Pattern and Process
Landscape prehistories from Whittlesey Brick Pits: the King’s Dyke & Bradley Fen excavations 1998–2004
Mark Knight and Matt Brudenell
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By Mark Knight and Matt Brudenell

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Principal illustrations by Andrew Hall
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Charly French, Paul Middleton, Francis Pryor, Rob Scaife and Maisie Taylor were frequent visitors, bringing experience and encouragement in equal measure. Their generosity of ideas contributed greatly to the understandings presented here — all excavations should be afforded such wise counsel. In similar vein, conversations with Jo Brück, Christopher Evans, Kasia Gdaniec, David Gibson, David Hall, JD Hill, Gavin Lucas, Lesley McFadyen, Richard Mortimer, Stuart Needham, Roderick Regan and Ben Robinson kept us on our interpretive toes. That we had found a site worth explicating was made apparent by the number of requests to publish its plan (Richard Bradley, Mike Parker Pearson and David Yates) or to analyse its artefactual or environmental assemblages. Material gleaned from King’s Dyke and Bradley Fen furnished parts of more than one PhD (Matthew Brudenell and Rob Law) along with several MPhil and undergraduate dissertations (Grahame Appleby, Manuel Arroyo-Kalin, Emma Beadsmore, Tracey Pierre and Sean Taylor). We are grateful to those who expressed an interest and helped put our work into a much wider context.

An opportunity to think and read was extended to Mark Knight by the McDonald Institute for Archaeological Research. During time as Field Archaeologist in Residence in 2011 he was allowed to combine a bit of field with a bit of theory. This volume, or at least a large chunk of its theoretical input and product, represents an outcome of that time well appreciated and hopefully well spent. The main body of this text was completed in 2013, and was revised following comment in 2015 and 2018.

Finds were processed by Norma Challands, Jason Hawkes, Leonie Hicks, Gwladys Monteil and Sharon Webb. The graphics in this volume were produced by Andrew Hall with the assistance of Marcus Abbot, Michael Court, Vicki Herring, Donald Horne, Iain Forbes and Jane Matthews. Chloe Watson drew the log ladder and mallet. Studio photography was undertaken by Dave Webb, while onsite photography was undertaken by members of the excavation team. The text was edited by Iona Robinson Zeki, who tackled style in tandem with content, her interventions being astute as well as necessary.

Special thanks are extended to Mark Edmonds and Francis Healy for reading (so thoroughly) and commenting (so cogently) on this monograph. In line with a major theme of this book, we gained from their depth. We also accept that we still have a great deal to learn about radiocarbon dating, especially if we
want to employ it as a sensitive instrument. The monograph was proofread and indexed by Vicki Harley.

The monograph describes the core prehistoric archaeology of King’s Dyke and Bradley Fen and is an expression of many peoples hard work in the field as well as in the library, lab and office. The excavation teams were as follows:

King’s Dyke 1998: Marc Berger, Craig Cessford, Duncan Garrow, Cassian Hall & Mark Knight.

King’s Dyke 1999: Marcus Abbott, Joe Abrams, Mary Alexander, Nicholas Armour, Rachel Ballantyne, Emma Beadsmoore, Andy Clarke, Anwen Cooper, Bob Davis, Duncan Garrow, Andrew Hall, Dave Hall, Jon Hall, Candy Hatherley, Mark Knight, Lesley McFadyen, Richard Mortimer, Ricky Patten, Martin Redding & Beccy Scott.

Bradley Fen 2001: Marcus Abbott, Rachel Ballantyne, Emma Beadsmoore, David Beresford-Jones, David Brown, Matthew Brudenell, Simon Burney, Craig Cessford, Norma Challands, Philip Church, Andy Clarke, Jason Clarke, Chantal Conneller, Bob Davis, Paul Donohue, Natasha Dodwell, Andy Ferguson, Duncan Garrow, Susanne Hakenbeck, Andrew Hall, Candy Hatherley, Teresa Hawtin, Charlie Kitchin, Mark Knight, Mary Leighton, Jane Matthews, Lesley McFadyen, Mary Nugent, Ricky Patten, Richard Purves, Martin Redding, Neil Redfern, Christina Robinson, Beccy Scott, Mark Spalding, Fraser Sturt, Richard Turnbull, Roland Wessling, Steven Williams & Felicity Woor.

Bradley Fen 2004: Ben Bishop, Emma Beadsmoore, Grahaime Appleby, Matthew Collins, Donald Horne, Mark Knight, Iain Morley, Martin Oakes, Laura Preston, Tim Vickers, Ellen Simmons, Chris Swaysland & Steven Williams.

Being in the field at King’s Dyke and Bradley Fen was a process of sustaining a close engagement with context and circumstance. Much of the time we did this surrounded by the roar, exhausts and dust of heavy plant as it uncovered the ground in front of us or removed the ground behind us. The process was fairly rapid and there was a sense of things being done at a pace. Throughout, however, we tried to stay contextual and we achieved this largely by talking through our individual features, putting into words cuts, fills, layers and finds. Friday afternoons (invariably after chips) frequently involved walking around the site discussing each other’s postholes, pits, ditches and deposits. In this manner, we were able articulate and correlate different features and begin to recompose sites and landscapes. These grounded conversations occurred at the top of the contour, at King’s Dyke, and continued all the way to the bottom of the contour, at Bradley Fen. As we moved down, the depth and complexity of sediment increased and our postholes, pits, ditches and deposits became progressively better preserved. In these sunken spaces, upcast banks and mounds endured. Buried soil, silt and peat horizons intervened between things. All of these details amplified our comprehension or, what we called at the time, our ‘confidence in context’ – in this we came to be immersed.
Combined, the King’s Dyke and Bradley Fen excavations established a near continuous transect across the Flag Fen Basin’s south-eastern gradient – the former exposing its very top, the latter its top, middle and base. The different elevations yielded different archaeologies and in doing so revealed a subtle correspondence between altitude and age. The summit of the gradient contained Roman as well as prehistoric features, whereas the mid-point contained nothing later than the early Middle Iron Age, and the base, nothing later than the very beginnings of the Middle Bronze Age. At the same time, there was a palpable relationship between altitude and preservation. A shallow plough soil was all that protected the most elevated parts. The very base of the gradient however, retained a buried soil as well as silt and peat horizons contemporary with prehistoric occupation and which preserved surfaces, banks and mounds that were not present higher up. The same deposits also facilitated the preservation of organic remains such as wooden barriers, log ladders and a fragment of a logboat.

The large-scale exposure of the base of the Flag Fen Basin at Bradley Fen uncovered a sub-peat or pre-basin landscape. A landscape composed of dryland settlement features related to an earlier terrestrial topography associated with the now buried floodplain of the adjacent River Nene. Above all, the revelation of sub-fen occupation helped position the Flag Fen Basin in time as well as space. It showed that the increasingly wet conditions which led to its formation as a small fen embayment transpired at the end of the Early Bronze Age. In the same way, the new found situation dissolved any sense of an all-enduring and all-defining fen-edge and instead fostered a more fluid understanding of the contemporary environmental circumstances. In this particular landscape setting wetland sediment displaced settlement as much as it defined it – the process was dynamic and ongoing.

Summary

The King’s Dyke (1995–1999) and Bradley Fen (2000–2004) excavations occurred within the brick pits of the Fenland town of Whittlesey, Cambridgeshire. The investigations straddled the south-eastern contours of the Flag Fen Basin, a small peat-filled embayment located between the East-Midland city of Peterborough and the western limits of the ‘island’ of Whittlesey. Renowned principally for its Bronze Age and Iron Age discoveries at sites such as Fengate and Flag Fen, the Flag Fen Basin also marked the point where the prehistoric River Nene debouched into the greater Fenland Basin.

In keeping with the earlier findings, the core archaeology of King’s Dyke and Bradley Fen was also Bronze Age and Iron Age. A henge, two round barrows, an early fieldsystem, bronze metalwork deposition and patterns of sustained settlement along with metalworking evidence helped produce a plan similar in its configuration to that first revealed at Fengate. In addition, unambiguous evidence of earlier second millennium bc settlement was identified together with large watering holes and the first burnt stone mounds to be found along Fenland’s western edge.

The early fieldsystem, defined by linear ditches and banks, was constructed within a landscape pre-configured with monuments and burnt mounds. Genuine settlement structures included three of Early Bronze Age date, one Late Bronze Age, ten Early Iron Age and three Middle Iron Age. Despite the existence of Middle Bronze Age wells, bone dumps and domestic pottery assemblages no contemporary structures were recognised. Later Bronze Age metalwork, including single spears and a weapon hoard, was deposited in indirect association with the earlier land divisions and consistently within ground that was becoming increasingly wet. By the early Middle Iron Age, much of the fieldsystem had been subsumed beneath peat whilst, above the peat, settlement features transgressed its still visible boundaries.
...simultaneity is mere appearance, surface, spectacle. Go deeper. Do not be afraid to disturb this surface, to set its limpidity in motion. (Lefebvre & Régulier 2004, 80)
The perfect palimpsest

This is a book about the prehistoric archaeology of Bradley Fen and King’s Dyke. It is the first in a multi-volume series which tackles issues of scale, depth and time and which explores the dynamic transformation of a dry landscape into a wet landscape over the course of the Bronze Age and Iron Age. Some of these themes will be familiar from the existing narratives of the Flag Fen Basin and, to a certain extent, this volume represents another take on the prehistory of a locality reluctant to leave the spotlight in British Bronze Age studies: a place whose finds and features continue to challenge perceptions of this period. Nevertheless, it has not been written in an attempt to further flesh out the details of a well-rehearsed story. What is offered is a rather different narrative on the history of prehistoric occupation. There are elements which relate to the established Flag Fen Basin story and, at a broader scale, patterns in the wider transformation of the landscape which are paralleled across much of Southern Britain. However, of greater concern here is the way that these processes unfolded in the context of the lower Nene Valley and the Flag Fen Basin, where conditions were different and, as will be shown, a great deal more mutable than in other regions.

Detailed in this volume, the results of the Bradley Fen and King’s Dyke excavations provide a new perspective on this dynamic landscape. This is in no small part due to the fact that these were the first major archaeological excavations on the southern side of the Basin. Most importantly, they were the first to explore the archaeology of the lower Basin contours at a scale bigger than a single test-pit or narrow trial trench. By virtue of its circumstance (a brick pit), Bradley Fen represented the largest single aperture made into the sediments of the Flag Fen Basin and the very first to properly explore spaces well below 1m OD. Certainly, archaeological firsts are synonymous with the well-documented history of fieldwork and discovery at Fengate and Flag Fen – the recognition of Peterborough Ware as a type (Evans 2009b, 34), the use of large earth-moving machinery in excavation (Pryor 1974a) and the discovery of the timber alignments (Pryor 1992) to name but a few. Yet, with the opposing Fengate foreshore now largely consumed by commercial development, the potential for this area to produce such firsts is drawing to a close and the baton of this ‘firsts tradition’ has now been handed to the investigations on the other side of the Basin.

Given this claim, it is no small irony that this volume is not the first published word on the Bradley Fen and King’s Dyke excavations. Indeed, discussions and plans of the site adorn the pages of several influential accounts of the British Bronze Age, including Richard Bradley’s The Prehistory of Britain and Ireland, Mike Parker Pearson’s Bronze Age Britain and David Yates’ Land, Power and Prestige (Fig. 1.1). In the world of development-led archaeology, it is still unusual to find the results of an as yet unpublished and ongoing project filtering their way into the wider narratives of British prehistory. Certainly, this form of dissemination can benefit a project hugely by bolstering its academic profile and this one is no exception. The downside, however, is that is can also lead to a sense of overfamiliarity, so much so that, in this instance, there is a need to redress some of the interpretations that have found their way into print.

Perhaps it was inevitable that an early dissemination of the Bradley Fen plan would lead to a predominantly spatial comprehension of its findings. At first sight, Bradley Fen seemed to have provided the ideal example of Bronze Age settlement: an ordered world of fields, roundhouses, burnt stone mounds and metalwork in pristine spatial articulation. Superficially, it appeared to be the perfect, textbook-ready configuration, bringing together all the architectural components of the Bronze Age in a single, one-off
Figure 1.1. The Bradley Fen base plan in print: (1) Parker Pearson 2005, 98, fig. 87; (2) Yates 2007, 91, fig. 10.4; (3) Bradley 2007, 215, fig. 4.14. With its ordered world of fields, roundhouses, burnt stone mounds and metalwork, the plan appears to represent the perfect Bronze Age palimpsest. ‘Here on the fen-edge the full complexity of Bronze Age land use is revealed’ wrote Yates (2007, 91) and, beneath a schematic plan of the site, he added ‘the discovery of designated work zones for farm production and “industry-scale” processing shows the full nature of regimented land management’. The fullness of Bradley Fen featured in Richard Bradley’s Prehistory of Britain and Ireland as the ‘clearest example’ yet of settlement-edge metalwork deposition (2007, 214–15). Meanwhile, Parker Pearson’s description of the same plan allocated ‘boiling areas to individual landholdings’ and had the landholdings inhabited by roundhouses and storehouses (2005, 97–98) and for Evans, Bradley Fen offered an ‘extraordinary full (and dramatic) picture of the island’s fen-edge landscape’ (2009b, 49). And throughout, our very own Aggregate Levy Sponsored website Unearthing the Past displayed the same perfect palimpsest where ‘a neat and neighbourly arrangement of houses, fields and waterholes was spread evenly along the eastern edge of the Flag Fen embayment’.

fen-edge performance. This instantaneousness – the impression that everything happened at once (just like the reconstruction in Fig. 1.2) – was part of the appeal of the original Bradley Fen site plan. Yet the switch from a purely spatial representation of Bradley Fen to something that incorporates the temporal is not something that can happen in an instant. Rather fittingly, it is a process that requires time and with it a level of deeper thinking or critical consideration. As a result, much of the emphasis in this book is given over to the disaggregation of components of the plan, in a concerted effort to recover their temporality.

The process of temporalizing the archaeology was rooted as much in a fine-grained understanding of context, topography and, in particular, the sedimentation of this landscape, as it was in conventional dating methods. As with most prehistoric sites, the archaeology was extensive rather than intensive, with rarely any overlap or obvious superimposition between architectures. Features existed in relative isolation, or, worse, were located just close enough to amplify temporal ambiguity. Like stars in the sky, it is possible to make all manner of fascinating constellations from these, but in the background there remains a nagging
Introduction

Often overshadowed by the region’s renown for waterlogged preservation.

Back in the 1930s, however, members of the Fenland Research Committee were already conscious of the potential for Fenland’s deep sediment sequence to situate archaeological remains in actual vertical succession (Clark et al. 1935). First and foremost, it was Grahame Clark and Harry Godwin who recognized the implications of a deep accumulation of sediments forming commensurately with later prehistory in this context (Fig. 1.3; see also Smith 1994, 15, 41; 1997, 14). These, for Clark (1934, 144; our emphasis) provided ‘the modern investigator with a delicate chronological scale against which successive cultures may be dated’. Similar sentiments were later echoed by Godwin (1978, 24; our emphasis) who emphasized that ‘in the period before absolute physical means of dating were available, the importance of such a background means of correlation and reference was immense’.

Although Clark’s ‘delicate chronological scale’ referred primarily to a series of geological deposits rather than a series of archaeological features, he was aware that the things connected in space might actually be light-years apart in time. As such, it is easy to see how the spatial comes to eclipse the temporal in these situations.

