that Rome's economic expansion caused a knock-on effect in regions peripheral to the kingdoms of the south-east, who exploited them for resources such as slaves, cannot be entirely dismissed. The evidence for large-scale trade from this region is, however, mostly lacking, and the relationships are just as likely to have been political and diplomatic as economic. Perhaps more pertinent is evidence from the settlement patterns in the region. Despite problems in assessing settlement increases (discussed in Chapter 23), there is sufficient evidence to indicate a demographic transformation in the Later Iron Age with an increasingly densely settled landscape. Where transformations in power and leadership have been witnessed elsewhere, it is widely accepted that demographic changes are the most important in unsettling the existing social order (Clastres 1977: 180; Roscoe 2012: 45). This seems likely to be the case in the Severn-Cotswold region and upper Thames Valley, where the social networks of household communities required new forms of leadership and spaces where communities could negotiate and operate at a larger scale. The monumentalising of Bagendon, a place that was both central and peripheral, may have allowed this change to take place without being too disruptive. Bagendon did not represent a *synoecism* coalescing communities, as suggested for some Late Iron Age centres (Fernández-Götz 2014), but the enacting of a greater polity while communities remained relatively independent. The orchestrators of these changes may have regarded themselves as 'kings', but their power was emerging out of the networks that already existed.

Within these transformations, we cannot exclude the influence of changes taking place across southern Britain. External relationships, with individuals and communities who had more overt expressions of 'kingship' (at *Calleva*, for example), probably offered alternative ways of obtaining and displaying power. As has been recognised in some other contexts, such as the development of potlatch in north-western America (Wolf 1999), displays of community cohesion that were initially relatively egalitarian could develop a more competitive stance through direct and indirect colonial influence. It is unlikely that the modes and expression of power at Bagendon remained static. As Rome took control of the region, for example, it is probable that the army and administrators would have been quick to support those leaders who acknowledged their hegemony. That Bagendon flourished at the time may suggest that Rome recognised it as the pre-eminent centre; whether that had been the case in previous decades is far less certain.

Identifying a unified and coherent *Dobunni* people has proved problematic (Moore 2011), but its emergence as a social construct by the time that Ptolemy was drawing his map may denote a changing political situation after the Roman conquest, the very time when Bagendon witnessed significant activity. As Dio's reference to the surrender of the *Dobunni* indicates, it was a 'part' who acknowledged Roman control and were rewarded by being left to continue to administer the region. Whether Bagendon really was the capital of a *Dobunnic* people that occupied the breadth of the Severn-Cotswold region is more uncertain. Dio's account may instead tell us more about the ability of the leader(s) at Bagendon to negotiate a successful transformation of their status. The narrative above emphasises that Bagendon emerged from a pre-existing social centre, but flourished just before and after the Roman conquest, perhaps because of its connections to greater power centres farther east and south. The acceptance of Bagendon as the location of the new Roman *civitas* capital and its identification as the *polis* of the *Dobunni* by Ptolemy may, however, tell us more about its success, or that of its leaders, in negotiating the Roman colonial encounter than it does about the pre-Roman social and political environment.

Roman Bagendon: mobilising memories of power

By the late 1st century AD, administrative necessity and the reality of the Roman province led to the focus of urban infrastructure being situated at *Corinium*, the location of modern-day Cirencester, and the role of Bagendon changed. Clifford's (1961) suggestion that occupation in the valley was abandoned by the AD 60s or 70s is corroborated by the evidence form the 1979–1981 excavations, and this seems to have coincided with the emergence of *Corinium*'s development in the AD 70s–80s (Holbrook 2008a: 312). *Corinium* was probably far from a well-established urban settlement by this date, however, and like many early Roman towns, it most probably began life as a set of relatively insubstantial timber buildings. While many of the Late Iron Age complexes, such as *Camulodunum*, *Verlamion* and *Calleva*, had Roman towns constructed on top of them, their highly dispersed nature means that the Roman towns frequently shifted the centre of gravity, often to the area around the location of the Roman fort, as at *Camulodunum*. Elsewhere, a shift to more easily accessible locations on the Roman road network took place. That the Bagendon complex might have, conceptually at least, been equally dispersed (Figure 24.14) could suggest that the relocation to *Corinium*'s present location did not mark a complete abandonment of the complex as a whole.

How *Corinium* related to its predecessor at Bagendon is somewhat less clear-cut (Wacher 1974: 29). Henry Hurst (2005: 298) has alluded to the apparent similarities in size of *Corinium* and Bagendon as potentially significant, although he suggests that this probably has little to with comparable population sizes. It does seem that *Corinium* became the centre of exchange and production, as well as incorporating roles as the administrative centre from its earlier precursor, potentially a move led by both indigenous leaders and the Roman state (Holbrook 2008a: 313), reflecting the hybrid forces at work in the creation and placement of Roman towns (Mattingly 2006: 267).

Parallels for Bagendon's transformation in the Roman period are seen less with urban centres, such as Silchester, but rather with those *oppida* that were apparently abandoned in the late 1st century AD. From the current project, potentially as many as three cottage-style villas (at Black Grove, Bagendon House and The Ditches; see Chapter 5) were constructed within the complex in the late 1st–2nd centuries AD, which indicates that it was not just at The Ditches enclosure where a desire to connect the complex to the new Roman order is evident (Trow *et al.* 2009). This connection, between earlier elite residences, which developed as high-status Roman style residences, has been recognised at a number of Late Iron Age complexes that were abandoned for Roman towns. At Bibracte in Gaul, for example, it was the high-status houses and the ritual structures that remained after the other roles of the *oppidum* had moved to the Roman town (Paunier and Luginbühl 2004), while the presence of early villas in Iron Age enclosures has been noted elsewhere in Britain (Trow *et al.* 2009: 69). The emergence of early villas around other Late Iron Age dyke complexes such as *Verlamion* and within the North Oxfordshire Grim's Ditch could offer parallels to this process. Grim's Ditch may be the most pertinent with its highly dispersed complex becoming not the focus of an urban centre, but representing a notable concentration of relatively early Roman villas. This may represent a Late Iron Age elite rapidly asserting their continued (or newly found) power within the Roman province (Trow *et al.* 2009). Aspects of these villas suggest that this was the case; the placement of The Ditches villa visible from the new Roman road of Ermin Street, for example, suggests a desire to be overtly 'Romanised' to a wider audience. Raphael Golosetti (2017) and others (Creighton 2006) have argued for a process of *lieu de mémoire*: using monuments and structures to make connections back to these earlier locations to reinforce or recreate contemporaneous social realities and identities. Golosetti (2017) discusses the ways in which Roman temples on *oppida* were used to do this, but the role of elite residences also appears to have been used to connect elites to perceived ancestral power. The emergence of these villas need not necessarily be evidence of the prime importance of these locations in a pre-Roman political context, it may instead emphasise an apparent desire to be connected to this pre-existing Late Iron Age complex. It does not mean, of course, that other places, communities and individuals were not significant in the last decades of the Iron Age, but simply that they did not succeed in marking so patently their place in the new province.

The transfer of artisanal activity to *Corinium* in the late 1st century AD therefore in many ways did not diminish the role of Bagendon as a place of power. It was clearly important that the newly emergent elites materialised their status through the power of place that Bagendon provided. Memories of the importance of this place at the time of Roman conquest appear to have been mobilised when situating these new villas here, emphasising continuity (whether real or fabricated) in the families who lived there in the new province and in the community who had orchestrated activities at Bagendon in previous decades.

Chapter 25

Conclusions and future prospects

Tom Moore

Having begun with the aim of publishing the 1980s excavations, the Bagendon project developed into a substantial landscape survey. The depth and extent of the archaeological investigations at the Bagendon complex presented in this volume are the result of a diverse array of research methodologies in concert with what Barry Cunliffe aptly described as 'mosaic funding' (2008: 21). From these efforts, a narrative of the complex has emerged which demonstrates that it should be seen not as a 'territorial *oppidum*' or proto-urban central place, but rather as a landscape, manipulated to accommodate the performance of new mechanisms of power in the Late Iron Age. Extending the bounds of survey and recognising the long-term biography of the complex has thus enabled a more nuanced perception of Bagendon's transformation and emergence as a place of power, reflecting the changing nature and needs of societies in the Iron Age and Roman period.

The survey and excavation undertaken between 2008 and 2017, particularly the geophysical survey of over 170 ha of the complex, have transformed Bagendon from one of the least studied to the most detailed of Late Iron Age complexes, with only Silchester (Creighton and Fry 2016)[1] undergoing the same level of geophysical survey. The addition of detailed environmental studies has thus permitted discussion of the nature of land use and spatial organisation within the complex and how it emerged in the Late Iron Age. The Bagendon project therefore illustrates the importance of a holistic approach that applies a battery of remote sensing, excavation and scientific analyses to Late Iron Age complexes; an approach that is above all grounded in a landscape perspective.

The scale and nature of the Late Iron Age complexes remain a major challenge to their study and for European *oppida* more generally. At Bagendon, *c.* 0.25 ha has now been excavated of the complex as a whole (excluding investigations at The Ditches and Duntisbourne), which represents *c.* 0.12 per cent of the estimated 200 ha or so encompassed by the overall dyke system. While this may seem small, it is worth noting that only relatively modest proportions of other complexes with far greater histories of long-term investigation have been examined. At Silchester, for example, the excavated areas exploring the Iron Age levels of the complex amount to around 1 per cent of the main enclosure, whereas at Stanwick, approximately 0.1 per cent of the *c.* 300 ha enclosure has been excavated. Such a comparison reminds us that our appreciation of these complexes remains constrained to certain areas and aspects. It emphasises too that, as a result of recent work, combined with that undertaken in the 1950s and 1980s, Bagendon is now one of the better explored complexes, allowing it to be resituated within debates on Late Iron Age *oppida*.

The broad aims of the current project, to explore the antecedents of the Late Iron Age phase of the complex as well its Roman-period activity, have encompassed many of the core research questions (outlined in Chapter 1), enabling us to discuss Bagendon in the context of other Late Iron Age dyke complexes (e.g. Silchester, Stanwick, *Verlamion* and *Camulodunum*). The insights gained from this examination of Bagendon highlight important aspects of how we approach these Late Iron Age complexes and some of the challenges that remain. Answers to some of the questions raised by the 1979–1981 investigations, such as exactly when occupation in the valley began, for example, remain somewhat elusive. It now seems clear that the Late Iron Age occupation related to earlier activity which immediately preceded it; and there is sufficient evidence, especially in the *terra sigillata* assemblage, to suggest that a start date for Late Iron Age occupation in the Bagendon valley occurred sometime before the Roman conquest, supporting Elsie Clifford's (1961) original suggestion.

Bagendon and perspectives on the *oppidum* debate

The 1979–1981 excavations had relatively focused aims: to reassess the chronology of Clifford's excavations in the light of reappraisals by Viv Swan (1975) and Geoff Dannell (1977); it was hoped that this would then provide a better understanding of Bagendon's significance during the Roman conquest and of its nature as an *oppidum*. Since that time, and partly due to further fieldwork, the questions about Bagendon have broadened to consider the role of the complex in the post-conquest era and its origins prior to the Roman occupation of Britain. Alongside fieldwork

[1] *Verlamion*/*Verulamium* has also undergone some significant survey, but this has largely focused, so far, on the area of the Roman town (Lockyear and Shlasko 2017).

undertaken at The Ditches (Trow 1988a; Trow *et al.* 2009) and developer-led archaeology (Mudd *et al.* 1999), this project has revealed significant elements of the Bagendon complex existed well beyond the area of occupation in the valley.

Recent discussions of the dyke complexes of Late Iron Age Britain have understandably shied away from referring to them as *oppida* (see Chapter 24). Given the intricacies presented by the Late Iron Age centre at Bagendon, and its place in the wider milieu of settlements and complexes, here too the term appears problematic and value-laden. Can we continue to discuss Bagendon (and indeed many other polyfocal complexes: Moore 2012) in the same context as the Late Iron Age 'territorial *oppida*' of south-eastern England, such as *Camulodunum*? Chapter 24 emphasised that the varied nature of these other complexes, with similarities and differences to Bagendon, indicates both their particular social contexts and their commonality as places of manipulating movement to convey new forms of power. While it is clear that classificatory terms are problematic, comparing the range of Late Iron Age centres is likely to be far more instructive than excluding examples on the grounds of arbitrary morphological constraints.

Divorcing discussion of centres such as Bagendon from the '*oppida*' of continental Europe might also have a constraining effect. While it is necessary to acknowledge the problematic nature of definitions of *oppida* (Woolf 1993; Haselgrove 2000; Fernández-Götz 2014; Moore 2017a, 2017b), regarding these complexes as entirely distinctive from their European counterparts may also exaggerate morphological contrasts. In so doing we may be obscuring the ways in which these complexes reflect wider social changes taking place across Europe in the Late Iron Age. Cunliffe (1976: 135) recognised that examining the function and role of these centres is as important, if not more so, than defining their morphological characteristics. Therefore, if they acted as gathering places for an increasing population, comparison of their differences may help to explain variances in the way power operated between communities and the ways that was changing at beginning of the Late Iron Age. Bagendon and many *oppida* in Britain do share similarities in form, function and social context with their European mainland counterparts (Fulford and Timby 2000; Fernández-Götz 2014; Moore 2017a), while the more dispersed and polyfocal nature of some continental *oppida* is also beginning to be recognised (Moore *et al.* 2013, 2017a). In the tumultuous times of the Late Iron Age, we should perhaps not be surprised to see social centres fulfilling a diverse range of roles and taking a variety of forms, reflecting both antecedent social organisation and localised pressures and requirements. It may then be unhelpful to place these centres within neat morphological categories that isolate particular characteristics (such as enclosure and imported material), rather than examining the contextual function of each centre in its region.