If the investigations at the site of Bradley Fen taught us anything, it was that the outwardly horizontal Fenland landscape is far from being flat and that even the subtlest changes in topography can have major temporal implications. After all, this was a landscape where the onset of increasingly damp conditions compelled people to migrate vertically. Essentially the history of Fenland was of a dry landscape that gradually but inexorably became wet and the movement of occupation up the contour occurred progressively over time. The fen-edge was a dynamic feature in that it was never static, always temporary. Consequently, the Flandrian sediments of the Fen Basin buried the prehistoric land surface at different points in time and space, thus providing a relative spatial-temporal scale for the archaeologist. Surely this is one of the great lures of Fenland archaeology, although the importance of this dynamic is all too often overshadowed by the region’s renown for waterlogged preservation.

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Figure 1.3. Peacock's Farm Excavations – stratigraphic results and 'stages in the accumulation of natural deposits' (Clark et al. 1935, pl. XLVI).
Introduction

In more conventional circumstances such temporal ‘deficiencies’ could only be remedied through extensive radiocarbon dating programmes. Here though, a subtle temporal scale was provided by the capacity of the peat and other Flandrian deposits of the Flag Fen Basin to intercede in time and space. Equally, there was also a dynamic correspondence between age and altitude. If anything, in this intrinsically time-transgressive environment radiocarbon assays act best as a kind of ‘control’ regulating its momentum as much as measuring individual points in time. Indeed, it can be argued that the King’s Dyke and Bradley Fen projects lack sufficient radiocarbon dates for the scale of the investigations and the small number of dates (22 in total) represent the absolute bare minimum required to elucidate the occupation sequence (Table 1.1). If in this volume, however, we succeed in tallying a limited number of fixed points in time with our particular understanding of the subtleties of this landscape edge, then any apparent shortfall will seem immaterial. As an example, amongst the 17 radiocarbon dates attained for Bradley Fen there exists an age/altitudinal trend commensurate with the landscapes vertical trajectory. When the ‘deepest’ or lowest radiocarbon dates for each of the main periods discussed in this volume (Early Bronze Age, Middle Bronze Age, Late Bronze Age, Early Iron Age and Middle Iron Age) is plotted by age (earliest to latest) and by altitude (lowest to highest) we are presented with a gradient equivalent to the profile of the basin’s edge (Fig. 1.4). Most decisively, the age and altitude correspondence introduces a vertical dimension to our investigations which allows us to use the gradient of the basin as ‘a delicate chronological scale’.

Crucially, through this process of temporalizing the archaeology, the illusions of contemporaneity in the Bradley Fen plan are gradually eroded. For some, the

acutely aware from his excavations at Peacock’s Farm (Clark 1935) that in Fenland *depth=time*. Of course, Clark’s hand-dug excavations were on a very different scale to those at Bradley Fen and King’s Dyke. But in both contexts the successive accretion of sediments and the relationship of prehistoric remains to them, provided the means of articulating sequence.

On the lower contour of Bradley Fen, it was a period of nearly 1500 years of peat growth (commensurate with the later Bronze Age and much of the Iron Age) that provided this subtle temporal scale of *correlation and reference* which helped to temporalize the prehistoric landscape. Since a dry space was progressively transformed into a wet space through inundation, spatially adjacent features could be separated in time on the simple basis of a presence or absence of peat. Similarly, it was recognized that the occurrence of waterlogged materials within a feature was contingent as much upon *when* it was made as *where* it was located. Whereas a low-lying Neolithic feature might have dried out long before the onset of localized saturation, an elevated Iron Age feature could have been waterlogged from the very moment it was opened. As a result, preservation through waterlogging became another valuable temporal attribute.

As excavation progressed down the fen-edge and became immersed in the different sediments that sealed, capped or filled features, any sense of temporal ambiguity was rapidly supplanted by a kind of temporal clarity – a time-less landscape was, just like the peat, increasingly becoming time-full. In this space, a normative, regimented flat-palimpsest, with its compelling impression of a single *simultaneous* occupation, was revealed to be the exact opposite: a historically vibrant *succession* of occupations. In essence, the ascendancy of space over time was gradually being rectified in the act tracing features down the (fen-)edge.

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![Figure 1.4. Age/altitude correspondence of main periods for Bradley Fen.](image-url)
understanding of occupation in and around the Flag Fen Basin. As such, it serves as a kind of interpretive mirror to the excavations along the Fengate ‘shore-line’ and the wisdom received from these earlier, ground-breaking projects. The qualities of the archaeology and contextual detail afforded by the excavation continued to displace assumptions and preconceptions; here was an archaeology that contradicted expectation and countermanded simple analogy or anecdote.

It is also fair to say that the site not being in Fengate itself, but instead on the opposite side of the Flag Fen Basin, provides greater room for reflection, affording, quite literally, a vantage from which to look back across at Fengate (Fig. 1.5). Currently, King’s Dyke and Bradley Fen are situated south of the River Nene separated from Fengate and Flag Fen to the north, but in prehistory the Nene flowed much further to the south (Hall 1987, 60) and these sites shared the same contextual setting pulling apart of things will only serve to muddy what was a well-ordered picture, or dilute the archaeology to such an extent that the low-density and low-finds recovery per period debase its wider value and significance. These are not views shared by the authors. Instead, it is felt that there is more to be gained by detailing the qualitative rather than quantitative character of successive occupations in this space, be they for the most part extensive in nature. More importantly, it is from this very process of disaggregating the components of the site, and then rearticulating them in their temporal order, that a new history of occupation emerges.

This history is the subject of this book, which, at its heart, explores how patterns of occupation, residency and tenure were resolved and reworked in a mutable landscape. The findings not only challenge the published summaries of the site, but our very understanding of occupation in and around the Flag Fen Basin. As such, it serves as a kind of interpretive mirror to the excavations along the Fengate ‘shore-line’ and the wisdom received from these earlier, ground-breaking projects. The qualities of the archaeology and contextual detail afforded by the excavation continued to displace assumptions and preconceptions; here was an archaeology that contradicted expectation and countermanded simple analogy or anecdote.

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| Chapter | Site | Feature | Feature type | Service | Material | Lab. code | $\delta^{13}$C (%) | Conventional radiocarbon age (bp) | Calibrated date (cal. bc) 95.4% confidence |
|---------|------|---------|--------------|---------|----------|-----------|------------------|-----------------------------------|
| 2       | BF   | 1095    | Burnt Mound 2| AMS     | Charcoal | Beta-205541 | -25.8            | 3770±40                          | 2300–2120 & 2100–2040 |
|         | BF   | 1299    | Structure 1  | AMS     | Charcoal | Beta-205539 | -24.5            | 3690±40                          | 2200–1950 |
|         | KD   | 893     | Pit-circle   | AMS     | Charred  seed | Beta-269134 | -25.7            | 3530±40                          | 1960–1750 |
|         | BF   | 1284    | Burnt Mound 4| AMS     | Charcoal | Beta-205540 | -25.9            | 3490±40                          | 1910–1700 |
|         | KD   | 749     | Cremation    | AMS     | Calcined bone | Beta-269131 | -25.8            | 3430±40                          | 1880–1630 |
|         | BF   | 636     | Structure 2  | AMS     | Charred  seed | Beta-269126 | -23.3            | 3390±40                          | 1760–1610 |
|         | BF   | 874     | Burnt Mound 1| AMS     | Charcoal | Beta-205533 | -24.8            | 3360±40                          | 1740–1530 |
|         | KD   | 349     | Structure 3  | AMS     | Charred  seed | Beta-269130 | -23.4            | 3360±40                          | 1740–1530 |
|         | BF   | 1148    | Burnt Mound 3| AMS     | Charcoal | Beta-205542 | -27.5            | 3320±40                          | 1690–1510 |
| 3       | BF   | 892     | Wattle fence | AMS     | Wood     | Beta-269128 | -29.6            | 3280±40                          | 1650–1460 |
|         | BF   | 1306    | Fence-line   | Radio.  | Wood     | Beta-193848 | -25.0            | 3220±60                          | 1620–1390 |
|         | BF   | 830     | Body down well| AMS     | Waterlogged seed | Beta-269127 | -26.4            | 3210±40                          | 1590–1590 & 1530–1410 |
|         | BF   | 786     | Hoard        | AMS     | Peat     | Beta-205535 | -27.6            | 2970±40                          | 1310–1040 |
|         | BF   | 786     | Hoard        | AMS     | Wood     | Beta-205536 | -25.8            | 2940±40                          | 1280–1010 |
|         | BF   | 544     | Bone pit     | AMS     | Carbonized residue | Beta-269125 | -28.7            | 2930±40                          | 1270–1010 |
|         | BF   | SF66    | Shaft from spear| AMS     | Wood     | Beta-205534 | -26.4            | 2880±40                          | 1190–930 |
|         | BF   | 442     | Roundhouse 4 | AMS     | Charred  seed | Beta-205538 | -24.2            | 2680±40                          | 900–800 |
|         | KD   | 61      | Roundhouse 14| AMS     | Charred  seed | Beta-262624 | -23.6            | 2460±40                          | 770–410 |
|         | KD   | 495     | Roundhouse 5 | AMS     | Charred  seed | Beta-205544 | -25.9            | 2370±40                          | 520–380 |
|         | BF   | 1011    | Pit          | AMS     | Carbonized residue | Beta-262621 | -26.3            | 2220±40                          | 390–180 |
|         | BF   | 597     | Pit          | AMS     | Charred  seed | Beta-262622 | -22.6            | 2160±40                          | 360–90 |
Figure 1.5. Opposites sides: top, view of Fengate, Peterborough looking northwest from Whittlesey; bottom, view of King’s Dyke brickworks, Whittlesey looking southeast (King’s Dyke 1999 excavations in foreground).
Figure 1.6. Site location indicating King’s Dyke and Bradley Fen in relation to Fenland, Peterborough and Whittlesey as well as the Fengate, Flag Fen and Must Farm investigations.
Introduction

The term 'site' seems somewhat ill-fitting especially as the huge scale of these particular investigations incorporated so many different 'sites'. In the cases of Bradley Fen and Fengate, site was not a perimeter but an opening – a space through which prehistory could be comprehended. Hence, the features which made up these landscapes, or indeed the landscapes themselves, can be understood as 'fragments of distributed practice' as opposed to a series of 'place-bound and architecture-fixated' sites (McFadyen 2008, 133). We resolved from the outset that our archaeology would be decentred and in no way preconditioned by its 'Flag Fen Basin' context.

Figure 1.7. Vertical view of Whittlesey brick pits 1975 (RC8-AT095 – Cambridge University Collection of Aerial Photography). The vertical photograph shows the location of the King’s Dyke and Bradley Fen excavation areas relative to the (partially flooded) Nene Washes as well as the (at the time) undiscovered Flag Fen and Must Farm 'platforms'.

As big sites, Bradley Fen and Fengate shared the same big picture perspective in that they both opened up vast expanses of prehistoric landscape. For this reason, the term site seems somewhat ill-fitting especially as the huge scale of these particular investigations incorporated so many different 'sites'. In the cases of Bradley Fen and Fengate, site was not a perimeter but an opening – a space through which prehistory could be comprehended. Hence, the features which made up these landscapes, or indeed the landscapes themselves, can be understood as 'fragments of distributed practice' as opposed to a series of ‘place-bound and architecture-fixated’ sites (McFadyen 2008, 133). We resolved from the outset that our archaeology would be decentred and in no way preconditioned by its 'Flag Fen Basin' context.

Going in

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We chose to truncate our *temporal* perspective and concentrate on the archaeology best elucidated by our similarly (and arguably far more arbitrarily) truncated *spatial* perspective. In this way, we were able to sharpen our interpretive focus. The timespan of this more cogent landscape exposition was approximately 2300 years, starting at the very end of the Late Neolithic and ending at the very start of the Late Iron Age. Thus, this volume covers the Bronze Age (2400–800 cal BC) and the Early/Middle Iron Age (800–100 cal BC). A summary of the earlier and later remains appears in the next chapter.

On the face of it, our title ‘Pattern and Process’ has more than a whiff of processual archaeology about it. This is a little misleading, as within the context of this book, ‘Pattern’ is taken as another word for *composition* and ‘Process’, as another word for *articulation*. King’s Dyke and Bradley Fen were composed of numerous features which we as archaeologists helped articulate. We achieved this principally through the practice of excavation, but also through the practice of writing. By articulating composition, we hope also to have unfolded past movement. In this sense, pattern and process were regarded as counterparts. Movement was gleaned from both.

Our interest in movement stems largely from an interest in duration and tenure. By duration, we mean lived time (history, practice and expectation) and by tenure, the conditions under which land was held or occupied (with an emphasis on occupied). As themes, duration and tenure are closely related, especially when it comes to explicating landscapes made up of features like round barrows, fieldsystems and settlement. The criteria of what constitutes *settlement* along with scales of permanency represent crucial questions and both are understood as being related to issues of archaeological visibility. Our search for movement was also a search for temporal-spatial stability – essentially we looked for places where movement coalesced. Environment was central to the interpretation. Especially with regard to how people lived with, or were caught up in, its changeability. As the reader will discover, the relationship between sediment and settlement, or texture and tenure, could be as dynamic as it was dramatic; in fen country, an appreciation of sediment’s ability to mediate is often the key to success.
Chapter 2

Project history and setting

Project history

Despite the sites’ proximity to the Flag Fen Basin and the long and illustrious history of prehistoric landscape investigations on the opposing Fengate shoreline, this project’s beginnings were centred on a different period of landscape history altogether. In terms of the local agenda, the ‘research’ origins of the Whittlesey Brick Pit investigations were more in keeping with the essentially Roman-led Nene Valley Archaeological Research Committee than the prehistory-oriented Fenland Archaeological Trust. This was due to the extensive and often impressive Roman surface remains situated both in and around the brick pits, along with the comparative lack of earlier finds. Fieldwalking and aerial survey had identified numerous Roman sites and find-spots and the very first evaluations duly uncovered unambiguous elements of Roman settlement and enclosure. As will be shown, however, surface survey and trench-based investigation techniques served to accentuate the Roman element whilst the subsequent phases of open area excavation soon articulated a previously ‘unannounced’ but equally significant prehistoric component. Perhaps appropriately, as the excavation focus shifted westwards from King’s Dyke to Bradley Fen, closer to the Flag Fen Basin and further down the adjacent fen-edge, the archaeological focus shifted too; a change in topography also brought about a change in chronology. In retrospect, there was little sense from the King’s Dyke or Bradley Fen trench-based evaluations that we were about to explore a landscape equivalent in its scale, chronology and significance to Fengate.

Brick pit methodologies

The King’s Dyke and Bradley Fen investigations followed different methodological paths. At the time (1999), the King’s Dyke investigations followed the more orthodox route, Bradley Fen less so, and as a consequence the two projects generated different points of view. At King’s Dyke the accent was on establishing definable ‘sites’ or zones of archaeological intensity. At Bradley Fen it was about characterizing a complete landscape, articulating its archaeological extensity. The Bradley Fen methodology became all-inclusive and in the course of its implementation it fast developed into a project which also paid attention to the ‘empty’ spaces in-between sites.

Combined, the King’s Dyke and Bradley Fen investigations lasted 10 years, beginning in 1994 and finishing in 2004 (Fig. 2.1; Table 2.1). The King’s Dyke excavations ended in 2000, the same year that Bradley Fen began. The continuity from one site to the other was vital in that it allowed a rethinking of the overall approach, especially in light of what had been uncovered at King’s Dyke, but in particular, the appreciation that the original methodology had very much favoured one kind of archaeology (Roman) above another (prehistoric).

King’s Dyke

The Whittlesey Brick Pit investigations began life as a calculated exploration of Roman occupation associated with the route of Fenland’s foremost Roman road, the Fen Causeway, as identified through fieldwalking and aerial survey (Margary 1973; Hall 1987). A combination of superficial traces at King’s Dyke had indicated the presence of settlement. Large quantities of Roman pottery located within the ploughsoil alongside a complex of rectilinear cropmarks prompted a series of trench-based evaluations which in turn identified an artefact-rich ‘black earth’ overlying a stretch of Roman road and an enclosed settlement core (Mortimer 1995; 1996; Edwards 1996; Alexander 1997). Four different phases of evaluation recorded abundant evidence for persistent Roman activity and, aside from a few worked flints, a circular loomweight and a couple of sherds of Iron Age pottery, no indication of prehistoric activity at all.
Figure 2.1. King’s Dyke (1998 & 1999) and Bradley Fen (2001 & 2004) investigations: main excavation areas (by phase) and underlying evaluation trenches.