Cross comparison can therefore enable a more refined appreciation of the nature of these power centres at the end of the Iron Age; it may also be of benefit to take an even wider look at how other communities created large, sprawling, often low-density, social centres as part of managing complex societies (Fletcher 2019; Moore 2017a, 2017b). The discussion in Chapter 24, which draws parallels between Bagendon and dispersed power centres in Africa such as Great Zimbabwe, does not aim to provide direct analogies, but instead to reveal the varied ways in which monuments can be used to reflect mechanisms of power. Such discussions may allow us to move away from an overreliance on comparing Late Iron Age *oppida* with Mediterranean urbanism as part of a core-periphery model of social complexity. For most complexes, like Bagendon, debate on whether they are urban is largely unhelpful with its focus on relatively arbitrary and classically driven definitions of urbanism (Woolf 1993; Gaydarska 2017). These definitions both include and exclude Late Iron Age complexes, but do little to explain how and why they developed. Although ignoring the influences of the classical world would be myopic, a fixation on the urban nature of *oppida* risks projecting an occidental and classical-focused view on these complexes' development; this approach has also excluded British (and indeed Irish) monumental complexes, ignoring the fact that all societies were undergoing major changes between the 1st century BC and mid-1st century AD (Moore 2017a). This fixation also downplays the evidence that these societies were developing alternative pathways to managing social complexity, centred around social assembly, more akin to that which developed in Northern Europe over the 1st millennium AD (Semple *et al.* 2020). Whether the complexes found in Late Iron Age Britain can be regarded as part of a broader assembly phenomenon, spanning Northern Europe from later prehistory to the medieval era, remains debatable (Semple 2018), but they should surely be considered within this wider context and not examined as a poor relation to classical urbanism.

Reflections and future perspectives

This examination of Bagendon has elucidated several key aspects of the complex's biography, most notably its antecedents and successors, while exploring alternative narratives for how the complex reflected the mechanisms of power in the Late Iron Age. Some important questions remain, however, many of which typify the broader issues surrounding Late Iron Age power centres more generally.

Breaking down terminological constraints

Despite acknowledging the problematic nature of definitions of 'territorial *oppida*' and the diversity of these phenomena (Cunliffe 1976; Corney 1989; Haselgrove 2000; Moore 2012), research continues to focus on a handful of major complexes, most frequently those related to Roman towns. For some complexes, their proximity to modern towns also means that developer-led archaeology has provided additional important insights, for example at St Albans (*Verlamion*) (Niblett and Thompson 2005) and Colchester (*Camulodunum*) (Crummy *et al.* 2007; Gascoyne and Radford 2013). Notwithstanding the value of these insights, and other studies (e.g. Creighton and Fry 2016; Fulford *et al.* 2018), our understanding of most Late Iron Age complexes remains fragmentary. The narrow focus on certain complexes may also be masking the greater complexity of this phenomenon. As research at Bagendon illustrates, and as has also been revealed through the comprehensive examination of Stanwick in North Yorkshire (Haselgrove 2016), Late Iron Age centres in the (so-called) peripheries had equally complex biographies. Work at both Stanwick and Bagendon has been driven by that of previous researchers (Mortimer Wheeler and Elsie Clifford respectively), and the challenge remains to assess whether these sites can really be seen as pre-eminent or whether further study of other lesser known complexes, such as Gussage Cow Down, Dorset, or Minchinhampton, Gloucestershire, may transform our comprehension of the variety of social centres in the Late Iron Age.

A landscape approach to the Late Iron Age complexes

The limited understanding of Late Iron Age dyke complexes is exacerbated by their huge scale. This means that, as noted above, investigations at Bagendon and other complexes such as Stanwick are likely to provide only a relatively small window on their organisation and chronology. This current project at Bagendon draws on lessons learned from other studies, most notably at Silchester (Creighton and Fry 2016), in that only through large-scale remote-sensing are we likely to gain a better appreciation of the ways in which these complexes were organised. The difficulty of taking a broad-scale approach is in defining the limits of some of these complexes. By their very nature, any limits might well have been conceptual or marked by topographic features such as woodland, which are virtually undetectable archaeologically today. To realise that such limits were not defined simply by earthworks also represents something of conceptual challenge for archaeologists, who have been conditioned to consider *oppida* as central places related to a farming hinterland (Cunliffe 1976: 156; Collis 1984: 182–184). That many of these complexes comprised dispersed elements in a landscape, rather than definable settlements, deconstructs our notions of a central place, requiring us instead to think of them more as taskscapes (see Chapter 24; Moore 2012: 414).

Considering these complexes as taskscapes is not antithetical to our need for greater understanding of the nature of these landscapes and their wider environs. Despite the use of large-scale survey at Bagendon, and recent detailed studies of Silchester, St Albans and Stanwick, it is surprising how little can currently be said about the nature of the seemingly empty spaces within and between the earthworks of these complexes. In some landscapes, like that at Bagendon, the challenge created by the limited opportunity for environmental analysis should not deter us from exploring alternative methodological approaches in the future. Further assessment through remote-sensing is required at many complexes, and it is possible that the application of other techniques at Bagendon (such as ground-penetrating radar) would extend our knowledge. The use of survey techniques should not negate the necessity of ground-truthing via excavation, however, or the potential for methods such as shovel-pits (cf. Gerrard and Aston 2007) to identify areas and levels of activity. The application of more novel techniques, such as micromorphological analysis and soil DNA, is beginning to be explored elsewhere, for example at Bibracte (Golanova *et al.* 2020), as part of the recognition that determining the role of seemingly 'open areas' is crucial to understanding the nature of *oppida* across Europe.

At Bagendon specifically, a better understanding of the organisation of the seemingly focal enclosures at Duntisbourne and The Ditches is also required. The use of the latter, probably throughout the Roman period (Trow *et al.* 2009), may make interrogating its role in the early 1st century AD more difficult, but the apparent abandonment of the Duntisbourne Grove enclosure could mean that it has greater potential for establishing their purpose: 'elite' farmsteads, gathering places or ritual enclosures, for example.

Detailed assessment of the Bagendon complex has suggested that the dispersed nature of the complex and the arrangement of the earthworks was focused on creating a way of demonstrating and performing new modes of power, or what is defined in Chapter 24 as a 'powerscape'. No other studies have assessed earthworks in this way, although comparative studies (Garland 2016b) are pointing to the intricate ways in which the earthworks were arranged. The pioneering approach taken at Bagendon emphasises the potential for GIS modelling, building on more subjective phenomenological perspectives, to consider how the experientiality of complexes might have been fundamental to their design, development and articulation of power.

Oppida origins and landscape biographies

While the origin of *oppida* has always been an important aspect of discussions of the nature of Late Iron Age transformations (Collis 1984: 65–84; Haselgrove 1995; Rogers 2008; Fernández-Götz 2014), the genesis of the British Late Iron Age complexes has remained enigmatic. As related in Chapter 24, the apparent 'emptiness' of these landscapes prior to the emergence of the dyke systems has figured heavily in these debates. The results from the Bagendon landscape indicate significant, and potentially special, land use prior to the Late Iron Age. This offers a more nuanced understanding of these landscapes before the emergence of *oppida* and of why they were the places where such centres emerged. Rather than empty, marginal or somehow 'ritually significant', Bagendon appears to have been exploited in distinctive ways and had particular social roles, perhaps as a location for social gathering, including the movement of animals from some distance away. For all Late Iron Age complexes, understanding the nature of earlier features within them is important, as is assessing how use of the landscape relates to the wider region. Far more rigorous and systematic surveys of settlement patterns in the environs of *oppida* are therefore required. It may be equally instructive to re-examine other complexes that appear to have followed alternative trajectories despite having some affinities with the earlier phases of activity at Bagendon, such as the banjo clusters in Dorset.

The search for the social significance of these locations and the reasons why they spawned social centres in the Late Iron Age also needs to consider the long-term biographies of landscapes and their role in creating memories and affirming a sense of place. Activities in the Late Iron Age and in the Roman period appear embedded, albeit in very different ways, within the memories and the sense of place that the Bagendon landscape conveyed. While all landscapes embody biographies (cf. Stewart and Srathern 2003; Kolen and Renes 2015), a role to express and articulate power appears specifically affirmed here, in reference to the memories and identities connected to this landscape.

Developing chronological models

The use of significant numbers of radiocarbon dates on the excavations at Scrubditch and the Cutham enclosures at Bagendon, as well as detailed assessment of the material culture from the valley occupation, has advanced a chronological model for the development of the complex. The problematic nature of reliance on material culture typologies for creating a more detailed chronology of the Late Iron Age occupation remains, however. Recent dating undertaken for the excavations at Stanwick (Haselgrove 2016) emphasises the possibility of Bayesian analysis for narrowing chronologies, even within the relatively short timeframe of the 1st century AD. These studies also identify earlier activity at such complexes, something often resisted by relatively conservative ceramic and metalwork typo-chronologies. It is only through the application of a relatively large number of radiocarbon dates from the enclosures at Cutham and Scrubditch that it has been possible to demonstrate how they immediately preceded Late Iron Age occupation, stressing the future need to focus more on large-scale radiocarbon dating programmes.

A more refined chronological model is, therefore, essential for a better understanding of the emergence and development of these complexes, in particular the relationship between areas of occupation and the earthworks that define them. Suggestions that other centres at Stanwick (Haselgrove 2016) and Silchester (Creighton and Fry 2016: 354) first emerged as unenclosed settlements echoes the trajectory of some continental centres (Wendling 2013; Fernández-Götz 2014) where the construction of ramparts was sometimes a short-lived or later addition. To assess this suggestion in relation to British *oppida* requires a far more rigorous dating programme for the dyke systems. It is striking that Bagendon is not alone amongst the 'territorial *oppida*' in having a relatively poor chronological framework for its dyke systems. Even at *Camulodunum*, for example, models of its development have been based on suppositions and limited dating evidence (Hawkes and Crummy 1995: 174–175). At Silchester, a detailed examination has proposed a sequence of development that suggests the *oppidum* emerged as an enclosure at the end of the 1st century BC and that many of the associated earthworks are actually of Roman date (Creighton and Fry 2016: 325), echoing Crummy and Hawkes' (1995: 177) suggestion that some earthworks at *Camulodunum* are also post-conquest. And at Stanwick, examination of dating from various elements of the outer earthworks suggests a date of construction somewhere between AD 30 and AD 60 (Haselgrove 2016: 394–395); it has also indicated that construction of the perimeter was a single event and not long maintained. The investigations of one of the unexamined earthworks at Bagendon in 2017 (Chapter 4) underscored the difficulties in dating these features. The remarkable evidence that the initial construction of this earthwork dates to the 4th-3rd century BC provides startling evidence that many may have had far longer histories than anticipated. To what extent the rest of the earthworks developed over a long time frame is unclear, but it does seem that the earthworks were also redeveloped at some point in the early to mid 1st century AD (Chapter 4). Meanwhile, at Bagendon the lack of Flavian occupation avoids the complicating factor of Roman urban enclosure seen at Silchester and *Camulodunum*.

Refining this chronology remains a major challenge, however. That some elements of such dyke systems, as at Bagendon, provide little or nothing in terms of material for dating significantly hinders understanding their development. Greater investigation through excavation, despite its costly and time-consuming nature, alongside the application of OSL and radiocarbon dating using innovative techniques appears the sole possible avenue for creating chronologies that are more robust. Only then will we be able to gain a better awareness of how they relate to the activity around them. The possibility that some dyke systems may have earlier antecedents, in the Middle Iron Age or even Bronze Age, as well as their development and modification in the Roman (and later periods) is hinted at by some evidence and may provides further insight into the long-term biographies and emergence of these places.

Modelling the chronology of the complexes themselves is of course crucial, but also essential is a detailed chronological model for the settlements around them. Assessing to what extent these complexes represented part of a settlement hierarchy, receiving potential tribute and foodstuffs, and/or acted as focal centres for the assembly of people from the surrounding landscape, requires knowledge of the trajectory of rural settlements. Despite increasingly detailed information on settlements in the nearby Thames Valley, explored in Chapter 23, a robust chronological model of settlement patterns using Bayesian modelling has yet to be undertaken. The possibility, raised by some recent surveys (e.g. Bradley *et al.* 2016; Bevan *et al.* 2017), that wide-scale transformations in settlement took place at distinct points in the 1st millennium BC requires us to examine in more detail exactly where the emergence of centres, such as Bagendon, was situated in longer-term patterns of settlement change. Did they mark a product of increasing settlement (and presumably population), or were they part of periods of nucleation and even settlement decline? On the basis of current evidence, it appears that Bagendon emerged from an increasingly densely settled landscape as part of societies' need for a centralised gathering place. The evidence for such Late Iron Age transformations also needs, however, to consider the role of individuals and communities as agents of, and respondents to, a multitude of internal and external forces. Such an approach need not privilege the external impact of Rome or emphasise the *longue durée* of population increase, but needs to examine more closely the varied interplay of these dynamics.

Revisiting social models of the Late Iron Age

A final aspect that requires re-examination is the orthodox ways in which the Late Iron Age is understood. The presence of imported material, new material culture forms such as coinage, rich burials in some areas and textual sources means that the period remains dominated by a vision of kingship through narratives that seek to emphasise the role of Rome. Many of these narratives are also implicitly bound by the core-periphery models of Western Europe that are so ingrained in many views of the modern world (Moore and Armada 2011). It has been suggested here, and elsewhere (Moore 2017a; Moore and González-Álvarez forthcoming), that even for the Late Iron Age some preconceptions of how power was manifested and operated could be challenged. Placing aside assumptions of kingship and a potential binary between hierarchical *vs* heterarchical societies may permit the differences of some of the complexes like Bagendon, and other centres such as Saham Toney, Norfolk, or Gussage Cow Down in Dorset, to be appreciated in a wider social context. Current approaches focus on placing these complexes within a discussion of the emergence of kingship and client kingdoms (Creighton 2000; 2006), but the possibility that alternative forms of power co-existed should be kept in mind. It is too easy to privilege the textual accounts of the socio-political order of southern Britain while overlooking the complex and sophisticated social centres and power signifiers that existed in other regions. The apparent proliferation of linear earthwork monuments across many parts of Britain in the Later Iron Age, for example, suggests the presence of broader changes indicative of the consumption of large amounts of labour and the emergence of larger social entities or polities. Examining what these monuments represent in terms of social scale and organisation, rather than as levels of engagement with the expanding Roman Empire, may be more instructive in understanding social transformations at the end of the Iron Age. At the same time, isotopic studies are increasingly revealing the complex and long-distance economic and social networks that such centres were connected to, beyond the evident connections to south-east England and the Roman Empire discussed in Chapter 24. Analysis of the nature of these earthworks is also allowing us to examine how power worked in the Late Iron Age, through theatre and display, as centres for feasting, potlatch and negotiated assembly. This increasingly undermines the pre-eminence, often given in earlier models, to the role of controlling economic resources and the display of martial prowess.

British '*oppida*' in popular and academic consciousness

A continuing, relatively uncritical approach to the complexities of the *oppida* phenomena has meant that discussion remains constrained by a discourse that focuses on certain monuments and their place in 'Romanisation' and the emergence of urbanism. Research at Bagendon is demonstrating that other, alternative narratives exist for these complexes, which provide challenging but instructive insights into the changing nature of power in later prehistory and the Roman province. Future work aims to determine how these narratives could be better communicated to a wider audience.

As an earlier, European-wide survey of *oppida* indicates, the non-spectacular upstanding remains of many *oppida*, especially British examples, have often meant that they are poorly appreciated by the public and underexplored as heritage resources (Daval 2009; Pierrevelcin and Guichard 2009). This is despite their important place in social developments at the end of the Iron Age and their role in the Roman conquest of Britain. They are also, as at Bagendon, usually working landscapes, meaning that even when they receive high-level protection, they continue to balance the needs of heritage management with other landscape requirements. A development of the Bagendon project aimed to explore how the complex might figure more prominently in management of the wider landscape and how stakeholders might engage with the Iron Age and Roman remains as part of an intricate landscape biography. Bagendon was thus integrated on a European scale in an exploration of how such landscapes are perceived and managed by their stakeholders. This project (REFIT: 'Resituating Europe's First Towns: a case study in enhancing knowledge transfer and developing sustainable management of cultural landscapes'*:* Moore and Tully forthcoming; Moore *et al.* 2020) sought to investigate the place of these common European heritage assets in the management of the landscapes in which they were situated. In particular, we sought to explore how they might be better used to engage with and connect stakeholders. Working with a range of landowners, residents and other stakeholders, such as wildlife organisations, the need for a combined approach to and understanding of the archaeology the cultural landscape management emerged from our surveys (Moore and Tully 2018; Moore *et al*. 2020). Having recognised that the role of these complexes in the Late Iron Age can only be truly understood through a landscape perspective; by extension, the management of such complexes also requires them to be perceived as part of a larger cultural landscape, rather than as discrete heritage assets. For such *oppida*, and Bagendon specifically, engaging stakeholders to emphasise the integrated nature of these landscapes has been through a range of methods, including digital guides, leaflets, workshops and participatory fieldwork (Tully and Allen 2018; Moore and Tully forthcoming; Moore *et al.* 2020). For the REFIT project, the potential for visual media, GIS and digital modelling to present and explain the nature of some of the largest and most impressive sites in prehistory, as well as narratives of social change that barely figure in the contemporary popular consciousness of Britain's past, was only glimpsed. It is hoped, however, that future work will explore these possibilities to their fullest extent.

The recent crop of fieldwork on a range of *oppida* complexes in Britain (Creighton and Fry 2016; Haselgrove 2016; Fulford *et al.* 2018) highlights the potential that they have for reshaping our narratives of the Late Iron Age. Thus, awareness of their diversity and complexity through new approaches reintegrates them into broader debates on the nature of alternatives to Mediterranean urbanism, and on the role of mega sites throughout the world (Fernández-Götz 2017; Moore 2017a, 2017b; Fletcher 2019). An increasingly prevalent suggestion that these complexes' main role was not as trade centres but as places for the physical manifestations of power is enabling them to be contextualised within wider debates on the importance of assembly and power-from-below, which is recognised as a widespread facet of societies from later prehistory to the medieval era across Northern Europe (Fernández-Götz and Thurston forthcoming; Semple *et al.* 2020). While it remains challenging to understand the place of Late Iron Age complexes in how societies negotiated their increasing scale and complexity, as well as interaction with the expanding Roman Empire, such investigations hold significant potential for the future. More diverse methods and the large-scale application of field research on a greater range of complexes is ultimately likely to provide a deeper and subtler appreciation, not just of these places, but of the Late Iron Age/Roman transition in general.

Appendix 1

Catalogue of sites in the Bagendon Environs

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE1	Scrubditch enclosure	NA	Enclosure (banjo/ funnel)	SP00880743	This volume
BE2	Cutham enclosure	NA	Enclosure (banjo/ funnel)	SP015065	This volume
BE3:1	Down Ampney estate - phase 5d	GHER33870	unenclosed settlement	SU12009577	Barber 2009b
BE3:2	Down Ampney estate - phase 7a-b (west)	GHER33870	complex farmstead	SU10609580	Barber 2009b
BE3:3	Down Ampney estate - phase 1d	GHER33870	uncertain activity	SU10519551	Barber 2009b
BE3:4	Down Ampney estate - phase 1e	GHER33870	uncertain activity	SU10509550	Barber 2009b
BE3:5	Down Ampney estate - phase 3a-b	GHER33870	uncertain activity	SU10259500	Barber 2009b
BE3:6	Down Ampney estate - phase 6e	GHER33870	uncertain activity	SU12759520	Barber 2009b
BE4	Spratsgate Lane Site B	GHER2361	Enclosure (banjo/ funnel)	SU024958	Vallender 2007
BE5	Fields Farm	GHER11236	Burial	SO983084	Mudd et al 1999
BE6	Bagendon dykes	GHER4127	Polyfocal complex	SP017064	Clifford 1961/This volume
BE7	Land South of Quercus Road, Tetbury	GHER42963	settlement (undefined)	ST897940	Hood 2012
BE8	Baunton Lynches trackway	GHER30524	Burial	SP02350505	Mudd et al 1999
BE9	Bauton Lynches trackway	GHER26722	uncertain activity	SP02350505	Mudd et al 1999
BE10	Tar Barrows	GHER28968	burial	SP032025	Peter Guest unpub
BE11:1	Kingshill South (Roman building)	GHER47490	villa?	SP03420131	Simmonds et al 2018
BE11:2	Kingshill South (Roman building)	GHER47490	settlement (undefined)	SP03420131	Simmonds et al 2018
BE12:1	Ditches enclosure (LIA)	GHER4684	Large enclosure (hillfort)	SO996095	Trow et al 2009
BE12:2	Ditches villa	GHER4684	villa	SO996095	Trow et al 2009
BE12:3	Ditches enclosure (LER)	GHER4684	settlement (undefined)	SO996095	Trow et al 2009
BE13: 1	Pinbury 'hillfort'	GHER4196	Large enclosure (hillfort)	SP960053	RCHM 1976; 49
BE13:2	Pinury Roman	GHER4196	uncertain actvity	SP960053	RCHM 1976; 49
BE14	Bagendon 'industrial area'	GHER32822	settlement (undefined)	SP017063	Clifford 1961/This volume
BE15	Hailey Wood temple	GHER117237	Sanctuary site	SO96510031	Moore 2001/This volume
BE16:1	Arkell's Land a	GHER2431	burial (cremation)	SP17859949	Hayden et al 2017
BE16:2	Arkell's Land b	GHER2431	Enclosure (irregular)	SP17859950	Hayden et al 2017
BE17	Well's Bridge, Barnwood	NA	villa?	SO865190	Rawes 1977
BE18	Colin Road, Barnwood	GHER1086	uncertain activity	SO86511827	Orellanna 2014
BE19	Upton St Leonards	GHER4806	settlement (undefined)	SO8662715772	Fowler and Walthew 1971

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE20	Cirencester Park Polo club	GHER22292/ EHNMR-1485233	settlement (undefined)	SO9899003500	Nichols 2004; Nichols and Timby 2005
BE21:1	Portway (farmstead)	GHER4808	Complex farmstead	SO86001510	Rawes 1984a
BE21:2	Portway (temple)	GHER4808	temple/sanctuary	SO86001509	Rawes 1984a
BE22	Brockworth Airfield	GHER28394	Complex farmstead	SO8750016400	Hickling 2007
BE23	High Brotheridge	GHER420	Large enclosure (hillfort)	SO893140	Harding 1977; Wingham 1985
BE24	Cirencester	PAS-323126&others	uncertain activity	SP0202	PAS-Database&CCI
BE25	Former St James Railway station	GHER34437	field system/field boundary	SO9430022600	Coleman and Watts 2008
BE26	West Drive, Cheltenham	GHER20466	complex farmstead?	SO95102331	Catchpole 2002
BE27	Brizen Farm	GHER28802	unenclosed settlement?	SO932198	Meara 2008
BE28	Stratton water meadows	NA	uncertain activity	SP0180030	Holbrook 2008b
BE29	Lower Mill Estate	GHER27966	settlement (undefined)	SU0253694270	Brett 2001
BE30	Latton Lands central (MIA)	WISMRSU09NE203/ MWI75209	unenclosed settlement	SU08309610	Powell et al 2009
BE31	Latton Lands Central (MIA) enclosure	WISMRSU09NE203/ MWI75209	enclosure (curvilinear)	SU08309620	Powell et al 2009
BE32	Kingshill North enclosure	GHER33776	Enclosure (irregular)	SP03650250	Biddulp and Welsh 2011
BE33	Kinghill North unenclosed	GHER33776	unenclosed settlement	SP03650251	Biddulp and Welsh 2011
BE34	Latton Lands northern (MIA)	MWI75209/ MWI75208	unenclosed settlement	SU08229638	Powell et al 2009
BE35:1	The Beeches-London Rd.	GHER17205	settlement (undefined)	SP03710218	Young and Erskine 2012
BE35:2	The Beeches-London Rd.	GHER2129	enclosure (rectangular)		Reece 1990
BE36	Cherry Tree lane	GHER22444	uncertain activity	SP03850238	Mudd et al 1999: 71
BE37	Norcote Farm	GHER26731	field system/field boundary	SP04350205	Mudd et al 1999: 75
BE38	Preston enclosure	GHER22353	enclosure (polygonal)	SP051010	Mudd et al 1999: 51
BE39	St Augustines Lane	GHER22350	field system/field boundary	SP053007	Mudd et al 1999: 37
BE40	St Augustines Farm South	GHER22350	settlement (undefined)	SP055003	Mudd et al 1999: 37
BE41	Bagendon Old School	GHER48614	settlement (undefined)	SP011066	Hood 2011
BE42	Middle Duntisbourne	GHER4678	enclosure (rectangular)	SP988073	Mudd et al 1999, 79
BE43	Duntisbourne Grove	GHER12745	enclosure (rectangular)	SP992068	Mudd et al 1999, 87
BE44	Stancombe settlement	NA	villa	SP997074	RCHME 1976, 49
BE45	Bakers Wood	NA	unenclosed settlement	SP04952252	Hart et al 2016a, 91
BE46	Latton Lands (enclosure/ burials) LIA	WISMRSU09NE203/ MWI75209	enclosure (rectangular)	SU08409609	Powell et al 2009
BE47	Latton Lands (RB)	WISMRSU09NE203/ MWI75209	complex farmstead	SU08599598	Powell et al 2009
BE48	Court Farm, Latton	WISMRSU09NE308	uncertain activity	SU0960994996	Mudd et al 1999