Table 2.1. History of investigation at Whittlesey Brick Pits – King’s Dyke and Bradley Fen.

<table>
<thead>
<tr>
<th>Project name</th>
<th>Year</th>
<th>Author(s)</th>
<th>Type</th>
<th>Key period</th>
<th>Hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeological Investigation at King’s Dyke Pit, Whittlesey, Cambridgeshire</td>
<td>1995</td>
<td>R. Mortimer</td>
<td>Excavation</td>
<td>Roman</td>
<td>0.11</td>
</tr>
<tr>
<td>An Archaeological Evaluation at King’s Dyke Pit, Whittlesey (Area A)</td>
<td>1996</td>
<td>R. Mortimer</td>
<td>Evaluation</td>
<td>Roman</td>
<td>0.23</td>
</tr>
<tr>
<td>Further Excavations at King’s Dyke (Area A - Topsoil ’95’)</td>
<td>1996</td>
<td>D. Edwards</td>
<td>Excavation</td>
<td>Roman</td>
<td>0.08</td>
</tr>
<tr>
<td>1997 Excavations at King’s Dyke (Area A), Whittlesey, Cambridgeshire</td>
<td>1997</td>
<td>M. Alexander</td>
<td>Excavation</td>
<td>Roman</td>
<td>0.04</td>
</tr>
<tr>
<td>Whittlesey Pits – Bradley Fen and Must Farm Sites. An Archaeological Desk-based Assessment</td>
<td>1997</td>
<td>D. Edwards &amp; K. Gdaniec</td>
<td>Desk-based assessment</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Prehistoric Excavations at King’s Dyke, Whittlesey, Cambridgeshire – A Terminal Bronze Age Settlement near Moreton’s Leam</td>
<td>1999</td>
<td>M. Knight</td>
<td>Excavation</td>
<td>Prehistoric</td>
<td>0.29</td>
</tr>
<tr>
<td>Whittlesey Pits – The Bradley Fen Site – An Archaeological Evaluation</td>
<td>2000</td>
<td>M. Knight</td>
<td>Evaluation</td>
<td>Prehistoric</td>
<td>0.25</td>
</tr>
<tr>
<td>Prehistoric &amp; Roman Archaeology at Stonald Field, King’s Dyke West, Whittlesey – Monuments &amp; Settlement</td>
<td>2002</td>
<td>D. Gibson &amp; M. Knight</td>
<td>Excavation</td>
<td>Prehistoric</td>
<td>1.34</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16.46 (25.66)</td>
</tr>
</tbody>
</table>
It was only through the serendipitous opportunity in 1998 to investigate a narrow strip (0.3ha) of low ground away from the main Roman focus, that the potential magnitude of prehistoric occupation was first realized (Knight 1999). What had all the appearance of a blank zone, turned out to contain hundreds of small pits and postholes belonging to a densely spaced Early Iron Age settlement situated over and above a small cluster of Early Bronze Age pits. In light of this discovery, when full open area excavation of the Roman ‘core’ began in 1999, the designated area (1.34ha) was extended eastwards to incorporate a possible continuation of the prehistoric settlement swathe. The excavation was preceded by a geophysical survey which clarified the position and orientation of the Roman road and associated enclosures but also revealed three enigmatic half-circle or truncated ring forms (c. 20–25m in diameter) distributed along the western side of the road (Fig. 2.2). Excavation revealed these to be a prehistoric complex made up of three

Figure 2.2. Combined aerial photographic and geophysical investigations showing cropmark distribution (Palmer 1994) and 1.86ha gradiometer survey (Martinez & Sheil 1999); lower detail displaying summary greyscale of geophysical results.
Chapter 2

extent of prehistoric occupation that was subsequently revealed within the full open area excavation (Fig. 2.4). In particular, there was no indication of the alignment of burnt mounds, the early Bronze Age settlement focus, the extent of the Bronze Age fieldsystem or the distribution of metalwork finds.

Just as with King’s Dyke, the Bradley Fen investigations were transformed by an unexpected opportunity to investigate a supposed archaeological ‘blank zone’ at scale (Fig. 2.5). To our surprise, a watching brief of the construction of a silt lagoon situated 300m west of the site and ‘deep’ within the Flag Fen Basin exposed a preserved old land surface beneath the peat. The buried soil was situated between -0.25 and +0.25m OD and incorporated an early flint scatter. Closer investigation of the soil horizon revealed the presence of features including an unambiguous circle of postholes, a central hearth and a long sinuous ditch. For the very first time unequivocal archaeological features were recorded low down within the Basin. Perhaps the most noteworthy aspect of the finding was the fact

Figure 2.3. Oblique aerial photograph of King’s Dyke Excavations 1999 (Photograph, Ben Robinson).

major monuments, a small open cemetery, an Early Bronze Age settlement swathe, as well as the anticipated continuation of the Early Iron Age settlement (Fig. 2.3).

The contrast between evaluation and excavation could not have been starker in that, although the prehistoric archaeology was equal in magnitude to the Roman archaeology, it was, to all intents and purposes, completely unannounced. This attribute, above all others, informed the excavation strategy for Bradley Fen.

Bradley Fen
It was on the basis of the invisibility of prehistoric archaeology within the King’s Dyke evaluation that its visibility within the Bradley Fen trenches was understood as being particularly significant. Bradley Fen’s 19 evaluation trenches and 14 test-pits exposed modest elements of prehistoric settlement as well as a Roman road and parts of a Roman fieldsystem. The proportion of Roman to prehistoric archaeology was roughly equal but there was little indication of the extent of prehistoric occupation that was subsequently revealed within the full open area excavation (Fig. 2.4). In particular, there was no indication of the alignment of burnt mounds, the early Bronze Age settlement focus, the extent of the Bronze Age fieldsystem or the distribution of metalwork finds.

Just as with King’s Dyke, the Bradley Fen investigations were transformed by an unexpected opportunity to investigate a supposed archaeological ‘blank zone’ at scale (Fig. 2.5). To our surprise, a watching brief of the construction of a silt lagoon situated 300m west of the site and ‘deep’ within the Flag Fen Basin exposed a preserved old land surface beneath the peat. The buried soil was situated between -0.25 and +0.25m OD and incorporated an early flint scatter. Closer investigation of the soil horizon revealed the presence of features including an unambiguous circle of postholes, a central hearth and a long sinuous ditch. For the very first time unequivocal archaeological features were recorded low down within the Basin. Perhaps the most noteworthy aspect of the finding was the fact
that the identified postholes and hearth belonged to a *bona fide* terrestrial structure that evidently pre-dated the inception of peat.

The silt lagoon discovery fundamentally altered our understanding of the relationship between early occupation and the fen-edge. Previously we had been given the impression that the Neolithic/Early Bronze Age fen-edge resided at or about 1m OD and that everything below this height was at the very least sporadically waterlogged (French & Pryor 1993, 101). As a direct consequence, the remaining low contours of Bradley Fen were investigated in detail and a sub-1m OD pre-Basin (terrestrial) terrain was established.

*Project evolution*

As Figure 2.1 shows, the key difference between King’s Dyke and Bradley Fen was what happened post-evaluation. At King’s Dyke the excavation area represented only a fraction of the land evaluated, whereas at Bradley Fen the excavation area was substantially larger than the area originally evaluated. In the case of the former, the edge of excavation was reduced or shrunk to fit the ‘site’, whereas with the latter the edge of excavation was expanded to cover the entire development. As a result we ended up with two different perspectives: one oriented towards *site* the other towards *landscape* (Figs 2.6 & 2.7). In many ways

**Figure 2.4.** *Oblique aerial photograph of Bradley Fen Excavations 2001 (Photograph, Ben Robinson).*
Figure 2.5. Detailed plan of King’s Dyke and Bradley Fen – Prehistoric archaeology (minus Roman and later archaeology).

Figure 2.6. Plan of King’s Dyke Excavations.
Project history and setting

Figure 2.7. Plan of Bradley Fen Excavations.
the Bradley Fen methodology mimicked the original Fengate methodology in its aspiration to encapsulate everything.

The site still represents a small opening in a big space, but unlike many of its neighbours, the Bradley Fen ‘window’ had two attributes that helped to enhance its contextual acuity. Firstly, instead of focusing on one kind of space (e.g. the relatively densely occupied gravel terraces above 1m OD), it captured a series of spaces, including deeper and seemingly less promising situations. Secondly, as a ‘window’, it had sufficient breadth to describe arrays of equivalent activities, such as a row of burnt mounds or a whole string of bronze weapon deposits (as opposed to isolated examples). In its perspective, Bradley Fen was inclusive on both axes; it encapsulated the lowest as well as the highest parts of the immediate fen-edge and at the same time incorporated ample distance laterally. In this sense it gave pattern every opportunity to disclose itself and, most importantly, every opportunity for the archaeologist to identify pattern when and if it transpired.

In short, the Whittlesey Brick Pits investigations mutated as they progressed. Over a period of 10 years, the project transformed from an essentially Roman investigation focused upon a short stretch of the Fen Causeway to a full prehistoric landscape characterization stretching down the fen-edge. This explicitly context-led process established the site’s prehistoric credentials and most importantly its relationship to the Flag Fen Basin and the facing Fengate ‘shoreline’.

**Project setting**

Before embarking on a description of the prehistoric occupations at King’s Dyke and Bradley Fen, we must first frame an archaeological, environmental and topographic setting for the discussions which follow. As will become apparent below, it is not appropriate to incorporate each of these components into a single unifying landscape window (even for the purpose of scene-setting), as the evidence pertaining to them and the contexts required for their comparison work at differing scales of geographic and analytical resolution. That being said, a focus on the Flag Fen Basin remains a constant throughout this volume, providing, in most instances, sufficient context to articulate pattern in the landscape sequence. This is a rare and fortunate situation to be in, removing the need to look beyond the region for further detail, or indeed clarity, on the significance of the remains recovered. Though this could be construed as an exercise in parochialism, the approach taken is fundamentally contextual and aims to do justice to the rich and nationally renowned prehistoric archaeology of this landscape.

Accordingly, to facilitate discussion and help locate the reader, what is offered below is a gazetteer of archaeological interventions yielding prehistoric remains in the Flag Fen Basin. This is coupled with a summary of recent investigations that are either referred to, or have provided data for, the analyses that follow. Having established this baseline, the environmental setting is then detailed by French and Scaife in a comprehensive overview of the Basin’s buried soils and palaeovegetational sequence. The significance of this environmental narrative is then thrown into sharper relief by a series of models that chart the changing flood-scape terrain of the Basin. This is the first attempt to reconstruct the palaeotopography of the Pre-Flandrian land surface in the area and helps to visualize the transformation from a largely dry to wet landscape over the course of four millennia. As such, it provides a geography for the environmental story which brings nuance to the wider landscape texture. The implications of these models are also considered, with particular reference to how these reconstructions alter perceptions of the ‘where and when’ of Fenland and its relationship to occupation.

**Gazetteer of sites (Iona Robinson Zeki)**

This gazetteer locates and summarizes those sites within the Flag Fen Basin which uncovered evidence of prehistoric activity and/or which revealed prehistoric land surfaces through the identification of buried soil horizons (Fig. 2.8; Table 2.2). In order to situate these sites within the context of their prehistoric rather than modern topography, all heights given here are in metres OD according to the pre-Flandrian land surface model built by Horne (see below; Fig. 2.9 & Fig. 2.11). The many sites and sub-sites excavated at Fengate have been already been summarized in Fengate Revisited (Evans et al. 2009), therefore this gazetteer only addresses in detail those Fengate sites not previously summarized and those which were presented in full within the Fengate Revisited monograph.

1. **Stanground**

In 2005, Northamptonshire Archaeology excavated 257 trenches (representing in total 2.48ha) over an area of 70ha at Stanground South (Taylor & Aaronson 2006). The land excavated included the highest ground in this gazetteer of Flag Fen Basin sites, with a maximum height of 16m OD on its western side. From this ‘high ground’, the site sloped eastwards dropping to a minimum height of 4.2m OD. On this lower, eastern side of the site, trenching revealed a substantial Middle Bronze Age cremation cemetery and a number of boundary and droveway ditches, similar to those of the Middle Bronze Age fieldsystem identified on other Flag Fen Basin sites. An Early Iron Age radiocarbon date from an associated post-alignment led Taylor and Aaronson to propose an Early Iron Age date for the wider fieldsystem, although they acknowledge the possibility of an earlier, Bronze Age origin for the major ditches (Taylor & Aaronson
Figure 2.8. Gazetteer of prehistoric sites of the Flag Fen Basin (dashed line indicates 5m OD contour).
### Table 2.2: Gazetteer of prehistoric sites of the Flag Fen Basin. Italics are used to indicate where there is a degree of uncertainty in phasing of feature type identification.

<table>
<thead>
<tr>
<th>Site</th>
<th>Area (ha)</th>
<th>Height (m OD)</th>
<th>Early Neolithic</th>
<th>Late Neolithic</th>
<th>Early Bronze Age</th>
<th>Middle Bronze Age</th>
<th>Late Bronze Age</th>
<th>Early Iron Age</th>
<th>Middle Iron Age</th>
<th>Late Iron Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max</td>
<td>Min</td>
<td>Early Neolithic</td>
<td>Late Neolithic</td>
<td>Early Bronze Age</td>
<td>Middle Bronze Age</td>
<td>Late Bronze Age</td>
<td>Early Iron Age</td>
<td>Middle Iron Age</td>
<td>Late Iron Age</td>
</tr>
<tr>
<td>1. Stanground</td>
<td>2.48</td>
<td>16</td>
<td>4.2</td>
<td>-</td>
<td>-</td>
<td>Cremations</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Settlement</td>
</tr>
<tr>
<td>2. Parnwell</td>
<td>5.65</td>
<td>6.8</td>
<td>4.8</td>
<td>Pits</td>
<td>-</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
</tr>
<tr>
<td>3. Oxney Grange</td>
<td>0.04</td>
<td>5.2</td>
<td>4.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
</tr>
<tr>
<td>4. Fengate</td>
<td>14.05</td>
<td>5.0</td>
<td>0.6</td>
<td>Structures</td>
<td>Henge</td>
<td>Round barrows</td>
<td>Fieldsystem</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
</tr>
<tr>
<td>5. Tanholt Farm</td>
<td>26.17</td>
<td>4.6</td>
<td>3.4</td>
<td>Pits</td>
<td>Waterholes</td>
<td>Waterholes</td>
<td>Fieldsystem</td>
<td>Settlement</td>
<td>Settlement</td>
<td>Settlement</td>
</tr>
<tr>
<td>6. Tower Works</td>
<td>0.19</td>
<td>4.4</td>
<td>4.0</td>
<td>-</td>
<td>-</td>
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<td>4.4</td>
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<td>Cremations</td>
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<td>1.69</td>
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<td>Pits</td>
<td>Pits</td>
<td>Pits Settlement</td>
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<td>Pits</td>
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<td>Oval barrows Metalled surfaces Fence lines Burnt mounds Waterholes</td>
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<td>-5.0</td>
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</table>
2. Parnwell

The Cambridge Archaeological Unit (CAU) and Oxford Archaeology carried out a series of watching briefs, evaluations and open area excavations at Parnwell on the eastern edge of Peterborough during 2004–5 (Williams & Webley 2004; Williams & Appleby 2005; Webley 2007a). Twenty-four evaluation trenches preceded five open areas with a combined area of 5.65ha. The land under investigation was situated on a low rise which lay close to, but at a sufficient height to remain 'above', the western fen-edge, even when the lowland inundation was at its greatest extent (Webley 2007a, 81). The archaeology revealed is not suggestive of intensive occupation of the central area of the rise at any period in prehistory, with one small cluster of Early Neolithic pits and another, slightly more dispersed, group of Early Bronze Age pits representing the most significant concentrations (Webley 2007a, 82–85).