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE49	Spratsgate Lane Site D	GHER2361	unenclosed settlement	SP024958	Vallender 2007
BE50	Daglingworth 'Cave close'	NA	villa?	SO99850443	RCHME 1976, 41
BE51	The Barton	GHER2092	villa	SP016022	RCHME 1976, 29
BE52	Costwold Community field boundary	GHER3121	field system/field boundary	SU03209640 (centred on)	Powell et al 2010
BE53	Cotswold Community EIA settlement 1	GHER3121	unenclosed settlement	SU03259645	Powell et al 2010
BE54	Cotswold Community EIA settlements 2, 3, 4	GHER3121	unenclosed settlement	SU03009590	Powell et al 2010
BE55	Cotswold Community MIA	GHER3121	Enclosure (banjo/ funnel)	SU03409587	Powell et al 2010
BE56:1	Cotswold Community MIA	GHER3121	enclosure (rectangular)	SU03209585	Powell et al 2010
BE56:2	Cotswold Community MIA -unenclosed	GHER3121	unenclosed settlement	SU03209600	Powell et al 2010
BE57	Cotswold Community LIA1	GHER3121	unenclosed settlement (and Palisade)	SU03309640	Powell et al 2010
BE58	Cotswold Community LIA2	GHER3121	Complex farmstead	SU03309640	Powell et al 2010
BE59	Burford Road, Cirencester	GHER22444	uncertain activity	SP03850248	Mudd et al 1999, 72
BE60:1	Thornhill Farm, Fairford (Late Iron Age) (85-89)	GHER324	Complex farmstead	SU18329990	Jennings et al 2004
BE60:2	Thornhill Farm, Fairford (ER) (85-89)	GHER324	Complex farmstead	SU18329990	Jennings et al 2004
BE61:1	Thornhill Farm, Fairford (Coln Gravel) (E-MIA)	GHER324	uncertain activity	SU180998	Stansbie et al 2008
BE61:2	Thornhill Farm, Fairford (Coln Gravel) (MIA)	GHER324	unenclosed settlement	SU180998	Stansbie et al 2008
BE61:3	Thornhill Farm, Fairford (Coln Gravel) (LIA)	GHER324	Complex farmstead	SU180998	Stansbie et al 2008
BE61:4	Thornhill Farm, Fairford (Coln Gravel) (RB)	GHER324	Complex farmstead	SU180999	Stansbie et al 2008
BE62	Thornhill Farm, Fairford (Middle Iron Age)	GHER324	unenclosed settlemennt	SU18029980	Jennings et al 2004
BE63	Cricklade settlement	WISMRSU09SE302	settlement (undefined)	SU1000093900	Raleigh Radford 1972
BE64	Totterdown Lane, Horcott, Fairford (east site)	GHER21719	unenclosed settlement	SU152990	Pine and Preston 2004
BE65	Totterdown Lane, Horcott, Fairford (west site)	GHER21719	uncertain activity	SU146990	Pine and Preston 2004
BE66	Horcott Pit (LBA/EIA)	GHER41336	unenclosed settlement	SU14329875	Lamdin-Whymark et al 2009
BE67	Horcott Pit (MIA)	GHER41336	enclosure (rectangular)	SU14329875	Lamdin-Whymark et al 2009
BE68:1	Latton Lands north (Early Iron Age)	WISMRSU09NE203/ MWI75209	unenclosed settlements	SU08209630	Powell et al. 2009
BE68:2	Latton Lands east (Early Iron Age)	WISMRSU09NE203/ MWI75209	unenclosed settlement	SU08419615	Powell et al 2009
BE69	Neigh Bridge, Somerford Keynes	GHER2405	unenclosed settlement/ temple?	SU01870447	Miles et al 2007
BE70	Shorncote Quarry	GHER15477	unenclosed settlement	SU03109685	Hearne and Adams 1999
BE71	Cleveland Farm, Ashton Keynes	WISMRSU09SE202	unenclosed settlement	SU0675094500	Coe et al 1991; Powell et al. 2008

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE72:1	Hucclecote (EIA settlement)	GHER468	unenclosed settlement	SO883173	Thomas et al 2003
BE72:2	Hucclecote Link Road (Brockworth settlement)	GHER20087	unenclosed settlement	SO883173	Thomas et al 2003
BE72:3	Hucclecote Link Road (Brockworth settlement-phase4.2)	GHER20087	complex farmstead?	SO883173	Thomas et al 2003
BE73:1	Highfield, Shipton	GHER17034	burial	SP039187	Barber 1995
BE73:2	Shipton Oliffe	PAS-ID-310538	uncertain activity	SP039188	Timby 1998
BE74:1	Black Grove	NA	villa	SP015065	Moore this volume
BE74:2	Black Grove	NA	uncertain activity	SP015066	Moore this volume
BE75	Churchdown (Area C)	GHER42694	Enclosure (rectangular)	SO894215	Burgess et al. 2016
BE76	Seabrook	HENMR-1485407; GHER22282	unenclosed settlement?	SP1568020745	Wright 2005b; Darvill 2010, 198
BE77	Abingdon Court Farm	WISMRSU19SW302	settlement (undefined)	SU1035093690	Longman 2003
BE78	RAF Fairford	GHER20460	unenclosed settlement?	SU15009820	Hoad 2006
BE79:1	Arle Court, Cheltenham	GHER32361	unenclosed settlement	SO91632130	Cuttler 2010
BE79:2	Arle Court, Cheltenham	GHER32361	enclosure (rectangular)	SO91632130	Cuttler 2010
BE80:1	Stubbs Farm, Kempsford	GHER29725/4	enclosure (curvilinear)	SU167970	Miles et al 2007, 298
BE80:2	Kempsford Quarry	GHER44408	complex farmstead	SU167970	Booth and Stansbie 2007
BE81	Ermin Farm	GHER22354	enclosure (rectangular)	SU056998	Mudd et al 1999
BE82	Royal Agricultural College	GHER20665	settlement (undefined)	SP009021	Coleman 2001
BE83	Bourton Bridge/Lansdown	GHER43986	Small town	SP162210	Catchpole 2002; Timby 1998
BE84	Grange Hill Quarry	GHER33154	unenclosed settlement?	SP1165024300	Coleman 1999; BA 2005; Darvill 2010, 198
BE85	Hanover Firs	GHER33967	field system/field boundary	SO95820363	Hart et al 2016a: 108
BE86	Huntsmans Quarry	GSMR4104	Enclosure (rectangular)	SP13022576	Foster 1994; Marshall 2004, 39
BE87:1	Horcott Quarry (RB)	GHER49552	field system/field boundary	SP1447499970	Hayden et al 2017
BE87:2	Horcott Quarry (EIA)	GHER49552	unenclosed settlement	SP14559998	Hayden et al 2017
BE87:3	Horcott Quarry (MIA)	GHER49552	unenclosed settlement	SP14609980	Hayden et al 2017
BE88:1	Winstone Site 15 (Sap-Wor pipeline)	GHER33966	field system/field boundary	SO96840919	Hart et al 2016a
BE89: 1	Winstone Site 15 (Sap-Wor pipeline)	GHER33966	unenclosed settlement	SO96840919	Hart et al 2016a
BE89: 2	Winstone Site 15 (Sap-Wor pipeline)	GHER33966	unenclosed settlement?	SO96840929	Hart et al 2016a
BE89:3	Winstone Site 15 (Sap-Wor pipeline)	GHER33966	burial	SO96840924	Hart et al 2016a
BE90	Pinchley Wood	NA	sanctuary site?	SO99551672	Hart et al 2016a
BE91	Needlehole	NA	settlement (undefined)	SO98471692	Hart et al 2016a

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE92	Dowdeswell Hillfort	GHER176	Large enclosure (hillfort)	SO999191	RCHM 1976, Timby 1998
BE93:1	Chessels, Lower Slaughter (IA)	GHER346	settlement (undefined)	SP173227	Timby 1998, 376
BE93:2	Chessels, Lower Slaughter (Roman)	GHER346	settlement (undefined)	SP173228	Timby 1998; RCHME 1976, 79
BE94	Spring Hill settlement	GHER2626	settlement (undefined)	SP1593922225	RCHME 1976, 80
BE95	Winson Enclosure	GHER9030	enclosure (rectangular)	SP09440760	Cox 1985
BE96	Dowdeswell Hillfort-coins	GHER176	uncertain activity	SO9919	PAS-Database&CCI
BE97	Birdlip	GHER7185	enclosure (rectangular)	SO932143	Parry 1998
BE98	Enclosure (rectangular)	GHER117797	Enclosure (rectangular)	SO94762255	Wills 1987
BE99	Windrush Farm	GHER14628	enclosure (curvilinear)	SP13032155	Marshall 2004
BE100	Northleach bypass	GHER2583	settlement (undefined)	SP1120015700	Rawes 1984b
BE101	Wharton’s Furlong (Cold Aston)	NA	Complex farmstead	SP133214	Marshall 1999; 2004
BE102	Evesham road, Cheltenham	GHER44461	settlement (undefined)	SO 9533 2334	Sausins 2012
BE103	Birdlip burials (Barrow Wake)	GHER3807	burials	SO931153	Staelens 1982
BE104	Vineyards Farm, Charlton Kings	GHER9693	settlement (undefined)	SO973185	Rawes 1991
BE105	Birdlip quarry Roman stmt	NA	uncertain activity	SO948134	Mudd et al 1999, 417
BE106: 1	Waltham Villa, Whittington Roman Villa	GHER328021	Villa	SP010208	Hirst 2000
BE106: 2	Waltham Villa - LIA site	GHER32801	settlement (undefined)	SP010208	Hirst 2000
BE107	Primary School/Cotswold School-Bourton-on-the-Water(1996)	GHER19899	unenclosed settlement	SP167210	Nichols 2006; Seaneachain 2012; Hart et al 2016a
BE108	Rodmarton coin	PAS-ID-323125	uncertain activity	ST941980	RCHM 1976: 98; Allen 1961
BE109	Churchdown Hill	GHER4426	Large enclosure (hillfort)	SO881189	Hurst 1977, Saville 1984
BE110	Barnwood (site A)	GHER6725	settlement (undefined)	SO862179	Clifford 1930; Saville 1984
BE111	Quenington	GHER2507	Roman small town	SP1364005370	O’Neil 1957
BE112	Lilliesfield Avenue	GHER115210	settlement (undefined)	SO 865173	Clifford 1930
BE113	Sales Lot-Long Barrow	HE327495	uncertain activity	SP048158	O’Neil 1966; RCHM 1976; Timby 1998
BE114	Bisley-stray find	NA	uncertain activity	SO901071	Price 1985
BE115	Sandy Lane, Cheltenham	GHER9350	settlement (undefined)	SO953197	Purnell and Webb 1950; RCHME 1976, 23
BE116	Leaholme Fort-settlement	GHER30373	settlement (undefined)	SP022011	Wacher and McWirr 1982
BE117	Leaholme Roman fort	GHER30373	Roman fort	SP022011	Wacher and McWirr 1982
BE118	Whelford Bowmoor	GHER49614	complex farmstead	SU172996	Miles et al 2007
BE119	Barnsley Park - villa	GHER47788	Villa	SP082061	Webster and Smith 1982

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE120	Barnsley Park - finds	GHER47788	uncertain activity	SP082061	Saville 1984; Webster and Smith 1982
BE121	Calmsden Farm Horse Gallop	GHER48555	uncertain actvity	SP07180813	Crees 2016
BE122	Ranbury Ring Hillfort	GHER8	Large enclosure (hillfort)	SP090009	RCHM 1976
BE123	Chavenage (coin-brooch)	GHER2996	uncertain activity	ST870955	RCHM 1976; 13
BE124: 1	Trewsbury Camp	GHER2107	Large enclosure (hillfort)	ST981998	RCHM 1976; 32
BE125	Norbury	GHER177	Large enclosure (hillfort)	SO990150	RCHM 1976; 34
BE126:1	Norbury-Northleach	GHER273	Large enclosure (hillfort)	SP126156	Saville 1983
BE126:2	Norbury-Northleach	GHER273	settlement (undefined)	SP126156	Saville 1984
BE127	Dean Camp	GHER87	Large enclosure (hillfort)	SP165087	RCHM 1976, 36
BE128	Juniper HillEdgeworth	GHER363;HE117172	Large enclosure (hillfort)	SO93130639	RCHM 1976; cf Clifford 1961
BE129	Copse Hill, Upper Slaughter	GHER2631	settlement (undefined)	SP163234	Grinsell 1964, RCHM 1976, Timby 1998
BE130	Crickley Hillfort	GSMR170	Large enclosure (hillfort)	SO925161	Dixon 1994
BE131:1	Siddington (Worms Farm)	GHER2358/134654	Enclosure (banjo/ funnel)	SU047997	RCHM 1976, 102
BE131:2	Siddington (Worms Farm)	GHER2358	complex farmstead	SU047997	Wiltshire Archaeology field group 2016
BE132	Foxcote Manor, Withington	GHER3996	settlement (undefined)	SP01381803	Donovan and Dunning 1936, RCHM 1976, Saville 1984; Timby 1998
BE133	Kemble	GHER15690	settlement (undefined)	ST987971	King et al 1996
BE134	Kingshill bridge	GHER28689	uncertain activity	SP 0331 0098	Barber 2009a
BE135	Highgate House	GHER4698	settlement (undefined)	SO952130	Mudd et al 1999
BE136:1	Hucclecote Villa	GHER468	uncertain activity	SO875173	Clifford 1930
BE136:2	Hucclecote Villa	GHER20087	villa	SO875173	Clifford 1930; cf Thomas et al 2003
BE137	2 St Johns Road	GHER44068	field system/ boundary	SP 0231 0261	Keith-Lucas 2012
BE138	Quenington	NA	uncertain activity	SP143045	Clews 1985
BE139	Tetbury coin	CCI	uncertain activity	ST8993	De Jersey 1994
BE140	Rissington RAF	NA	settlement (undefined)	SP206196	Bateman 1997b
BE141	Leckhampton	GHER46	Large enclosure (hillfort)	SO947183	Champion 1976
BE142	Abbeymeads Roman Fields	NA	unenclosed settlement	SO865171	Atkin 1987; cfThomas 2003
BE143	Ashton Keynes-excavation	NA	settlement (undefined)	SU0442292935	Wiltshire Archaeology Magazine vol 108, p 214
BE144	Minchinhampton earthwork	GHER3492	uncertain activity	SO875004	Clifford 1937
BE145	Preston Enclosure	GHER22353	enclosure (polygonal)	SP051008	Mudd et al 1999

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE146	Painswick Beacon (Kimsbury)	GHER442	Large enclosure (hillfort)	SO869121	RCHME 1976, 91
BE147	Downs Farm, Baunton	GHER2070	settlement (undefined)	SP025058	RCHME 1976, 13
BE148	Calmsden Field	GHER2059	settlement (undefined)	SP0409	RCHME 1976, 85
BE149	Duntisbourne Abbotts	NA	settlement (undefined)	SO981081	RCHME 1976, 48
BE150:1	Rodmarton villa (Hockberry)	GHER4017	Villa	ST94439843	RCHME 1976, 98
BE150:2	Rodmarton villa (Hockberry)	GHER4017	uncertain activity	ST94439843	RCHME 1976, 99
BE151	Horsbere Brook, Brockworth	NA	settlement (undefined)	SO891168	RCHME 1976, 22
BE152	Green Ditches	GHER38010; HE1513896	Large enclosure (hillfort)	SO9119302105	RCHME 1976; 99/ PASTSCAPE
BE153	Chalford Burial	NA	burial	SO89560384	RHCME 1976, 23
BE154	Hailey Wood villa	GHER382; HE117268	Villa?	SO960010	PASTSCAPE/NMP
BE155	Driffield villa	GHER2024	villa	SP082005	RCHME 1976, 45
BE156	Cherington settlement	NA	settlement (undefined)	ST905965	RCHME 1976, 29
BE157	Granna Wood (Site 6)	NA	unenclosed settlement	SP05352307	Hart et al 2016a: 65
BE158	Granna Wood (2)	NA	enclosure (rectangular)	SP05402290	Hart et al 2016a: 65
BE159	Oxleaze Wood (site 5)	NA	complex farmstead	SP05372309	Hart et al 2016a: 97
BE160	Salmonsbury	GSMR342	Large enclosure (hillfort)	SP173209	Dunning 1976; O'Neil 1977; Kenyon 1998;
BE161:1	Churchdown (Area D1) (E-MIA)	GHER42696	unenclosed settlement	SO89451964	Burgess et al 2016, 42
BE161:2	Churchdown (Area D1) (LIA/RB)	GHER42696	Complex farmstead	SO89411952	Burgess et al 2016, 43
BE162	Churchdown (Area D2)	GHER42696	unenclosed settlement	SO89311933	Burgess et al 2016, 51
BE163	Roman way, Bourton on the Water	GHER48879	uncertain activity	SP17272151	HER record only
BE164:1	Farm Lane, Leckhampton	GHER28273	enclosure (rectangular)	SO93601960	Welsh 2016; Adam 2006
BE164:2	Farm Lane, Leckhampton	GHER28273	settlement (undefined)	SO93401923	Welsh 2016; Adam 2006
BE164:2	Farm Lane, Leckhampton	GHER28273	uncertain activity	SO93401923	Welsh 2016; Adam 2007
BE165	Rissington Road, Bourton	GHER38279	settlement (undefined)	SP17052049	Hood 2010
BE166	Bourton Business Park	GHER34818	unenclosed	SO17312192	Walsh 2011
BE167:1	Manor Farm, Kempsford (FS) Area F	GHER323	field system/field boundary	SU17509790	Lewis et al 2010; Hammond et al 2005
BE167:2	Manor Farm, Kempsford (stsmt) Area D	GHER14656	settlement (undefined)	SU1685 775	Hammond and McNicoll-Norbury2010
BE168:1	Shorncote Quarry (Dryleaze Farm) - phase 1-2	GHER21130	unenclosed settlement	SU 02909790	Milbank et al 2011
BE168:3	Shorncote Quarry (Dryleaze Farm) - phase 1-2	GHER21130	enclosure (rectangular)	SU 02909790	Milbank et al 2011
BE168:2	Shorncote Quarry (Dryleaze Farm) (phase 4)	GHER21130	Enclosure (banjo/ funnel)	SU 02909790	Milbank et al 2011
BE169	Shorncote Quarry (Dryleaze Farm) (phase 1-2)	GHER21130	unenclosed settlement	SU03009800	Milbank et al 2011

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE170	Highfield Farm	GHER49066	enclosure (rectangular)	ST 89419418	Saunders and Sheldon 2011; Garland and Stansbie 2017
BE171	Bath Road, Tetbury	GHER36339	field system/field boundary	ST 8868 9260	Holt 2010
BE172	Brizen Sports Pavilion	GHER33842	field system/field boundary	SO 92901980	Cook 2010
BE173	Whiteshoots House	GHER40551	settlement (undefined)	SP1568 2045	Vartuca 1999; Reynish 2011a; Branlund 2017
BE174	Hampton Street, Tetbury	GHER42569	settlement (undefined)	ST 8872 9445	Havard and Barber 2011
BE175	Latton bypass	WISMRSU09NE201	settlement (undefined)	SP07559695	Bateman 1997b
BE176	The Bulwarks	GHER549	Polyfocal complex	SO864012	Clifford 1937
BE177	Abbeydale Saintbridge	NA	unenclosed settlement	SO860167	Atkin 1987; Darvill and Timby 1986; cfThomas 2003
BE178	Brockworth	GHER6532	unenclosed settlement	SO 891168	Rawes 1981
BE179	Syreford/Wycomb	GHER54	settlement (undefined)	SP028202	RCHM 1976, 125; Saville 1984, Timby 1998
BE181:1	Eysey Manor Farm - site 3	WISMRMWI75849	unenclosed settlement	SU11009440	Thomas 1999; Pine 2009c
BE181:2	Eysey Manor Farm - site 5	WISMRMWI75808	enclosure (rectangular)	SU11409450	Thomas 1999; Pine 2009c
BE181:3	Eysey Manor Farm - site 2	WISMRMWI75849	settlement (undefined)	SU10509460	Thomas 1999; Pine 2009c
BE182	Poulton Gorse	GHER22105	unenclosed settlement	SU10309960	Havard 2003
BE183	Cirencester Sewage Works	GHER27572	settlement (undefined)	SU 0345 9700	Hart 2004
BE184	Stonecroft	GHER41556	uncertain actvity	SP 1641 2104	Reynish 2008
BE185	Bowling green	GHER48293	field system/field boundary	SP 02275 03135	Leonard 2016
BE186:1	Kingshill recycling centre	WISMRMWI75237	settlement (undefined)	SU 1151 9248	Wilkinson 2011
BE186:2	Kingshill recycling centre	WISMRSU19SW303	villa?	SU 1151 9248	Wilkinson 2011; Callendar and Thomas 1954
BE186:3	Kingshill recycling centre	WISMRSU19SW303	settlement (undefined)	SU 1151 9249	Wilkinson 2011; Callendar and Thomas 1954
BE187:1	Brockworth (north)	GHER42894	unenclosed settlement	SO 8919 1714	Barber and Havard 2011
BE187:2	Brockworth (north 2)	GHER42894	Enclosure (rectangular)	SO 8919 1715	Barber and Havard 2011
BE188	Summer Street	GHER44819	settlement (undefined)	SO 8626 0550	Brett 2013
BE189	Coberley Villa	GHER6708	villa	SP9675015200	Anon 2008; RCHME 1976, 34
BE190	Withington Roman villa	GHER31/28529	villa	SP0338014911	Thompson and Chelu 2009
BE191:1	Farmington Quarry	GHER12037	setlement (undefined)	SP1285 1668	Vallender 1997
BE191:2	Farmington Quarry (Roman roadside settlement)	GHER12037	settlement (undefined)	SP1285 1669	Vallender 1997

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE192:1	Crucis Park Farm	GHER44877	enclosure (rectangular)	SP05600300	Havard 2013
BE192:2	Crucis Park Farm	GHER44877	enclosure (rectangular)	SP05850295	Havard 2013
BE193: 3	Crucis Park Farm	GHER44877	enclosure (rectangular)	SP05830260	Havard 2013
BE194	Kingshill South (LBA/EIA)	GHER49137	unenclosed settlement	SP03650118	Simmonds et al 2018
BE195	Chedworth	GHER547	burial	SP053135	Esmonde-Cleary 2013
BE196	Chedworth Roman villa	GHER547	villa	SP053135	Esmonde-Cleary 2013
BE197	Miserden brooch	PAS-ID-531463	uncertain actvity	SO9072709566	PAS-database
BE198	Bisley stray coins	PAS-ID-323255&324293	uncertain activity	SO9005	PAS-database&CCI
BE199	Brockworth stray coin	PAS-ID-323563	uncertain activity	SO9016	PAS-database&CCI
BE200	Bournes Green stray coin	PAS-ID-324415	uncertain activity	SO910044	PAS-database&CCI
BE201	Miserden-Lypiatt	PAS-ID-623621+others	uncertain activity	SO93410870	PAS-database
BE202	Birdlip-Brockworth coin	PAS-ID-317399	uncertain activity	SO932143	PAS-database&CCI
BE203	Sapperton coin	PAS-ID-323070+others	uncertain activity	SO9403	PAS-database&CCI
BE204	Leckhampton coin	PAS-ID-318485	uncertain activity	SO9419	PAS-database&CCI
BE205	Cheltenham-coins	PAS-ID-291823&others	uncertain actvity	SO9422	PAS-database&CCI
BE206	Coberley-stray find	PAS-ID-760901	uncertain activity	SO9570115958	PAS-database
BE207	Coberley-stray finds	PAS-ID-609961&other	uncertain activity	SO9572015886	PAS-database
BE208	Coberley-brooches	PAS-ID-449313&other	uncertain activity	SO95671590	PAS-database
BE209	Coberley - bull	PAS-ID-533726	uncertain activity	SO9575816246	PAS-database
BE210	Coberley - lynch pin	PAS-ID-272687	uncertain actvity	SO9577816013	PAS-database
BE211	Coberley-coin	PAS-ID-253310	uncertain activity	SO956163	PAS-database
BE212	Coberley-swan neck pin	PAS-ID-515086	uncertain activity	SO9673616184	PAS-database
BE213	Ditches-coins	PAS-ID-303638&others	uncertain activity		PAS-database&CCI
BE214	Stratton-coin	PAS-ID-323088	uncertain activity	SP0103	PAS-database&CCI
BE215	Pinswell-coin	PAS-ID-300504	uncertain activity	SP026126	PAS-database&CCI
BE216	Andoversford-coins	PAS-ID-310057&others	uncertain activity	SP0219	PAS-database&CCI
BE217	Charlton Abbots-stray find	PAS-ID-475364	uncertain activity	SP0331023932	PAS-database
BE218	Charlton Abbots-stray find2	PAS-ID-182544	uncertain activity	SP031242	PAS-database
BE219	Barnsley-stray finds	PAS-ID-388995and258373	uncertain activity	SP0757405138	PAS-database
BE220	Salperton-coin	PAS-ID-323338	uncertain activity	SP075212	PAS-database&CCI
BE221	Barnsley-brooch	PAS-ID-75056	uncertain activity	SP089056	PAS-database
BE222	Barnsley-toggle	PAS-ID-63338	uncertain actvity	SP088059	PAS-database
BE223	Barnsley-coin	PAS-ID-323293	uncertain activity	SP080060	PAS-database
BE224	Guiting-coin	PAS-ID-438272	uncertain activity	SP0958825152	PAS-database
BE225	Guiting-brooch	PAS-ID-438257	uncertain activity	SP0958825157	PAS-database
BE226	Bibury coin	PAS-ID-323039	uncertain activity	SP1106	PAS-database&CCI
BE227	Northleach with Eastington	PAS-ID-730096&717201	uncertain activity	SP1150014500	PAS-database

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE228	Northleach with Eastington	PAS-ID-606523&others	uncertain activity	SP1120114549	PAS-database
BE229	Northleach with Eastington	PAS-ID-202050	uncertain activity	SP113146	PAS-database
BE230	Northleach-coin	PAS-ID-208489	uncertain activity	SP117155	PAS-database
BE231	Summerhill	PAS-ID-323014	uncertain activity	SP120245	PAS-database; RCHME 1976, 84
BE232	Quenington-coin	PAS-ID-323579	uncertain activity	SP1304	PAS-database
BE233	Fairford-coins	PAS-ID-323784	uncertain activity	SP1501	PAS-database
BE234	Aldsworth-toiletinstrument	PAS-ID-242981	uncertain activity	SP153098	PAS-database
BE235	Aldsworth-pottery	PAS-ID-552621	uncertain activity	SP1550010500	PAS-database
BE236	Aldsworth-coin	PAS-ID-242894	uncertain activity	SP156100	PAS-database
BE237	Bourton-water-coin	PAS-ID-323848	uncertain activity	SP1620	PAS-database
BE238	Lower Slaughter-coins	PAS-ID-324244	uncertain activity	SP1656722244	PAS-database
BE239	Sherbourne-hoard	PAS-ID-2621	uncertain activity	SP1714	PAS-database
BE240	The Bowsings	GHER14065	Enclosure (rectangular)	SP0858025865	Marshall 2004
BE241	The Park	GHER2223	Complex farmstead	SP0832525865	Marshall 2004
BE242	Manor Farm, Guiting	GHER47285	enclosure (rectangular)	SP089250	Saville 1979; Vallender 2005
BE243	Parsons Piece	GHER12659	enclosure (rectangular)	SP09802455	Marshall 2004
BE244	Cherington coin	PAS-ID-96718	uncertain activity	ST9098	PAS-database
BE245	Long Newton coin	PAS-ID-642768	uncertain activity	ST9173391847	PAS-database
BE246	Somerford Keynes-coin	PAS-ID-303029	uncertan activity	SU0195	PAS-database&CCI
BE247	Neigh Bridge, Somerford Keynes	PAS-ID-323618&others	uncertain activity	SU018945	PAS-database&CCI
BE248	Siddington-coin	PAS-ID- 324007	uncertain actvity	SU0399	PAS-database&CCI
BE249	South Cerney-coins	PAS-ID-305772	uncertain activity	SU0497	PAS-database&CCI
BE250	Poulton Hill-brooch	PAS-ID-288823	uncertain activity	SU1028898850	PAS-database
BE251	Poulton Hill-pottery	PAS-ID-186321	uncertain activity	SU106987	PAS-database
BE252	Ablington/Rawbarrow hillfort	GSMR84	Large enclosure (hillfort)	SP105075	HER
BE253	Rixon Gate	WISMRSU09SE203	settlement (undefined)	SU05989359	Jenkins 1992
BE254	Cleeve-coin	PAS-ID-323725	uncertain activity	SO9826	PAS-database&CCI
BE255	Boddington-brooch	PAS-ID-503872	uncertain activity	so891256	PAS-database
BE256	Boddington-coin	PAS-ID-445605	uncertain activity	so891257	PAS-database
BE257	All Saints Academy	GHER38081	unenclosed settlement	SO928240	Hardy et al 2017
BE258:1	Home Farm - field system	GHER44843	field system/field boundary	ST145008	Craddock-Bennett 2017
BE258:2	Home Farm - settlement/ burial	GHER44843	unenclosed settlement	ST144007	Craddock-Bennett 2017
BE259	Wetstone Bridge (Roundhouse Farm?)	GHER3146; WISMRSU19NW204	unenclosed settlement	SU12569620	Pine 2009b
BE260	Broadfield Farm, Northleach	GHER48076	unenclosed settlement	SP12751148	Busby 2015
BE261	Land West of Cirencester	GHER42864	enclosure (curvilinear)	SP00980068	Weavill 2014
BE262	London Road, Fairford	GHER47033	unenclosed settlement	SP164009	Reynish 2013