On the eastern side of the rise, evaluation trenching produced limited evidence of ‘later Bronze Age’ ditches (Williams & Webley 2004, 10–13). These may represent the remnants of the sort of Middle Bronze Age fieldsystem ditches seen elsewhere in the Flag Fen Basin. However, subsequent open area investigation only grazed the edge of the area in which these ditches were discovered and failed to reveal any further evidence of Bronze Age ditches, precluding any firm conclusion on the presence or absence of a fieldsystem of this type in this area. On the other hand, the presence of pits and postholes, broadly dated to the later Bronze Age/Early Iron Age, combined with the residual Late Bronze Age and Early Iron Age finds recovered from Roman ditches in that area, suggest that there may have been at least some degree of later settlement on the eastern ‘slopes’. Traces of Middle/Late Iron Age settlement identified at the site’s southern limit were even less substantial, although they were found in association with an undated four-post structure which might, again, suggest settlement away from the centre of the gravel rise.

3. Oxney Grange

Seven evaluation trenches and a small open area (total area 0.04ha) were excavated by Cambridgeshire County Council Archaeological Field Unit at Oxney Grange, to the east of Parnwell, in 2005 and 2006 (Cooper & Lodoen 2006; Cooper 2007). At 4.8 to 5.2m OD, the site was located towards the eastern edge of the Parnwell ‘high ground’. Initial trenching produced evidence of Late Bronze Age/Early Iron Age features. This evidence was augmented by pits and postholes uncovered in the small open area excavation. These were interpreted as constitutive of a possible roundhouse and, due to the limited number of finds, broadly dated to the ‘Iron Age’. While the dating evidence from Oxney Grange lacks precision, in combination with the evidence from Parnwell it can be used to build a generalized picture of the Middle Bronze Age/Iron Age occupation on the eastern, ‘fenwards’ slopes of the Parnwell rise.

4. Fengate

The following sites, excavated at Fengate between 1969 and 2006, have been summarized previously (Beardsmore & Evans 2009, 116–21, fig. 4.3; Evans 2009a, 15–19, figs 1.1, 1.9); Bororoughby Garage, Broadlands, Cat’s Water 1975–78, Cat’s Water 1990, the Depot Site, Designation Ltd, Fourth Drove, Global Doors, Materials Recycling Centre, Newark Road, Off-Vicarage Road, Megacars/Barnack UK Ltd, Barnack UK Ltd, Padholme Road, the Paving Factory, the Power Station, Site ‘T’ Newark Road, Site 11, Sites O and Q, Storey’s Bar Road 1972, Boongate Roundabout, the Co-op Site, Third Drove, TP Packaging Site, Vicarage Farm Road and Vicarage Farm.

5. Tanholt Farm

Between 1996 and 2006, an area totalling 26.17ha was excavated at Tanholt Farm, Eyebury Quarry in several phases of work by the CAU (Gibson & White 1998; McFadyen 2000; Patten 2002b; 2003a; 2004; 2009; Williams 2005). This represents the largest hectarage to have been investigated within the vicinity of the Flag Fen Basin. Tanholt Farm lies to the north of the Basin, near the centre of a large ‘mid-level’ gravel terrace which was transformed over time by fen transgression from its wide pre-Flandrian form into a much narrower projection of land by the end of the first millennium ac. The site itself lies at 3.4 to 4.6m OD, around a kilometre from the fen-edge in three directions at the height of lowland inundation.

The earliest evidence from the site is limited to residual sherds of Mildenhall pottery recovered from Late Neolithic pits, suggestive of an Early Neolithic presence in the area rather than sustained activity. In the Late Neolithic and Early Bronze Age, activity in the area becomes characterized by the construction of large waterholes. The presence of these large pits across the site, in combination with the absence of any structures or settlement evidence from the same period, seems to indicate seasonal activity taking place within an open, pastoral landscape. This landscape was changed dramatically in the Middle Bronze Age by the construction of a succession of boundary ditches which formed a fieldsystem, with an associated droweway. A linear Middle Bronze Age cremation cemetery comprised of 12 burials was found to follow the same alignment as the fieldsystem: burial practice and ditch digging displaying a matched emphasis on boundary lines. The abandonment of fieldsystem ditch maintenance appears to have coincided with the appearance of concentrated settlement in the Late Bronze Age/Early Iron Age, especially on the western part of the site. This settlement phase comprised numerous structures (roundhouses, four-post structures and a single longhouse), which occurred in isolation or in small clusters. These structures may represent dwellings over a wide temporal span, rather than a single period of more intense occupation, although the associated pottery assemblage points to an Early Iron Age date.

Three ring gully roundhouses in a tight/overlapping group demonstrate some occupation of the area continued in the Middle Iron Age. However, the relatively small quantity of Middle Iron Age pottery, when compared with the Late Bronze Age/Early Iron Age assemblage, and the narrow area in which these sherds were recovered, would suggest a contraction in the scope of settlement activity after the Early Iron Age. This impression of settlement decline is compounded by the absence of Late Iron Age structures and the presence of Late Iron Age pottery in only a small number of features at the northern edge of the investigated area.

6. Tower Works

Three phases of evaluation trenching and test-pitting in 1997 and 2004 preceded an open area excavation by the CAU at Tower Works, Fengate in 2004 (Lucas 1997; Cooper 2004b; Williams 2004; Brudenell 2005; Brudenell et al. 2009). The site was located on land at 4–4.4m OD, ‘above’ and to the east of the main swathe of Fengate sites which cover the area of the western fen-edge. Although the total area investigated at the site was quite small (0.19ha), the excavations produced some quite conclusive results. A number of ditches across the area indicated that the middle Bronze Age fieldsystem, so well-articulated on the lower Fengate sites, extended to, and presumably beyond, this slightly higher ground. The evaluation trenches in the western side of the site also revealed strong evidence of Early Iron Age settlement in terms of a large assemblage of pottery associated with refuse-filled pits, ‘midden-enriched’ dark-earth and postholes suggestive of structures, although the narrow window provided by trenching prevented the identification of any structural pattern in these features.
The CAU undertook a 24-trench evaluation of a 4.6ha area at Edgerley Drain Road, Fengate in 2004 (Cooper 2004a). This initial work was followed by the excavation of two open areas at the northern and southern ends of the site in 2004/5, resulting in the investigation of a total area of 1.69ha (Beadsmoore 2005a; Beadsmoore & Evans 2009). The Edgerley Drain Road site occupied a position on the western edge of the Flag Fen Basin, just to the north of the majority of the Fengate sites. The elevation of the site dropped from 4m OD in the north to 2.4m OD in the south; the latter area lying at the very brink of fenland inundation by the end of the first millennium bc. Beadsmoore & Evans (2009, 121) characterize the Neolithic and Early Bronze Age activity as an ‘open-site’ phase evidenced by pits: a single pit containing Early Neolithic pottery, 3 tree-throws containing Peterborough Ware, 34 Late Neolithic pits containing Grooved Ware and/or Late Neolithic flints and 11 pits containing Beaker pottery. Pits containing Collared Urn pottery were also found; however these may point to the beginnings of settlement, as opposed to wholly ‘open-site’ activity, with at least one pit/posthole cluster representing a probable structure.

Middle Bronze Age field boundary ditches forming a series of paddocks were identified in, and could be traced between, both northern and southern areas of the site. These ditches were part of the much wider Middle Bronze Age fieldsystem established at Fengate and signify an emphatic end to ‘open-site’ activity. These ditches were cut (or overlap) by a number of Late Bronze Age features, including a number of large pits and a 15m wide metalled surface. Groups of postholes and at least one Late Bronze Age roundhouse also give a clear indication of settlement on the site in this period. There was, however, very little evidence of Iron Age activity on the site, which suggests that the Edgerley Drain Road area did not continue to be a focus of settlement.

**Figure 2.9 (opposite). Pre-Flandrian profiles of the Flag Fen Basin.**
the northern edge of the Flag Fen Basin. The elevation of the land was sufficiently low (0.2–2.6m OD) that the site would have been progressively inundated from the south during the late second millennium and early first millennium BC so that by the middle of the first millennium BC only the northern-most end of the site would have remained as dryland. A small number of Early and Late Neolithic pits, concentrated on the site’s northern ‘ridge’, indicate a background of low-level Neolithic activity on the site. Two Beaker and seven Collared Urn pits indicate a continuation of this low-intensity landscape occupation into the Early Bronze Age. However, this bare picture is augmented by evidence of Early Bronze Age burial practice: a round barrow and at least one isolated cremation.

The round barrow was found to have a low surviving mound and a wide ring-ditch. It was constructed on the 1.3m OD contour, immediately overlooking, lower, wetter ground to the west. Beneath the mound, there was a primary inhumation, partly cut by the scorched pit of an in situ pit-pyre cremation, which had also been performed before mound construction. Two later cremations, one in situ, one ex situ, were cut into the barrow mound. There were three isolated cremation burials on site which were interpreted as Early Bronze Age in date. Two isolated cremations at the northern end of the site were unburnt and their ascription to the Early Bronze Age was based on their spatial association with other early features. The third isolated burial was buried within a large Collared Urn. This burial was also situated on the 1.3m OD contour, but to the south of the round barrow, in a position which overlooked the fen to both the south and the west.

The landscape of Brigg’s Farm was transformed repeatedly during the Middle Bronze Age, to the extent that Pickstone and Mortimer (2011, 21) were able to develop a three-stage sub-phasing of Middle Bronze Age agricultural and settlement activity on the site. An initial, site-wide fieldsystem of large fields, demarcated by boundary ditches that followed the curves of the contours, was superseded by three ‘pre-settlement’ enclosures in the northern end of the site. These in turn were superseded by settlement activity restricted to the northeast corner of the site and evidenced by up to six possible post-built structures associated with two enclosures. These three periods can also be related to the digging and use of a number of large wells; the combination of these features’ cutting relationships with the boundary/enclosure ditches and the radiocarbon dates returned from their fills were essential to the articulation of an intra-Middle Bronze Age sequence. This sequence speaks both to changes in the character of the occupation of the landscape and changes in the nature of that landscape itself. Rising water-levels diminished the extent of the dryland, limiting the area available for enclosure and settlement to the northerly area of the Brigg’s Farm site where land rose above the 1.5m OD contour. There was no evidence of settlement on this small patch of high ground in the Late Bronze Age or Early Iron Age, but two Middle/Late Iron Age roundhouses in the northeast corner of the site indicate later settlement there, at a time when the damp ground to the south would have become wetter and extended even further up the terrace edge.

14. Horsey Hill

An evaluation of 164ha of land at Horsey Hill by the CAU in 2008 involved the excavation of 46 test-pits and 23 trenches (Gibson & Knight 2009). The land under evaluation lay between the 0.4 and 2.6m OD. In the northern area of the evaluation, test-pitting revealed an underlying topography of ‘upper terraces’ reaching a height of 0.6m OD to the northeast and lower ‘terraces’ and a palaeochannel/roddon to the south and west. Trenches in the North Field, uncovered two Grooved Ware pits on the ‘upper terrace’ and patches of metallised surface on the ‘terrace edge’, below the -0.5m OD contour. These surfaces of compacted pebbles and gravels incorporated animal bone, worked flint and worked wood and were dated to the Late Neolithic or very beginning of the Early Bronze Age by their relationship to the lower peat sequence (Gibson & Knight 2009, 5–6).

In the South Field, the terrain model derived from test-pitting located the northern tip of the Horsey Hill ‘island’ at a height of 2.2m OD with terracing dropping to the west to -0.2m OD, into the channel between Horsey Hill and the ‘mainland’ at Stanground, and dropping to the east to a greater depth (-1.8m OD) into the wider channel between the Horsey Hill and Whittlesey ‘islands’ (Gibson & Knight 2009, fig. 8). This model of the underlying terrain was a significant element in the interpretation of the key features excavated in the South Field during the evaluation. A very substantial Late Bronze Age bank and ditch was revealed in seven of the trenches. The extended course of this feature could be traced on aerial photographs indicating that it formed part of a large enclosure, strikingly located on the edge of Horsey ‘island’. Within the South Field, trenching showed that an interruption in the bank and narrowing of the ditch of this enclosure coincided with the termination of a major northwest–southeast post-alignment. This alignment was considered to be directly equivalent to the major timber alignments identified at Flag Fen and Must Farm (see below) and was interpreted as a ‘key approach’ to the Horsey Hill enclosure, via a timber-causeway from the ‘mainland’ at Stanground (Gibson & Knight 2009, 13).

15. South-West Fen Dyke Survey Nos. 8, 9 & 10

Three freshly cleaned dykes within the Flag Fen Basin were surveyed as part of the South-West Fen Dyke Survey Project, 1982–86 (French & Pryor 1993, 92–100). Dykes 8 and 9 ran approximately 3.5km east–west across the ‘high ground’ of Northey ‘island’, crossing land between -0.2 and 2.6m OD. Their profiles revealed evidence of Neolithic to Iron Age activity within the buried soil as well as cut features sealed by peat, indicative of later prehistoric settlement. Dyke 10 ran approximately 1km north–south, cutting from heights between -0.2 and 0.4m OD. In its southern reaches, the dyke crossed the western edge of Northey ‘island’, revealing a similar picture of prehistoric activity and settlement as seen in the profiles of Dykes 8 and 9. Further north, it entered the lower terrain of the Flag Fen Basin, where timbers were recorded, protruding from the dyke-section, less than 100m south of Cat’s Water Drain. Subsequent excavations revealed these timbers to be part of a large Late Bronze Age timber platform (the ‘Flag Fen’ platform), which was constructed on the line of a substantial post-alignment which ran across the Flag Fen Basin from Northey ‘island’ to the ‘mainland’ at Fentgate (Pryor et al. 1986; Pryor 1992; 2001; Pryor & Bamforth 2010).

16. King’s Delph to Linwood Pipeline

In 2008, the CAU undertook test-pitting and trenching in three areas of archaeological and palaeoenvironmental potential along the proposed route of the King’s Delph to Linwood water supply pipeline (Tabor 2008c). Of interest here are the findings from the westernmost evaluation area (Zone A), which was located to the southwest of the Whittlesey ‘island’ on ground situated between -2.6 and 2.6m OD. Initial test-pitting established a sedimentation sequence of marine and freshwater inclusions, with various palaeochannel deposits, and resulted in the production of a terrain model, which informed the location of 10 trenches along the ‘higher’ ground. The trenches revealed Bronze Age ditches that may fall within the wider pattern of the Middle Bronze Age fieldsystem and a possible ‘alignment’ of substantial pits, cautiously interpreted as part of a Late Bronze Age/Early Iron Age ‘monumental’ feature, of the sort seen elsewhere in the Ouse and Nene valleys (Tabor 2008c, 18–19).
17. Pode Hole

Quarry works at Pode Hole, Thorney prompted a series of excavations by Network Archaeology between 1999 and 2005 (Daniel 2009). This resulted in the investigation of a large total area (23.94ha) covering the slope between 0 and 2.2m OD on the north-eastern edge of the Flag Fen Basin, where the Eye ‘peninsula’ begins to shelve before rising again towards modern Thorney. Flooding of the land between Pode Hole and Thorney would have begun early in the second millennium bc creating an embayment which would have grown over time, eventually forming a ‘channel’ of fen between Pode Hole and Thorney by the end of the second millennium sc.