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE263	Near Tally Ho, Guiting	GHER44259	unenclosed settlement	SP091235	Roberts 2014a
BE264	Churchdown	GHER47581	unenclosed settlement?	SO86402050	Platt and Pine 2014
BE265	Miserden settlement	GHER16805	complex farmstead	SO935087	Roberts 2015
BE266	Kingshill Farm-coin	PAS-ID-323634	uncertain activity	SU11759260	PAS-database
BE267	Eysey-ring headed pin	PAS-ID-526556	uncertain activity	SU115939	PAS-database
BE268	Marston Meysey-coin (1)	PAS-ID-731491	uncertain activity	SU1257997368	PAS-database
BE269	Marston Meysey-coin (2)	PAS-ID-600702	uncertain activity	SU1268597069	PAS-database
BE270	Marston Meysey-coin (3)	PAS-ID-600684	uncertain activity	SU1261597051	PAS-database
BE271	Marston Meysey-terrett	PAS-ID-491677	uncertain activity	SU1263497066	PAS-database
BE272	Marston Meysey-finds (1)	PAS-ID-419700	uncertain activity	SU126970	PAS-database; Hingley 1983
BE273	Marston Meysey-coin (4)	PAS-ID-399370	uncertain activity	SU1253697274	PAS-database
BE274	Marston Meysey-brooch	PAS-ID-389462	uncertain activity	SU1266997076	PAS-database
BE275	Marston Meysey-torc	PAS-ID-280330	uncertain activity	SU1264397035	PAS-database
BE276	Marston Meysey-coin (5)/ pottery	PAS-ID-158211; WISMRSU19NW201	uncertain activity	SU1265797057	PAS-database; Hingley 1983 on pottery
BE277	Cricklade coin	PAS-ID-302306	uncertain activity	SU1093	PAS-database
BE278	Ashton Keynes-coin	PAS-ID-319850	uncertain activity	SU0494	PAS-database
BE279	Near Roundhouse Farm	PAS-ID-711864	uncertain actvity	SU13259508	PAS-database
BE280	North Farm, Castle Eaton	PAS-ID-656828	uncertain activity	SU132951	PAS-database
BE281	Near Roundhouse Farm (2)	PAS-ID-154290	uncertain activity	SU136968	PAS-database
BE282	East of Marston Meysey	PAS-ID-485090&others	uncertain activity	SU1304297126	PAS-databsae
BE283	Roundhouse Farm	WISMRSU19Nw205/ ADS-EHNMR-658419	unenclosed settlement	SU13539629	OAU 1991
BE284:1	Roundhouse Farm, Marston (Processing Area) - Area 1-2	WISMRMWI75077	unenclosed settlement	SU1370096500	Lewis and Wallis 2010
BE284:2	Roundhouse Farm, Marston (Processing Area) - Area 1-3	WISMRMWI75077	field system/field boundary	SU1370096501	Lewis and Wallis 2010
BE285:1	Roundhouse Farm, Marston (Processing Area) - Area 3-4	WISMRMWI75568	unenclosed settlement	SU130429625	Lewis and Cass 2010
BE285:2	Roundhouse Farm, Marston (Processing Area) - Area 3-4	WISMRMWI75568	field system/field boundary	SU130429626	Lewis and Cass 2010
BE285:3	Roundhouse Farm, Marston (Processing Area) - Area 3-4	WISMRMWI75074	unenclosed settlement	SU130429627	Lewis and Cass 2010
BE285:4	Roundhouse Farm, Marston (Phase 8-9)	WISMRMWI75078	unenclosed settlement	SU136961	Cass et al 2015
BE285:5	Roundhouse Farm, Marston (Phase 8-9)	WISMRMWI75078	Enclosure (rectangular)	SU136961	Cass et al 2015
BE286	Grove Hill, Dyke H Bagendon extension	GHER4125	field system/field boundary	SO9930005600	HER record only
BE287	Christowe, Windmill Lane	GHER27582	settlement (undefined)	SO86250100	King 2004
BE288	River Churn at Cricklade	WISMRSU19SW201	uncertain activity	SU1030094140	Wiltshire Archaeology Magazine 77 p 158
BE289	Castle Eaton, stray coin find	WISMRSU19NE200	uncertain activity	SU15109560	de Shortt 1966
BE290	Forty Acre Barn	WISMRSU19NE204	uncertain activity	SU1613096100	WAM 81 p140
BE291	St Marys Churchyard	WISMRSU19NW200	uncertain activity	SU14669596	WAM 74-5 p204
BE292	Kempsford Church	WISMRSU19NE202	uncertain activity	SU1604096470	WAM 72/3 p 204
BE293	Kempsford Wharf (S of) (2)	WISMRSU19NE203	uncertain activity	SU15949660	WAM 72/3 p 204
BE294	Kempsford Wharf (S of)	WISMRSU19NE201	uncertain activity	SU15789659	WAM 72/3 p 204

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE295	NW of Down Ampney House	WISMRSU09NE200	Enclosure (rectangular)	SU09139716	Hingley 1983
BE296	West of Latton	WISMRSU09NE319	Enclosure (rectangular)	SU08259550	Bateman 1997a
BE297	Bradley's pit	NA	settlement (undefined)	SU04439578	WAM 70, p 134
BE298	Blackford Lane	WISMRSU19NE200	enclosure (curvilinear)	SU15089554	WAM 61, p93
BE299	Siddington Park Farm	GHER28781	Enclosure (rectangular)	SP04050003	Rowe 2006; Networks Archaeology - Cruse pers comm
BE300	Lady Lamb Farm	GHER2505	field system/field boundary	SPSP13750026	Roberts 1993
BE301	Tetbury Camp	GHER109	Large enclosure (hillfort)?	ST891929	GHER records
BE302	Leckhampton barrow burial	GHER169	burial	SO94911838	GHER records
BE303	South Dowdeswell hillfort	GHER6695	Large enclosure (hillfort)	SP005186	Janik et al 2011
BE304	Ebsworth burial	GHER3832	burial	SO89821152	RCHME 1976, 41
BE305	Addy's Firs	GHER3877	settlement (undefined)	SO925932	GHER records
BE306	Chester walk settlement	GHER9200	enclosure (rectanguar)	SO9476022540	GHER records
BE307:1	Elms Park Farm (field 24/25)	GHER27597	complex farmstead	SO930258	Havard 2018
BE307:2	Elms Park Farm (field 36)	GHER27598	complex farmstead	SO93202248	Havard 2018
BE308	Ralphs Barn/Hill Farm	GHER40925	settlement (undefined)	SP1090021300	Hoyle and Cook 2018
BE309	Shawswell Farm	GHER36985	settlement (undefined)	SP02371134	Parry 2010
BE310	Ullenwood Court, Coberley	GHER47916	settlement (undefined)	SO9392017110	Brett 2015
BE311	Performing Arts Centre, Rendcomb College, Rendcomb.	GHER48963	settlement (undefined)	SP0190009730	Thompson 2016
BE312	Top Road, Kempsford	GHER49178	settlement (undefined)	SP1544597173	Platt 2017
BE313:1	Cerney Wick Farm, Cerney Wick	GHER4969	unenclosed settlement	SU06659566	Pine 2018
BE313:2	Cerney Wick Farm, Cerney Wick	GHER4970	enclosure (rectanguar)	SU06809591	Pine 2018
BE314	Old Rectory, Edgeworth	GHER14063	burial	SO9475006350	Gerrard and Walker 1991
BE315	Preston Mill Barn, Cirencester, Gloucestershire.	GHER34677	settlement (undefined)	SP0400000300	Guarino 2018
BE316	Cirencester Road, Tetbury	GHER49432	settlement (undefined)	ST8998594079	GHER records only
BE317	Queen Elizabeth Road	GHER33313	settlement (undefined)	SP0324601592	Anon. 2000; Holbrook 2008b
BE318	Foxhill House	GHER44259	settlement (undefined)	SP0895723525	GHER records only
BE319	Priors Farm, Cheltenham - Whaddon FS	GHER48983	settlement (undefined)	SO9737522804	Havard 2017
BE320	Horcott Road, Fairford	GHER48671	settlement (undefined)	SU1493800680	GHER records only
BE321	Chedworth Wood Temple	GHER29	temple/sanctuary	SP0612013290	GHER records only

Catalogue ID (BE-Bag Enviorns)	Name	HER reference	site type	National Grid reference	References
BE322	Turkdean	GHER19798	villa	SP099190	Holbrook 2004
BE323	Spratsgate 2008	GHER32740	settlement (undefined)	SU02609628	Sheldon 2008
BE324	Land at Top Farm, Kemble	GHER39954	settlement (undefined)	ST 9868 9700	Reynish 2011b
BE325	Land at Centre Severn	GHER1305	uncertain activity	SO 8610 1890	Barber 2014
BE326	Land off Hampton Street	GHER39945	settlement (undefined)	ST 8872 9445	Havard and Barber 2011
BE327	Corinium Roman town	various	Roman town	SP0202	Hurst 2005; Holbrook 2008a

Appendix 2a

Bagendon Auger (and test pit profile) log 2017

Transect 5

T1a Field C7b (see Figure 19.2) south end – up slope northwards

T1a/28 @0m

Depth (cm)	*Deposit*	*Description*
0-10	A	Dark yellowish brown humic silty loam stone-free, some roots
10-21	A	Brown stiff silty loam, few fine stones
21+	C	Limestone

T1a/29 @20m

Depth (cm)	*Deposit*	*Description*
0-8	Ah	Dark yellowish brown humic silty loam stone-free, some roots
8-22	A	Brown stiff silty loam, stone-free
22-31	A/Cw	Brown silty loam, common stones
31+	C	Limestone

T1a/30 @30m

Depth (cm)	*Deposit*	*Description*
0-21	Ah	Dark yellowish brown silty loam, stone-free
21+	C	Limestone

T1a/31 @40m

Depth (cm)	*Deposit*	*Description*
0-12	Ah	Dark yellowish brown silty loam, stone-free
12-20	A/Cw	Light yellowish brown silty loam with decayed limestone
20+	C	Limestone

T1a/32 @50m

Depth (cm)	*Deposit*	*Description*
0-22	Ah	Brown to yellowish brown stone –free silt
22-34	Cw	Yellowish brown calcareous silty weathered limestone
34+	C	Limestone

T1a/33

Depth (cm)	*Deposit*	*Description*
0-8	Ah	Dark yellowish brown stone-free silt loam
8-24	A	Yellowish brown silt loam some stones
24+	C	Limestone

T1a/34 *c.* 10m south of excavation

Depth (cm)	*Deposit*	*Description*
0-22	A	Dark yellowish brown stone-free silt loam roots
22+	Cw	Soil and weathered limestone

T1a/35 *c.* 10m N or excavation

Depth (cm)	*Deposit*	*Description*
0-20	Ah	Dark yellowish brown slightly stone silt loam, fine roots, stony at 8cm
20+	C	Limestone

T1a/36

Depth (cm)	*Deposit*	*Description*
0-18	Ah	Dark yellowish brown slightly stone silt loam, fine roots
18+	C	Limestone

T1a/37

Depth (cm)	*Deposit*	*Description*
0-22	Ah	Dark yellowish brown slightly stone silt loam, fine roots
22+	C	Limestone

T1a/38

Depth (cm)	*Deposit*	*Description*
0-8	Ah	Dark yellowish brown slightly stone silt loam, fine roots
8-22	A	Dark yellowish brown/yellowish brown slightly stony silt loam
22-28		Yellowish brown stiff silt, almost stone free
28+	C	Limestone

T1a/39

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark greyish brown slightly stony silt loam
13-32	A	Dark greyish brown stony silt loam
32-44	B	Brown silt loam few stones
44+	C	Limestone

T1b/1 @0m from top of hill (field C7b) progressing N

Depth (cm)	*Deposit*	*Description*
0-14	'topsoil'	Dark yellowish brown (10YR 3/4) silt loam, stone-free humic and rooty, abrupt boundary Ah
14-21	A	Yellowish brown silt loam, very fine specks degraded limestone, otherwise stone-free A
21+	C	Limestone

T1b/2 @ *c.* 10m

Depth (cm)	*Deposit*	*Description*
0-14	Ah	Dark yellowish brown (10YR 3/4) silt loam, stone-free humic and rooty, abrupt boundary Ah
14-22	A	Dark yellowish brown silty (clay) loam, rare small stones
22+	Cw	Broken limestone

T1b/3 @ *c.* 20m

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark yellowish brown (10YR 3/4) silt loam, stone-free humic and rooty, abrupt boundary Ah
15-21	A	Yellowish brown firm sticky stone-free silt loam
21+	C	Limestone

T1b/4 @ *c.* 40m

Depth (cm)	*Deposit*	*Description*
0-12	Ah	Dark yellowish brown (10YR 3/4) silt loam, stone-free humic and rooty, abrupt boundary Ah
12-21	A	Yellowish brown firm sticky silt loam, rare stones
21+	C	Limestone

T1b/5 @ *c.* 60m; midslope - break

Depth (cm)	*Deposit*	*Description*
0-15	A	Dark yellowish brown stone-free humic silt loam, rooty A
15-18	A	Yellowish brown, drier siltier, rare very small stones
18+	C	Limestone