Excavations at Pode Hole produced no evidence of the sort of low-intensity Neolithic occupation that has been seen elsewhere on the Eye peninsula at Tanholt Farm and Brigg’s Farm. A single area excavation in the Flag Fen Basin, where the Eye ‘peninsula’ begins to shelve before rising again towards modern Thorney. Flooding of the land between Pode Hole and Thorney would have begun early in the second millennium bc creating an embayment which would have grown over time, eventually forming a ‘channel’ of fen between Pode Hole and Thorney by the end of the second millennium sc. The northerly extent covers the point where the fen-edge lay just beyond the eastern limit of the ancient Nene. The earliest archaeological features at Must Farm were found on the slope at the south of the site. Here, spreads of deposited gravels were interpreted as metallised surfaces, indicative of efforts to stabilize damp-ground on the fen-edge during the Neolithic. An Early Neolithic date has been suggested for a cluster of pits associated with the main area of metallising, which contained a sherd of Etton-style Milendhall pottery. Given the low elevation of this part of the slope, it would have become rapidly inundated during the Early/Middle Neolithic; however, further evidence of Middle and Late Neolithic activity was identified on the terrace ‘above’. A causewayed monument with a central deposit of a Peterborough Ware bowl was discovered on the ‘brink’ of the slope during open area excavation and a second, potentially quite similar, Neolithic monument, with large Peterborough Ware sherds in its ditch fills, was identified during the evaluation phase. This second monument occupied a similar, terrace-edge position, looking over the fen. Apart from the abundant worked flint found in the buried soil of the terrace, Late Neolithic activity on the site was represented by a scatter of isolated pits or small pit clusters containing Grooved Ware pottery around the small embayment on the east of the terrace-edge.

Two Early Bronze Age burnt stone mounds were also located around the edges of the eastern embayment. One of these mounds was associated with an alignment of preserved stakes which returned a radiocarbon date of 2200–1970 cal bc (Tabor 2010, 7). Several other similar stake alignments on the terrace edge suggest a number of Early Bronze Age enclosures, paddocks or boundaries marked out by fences in this area. Evidence of Early Bronze Age settlement was found on the slightly higher land to the north, in the form of discrete midden spreads in the buried soil, containing either Beaker or Collared Urn pottery, as well as hearth pits and waterholes. Lying at around 0m OD, this northern part of the terrace would have become increasingly damp by the middle of the second millennium bc. A segmented and sinuous bank and ditch, its course marked by posts which may have formed an earlier alignment, dates to this period. Peat occurred within the ditch and in a thin layer below the bank indicating that the wet conditions which effect peat formation were already present when the ditch segments were dug. The construction of this ditch would appear to be the last archaeologically visible act in this landscape before it became completely inundated late in the second millennium bc.

Excavations at Must Farm have also investigated a palaeo-channel which cut across the southeast corner of the site. The relationship between this channel and the blanket deposits of the Fen Basin, indicate that the channel originally cut its course early in the Bronze Age. At this time the channel was a substantial, marine watercourse, which became incrementally choked by tidal deposits of fine sands and silts. Late in the second millennium bc, a much smaller freshwater channel cut a course through the top of these deposits (see Scaife & French below). Investigations of this freshwater channel are ongoing but have produced evidence of Middle–Late Bronze Age and Early Iron Age riverine activity, including fish weirs and logboats, as well as substantial piles forming a post-alignment and a timber platform (Gibson et al. 2010; Knight 2010; Knight & Murrell 2011a; Murrell 2012; Robinson et al. 2015).

18. Storeys Bar Road

In 2007, Northamptonshire Archaeology undertook a 45 trench evaluation of three fields adjacent to Storeys Bar Road and the Padholme Drain (Meadows 2007). This low-lying land, to the east of the basin slope at Fangate, would have become entirely inundated during the second millennium bc. The trenches exposed a depositional sequence which demonstrated this process; a buried soil (present over most of the site), which returned a radiocarbon date of 1740–1520 cal bc, was overlain by bands of freshwater peat and alluvial clay which returned a radiocarbon date of 1120–910 cal bc from the base of earliest, lowest peat band (Meadows 2007, 17). No archaeological features were identified in the buried soil. Apart from the abundant worked flint found in the buried soil of the terrace, Late Neolithic activity on the site was represented by a scatter of isolated pits or small pit clusters containing Grooved Ware pottery around the small embayment on the east of the terrace-edge.

19. Must Farm

The CAU has undertaken excavations at Must Farm, Whittlesey since 2004. In an initial evaluation phase, 80 trenches were dug to explore an area of 132ha (Evans et al. 2005). This evaluation was followed by a series of open area excavations with further work in the landscape planned as the quarry expands westwards (Tabor 2008a; 2010; Gibson et al. 2010; Knight & Murrell 2011b; Murrell 2011). The project explores the lowest-lying landscape to be exposed in open area excavation in the Flag Fen Basin. Its northerly extent covers the gravel terraces to the west of the high ground of Whittlesey ‘island’, with a small embayment at its eastern end interrupting the line of the ‘terrace edge’, while its southern area covers the steep slope down to the channel of the ancient Nene.

The earliest archaeological features at Must Farm were found on the slope at the south of the site. Here, spreads of deposited gravels were interpreted as metallised surfaces, indicative of efforts to stabilize damp-ground on the fen-edge during the Neolithic. An Early Neolithic date has been suggested for a cluster of pits associated with the main area of metallising, which contained a sherd of Etton-style Milendhall pottery. Given the low elevation of this part of the slope, it would have become rapidly inundated during the Early/Middle Neolithic; however, further evidence of Middle and Late Neolithic activity was identified on the terrace ‘above’. A causewayed monument with a central deposit of a Peterborough Ware bowl was discovered on the ‘brink’ of the slope during open area excavation and a second, potentially quite similar, Neolithic monument, with large Peterborough Ware sherds in its ditch fills, was identified during the evaluation phase. This second monument occupied a similar, terrace-edge position, looking over the fen. Apart from the abundant worked flint found in the buried soil of the terrace, Late Neolithic activity on the site was represented by a scatter of isolated pits or small pit clusters containing Grooved Ware pottery around the small embayment on the east of the terrace-edge.

19. Northey landfall

Small-scale excavations on the eastern side of the Flag Fen platform were carried out by Soke Archaeological Services, Time Team and the Fenland Archaeological Trust between 1999 and 2004 (Pryor et al. 2001; Britchfield 2010). Through a series of test-pits, trenches and minor open area excavations these projects opened a succession of...
small windows onto the eastern edge of the Flag Fen Basin and the adjacent ‘high ground’ of Northey ‘island’. The investigations revealed evidence of Beaker period activity in two trenches on the lower ‘slopes’ of the Northey ‘high ground’. Here, four pits and a posthole containing Beaker pottery were associated with a number of undated postholes, a hearth pit and a group of three stake-lines/fences which when viewed together, although undated, are suggestive of settlement, perhaps of limited duration (Britchfield 2010, 41–47). About 300m to the northeast, and slightly higher up the island’s ‘slope’, a pair of trenches located to investigate a possible round barrow, previously identified from cropmarks, uncovered two portions of a ring-ditch with no remaining barrow mound, but traces of an internal bank surviving in both slots. No dating evidence was retrieved from the ring-ditches but two spreads of cremated bone found within the circumference support the interpretation of the monument as an Early Bronze Age round barrow.

Interpretation of further evidence from ‘high ground’ trenches at Northey was limited by the lack of dating evidence. Three ditches found in the northern area were related to an enclosure identified from aerial photography but remained undated. Another ditch to the south was proposed as a Bronze Age field system ditch, running towards the fen-edge, but did not produce any conclusive dating evidence (Pryor et al. 2001, 76; Britchfield 2010, 52). However, one ditch, found in two trenches slightly lower down the ‘slope’ could be more closely dated. The fills of this east–west ditch were cut by posts belonging to the Late Bronze Age post-alignment which formed a walkway from the Northey dryland to the Flag Fen platform 80m into the fen to the west. This indicates not only that the ditch pre-dated the construction of the alignment but also, given matching east–west alignments, that the route of the timber walkway followed a path across the landscape already demarcated by an earlier boundary ditch. Several test-pits and ‘pin-hole’ excavations traced the course of the timber alignment from Northey to the edge of the platform. These slots revealed the ‘busy’ signature of the walkway’s constitutive posts, with a five-row construction suggested (Britchfield 2010, fig. 3.18). Near the eastern end of the alignment, patches of metalling beneath the peat also indicate efforts to consolidate ground in that area.

21. Flag Fen West

Between 1997 and 2007, a number of small-scale archaeological investigations took place to the west of the Flag Fen platform site, with test-pits and small trenches dug across the basin between the platform and the rising landform at Fentage, as well as further south, in the area to the east of Cat’s Water and Third Drove. All these investigations were conducted on low-lying basin terrain, between -0.8m and 0.4m OD. Work was carried out by Soke Archaeological Services, the CAU and the Fenland Archaeological Trust (Pryor 1997; Britchfield 2001b; Patten 2003b; Brittain 2010). Much of this work targeted the Late Bronze Age ‘Flag Fen post-alignment’, discovered in 1982; a timber walkway which crosses the Flag Fen Basin from Fentage to Northey ‘island’, augmented by a large timber platform c. 160m from its eastern end. These investigations confirmed that the five-row alignment structure, identified at the platform site, continued across the basin to the Fentage landfill. They also hinted at a potentially interesting relationship between the course of the post-alignment (which ‘veers’ slightly to the northwest between the platform and Fentage) and a natural rise in the underlying topography, forming a promontory projecting from Fentage into the basin, which might have equated to an ‘passage point’ in earlier times when the water level was lower (Brittain 2010, 28–29). At the opposite end of the lifespan of the post-alignment, Brittain (2010, 29) suggests that a deposit of burnt stone, slag and other debris observed overlying the walkway timbers near the Fentage landfill represent an attempt to create a dry-footing on wet and unstable timbers during the Iron Age. In most cases, those archaeological interventions which took place away from the line of the post-alignment did not produce any archaeological material, but did provide valuable sediment profiles that refined the palaeoenvironmental model of the western side of the Flag Fen Basin.

22. King’s Delph

In 2009, the CAU undertook an evaluation of 119ha of land at King’s Delph, investigating an area between the ‘islands’ of Horsey Hill and Whittlesey (Tabor 2008b). The area explored established the lowest underlying topography of any site currently excavated in the Flag Fen Basin, with heights ranging from 0m down to -5m OD. Investigations incorporated a borehole survey, test-pitting and trenching, with a total of 54 test-pits and 33 trenches. The evaluation revealed a buried soil horizon containing material culture dating from the Late Mesolithic to the Early Bronze Age and a previously unknown round barrow at the higher, western side of the site but, perhaps more significantly, it also produced evidence of human activity from lower horizons; a post radiocarbon dated to the Late Neolithic at -1.75m OD and a fragment of trimmed roundwood at -4.6m OD. Although limited, this evidence indicates that archaeological remains are present within the deep deposits at King’s Delph and more generally that areas of low underlying topography have a higher archaeological potential than might previously have been credited (Tabor 2008b, 26).

23. Padholme Drain

A watching brief during the expansion of the flood defences at Padholme monitored the re-cutting of 330.8m of the Padholme Drain (Moreley & Murrell 2010). The length of drain re-cut ran north-west–south-east from a height of 1.4 to 0.6m OD, forming a transect through the underlying terrain of the deeper reaches of the fen basin. Below the fresh and saltwater inundation sediment sequence, a possible buried soil horizon was identified at the ‘higher’, western end of the drain, at a depth of between 0.17 and 0.27m OD. Although the presence of a possible buried soil at this height indicated the potential for evidence of early human activity to survive, no archaeological features were observed.

Environmental setting

Under the banner of environmental setting, it is the task of Charly French and Rob Scaife to present a detailed overview of the Flag Fen Basin’s buried soil and palaeovegetational sequence (Fig. 2.10). The two facets of environmental reconstruction are presented independently although, as will be shown, both inform each other. The reports represent a combination of synthesis of existing material alongside the incorporation of up-to-date detail including buried soil and pollen analysis exclusive to the King’s Dyke and Bradley Fen investigations. In both cases, reports relating to the highly detailed analysis of samples obtained from King’s Dyke and Bradley Fen have been relocated to the appropriate contextual sections within the main evidence chapters. What remains is a buried soil and pollen-led understanding of the Flag Fen Basin boosted by the summarized results of the King’s Dyke and Bradley Fen investigations. Most importantly, Scaife’s final discussion of the vegetational history of the Flag Fen Basin also incorporates detail supplied via French’s buried soil analysis.
Micromorphological analyses of the buried soil
(Charles French with Tracey Pierre and Sean Taylor)
A buried soil horizon survived at King’s Dyke and Bradley Fen, although its distribution was restricted to the sub 3.40m OD contours. At its thickest, the profile was never more than 0.20m but more commonly between 0.05–0.15m. At King’s Dyke (Zone 1) the deposit was in part protected by a band of alluvium whereas at Bradley Fen it was peat that covered most of its extent. The palaeosol at the eastern end of Bradley Fen (Zone 2) survived best within an approximately 120m wide spread bracketed between 2.00m and 0.30m contours but also occurred as a skim as high up as 3.00m and as low down as -0.20m. The palaeosol at the western end of Bradley Fen (Zone 3) encompassed the ground above the -0.20m contour. Crucially, the relationship between features and the soil horizon differed radically between the two sites, as the majority of the prehistoric features at King’s Dyke only became visible once the buried soil had been stripped, whereas at Bradley Fen they were visible from its surface.

Summary of the palaeosol investigations
Samples for micromorphological analysis were taken from the buried soils associated with each major excavation intervention from east to west along the fen-edge of Whittlesey ‘island’ and the south-western margins of the Flag Fen Basin (Fig. 2.10) including the high contours of King’s Dyke and the lower contours of Bradley Fen. The first of these was located within the vicinity of the monument complex, the second, the line of three burnt mounds, and the third, the fence-line and subsequent bank and ditch feature.

Three levels of landscape and land-use information were sought: 1) data specific to sites; 2) data specific to the fen-edge; and 3) data specific to the wider Flag Fen Basin. Micromorphology (Courty et al. 1989) was used to examine the nature of the prehistoric buried soil.

Figure 2.10. Location of key pollen and soil micromorphology sample points in the Flag Fen Basin.
preserved under the peat and alluvial sequences. This technique should give detailed information on later prehistoric landscapes along the southern edge of the Flag Fen Basin and these landscape/land-use sequence data may then be compared to the existing landscape framework already discerned for the northern and north-western margins of the Flag Fen Basin (French 2001a–d; 2009b, c; Pryor 2001; E words etc. and Murphy 1979; Fedoroff 1968; Kuhn et al. 2010). Subsequent deforestation is not strictly recognized from the soil evidence alone, although various forms of disturbance are indicated, including intermixing soil fabrics, seasonal flooding and alluviation. The original organic A horizon of this soil is not visible and has probably become intermixed with the alluvial overburden.

King’s Dyke
The two profiles recorded at King’s Dyke were preserved beneath an alluviated ploughsoil and both exhibited past soil pedogenesis and disturbance. Despite the effects of alluvial deposition and seasonal waterlogging, probably beginning in post-Roman times, the buried soil was once a brown earth with argillic horizon development in places. The presence of an argillic brown earth testifies to some woodland development in this area in the earlier Holocene (Bullock and Murphy 1979; Fedoroff 1968; Kuhn et al. 2010). Subsequent deforestation is not strictly recognized from the soil evidence alone, although various forms of disturbance are indicated, including intermixing soil fabrics, seasonal flooding and alluviation. The original organic A horizon of this soil is not visible and has probably become intermixed with the alluvial overburden.

Bradley Fen
The samples through the palaeosol horizon in and around the Bradley Fen burnt mounds all produced profiles indicative of an argillic brown earth, varying from poorly developed and depleted to very well developed. The evident mixing of fabrics is suggestive of deep physical disturbance of much of the profile. Such disturbance alongside an absence of diagnostic horizons of arable agriculture may be related to the adjacent waterholes and ‘metalled’ surfaces connected with intensive animal movement across increasingly saturated ground.

The profile preserved beneath the fence-line and associated bank is also a brown earth to poorly developed argillic brown earth. It has been depleted of fines and had much organic matter added, subsequently becoming highly humified and bioturbated by the soil fauna. At some point prior to the construction of the boundary, this soil must have been affected by a combination of deforestation, human intervention and a rising but variable groundwater table. Despite depletion, successive episodes of disturbance are indicated by several features including abundant very fine charcoal permeating the whole groundmass and the addition of large amounts of very fine organic matter. The soil texture at the top of the profile is dense, with little pore space, possibly indicative of soil compression due to trampling, again as evidenced by the adjacent waterholes, metalled surfaces and hoofprints. Once more, there were no definitive soil features to indicate pre-fence-line agriculture.

Buried soil – landscape development of the southern Flag Fen Basin (Charles French)
In order to begin to visualize the range of soil profiles investigated and the extent of dated contexts along the margins of the whole Flag Fen Basin, Table 2.3 summarizes contexts sampled, their relative heights above sea-level, the soil types observed and possible interpretative scenarios.

Three major, intricately related factors appear to govern the trajectories of soil development that have been observed around the Basin: the development of woodland, human activities and the rise of the groundwater table. The local shallow basin topography increasingly accentuates these factors through time. Although there is no great early Holocene time-depth to the palynological data, there is much evidence to suggest that a lime-oak woodland dominated the gravel terraces of Stanground and Fengate and the high ground of Whittlesey ‘island’ in the fourth and third millennia BC (Scaife 1992; 1993; 2001; this volume; Boreham, this volume). Substantial inroads into this woodland had certainly begun within the third millennium BC or in the later Neolithic. Associated with this woodland on well-drained gravel subsoils was an argillic brown earth to brown earth soil, but this varies considerably in the nature of its development along the fen-edge and has generally suffered much depletion since.

Throughout the next two to three millennia, the earlier Holocene woodland soil began to change markedly in character through a combination of human interference in the landscape and a rising groundwater table. The construction of extensive fieldsystems and farmsteads throughout the second and first millennia BC on the gravel terrace and island topography led to an extensive opening up of the landscape surrounding the Flag Fen Basin. This in turn led to ‘degradation’ of the ubiquitous brown forest soils through the associated changes in vegetation and drainage. Soil changes that occurred include much depletion of fine material thereby changing the soil texture, the physical mixing of soils through various human activities from tree clearance to ditch digging to plough agriculture, and the steadily rising influence of the proximity of the groundwater table leading to intermittent phases of gleying and drying-out.

Within the adjacent basin, water levels rose steadily, especially from the later second millennium BC. Thus wide swathes of the margin of the basin progressively became untenable for easy human use. With the encroachment of the groundwater table and fen formation, topsoils became more organic and subject to peat growth which led to the burial of what survived of the former woodland soils on the basin margins. In
addition, the opening up and agricultural disturbance of the hinterland of the lower Nene valley throughout later prehistoric times led to extensive erosion and the transport of soil downstream in seasonal late winter/spring-time flood events. Where these floodwaters met the growing peatlands of the basin, there was a certain amount of ponding back and seasonal over-bank flooding resulting in large areas of temporarily

<table>
<thead>
<tr>
<th>Site</th>
<th>Context</th>
<th>Height (m OD)</th>
<th>Soil type</th>
<th>Soil features</th>
</tr>
</thead>
<tbody>
<tr>
<td>King’s Dyke, 1995</td>
<td>Trench II</td>
<td>3.0</td>
<td>Sandy clay loam; brown earth to argillic brown earth</td>
<td>Wooded; disturbed; silty clay alluvium above</td>
</tr>
<tr>
<td>Bradley Fen, 2001</td>
<td>Trench 6</td>
<td>1.5–1.0</td>
<td>Sandy loam; brown earth</td>
<td>Disturbed; rising groundwater table; detrital peat and alluvium above</td>
</tr>
<tr>
<td>Bradley Fen, 2001</td>
<td>Trench 7</td>
<td>1.0</td>
<td>Sandy loam over sandy clay loam; argillic brown earth</td>
<td>Probably once wooded; disturbed; rising groundwater table; detrital peat and alluvium above</td>
</tr>
<tr>
<td>Bradley Fen, 2001</td>
<td>Trench 3</td>
<td>1.0–0.8</td>
<td>Organic sandy loam; argillic brown earth</td>
<td>Wooded, cleared, disturbed and open; rising groundwater table; detrital peat and alluvium above</td>
</tr>
<tr>
<td>Bradley Fen, 2004</td>
<td>1500 bc fence-line</td>
<td>0.0–0.3</td>
<td>Organic sandy loam to sandy clay loam; organic brown earth to very depleted argillic brown earth</td>
<td>Wooded, cleared, disturbed &amp; open; receives much organic additions &amp; some alluvial additions prior to trackway built; then compression, flooding, peat formation and alluvial deposition</td>
</tr>
<tr>
<td>Must Farm, 2007–08</td>
<td>Pre-900 bc old land surface</td>
<td>-0.2–0.1</td>
<td>Loamy sand strongly impregnated with amorphous sesquioxides, with/without abundant organic debris</td>
<td>Very depleted soil off-site; very humified organic; shell-rich sand beneath LBA structure</td>
</tr>
<tr>
<td>Horsey Hill, 2008–09</td>
<td>Pre-Middle Bronze Age enclosure</td>
<td>0.8–1.1</td>
<td>Clay-rich soil</td>
<td>Truncated old land surface; subsequently waterlogged</td>
</tr>
<tr>
<td>Old Nene area, 2007–08</td>
<td>Neolithic ‘middens’ &amp; pre-EBA barrows</td>
<td>-0.6–0.8</td>
<td>Organic sandy loams; brown earth</td>
<td>Brown earths; depleted through rising groundwater table and subsequent waterlogging; buried by silty clay alluvium</td>
</tr>
<tr>
<td>Dyke 8, SW Fen Dyke Survey, 1993</td>
<td>-</td>
<td>0.6–0.3</td>
<td>Sandy/silt loam; depleted brown earth</td>
<td>Probably once wooded; disturbed &amp;/or ploughed; rising groundwater table</td>
</tr>
<tr>
<td>Dykes 9 &amp; 10, SW Fen Dyke survey, 1993</td>
<td>North side of modern Nene channel</td>
<td>2.3–2.0</td>
<td>Sandy loam; depleted brown earth; pre-1290–800 cal bc</td>
<td>Probably once wooded; disturbed &amp;/or ploughed; alluviated; rising groundwater table</td>
</tr>
<tr>
<td>NYT 99; Flag Fen, Green Wheel</td>
<td>North side of Mustdyke</td>
<td>c. 1.0</td>
<td>Sandy loam; brown earth</td>
<td>Disturbed; alluviated; rising groundwater table; with peat &amp; alluvium above</td>
</tr>
<tr>
<td>Must Dyke, Flag Fen, 1993</td>
<td>Northeast of Flag Fen platform</td>
<td>0.9–0.7</td>
<td>Sandy clay loam; well-developed brown earth</td>
<td>Probably once wooded; disturbed; seasonally waterlogged; with peat &amp; alluvium above</td>
</tr>
<tr>
<td>Fengate Power Station, Fourth Drove, 1990–91</td>
<td>Northern fen-edge</td>
<td>1.2</td>
<td>Sandy loam; poorly developed brown earth under turf</td>
<td>Probably once wooded; grassland; seasonally waterlogged; with lenses of peat and minerogenic sediment, and alluvium above</td>
</tr>
<tr>
<td>Cat’s Water, Fengate, 1975–76</td>
<td>Northern fen-edge</td>
<td>1.5–1.2</td>
<td>Sandy loam; poorly developed argillic brown earth</td>
<td>Wooded; grassland; flood meadow; thin peat ad alluvium above</td>
</tr>
<tr>
<td>Edgerley Drain Road, Fengate, 2006</td>
<td>Northern fen-edge</td>
<td>c. 2.0</td>
<td>Sandy loam; poorly developed brown earth under turf</td>
<td>Probably once wooded; grassland; seasonally waterlogged; with lenses of peat and minerogenic sediment, and alluvium above</td>
</tr>
<tr>
<td>Third Drove, Fengate, 1998</td>
<td>Under Iron Age bank</td>
<td>c. 3.0</td>
<td>Sandy loam; poorly developed brown earth</td>
<td>Wooded; seasonally waterlogged; alluvium above</td>
</tr>
<tr>
<td>Depot Site, Fengate, 1998</td>
<td>Between Third &amp; Second Drovess</td>
<td>c. 3.0</td>
<td>Sandy loam; poorly to well-developed brown earth</td>
<td>Wooded; seasonally waterlogged; alluvium above</td>
</tr>
<tr>
<td>Tower Works, Fengate, 1998</td>
<td>Nene First Terrace</td>
<td>c. 4.5</td>
<td>Sandy loam; poorly developed brown earth with thickened Ah horizon</td>
<td>Probably once wooded; cleared; with midden debris &amp; soil added</td>
</tr>
</tbody>
</table>
ponded, shallow standing water and the interdigitating of flood-derived silts and clays with the growing peats. This particularly occurred along the northern and southern margins of the Flag Fen Basin, associated with what is now the route of Cat’s Water to the north on the Fengate margin and, to the south, with the old course of the River Nene and its various side channels where they dipped southwards and south-eastwards between what is now Stanground and the Horsey Hill and Must Farm areas.

Between the peat growth and silty clay alluvial depositional processes, the original dryland soil type changed out of all recognition, becoming finer, less porous and increasingly poorly drained. Although initially these changes may have increased fertility and the ability to produce good crop yields, the situation would have soon become untenable due to the effect of the increasingly high and sustained groundwater table, making much of the basin margin landscape only usable for seasonal pasture.

The later prehistoric environment – an overview
(Rob Scaife and Charles French)

Bradley Fen has provided pollen data which contributes greatly to the growing understanding of the changing prehistoric vegetation and environment of the fen and fen margins of the Flag Fen Basin and the Lower Nene Valley. Also of substantial importance are the data which pertain to the flooding of the fen basin from the middle Holocene and the impact of the resulting environmental change on human occupation. Data on the changing habitats of the Fenland in the middle and later Holocene are available from an increasing number of detailed, site-based, palynological analyses (and see summaries below). These studies have been carried out during the past two decades providing an insight into the changing environment of later prehistoric Fenland sites. More recently, the gravel and clay extraction at Bradley Fen and Must Farm has revealed stratigraphical sequences which specifically demonstrate the progressive, late prehistoric encroachment of wet fen and the human response to this. The preserved old land surfaces and overlying fen peat offer great potential for a detailed study of this regressive hydrosere.

Background to the past vegetation and environments

Due to industrial expansion along the fen-edge of Fengate, Peterborough and gravel extraction from beneath the adjacent fen peat between Stanground, Peterborough and Whittlesey, this region has offered significant opportunities to study the later prehistoric vegetation. Pollen analysis of a number of peat and mineral sediment sequences has been carried out, yielding important information on the vegetation and land-use in later prehistory. With the exception of the Etton Neolithic causewayed enclosure (Scaife 1985; 1998b; Pryor 1998a) and the Fengate Power Station Complex and nearby Flag Fen (Pryor 2001; Scaife 2001), developer-funded palynological studies have rarely progressed beyond evaluation to fuller analysis. Unfortunately, comprehensive radiocarbon dating was also only rarely obtained for many of these sequences, instead relying on artefactual evidence for relative dating. The pollen data, however, when examined as a whole, do provide a picture of the changing environment for the western fen-edge from the Neolithic period onwards. This contribution adds to this corpus of information through the palynological analysis of four profiles obtained during the excavation at Bradley Fen, set within the wider existing palaeovegetational picture derived from the surrounding fenland.

A review of sites in the immediate region with associated/comparative data

Etton, Maxey and Flag Fen have been noted as being the most relevant published data (Scaife 1998b; 2001; 2005a). From the fen-edge, there are also the analyses of Vicarage Farm Road (Scaife 1998c), Third Drove (Scaife 1998a), Fengate (Tower) Sewage Works (Boreham & Peachey 2009) and Horsey Hill (Boreham 2009). These studies have provided information on the near terrestrial/drier ground habitats, especially relating to late prehistoric deforestation and land-use. In addition, there are a number of sites from the adjacent fens that also contribute to the environmental histories of the region. These include Must Farm (Scaife 2010), King’s Delph (Gearey et al. 2009) and Ramsey (Scaife 2005b), as well as previous studies in Newborough Fen to the north (Scaife 1993a,b) and Farcet Fen to the south (Waller 1994).

Fengate Power Station and Flag Fen

The Fengate Power Station and Flag Fen sites provide the most detailed radiocarbon dated pollen sequences obtained to date. A series of trial trench excavations along a transect facilitated examination of the fen-edge peats extending to the deeper sediments of the central part of the Flag Fen Basin. Pollen analysis and radiocarbon dating established the transgression of the peat fen and alluvial overbank deposits over the Fengate region, which had been an area of agricultural importance since the second millennium BC (Pryor 1974b; 1978; 1980; 1984; 2001; Evans et al. 2009). A number of sequences were examined and a pollen diagram constructed. Fengate profile B spans the principal stratigraphical units of this fen-edge zone and the pollen data provide evidence for the character of the vegetation and its development at the interface of the fen and the terrestrial zone. Here a lower peat, which rests on late Pleistocene gravels, is dated from 800–400 cal BC (GU-5620: 2840±50 yr) to 410–200 cal BC (GU-5619: 2290±50 yr) (Scaife 2001, 387–81). This marks increased wetness and the start of a regressive hydrosere associated with growth of alder which gave way to Typha reed swamp (Scaife 2001, 369). This transgressive change started
of aquatic macrophytes and swamp and finally more aquatic conditions seen from the presence showed initial colonization by alder (Alnus) and sedges (Cyperaceae) suggesting that including alder (Alnus) within the palaeosol there were small numbers of wetland taxa palaeochannel which had stronger evidence of cereal cultivation. Within the palaeosol there were small numbers of wetland taxa with evidence of arable and possibly pastoral agriculture (probably wheat and barley). Substantial numbers of bracken (Pteridium) spores, although a function of differential preservation in their favour, also suggests that there were areas of waste or abandoned land. Within the wider region there is some evidence of oak (Quercus) and hazel (Corylus) and possibly some remaining lime (Tilia) woodland. There is also clear evidence of this in the pollen spectra from the fills of a palaeochannel which had stronger evidence of cereal cultivation. Within the palaeosol there were small numbers of wetland taxa including alder (Alnus) and sedges (Cyperaceae) suggesting that the fen-edge was in proximity to the site. As with the other Fenland sites discussed, there is strong evidence for increasing height of the groundwater table and wateriness. This retrogressive hydrosere is also clear evidence of this in the pollen spectra from the fills of a palaeochannel which had stronger evidence of cereal cultivation. Within the palaeosol there were small numbers of wetland taxa including alder (Alnus) and sedges (Cyperaceae) suggesting that the fen-edge was in proximity to the site. As with the other Fenland sites discussed, there is strong evidence for increasing height of the groundwater table and wateriness. This retrogressive hydrosere showed initial colonization by alder (Alnus) followed by fen-reed swamp and finally more aquatic conditions seen from the presence of aquatic macrophytes and Pediastrum (green algae).