T1b/6 @ *c.* 80m

Depth (cm)	*Deposit*	*Description*
0-15	A	Dark yellowish brown stone-free humic silt loam, rooty A
15-25	A	Yellowish brown, drier siltier, slightly stony
25+	C	Limestone

T1b/7 @ *c.* 105m

Depth (cm)	*Deposit*	*Description*
0-15	A	Dark yellowish brown stone-free humic silt loam, rooty A
15-25	A	Yellowish brown, drier siltier, slightly stony
25+	C	Limestone

T1b/8 @ *c.* 125m

Depth (cm)	***Deposit***	***Description***
0-15	A	Dark yellowish brown stone-free humic silt loam, rooty A
15-20	A	Yellowish brown, silt loam, slightly stony
20-38	colluvium	Dark yellowish brown (10YR 4/4) silty loam, common small and rare medium stones B: colluvium
38+		Stone

T1b/9 @ *c.* 115m

Depth (cm)	***Deposit***	***Description***
0-15	A	Dark yellowish brown stone-free humic silt loam, rooty A
15-23	A	Yellowish brown, silt loam, rare v small stones
23+	C	Limestone

T1b/10 @

Depth (cm)	***Deposit***	***Description***
0-15	A	Dark yellowish brown stone-free humic silt loam, rooty A
15-20	A	Yellowish brown, silt loam, few v small stones
20-25	Colluvium	Light yellowish brown silt loam, common very small stones B: colluvium
25+	?C	Stone

T1b/11

Depth (cm)	***Deposit***	***Description***
0-18	A	Dark yellowish brown stony humic silt loam, rooty A
18+	C	Limestone

T1b/12 base of slope – end of field

Depth (cm)	***Deposit***	***Description***
0-15	Ah	Dark yellowish brown stone-free humic silt loam, rooty A
15-28	Colluvial	Yellowish brown, silt loam, few v small stones
28+	?Cw	Stony

North of road in field C2

T1b/13 on shallow slope

Depth (cm)	***Deposit***	***Description***
0-18	Ah	Dark yellowish brown stone-free humic silt loam, rooty A
18-23	A	Dark yellowish brown silty loam – shallow rendzina
25+	C	Rock ?limestone

T1b/14 next to water channel

Depth (cm)	*Deposit*	*Description*
0-12	Ah	Dark yellowish brown 10YR 4/4-6 humic stone-free silt, slightly rooty
12-20	A	Yellowish brown silt loam
20-30	B	Dark yellowish brown (10YR 4/6) silt loam, stony - common small and very small stones) B: brown earth
30+	C	Limestone

T1b/15 in ditch

Depth (cm)	*Deposit*	*Description*
0-15	Channel fill	Very dark grey humic fine 'fluffy' silt and some fine limestone sand
15-18	Channel bed	Brown rounded stones Channel bed
18+	?Base	Rock/stone

TP3 (Trench 10) located here

T1b/16

Depth (cm)	*Deposit*	*Description*
0-12	A	Dark yellowish brown humic silt loam, stone-free, rooty
12-30		Yellowish brown stiff silty clay loam, stone-free, slightly humic
30-50	OFA	Yellowish brown stiff silty clay, stone-free
50-68	OFA	Yellowish brown stiff silty clay, rare small and some medium (not recovered) stones
68+		Limestone

T1b/17 on top of 'ridge'

Depth (cm)	*Deposit*	*Description*
0-16	Ah	Dark greyish brown stone-free humic silt loam, some roots
16+	C	Rock head, limestone

T1b/18 upslope from 'ridge'

Depth (cm)	*Deposit*	*Description*
0-17	Ah	Dark brown humic stone free silt loam, roots
17-22		Very small crushed limestone in a greyish silt
22+	?C	?limestone

T1b/19

Depth (cm)	*Deposit*	*Description*
0-20	Ah	Dark brown humic stone-free silt loam, roots
20+	C	Rock/limestone

T1b/20

Depth (cm)	*Deposit*	*Description*
0-18	Ah	Dark brown humic stone-free silt loam, roots
18-30	A	Dark yellowish brown silt
30-32	A/C	Dark yellowish brown silt some stones
32+	?C	Stone ?Limestone bedrock

T1b/21

Depth (cm)	***Deposit***	***Description***
0-23	Ah	Dark yellowish brown humic stone-free silt loam, some roots
23+	A/Cw	Becoming stony

T1b/22

Depth (cm)	***Deposit***	***Description***
0-15	Ah	Dark yellowish brown humic stone-free silt loam, some roots
15-25	A	Yellowish brown silt to silt loam, stones from 20
20-25	Cw	Stony
25+	C	

Penultimate field

T1b/23 platy stones on surface – former ploughed field

Depth (cm)	***Deposit***	***Description***
0-18	A	Yellowish brown stone-free silt loam, stony at base Former Ap
18+	C	Limestone

T1b/24 + 50m platy stones on surface – former ploughed field no Ah

Depth (cm)	***Deposit***	***Description***
0-25	A	Brown/yellowish brown dry silt loam few stones, some roots Former Ap
25+	C	Limestone

T1b/22.5

Depth (cm)	***Deposit***	***Description***
0-15	A	Brown/yellowish brown dry silt loam few stones, some roots Former Ap
15+	C	Limestone

Top field

T1b/25

Depth (cm)	***Deposit***	***Description***
0-10	A	Brown silt loam, stone-free but becoming stone at 10cm
10-18+	A/Cw	Yellowish brown silt loam and stony
18+	C	Limestone

T1b/26

Depth (cm)	***Deposit***	***Description***
0-20	A	Brown silt loam, stone-free
20-23	A/Cw	Stony
23+	C	Limestone

T1b/27 20 south of treeline top of field

Depth (cm)	*Deposit*	*Description*
0-10	A	Brown/yellowish brown silty loam
10+	C	Limestone

Transect 2

T2/42 in valley floor west end field where shallow small minor valley from north meets

Depth (cm)	*Deposit*	*Description*
0-20	Ah	Dark yellowish brown stone-free humic silt loam, roots, abrupt boundary
20-32	B	Yellowish brown silty clay loam, stone-free
32-120		Yellowish brown stiff silty loam, stiff silty clay, stone-free
120-125		Yellowish brown stiff silty loam, stiff silty clay, few fine limestone pieces
125+	C	Limestone

T2/43 (middle of horse field)

Depth (cm)	*Deposit*	*Description*
0-12	Ah	(Dark) yellowish brown stone-free humic silt loam, common fine fibrous roots, abrupt boundary
12-21	A	Yellowish brown stiff silt – silty clay, breaks up, abrupt boundary
21-57	B ??	Yellowish brown massive stiff silty clay
57+	Cw	Weathered limestone

T2/44 west end test pit field, valley side

Depth (cm)	*Deposit*	*Description*
0-18	Ah	Brown-greyish brown humic silt with rare fine stones, roots
18-20	A/C	Dark yellowish brown silt loam, rare small stones
20+	C	Limestone

T2/45 east end test pit field valley side

Depth (cm)	*Deposit*	*Description*
0-12	Ah	Dark greyish brown humic soft wet stone-free silt
12-22	A	Dark yellowish brown silt, minerogenic seems to be small blocky structure
22-60	B	Dark yellowish brown stiff silt
60+	C	Limestone

T2/44 (repeat number) valley centre

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark greyish brown humic silt, rare very small limestone frags, roots, abrupt boundary
15-50		Stiff yellowish brown silty clay, slightly sticky, stone-free (as west end)
50+		

T2/46 centre of valley cored after 6/42

Depth (cm)	*Deposit*	*Description*
0-14	Ah	Dark yellowish brown stone-free humic silt loam, roots, abrupt boundary
14-38	B	Yellowish brown silty clay loam, stone-free
38-60		Yellowish brown stiff silty clay loam, stone-free
60+	C	Limestone

T2/47

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark grey/greyish brown humic silt, stone-free, roots, abrupt boundary
15-30		Brown silty clay, stone-free
30-62		Yellowish brown silty clay loam, very rare very small stones
62-79		Yellowish brown silty clay loam, common small limestone pieces
79+	C	Limestone

T2/48 in withy

Depth (cm)	*Deposit*	*Description*
0-40		Humic dry soil, silty loam,
40+		Stone

Transect 6 between test pits from south to north

T2/49

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark yellowish brown humic stone-free silt loam, fine roots abrupt boundary
15-24	A	Brown silt loam, stone-free
24-60	B	Stiff yellowish brown silty clay
60-62		Small limestone pieces over stones
62+	Yard	Stones: yard surface

T2/50

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark yellowish brown humic stone-free silt loam, fine roots abrupt boundary
15-24	A	Brown silt loam, stone-free
24-60	B	Stiff yellowish brown silty clay
60-62		Small limestone pieces over stones
62+	Yard	Stones: yard surface

T2/51

Depth (cm)	*Deposit*	*Description*
0-15	Ah	Dark yellowish brown humic stone-free silt loam, fine roots abrupt boundary
15-24	A	Brown silt loam, stone-free
24-60	B	Stiff yellowish brown silty clay
60-62		Small limestone pieces over stones
62+	Yard	Stones: yard surface

T2/52

Depth (cm)	Deposit	Description
0-15	Ah	Dark yellowish brown humic stone-free silt loam, fine roots abrupt boundary
15-40		Yellowish brown silty clay loam
40+	Stone	Stone

Transect 4 west-east down valley centre below excavation Trench 7

T4/52 0m

Depth (cm)	Deposit	Description
0-20	Ah	Brown stone-free silt loam, fine roots
20-28	A	Brown stone-free form, stiff, silt loam
28-40+	Colluvial B	Brown to dark yellowish brown stony silt loam – becoming too stony to auger

T4/53 20m

Depth (cm)	Deposit	Description
0-20	Ah	Brown humic silt stone-free
20-32	A	Brown silt, flecked with limestone, many stones heard not recovered
32-52	Stony B	Yellowish brown silt loam, flecked with fine limestone, many stones heard, not recovered
52+	stones	Too stony to auger

T4/54a and b 40m

Depth (cm)	Deposit	Description
0-20	Ah	Brown humic silt stone-free
20-32	A	Brown silt, flecked with limestone, many stones heard not recovered
32-48	B	Yellowish brown silt loam, flecked with fine limestone, many stones heard, not recovered
48-56	B	Yellowish brown silt loam, many stones/limestone frags
56+		Too stony to auger

T4/55a, b, c, d, e 60m

Depth (cm)	Deposit	Description
0-22	Ah	Brown humic silt stone-free
22-28	A/B	Brown silt, flecked with limestone, many stones heard not recovered
28-50	Colluvial B	Yellowish brown silt loam, flecked with fine limestone, many stones heard, not recovered
50+		Stones

T4/56 80m

Depth (cm)	Deposit	Description
0-20	Ah	Brown humic silt stone-free
20-30	A/B stony	Brown silt, flecked with limestone, many stones heard not recovered
30+		Stones

TP 1 (Trench 8) is located here

Transect 3

In field *Juncus* grass area

Various probabilistic augers to test likely areas of peat – none recorded

T3/40

Depth (cm)	***Deposit***	***Description***
0-5	Ah	Black humic silt, stone free, fine roots
5-23	Peat	Black very dark greyish brown humified peat
23-35		Yellowish brown calcareous silt
35+	C	Limestone

T3/41 Base of slope next to Olas house

Depth (cm)	***Deposit***	***Description***
0-40	Ah	Very dark brown humic silt loam, few stones – soil derived
40-45	A/C	Yellowish brown silt
45+	C	Limestone

Test pits

TP1 (Trench 8) (in valley south of Trench 7 excavation)

Depth (cm)	***Deposit***	***Samples***	***Description***
0-20	A		Dark yellowish brown humic silt loam, essentially stone-free
20-60+	Modern dump		Yellowish brown rubbly silt loam, modern material beneath Dump

TP2 (Trench 9) next to 'ditch'/stream on valley side: sample column at 40-60cm along section

Depth (cm)	***Deposit***	***Samples***	***Description***
0-14	Ah		Brown (10YR 4/3) humic silt loam, stone-free, large crumb /small blocky structure, giving way to small-medium blocky structure, abrupt boundary
14-23	(9001) ?alluvium		Dark yellowish brown (10YR 4/6) silty loam, stone-free medium to large well-developed blocky structure
23-29	(9002) Arch		Lens of very small and rare medium limestone pieces over
29-47	(9003) colluvium		Dark yellowish brown (10YR 4/4-3) firm silty loam to silty clay loam, stone-free, medium blocky structure, abrupt boundary
47-64	?Floor deposit (9004&5)		Stony horizon; medium and large (horizontal) limestone platy fragments over common small and medium lenses, in a brown (10YR 5/3) to yellowish brown (10YR 5/4) silty clay matrix
64-105	(9006)	7: 65-75 6: 75-85 5: 85-95 4: 95-105	Dark yellowish brown (10YR 4/6) silt common medium and large subrounded limestone pieces at 105cm possible floor or yard surface – occupation deposit
105+	(9007)		Stone floor/yard

TP3 (Trench 10) sample column at 35-55cm along section

Depth (cm)	***Deposit***	***Samples***	***Description***
0-21	(1000)		Dark brown (10YR 3/2) to very dark greyish brown (10YR 3/2) almost stone-free humic silt, medium crumbs for 11cm giving was to well-developed blocky/ prismatic structure, sharp to abrupt boundary
21-35	(1003)		Yellowish brown silt loam, large and medium subangular limestone
35-48	(1004)		Yellowish brown silt lam with small and medium limestone pieces and common limestone flecks
50-80+	(1004)	2: 60-70 1: 70-80	Dark yellowish brown (10YR 4/4) to yellowish brown (10YR 5/6) calcareous silt with some medium and common small limestone, rare large stones; @80cm many medium and large stones
80+			Very stony