Horsey Hill
Boreham (2009) examined a series of pollen samples from Horsey Hill suggested as being of Late Neolithic or Early/Middle Bronze Age date. This study demonstrated an environment comprising mixed-oak woodland with lime (Tilia) and elm (Ulmus), together with arable activity and wet woodland (carr) and reed swamp communities in wetland close to the site. Interestingly, woodland management, for example coppicing, was also mooted as a possible cause for the changing structure of the woodland, although it could be that natural processes, such as changes in the local water-table, may also have been responsible. These data add to the view that the Neolithic and Early Bronze Age vegetation, rather than being cleared, remained a mosaic of woodland with possible, ephemeral, clearances for agriculture.

Vicarage Farm Road, Fengate
At Vicarage Farm Road, pollen profiles were taken from two depressions, possibly wells or waterholes, and from an old land surface/buried soil (Scaife 1998c). The extensive old land surface of probable Bronze Age date was palynologically and taxonomically diverse. Herb pollen is dominant here with only sporadic occurrences of trees water which include birch (Betula), pine (Pinus), elm (Ulmus), oak (Quercus) and alder (Alnus). The herb pollen components are dominated by taxa of pastoral affinity, but with some evidence of cereals and weeds of disturbed ground and agriculture. An undated, but probably Bronze Age, well or waterhole, as with the other profiles/features, also had only minimal evidence of trees and shrubs but with herbs of pastoral affinity being most important. Grasses (Poaceae), dandelion types (Lactucoideae), ribwort plantain (Plantago lanceolata), medick and clovers (Trifolium and Medicago) and buttercups types (Ranunculus) are present and the fact that the pollen of these is present suggests that the pasture was not closely cropped/grazed.

Tower Works
At Tower Works, Fengate pollen data have been obtained which span the Late Neolithic and Bronze Age, between c. 2400–2100 and 500 cal bc (Wk-13863: 3778±42 ar; Wk-13862: 2442±54 ar) (Boreham & Peachey 2009). Woodland was dominated by oak (Quercus), elm (Ulmus) and hazel (Corylus), with alder (Alnus) and willow (Salix) present from the adjacent wetland. This pollen profile starts at a point in time when it is suggested that a mixed-oak woodland was being altered by human clearance for agriculture, as evidenced by cereal pollen and associated weeds. However, substantial numbers of Tilia pollen in the lowest (soil) levels is diagnostic, further demonstrating that lime formed the dominant woodland taxon on well-drained soils prior to more widespread Neolithic or Bronze Age clearance. During the Bronze Age, alder carr woodland became important in response to rising water levels with a significant flooding event causing a short-term disruption of this damp woodland prior to its re-establishment. By the Late Bronze Age and into the Early Iron Age, in common with other local sites, accumulations of humic peats and silty clays containing pollen of aquatic and marginal fen plants prevail. This shows that there was a continued expansion of the wetland across the fen-edge caused/driven by more widespread late-Holocene relative sea-level change which caused disruption of the fluvial systems of the region. This was also accompanied by evidence of cereals and arable woods.

Flag Fen platform and timber-alignment
A series of pollen profiles was taken from the Flag Fen platform westwards alongside the Flag Fen timber alignment to the dryland margin beneath the Fenedge Power Station (Scaife 2001). The deepest profile (Northey section 4) reached a basal depth of -0.26m OD and described a landscape that changed from dry, terrestrial to waterlogged over the course of the second millennium bc. The mixed grassland and oak-hazel woodland of the basin margins...
soon gave way to a developing sedge and reed swamp with a freshwater pool situated within the centre of the Flag Fen Basin, a process associated with rising base groundwater levels rather than fen encroachment from the east. This transition began to occur from about 2030–1680 cal bc (GU-5618: 3500±60 yr (Scaife 2001, 378)). The dry land became progressively and transgressively waterlogged from the centre of the basin outwards. By the Middle of the Bronze Age, at about 1530–1260 cal bc (GU-5617: 3130±60 yr (Scaife 2001, 378), there was a deep and widely developed reed swamp, with a thick alder carr woodland fringing the Fen gate and Northey ‘shores.’ The latter progressively shrank in extent throughout later prehistoric times, most probably through human management and exploitation. By the Iron Age, in the late first millennium bc, Flag Fen was characterized by a deepening and widening reed swamp but dwindling alder-willow carr with grasses predominant on the basin margins, which continued to develop until c. 400–90 cal bc (GU-5616: 2180±60 yr (Scaife 2001, 378)). This phase of reed peat development was occasionally interrupted by short-lived phases of brackish water ingress. Reed peat development slowed in the early Romano-British period, with some surface drying, before a renewal of reed peat growth and subsequent alluvial deposition of silty clays prior to drainage in the late seventeenth/eighteenth centuries AD.

Newborough Fen

A series of pollen analyses was carried out by Scaife (1993a,b) at Crowtree and Oakhurst Farms in the Newborough and Borough Fen area of the northwest Cambridgeshire fens some 5km to the north of the Flag Fen site (French & Pryor 1993, 31–57, fig. 2). The pollen sequence at both sites begins with a typical lime dominated, mixed deciduous woodland of the Mesolithic and Early Neolithic periods. An alder fen carr woodland with marshy areas and some reed peat development also existed in the vicinity. Gradually there was disturbance and clearance of this woodland accompanied by a decline in elm and then a marked change to a salt marsh resulting from a marine transgressive phase and the resultant deposition of the fen clay in the earlier third millennium bc.

Must Farm

A 3.3m deep profile through the palaeochannel directly associated with the Must Farm Late Bronze Age platform, dated to approximately 1300 cal bc (Gibson et al. 2010) revealed six pollen zones (Scaife 2010). The basal level is indicative of a damp alder carr woodland growing on/adjacent to the sample site. This was followed by a complete change in the on-site environment to a brackish salt marsh. In the immediate vicinity, a mixed pastoral and arable landscape existed with disturbed ground. Subsequently, there came a marked change to a freshwater fen reed swamp which was succeeded by a change to much wetter conditions with greater aquatic (or lake) conditions and an increase in alder, probably along the fringes of the site. Throughout, the immediate local environment of the dwelling platform was of wetland, a grass/sedge/reedmace rich fen fringed by alder, with the site itself at the water’s edge and the local groundwater table inexorably rising during its use.

The Bradley Fen pollen data – vegetation and environmental change (Rob Scaife)

A series of sediment monolith columns was obtained for pollen analysis during the excavations. These were taken from the principal stratigraphical and archaeological features observed on the site and are detailed, where appropriate, in the following chapters. Their analysis provides an insight into the changing character of the vegetation and environment of Bradley Fen and its immediate surroundings. These results may be compared with other data obtained from the Fenland as a whole (Waller 1994) and more locally from the adjacent embayment of Flag Fen and Fengate (Scaife 2001) where radiocarbon dated sequences have been obtained. Rather than provide individual vegetation histories for each of the four profiles analysed (P1–4), the broad patterns of environmental change are outlined.

The old land surface

This represents the prehistoric, Neolithic land surface which is found sealed below peat over most of the lower contours and, as such, is the level on which prehistoric activity took place. The nature of pollen in soils is different to that in peat: in the former it becomes incorporated downwards into a developing soil, whereas in the latter it occurs as a stratigraphical accretion. Thus, interpretation of the data requires a different approach, especially where the complications of differential preservation are concerned.

One factor of significance is that the pollen recovered from such soils usually reflects the vegetation growing on, or closely adjacent to, the sample site. Here, this is evident with the occurrence of pollen of lime/linden (Tilia cf. cordata). This was seen in the soils/basal mineral sediments of all of the profiles, especially in P1 and P4. Nevertheless, it is a clear indication that the dominant on-site woodland prior to human clearance was lime. This is not, however, unexpected since in recent years there has been a growing corpus of evidence showing that this was the case for most of southern and eastern England (e.g. Birks et al. 1975; Birks 1989; Moore 1977; Greig 1982; Scaife 1980; 1988; 2000). Locally, this has also been evidenced in similar buried soils at Flag Fen (Scaife 2001), Crowtree Fen (Scaife 1993a) and Deeping St. James (Scaife 1994).

Lime became important from the middle Holocene (Flandrian Chronozone II: Atlantic). The pollen is generally under-represented in pollen spectra (Andersen 1970, 1973) but is, however, robust and has undoubtedly been preserved in the soil from this earlier (late Mesolithic) period into the Neolithic, while other contemporaneous tree taxa may have been destroyed. It is noted that most of the Tilia pollen identified from Bradley Fen was poorly preserved, probably indicating a long residence in the soil. Traces of better preserved tree pollen indicate that oak and hazel were the principal remaining woodland types within the region while alder formed a locally important and expanding wetland element throughout the second millennium bc. During this period, it was probably important along the banks of rivers, streams and ditches (as evidenced in profile P2).

Overall, it is likely that this woodland was either cleared or died out as a result of the rise in the local
groundwater table. It is not yet clear which process was responsible, although the role of pastoral agriculture at Bradley Fen, evidenced by cattle hoofprints, may be an indication of the former. Pollen of grasses, plantain and other taxa within the soil attest to the open pastoral vegetational character of the soil during the period of archaeological activity. It also appears that forest clearance initiated soil deterioration with leaching and formation of a poorly developed brown earth soil.

**The onset of wetness**

Peat overlying the old land surface attests to the effects of sea-level change in the North Sea and the progressive, regional rise in groundwater tables at the same time. This caused waterlogging of the Fenland basins and the asynchronous formation of peat at differing altitudes. This event was in general, a negative hydroserese, that is, progressive change from carr woodland through to wetter and even open-water habitats. There is evidence that this occurred in Bradley Fen and Flag Fen. During the period of activity on the old land surface, there is evidence that alder existed, and as noted, was probably growing along the banks of the river and wetter boundary ditches. From this source, the alder expanded into alder carr woodland which fringed areas of developing grass/sedge fen. This occurred asynchronously at higher heights above sea-level through time. This has been demonstrated through radiocarbon dating of the peat sequences at the Flag Fen and Fengate Power Station sites from 2030–1680 cal bc (GU-5618: 3500±60 yr (Scaife 2001, 378)). At Bradley Fen, this expansion can be seen in all of the sections, where an increase in alder pollen values occurs above the old land surface (particularly in profiles P1, P2 and P4).

Subsequent to the expansion of alder, there is evidence of further, increasing wetness with a progressive change to sedge fen/reed swamp. This is suggested by the expansion of sedge and lesser and greater reedmace, but also bur-reed and other fen taxa seen in profiles P1, P3 and the upper level of P4. Pollen from later sediments (profile P5), dating from the Early to Middle Iron Age, also shows a progressive decline in tall-herb meadow communities and rising water tables indicated by bur-reed and fern spores. These indicate a post-clearance pastoral landscape of meadows and grassland with some arable activity and a little wet woodland.

**The developing vegetation and environment of the Flag Fen Basin and its immediate environs – the wider setting (Rob Scaife & Charles French)**

The following interpretative summary aims to weave the soil, vegetational and archaeological story together to chart the Holocene development of this unique landscape (Table 2.4).

**The early-mid-Holocene to 2000 cal bc**

The earliest pollen and sedimentary data from the Flag Fen Basin relate to a marine phase that existed towards the end of the third millennium bc. At this time, the River Nene was tidal, with an accompanying floodplain of saltmarsh. Eastwards, towards Whittlesey, north-eastwards towards Thorney and south/south-westwards towards Farcet, marine and saltmarsh conditions would also have prevailed in the most low-lying parts of the landscape. Sedimentary and palynological analyses indicate that this marine environment reached its maximum extent after 2175–1985 cal bc (Q-2552: 3700±60 yr) to 1665–1435 cal bc (Q-2811: 3250±70 yr) at Farcet Fen to the southwest (Waller 1994, 196) and from 2140–2080 and 2060–1920 cal bc at King’s Delph to the south (Gearey et al. 2009). It is probably from about this time that freshwater began to pond in the deepest parts of the Flag Fen Basin, leading to the advent of freshwater reed swamp and freshwater peat development.

The oldest pollen data from this context were discovered in the palaeosol in the central part of the basin. This was buried beneath the reed peat growth as the rising groundwater table led to anaerobic preservation conditions (Scaife 2001). A radiocarbon date obtained for the lowest peat in the Flag Fen Basin suggest that it was developing from 1530–1260 cal bc (GU-5617: 3130±60 yr (Scaife 2001, 378)). The buried Neolithic/Early Bronze Age land surface contained a pollen record indicating that a predominantly lime woodland existed, which also contained a variety of other woodland elements (Scaife 1992; 2001). Significantly, elm, which was an important constituent of the middle Holocene, had disappeared by this period (the Neolithic elm decline of c. 3500–3300 cal bc (Greig 1982; Scaife 1982; 1988)). Nonetheless, this leaves a substantial part of the early and mid-Holocene period unaccounted for in the palaeovegetational record and, to gain a better idea of this, one must turn to soil and palynological studies done in the near vicinity for at least an outline story to be told.

A combination of palaeosol and pollen data are available from the deeper fenland basins to the south, east and northeast (French 1988a,b; 1992; 2001a–d; 2003; Scaife 1992; 1993a,b; 2001; French & Pryor 1993; Waller 1994), as well as Horsey Hill to the south (Boreham 2009), Tower Works to the north (Boreham & Peachey 2009) and Vicarage Farm to the northeast (Scaife1998c). The Fenge fen-edge, on the northern side of the Flag Fen Basin, and the fen basin margins to the northeast and east had developed a woodland dominated by...
Table 2.4. The prehistoric landscape of the Flag Fen Basin throughout the Holocene, summarized by period (based on Boreham (this volume), French (2001a–d, 2003; this volume), Gearey et al. (2009), Scaife (2001; this volume) and Waller (1994)).