TP4 (Trench 11) top of bluff

Depth (cm)	*Deposit*	*Samples*	*Description*
0-19	Ah		Very dark grey humic stone-free silt loam
19-38			Dark brown silt loam, common to abundant stones
38/44+			limestone

Appendix 2b

Bagendon Feasibility Auger log 2016

= Transect 5 Feasibility auger transect (from Allen 2016) from south to north

Auger 12 [C5], at footslope/break of slope below the Oppidum rampart 1

Depth	*Horizon*	*Description*
0-7	Ah	Dark brown, humic stone-free silty loam
7-20	A	Dark yellowish brown silty loam some stones
20+	C	Limestone

No colluvium

Auger 11 [C5], on slope, at beak of slope 2

Depth	*Horizon*	*Description*
0-8	Ah	Dark brown, humic stone-free silty loam
8-18	A	Dark yellowish brown silty loam some stones
18+	C	Limestone

Auger 10a [C5], at footslope 3.5m south of the fence 3

Depth	*Horizon*	*Description*
0-12	Ah	Dark brown 910YR 3/3) humic and stone-free
12-25	A	Dark yellowish brown (10YR 4/4) silty clay some small and medium stones
25-33	B collivium	Dark yellowish brown to yellowish brown silty clay many stones Colluvium
33+	C	Limestone

Auger 10b [C5], at footslope 1m south of the fence 4

Depth	*Horizon*	*Description*
0-12	Ah	Dark brown 910YR 3/3) humic and stone-free
12-21	A	Dark yellowish brown (10YR 4/4) silty clay common small and medium stones
21-31	B	Brown (7.5YR 4/4) looks reddish brown silty clay Terra rosa
31+	C	Limestone

Auger 1. [C2] North of the road, 5m north side of wall 5

Depth	*Horizon*	*Description*
0-15	A	Dark yellowish brown, humic silty clay stone-free, abrupt boundary
15-30	B1	Yellowish brown silty loam few stones
30-48	B2 colluvium	Yellowish brown (10YR 5/6) silty loam. Some small and medium stones Colluvial B
48-68	B2 colluvium	Lighter yellowish brown (10YR 5/4) silt, many fine limestone pieces Colluvial B
68+	C	Stone

Auger 2. [C2] South of the canalised Perrotts Brook 6

Depth	*Horizon*	*Description*
0-18	A	Dark yellowish brown, humic silty clay stone-free, abrupt boundary
18-38	B1	Dark yellowish brown to Brown (10YR 4/3) silty loam few stones
38-58	B2 colluvium	Yellowish brown silty loam, many limestone pieces Colluvial B
58+	C	Limestone

Auger 3. [C2] North of canalised Bagendon Brook 7

Depth	*Horizon*	*Description*
0-15	Ah	Dark yellowish brown, humic silty clay stone-free, abrupt boundary
15-30	B	Brown humic silt to silt loam
30-40		Transition
40-80+	alluvium	Brown silt to silty clay, stone-free, moist soft ad malleable Overbank floodplain alluvium

Auger 4. [C2] Centre of valley floor 8

Depth	*Horizon*	*Description*
0-15	Ah	Dark yellowish brown, humic silty clay stone-free, abrupt boundary
15-35	B1	Yellowish brown to brown silty clay loam, stone-free and plastic Alluvial B
35-90	B2	Brown silty clay, stone-free, moist and plastic Overbank floodplain alluvium
90+	C	Limestone

Auger 5a. [C2] Prominent low ridge above the valley 9

Depth	*Horizon*	*Description*
0-6	Ah	Dark yellowish brown, humic silty clay stone-free
6+	C	Limestone

Auger 5b. [C2] Prominent low ridge above the valley 10

Depth	*Horizon*	*Description*
0-10	Ah	Dark yellowish brown, humic silty clay stone-free, abrupt boundary
10-30	A	Brown (10YR 4/3) humic silty loam few stones
30+	C	Limestone

Auger 5c. [C2] on upper slope of prominent low ridge, limestone outcropping on slope 11

Depth	*Horizon*	*Description*
0	C	Bare limestone

Auger 5d [C2] on ridge 12

Depth	*Horizon*	*Description*
0-12	Ah	Dark yellowish brown, humic silty clay stone-free
12+	C	Limestone

Auger 6 [C2], behind ridge in hollow / footslope below villa 13

Depth	*Horizon*	*Description*
0-15	Ah	Dark yellowish brown, humic silty clay stone-free, abrupt boundary
15-40	B colluvial	Yellowish brown silty loam few stones
40+	C	Limestone

Auger Spring [C2] west of Roman villa and below tree – spring/Roman quarry 14

Depth	*Horizon*	*Description*
0-18	A	Dark yellowish brown most
18-35		Greyish brown dry silt stone-free

Auger 7 [C2] on slope above Roman villa 15

Depth	*Horizon*	*Description*
0-20	Ah	Dark yellowish brown to brown humic silt
20+	C	Limestone

Auger 8 [C2/B5] on flatter hilltop 16

Depth	*Horizon*	*Description*
0-4	Ah	Dark yellowish brown to brown humic silt
4-10	A	Brown humic soil
10+	C	Limestone

Auger 13 [C2/B5] on flatter hilltop 17

Depth	*Horizon*	*Description*
0-14	Ah	Dark yellowish brown to brown humic silt
14+	C	Limestone

= Transect 6 (west end) Examination of the frequently wet / boggy are to east of valley floor, south east corner of C2

Auger 9a 18

Depth	*Horizon*	*Description*
0-10	A	Very dark brown humic silt, stone-free, some fine charcoal flecks
10-22		Dark yellowish brown silty clay, moist
22-52		Humic brown silt with some stones, charcoal and cbm
52-64		Brown humic stony silt with cbm, and charcoal - archaeological
64-82		Brown silt/silty clay
82-110		Light brown sit to silty clay – few stones/stone-free
110+		Stones

Auger 9b 19

Depth	*Horizon*	*Description*
0-15	A	Very dark brown humic silt, stone-free
15-35		Brown moist silt, some charcoal
35+		Stones

Auger 9c 20

Depth	*Horizon*	*Description*
0-12	A	Dark brown humic silt, stone-free, fine charcoal flecks
12-22		Brown silty 'alluvial' some charcoal flecks
22-68		Brown silty clay loam, rare fine charcoal fragments, 'alluvial'
68+		stone

Auger 9d 21

Depth	*Horizon*	*Description*
0-12	A	Dark brown humic silt, stone-free, fine charcoal flecks
12-20		Brown silty 'alluvial' some charcoal flecks
20-74		Brown silty clay loam, rare fine charcoal fragments, 'alluvial'
74+		stone

Appendix 3

Isotopic Analytical methods

Bone and dentine collagen was extracted at Durham University in the Archaeology department isotope preparation laboratories and the analysis was undertaken in the Stable Isotope Biogeochemistry Laboratory (SIBL) at Durham. Collagen extraction was based on a modified Longin's method (Longin 1971). Whole bone samples were demineralized in 0.5 M HCl at 4°C. The remaining collagen was denatured in pH 3 aqueous solution at 70°C for 48 hours. The solution was filtered using Ezee filters® and then freeze-dried. The roots from the teeth were cleaned, demineralized and then sectioned using method 2 from Beaumont *et al.* (2013) to produce 1mm sections. These were then denatured at 70°C for 24 hours, centrifuged, frozen and then freeze-dried. The resultant collagen products were weighed to tin capsules and the samples combusted to N2 and CO_2. Samples of approximately 0.4 mg of collagen product were weighed into tin capsules and measured using a Costech Elemental Analyser (ECS 4010) connected to a Thermo Scientific Delta V Advantage isotope ratio mass spectrometer. Bone collagen samples were duplicated, dentine samples were run as single analyses. Carbon isotope ratios are corrected for ^{17}O contribution and reported in standard delta (δ) notation in per mil (‰) relative to Vienna Pee Dee Belemnite (VPDB). Isotopic accuracy is monitored through routine analyses of in-house standards, which were stringently calibrated against international standards (e.g., USGS 40, USGS 24, IAEA 600, IAEA CH3, IAEA CH7, IAEA N1, IAEA N2): this provides a total linear range in δ13C between 46‰ and +3‰, and between -4.5‰ and +20.4‰ for $\delta^{15}N$. Analytical uncertainty in δ13C and δ15N is typically ±0.1‰ or better for replicate analyses of the international standards and <0.2‰ for replicate sample analysis. The charts show an error bar at 0.2‰ for 1 sd. Total organic carbon and nitrogen was obtained as part of the isotopic analysis using an internal standard (glutamic acid, C = 40.82%, N = 9.52%).

For $\delta^{34}S$ analysis of the rib, the same equipment was used. Collagen samples of 9-12 mg are weighed into tin capsules and approximately the same weight of vanadium pentoxide (V2O5) added to aid in the combustion process to release sulphur. Isotopic accuracy was monitored using the following barium sulphate international standards: IAEA-SO-5, IAEA-SO-6 and NBS-127. Analytical uncertainty was typically <0.2‰ for replicate analyses of the international standards and samples. The charts show an error bar at 0.2‰ for 1 sd. Total sulphur was obtained as part of the isotopic analysis using the OEA organic analytical standard sulphanilamide (S = 18.62%).

For oxygen isotope analysis, the enamel surface of each tooth sample was sampled at Durham University in the Archaeology department isotope preparation laboratories. The enamel was removed using a diamond dental burr which was then discarded. Samples of powdered enamel (~ 5-15 mg) were produced for oxygen and carbon isotope analysis of the carbonate fractions. Analysis was undertaken at the NERC Isotope Geosciences Laboratory (NIGL) in Nottingham. Samples were cleaned ultrasonically to remove adhered material and immersed in 60 °C water for an hour for further cleaning. After each cleaning phase the sample was rinsed three times on MilliQ high purity de-ionized water. Once cleaned and dried in a laminar flow hood the samples were weighed into precleaned Teflon beakers and then crushed using an agatemortar and pestle. Approximately 3 mg of prepared enamel was loaded into a glass vial and sealed with septa. The vials were transferred to a hot block at 90 °C on the GVMultiprep system, then evacuated, and 4 drops of anhydrous phosphoric acid were added. The resultant CO_2 was collected cryogenically for 14 min and transferred to a GV IsoPrime dual inlet mass spectrometer. The resultant isotope values were treated as a carbonate. $\delta^{18}O$ is reported as per mil (‰) ($^{18}O/^{16}O$) normalized to the PDB scale using a within-run calcite laboratory standard (KCM) calibrated against SRM19, NIST reference material. For comparison with other studies, the values were also converted to the SMOW scale using the published conversion equation of (Coplen, 1988): SMOW = (1.03091 × $\delta^{18}O$ VPDB) +30.91. Analytical reproducibility for laboratory standard calcite (KCM) was ±0.08‰ (1σ, n = 42) for $\delta^{18}O$ SMOW, and ±0.03‰ (1σ, n = 42) for $\delta^{13}C$ PDB, from 6 separate runs in July and August 2016.

Following surface abrasion to a depth of >100μm, a chip of ~10 mg of core enamel, free from adhering dentine, was removed from each tooth with a diamond tipped rotary dental saw for strontium isotope analysis following the procedure of Montgomery (2002). An additional chip of ~10mg was also taken from the human teeth for trace element determination. The samples were sealed in microtubes and transferred to the clean laboratory facility in the Durham Geochemistry Centre at Durham University Earth Sciences Department. The enamel samples were prepared for strontium isotope analysis using column chemistry methods as outlined in Charlier *et al.* 2006. Samples were heated on a hot plate for 20 minutes in 75 µl of 16M HNO_3; the solution was then diluted with 325 µl of MQ H_2O to make 3M HNO_3 and heated overnight. The samples were loaded onto cleaned and preconditioned columns containing 60 µl of Eichrom strontium-specific resin. 2x250 µl 3M HNO_3 was eluted to remove the bulk of the matrix followed by 2x200 µl MQ H2O to elute the strontium, which was collected. The Sr fraction was acidified with 17.5µl 16M HNO3 to prepare the samples for analysis. Following Sr purification, the size of the ^{86}Sr beam was tested for each sample to derive a dilution factor so that each sample yielded a beam size of approximately 20V ^{88}Sr to match the intensity of the isotopic reference material, NBS987. Samples were aspirated using an ESI PFA-50 nebuliser coupled with a glass expansion cinnabar micro-cyclonic spraychamber. Sr isotopes were measured using a static multi-collection routine with each measurement representing a single block of 50 cycles with each cycle being a 4 second integration (total analysis time ~3.5mins). Instrumental mass bias was corrected for using a $^{88}Sr/^{86}Sr$ ratio of 8.375209 (the reciprocal of the $^{86}Sr/^{88}Sr$ ratio of 0.1194) and an exponential law. Corrections for interferences from Rb and Kr on ^{87}Sr and ^{86}Sr were performed using ^{85}Rb and ^{83}Kr as the monitor masses but in all cases the intensity of monitor mass was <0.1mV and therefore insignificant. The average $^{87}Sr/^{86}Sr$ ratio and reproducibility for the international isotope reference material NBS987 during this study was 0.710256 ± 0.000015 (2σ; n=12). Maximum error based on analytical reproducibility of the data is considered to be 0.000023 (2σ); this error is usually within symbol when plotted on charts.

Trace elements were measured in sample of enamel of ~10mg which was placed in a 1.5ml plastic vial to which 1ml of 3N HNO_3 was added and left overnight to dissolve. 0.5ml of this solution was then transferred to a 15 ml autosampler vial and diluted to 10ml. Samples were analysed by ICP-MS (Thermo Scientific XSeries2) previously optimised for low oxide and double charge interferences and calibrated for Pb, Sr, and Ba. Calibration standards and blanks were analysed throughout the sample sequence to monitor and correct for any instrumental drift. Final enamel concentration was then determined based on sample weight and total dilution volume. The analytical uncertainty for the trace element data is ± 2%.

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