<table>
<thead>
<tr>
<th>Period</th>
<th>Site area</th>
<th>Palaeoenvironmental record</th>
<th>Soils record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Holocene/ Mesolithic</td>
<td>Old Nene palaeochannel, Magna Park, Must Farm, Bradley Fen, Fengate &amp; Flag Fen</td>
<td>Full channel width &amp; depth; developing lime-oak deciduous woodland on dry ground</td>
<td>Variable development of argillic brown earth woodland soils on gravel substrates on all ground beyond Nene River channel</td>
</tr>
<tr>
<td>Earlier Neolithic</td>
<td>Old Nene palaeochannel, Horsey Hill, Must Farm, Bradley Fen, Fengate &amp; Flag Fen</td>
<td>Further development of lime-oak woodland; lower/basal peat development from 3640–3490 cal bc (SUERC-22202: 4735±30 yr) west of Must Farm &amp; 3970–3790 cal bc (SUERC-22222: c. 5090±30 yr) to southeast of Must Farm</td>
<td>As above</td>
</tr>
<tr>
<td>Later Neolithic</td>
<td>Flag Fen</td>
<td>Post-elm decline, partly open mosaic of lime/deciduous woodland with dwindling elm with mixed agriculture land on margins</td>
<td>As above</td>
</tr>
<tr>
<td>Later Neolithic</td>
<td>Fengate</td>
<td>Lime-oak-elm-hazel woodland being cleared with cereals &amp; associated weeds (at Tower Works) by c. 2300 cal bc (Wk-13863: 3778±42 yr)</td>
<td>Opening up of argillic brown earth woodland soils</td>
</tr>
<tr>
<td>Later Neolithic</td>
<td>Old Nene area</td>
<td>-</td>
<td>Depleted brown earths &amp; rising groundwater table</td>
</tr>
<tr>
<td>Later Neolithic</td>
<td>Bradley Fen</td>
<td>Lime dominated deciduous woodland with oak &amp; hazel, &amp; alder forming an expanding wet-margin element</td>
<td>Argillic brown earth woodland soil which is being cleared</td>
</tr>
<tr>
<td>Later Neolithic</td>
<td>Must Farm</td>
<td>-</td>
<td>Truncated, rather poorly developed argillic brown earth</td>
</tr>
<tr>
<td>Later Neolithic-Early Bronze Age</td>
<td>King’s Delph &amp; Farcet Fen</td>
<td>Maximum extent of marine environment after 2175–1985 cal bc (Q-2552: 3700±60 yr) to 1665–1435 cal bc (Q-2811: 3250±70 yr) at Farcet and from 2140–2080 and 2060–1920 cal bc (SUERC-2219: 3645±30 yr) at King’s Delph</td>
<td>Tidal river and creeks with salt marsh on adjacent floodplain</td>
</tr>
<tr>
<td>Beaker/Early Bronze Age</td>
<td>Flag Fen</td>
<td>Beginning of growth of sedge fen and reed swamp, 2030–1680 cal bc (GU-5618: 3130±60 yr); steadily rising groundwater table; alder carr around basin margin</td>
<td>-</td>
</tr>
<tr>
<td>Beaker/Early Bronze Age</td>
<td>Fengate</td>
<td>Diverse open &amp; managed oak/hazel woodland with mixed agriculture land</td>
<td>Extensively cleared &amp; open grassland soils</td>
</tr>
<tr>
<td>Beaker/Early Bronze Age</td>
<td>Horsey Hill</td>
<td>Mosaic environment of mixed oak-lime-elm woodland with arable activity, wet carr woodland &amp; reedswamp, with possible evidence of woodland management; growth of upper/Nordelph peat from 2060–1920 cal bc (SUERC-2219: 3645±30) to 200–40 cal bc (SUERC-22218: 2090±30 yr)</td>
<td>-</td>
</tr>
<tr>
<td>Beaker/Early Bronze Age</td>
<td>Bradley Fen</td>
<td>Expansion of fringing alder carr &amp; grass/sedge fen on fen margin, &amp; reed swamp in lower areas to west (dated as above); increasingly open pastoral landscape on dry ground</td>
<td>Expansion of clearance and disturbance of brown earth soils</td>
</tr>
<tr>
<td>2nd millennium bc Bronze Age</td>
<td>Flag Fen</td>
<td>Deepening &amp; widening sedge fen and reed swamp, especially from 1530–1260 cal bc (GU-5617); thinning of alder/willow carr around basin margin; steadily rising groundwater table</td>
<td>-</td>
</tr>
<tr>
<td>2nd millennium bc Bronze Age</td>
<td>Fengate</td>
<td>Diverse and becoming more open &amp; managed oak/hazel woodland with mixed agricultural land &amp; extensive pasture fieldsystem; evidence of asynchronous transgression across and along the fen-edge, with alder carr woodland on fen margin</td>
<td>Sandy loam brown earth soils, probably indicative of open grassland</td>
</tr>
</tbody>
</table>
lime with oak, ash and, to a lesser extent, hazel, on a stable and well-drained argillic brown earth on the ubiquitous gravel terrace subsoils. By the time that the later Neolithic enclosures and field systems were constructed along the Fengate ‘shore’, some substantial woodland clearance inroads had been made into this environment and elm decline had already occurred. These earlier Holocene soils appear to have been stable, well-drained and not truncated or significantly mixed by human activities during the Mesolithic or Neolithic. They did not suffer any apparent degradation in terms of soil developmental changes and/or the advent of

<table>
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<th>Soils record</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd millennium bc</td>
<td>Bradley Fen</td>
<td>Further asynchronous expansion of fringing alder carr &amp; sedge fen on fen margin, &amp; reed swamp in lower areas to west; incision of tidal channel at Must Farm sometime before 1300 cal bc; continuing open pastoral landscape on dry ground</td>
<td>Brown earth soils cleared and disturbed pre-1500 bc; fen margin soils becoming leached &amp; subsumed/buried by freshwater fen environment</td>
</tr>
<tr>
<td>Later Bronze Age</td>
<td>Flag Fen</td>
<td>Widest extent of reed swamp &amp; dwindling alder/willow carr on margins</td>
<td>-</td>
</tr>
<tr>
<td>Later Bronze Age</td>
<td>Fengate</td>
<td>Dwindling woodland &amp; greater mixed agriculture land &amp; extensive pasture fieldsystem; peat growth on margin at end of Late Bronze Age from 800–400 cal bc (GU-5620; 2840±50 yr)</td>
<td>Former brown earth pasture soils, with woodland lingering on fen margin; becoming waterlogged and affected by seasonal peat growth &amp; alluvial deposition; less &amp; less extensive area of usable soils available for agriculture</td>
</tr>
<tr>
<td>Later Bronze Age</td>
<td>Horsey Hill</td>
<td>Final infilling of Nene channel with freshwater deposits</td>
<td>Truncated open grassland/meadow soils &amp; subsequent waterlogging</td>
</tr>
<tr>
<td>Later Bronze Age</td>
<td>Bradley Fen</td>
<td>Post-clearance pastoral landscape of grassland, water meadow &amp; sedges with some limited arable activity &amp; minor wet woodland</td>
<td>Argillic &amp; brown earth soils with variable disruption through human activities &amp; tree-throw; becoming waterlogged and affected by seasonal peat growth &amp; alluvial deposition; less &amp; less extensive area of usable soils available for agriculture</td>
</tr>
<tr>
<td>Later Bronze Age</td>
<td>Must Farm</td>
<td>Alder carr giving way to local salt marsh, then fen reed swamp &amp; aquatic environment; slow infilling of late stage channel with freshwater derived organic silts at Must Farm; on dryland margin change from mixed deciduous woodland to mixed grassland &amp; some arable activity with some scrub clearance</td>
<td>Change from occasionally wet occupation surface to complete waterlogging &amp; submergence</td>
</tr>
<tr>
<td>Iron Age</td>
<td>Fengate</td>
<td>Extensive reed swap with some sedges and peat growth on margin from 800–400 cal bc (GU-5620) to 410–200 cal bc (GU-5619; 2290±50 yr); followed by alluvial silt clay deposition</td>
<td>Continuing seasonal peat growth &amp; alluvial deposition affecting greater area of fen margin; disturbed and settled soils on gravel terraces</td>
</tr>
<tr>
<td>Iron Age</td>
<td>Flag Fen</td>
<td>Deepening and widening reed swamp but dwindling alder-willow carr with grasses predominant; interrupted by occasional/short-lived brackish water influence phases; continues to 400–90 cal bc (GU-5616; 2180±60 yr)</td>
<td>-</td>
</tr>
<tr>
<td>Iron Age</td>
<td>Bradley Fen</td>
<td>Continuing growth of upper reed peat and gradual encroachment onto higher land margins</td>
<td>-</td>
</tr>
<tr>
<td>Iron Age</td>
<td>Must Farm</td>
<td>Continuing slow, organic silt infilling of late stage channel</td>
<td>-</td>
</tr>
</tbody>
</table>
poorer conditions of drainage. Unfortunately, there is little in the way of definitive evidence in these soils for the actual land-use of these dryland woodland soils. There are only hints of limited arable use in the pollen record, at least for the Fengate ‘shore’, but much stronger evidence of a pastoral environment exists in the pollen (Scaife 1992; 2001), insect (Robinson 1992; 2001) and macro-botanical assemblages (Wilson 1984; Scaife 2001).

The first indication of increasing wetness occurred in the Flag Fen Basin from about 2030–1680 cal bc (GU-5618: 3500±60 bp (Scaife 2001, 378)). This contained good evidence of an alder carr woodland in a marginal or ‘skirtland’ zone around the Flag Fen Basin, with some patches of open water and reed/sedge fen in the basin itself. This may have been a region-wide response to the marine inundation phase responsible for the deposition of the fen clay in the deeper basins to the east between c. 2200 and 1800 cal bc (French & Pryor 1993; Waller 1994). Indeed, this widespread fenland event would have disrupted the outfalls of the freshwater rivers such as the River Nene, draining eastwards through this landscape. This presumably led to the initial blocking off of the Flag Fen Basin area on its north-eastern, eastern and south-eastern sides, setting in train the basin characteristics which led to the particular cumulative sedimentary history in this embayment. This was probably when the roddon and palaeochannel system at Must Farm became sluggish, leading to its gradual infilling with silty freshwater sediments. (This requires further investigation and future stratigraphic and palynological investigations of the channel will be presented in the following volume.)

At the same time, there are indications in the pollen record of major interruptions of the woodland cover with evidence of open scrubby pasture, as well as mixed arable and pastoral agriculture in the landscape. This was concurrent with the first constructions on the Fengate shore including the Grooved Ware enclosure (Pryor 1978), post-built Late Neolithic rectilinear structures (Evans & Beadsmoore 2009, 89–93) and Late Neolithic–Early Bronze Age rectilinear fieldsystems (Pryor 1978; 1980; Evans 2009a–c) – though the date of the latter are revised/contested in this volume.

The second millennium bc
The earlier second millennium bc witnessed some major changes in the landscape. Across the Flag Fen Basin freshwater reed peat growth was gathering pace and slowly but surely, creeping higher and more landward onto the infilled Neolithic period roddons and gravel terrace areas. By the middle of the millennium, there were well-established rectilinear fields over large swathes of the Fengate shore to the north (Pryor 1980; Evans 2009b,c), as well as on the eastern fringes of Whittlesey ‘island’ (this volume). Despite the increasing peat growth, underfoot wetness and regionally rising base groundwater levels, there was probably a wide skirtland zone of peat fen that would have been usable in the drier summer and early autumn months as grazing meadow. This may well explain why the Fengate Bronze Age fields were open to the fen on their south-eastern side. This seasonally available fen margin would have been a valuable natural resource. On the other hand, the pollen data suggest that alder carr woodland persisted in this fen margin area on a widespread scale, which perhaps acted as a natural boundary to the fieldsystems. It too would have been a valuable natural resource, exploited for organic building materials. There are hints in the pollen record (Boreham 2009) that it may have also have been managed to some extent, as well as acting as a wildlife refuge. Every indication within the Flag Fen Basin itself suggests that the areas of open water were deepening and widening, at least on a seasonal basis, with the extent of reed-bed peat increasing landward through time (Scaife 2001). A similar scenario would have also arisen around Bradley Fen to the south. At the same time, the woodland presence on the dryland environs was rapidly diminishing, with a decline in lime probably caused by a combination of factors including clearance, browsing and fen encroachment leading to the waterlogging of former dryland soils. There was also the more continuous presence of grasses and dryland herbs as well as cereals indicative of clearance and agriculture on a much wider scale on the dry terrace and river gravel island areas, for example on the Fengate ‘shore’, Northey ‘island’ and around the barrows at King’s Dyke. There is, however, continued evidence of woodland in the immediate higher ground hinterland, in which oak was more dominant than lime (Scaife 2001; this volume).

With the surrounding dryland landscapes now becoming demonstrably cleared, the soilscape began to alter their character to reflect these wider changes in vegetational and hydrological conditions. Although the palaeosols do not have secure indications of arable disturbance, they reflect the effects of clearance in terms of being less well developed, slightly thinner, less organic, more mixed and affected by the internal movement down-profile of fine silt and clay (French 2003; 2009a–c; this volume). There are also signs of an intermittently high groundwater table leading to much secondary formation of iron oxides and hydroxides, which may have been a major factor in making these soils less usable, and therefore also less desirable, as arable soils and inherently more suited for a pastoral role.
In the later second to early first millennia BC of the Bronze Age, two major events occurred. At the southern end of the Flag Fen Basin, a deep freshwater channel was cut through the infill sediment of its former course. The latter may have formed a meandering bank situated above the fen, acting like a natural dry causeway (Gibson et al. 2010). At the same time, base groundwater levels began to rise dramatically and much more quickly than previously. The Flag Fen Basin peats began to expand and encroach further onto the higher gravel margin land, probably with larger areas of open water, at least seasonally.

It is in this open water environment that the Flag Fen alignment(s) and platform were built, added to and repaired from about the mid-thirteenth to the mid-tenth centuries BC (Pryor 2001, 230). The Flag Fen timber alignments essentially connected the existing, bank and ditched pastoral landscapes of Northey and Fentage, which may have been marked by hedgerows (Pryor 1980; 1984; 2001; Wilson 1984). More ephemeral fieldsystems also appear to have been present on the western edge of Whittlesey ‘island’ immediately to the east of the Bradley Fen embayment (this volume). At the same time, freshwater peats were encroaching eastwards over the fen-edge fence-lines at Bradley Fen. The small subsidiary channel of the Nene over which the wooden platform at Must Farm was built continued to silt up (Robinson et al. 2015). Despite the alder carr woodland continuing to exist on the basin margins, it was beginning to thin and contain willow (Scaife 2001; 2006; this volume) and also, perhaps, to exhibit signs of human management and exploitation (Boreham 2009). This occurred against a background of the dry ground areas being an open habitat dominated by grassland and herbaceous plants, with the cultivation of cereals creating only a relatively small impact and only a minor and localized presence of oak and hazel (Scaife 2001). In places, on the margins of the higher gravel dryland, there are indications of the mixed and often alternate input of both peat growth and additions of fine sand, silt and clay minerogenic sediments to the soil profiles. This suggests that there was a seasonal input of overbank flood deposits containing eroded soils from inland and upstream at the same time as widening peat growth as base groundwater levels rose. Thus, by the beginning of the first millennium BC there had been a substantial and ubiquitous expansion of peat fen in the whole basin.

The first millennium BC

During this period, there was an intensification of fen peat development and encroachment onto higher ground on the margins of the Flag Fen Basin. The peat growth in the centre of the basin may have reached as high as 2m OD with the average groundwater table at c. 1m OD. The alder-willow carr persisted, but nonetheless slowly became more riparian and less dense. The dryland landscape, above the influence of the rising groundwater table, showed signs of agricultural intensification in the palaeo-vegetational record, in particular with an expansion in cereal cultivation. Cereal pollen percentages reach the 5% level with the addition of other weed taxa present (Brassicaceae, Polygonaceae and Chenopodiaceae) and arable weed indicators and pastoral type herbs such as ribwort plantain (Plantago lanceolata), buttercups (Ranunculus type) and docks (Rumex spp) along with grasses (Poaceae) (Scaife 2001). Together, these suggest that a mixed pastoral and increasingly arable land-use was being practised in a largely open landscape. Nonetheless, arable land-use was still relatively unimportant in this landscape. The gradual encroachment of the fen peat and rising groundwater table would have begun to drastically shrink the available dryland for both pasture and arable use. This shrinking land resource would have created wider skirtland zones of natural flood meadow.

The second half of the first millennium witnessed a similar and continued advance of peat fen development. The groundwater table would now have been in the 1–2m OD range on the terrace and gravel island margins. There is a distinct increase in the diversity of aquatic and marsh plants with a wide range of species and molluscs also represented which favoured wet mud, shallow water and wet ditches (French 1984; Scaife 2001). For the first time in this basin, there is also good evidence of fish and fowl remains at Cat’s Water, Fentage (Biddick 1984) and abundant fish at the Must Farm platform (Harland 2010). This is corroborated by the larger areas of open water evident in the centre of the basin with many semi-aquatic and marginal aquatic plants present suggesting shallow pools between areas of floodplain peat (Scaife 2001; 2006). Palaeobotanical evidence for weed species associated with arable land reached a peak in the Iron Age, a feature which continued into the Roman period (Wilson 1984). This is also corroborated by the relative increase in the frequency and diversity of herb pollen present (Scaife 2001). Nevertheless, evidence of arable agriculture (and hedgerow and woodland species’ survival) continued to be minor on the Fentage ‘shore’, although it was a more significant component at the nucleated Early Iron Age site of King’s Dyke to the east (this volume).

The alder-willow carr around the fringes of the Flag Fen Basin was also slowly, but surely, beginning to become inundated and less prevalent, giving rise to a shallow, muddy water fen community, with the groundwater level at up to 1m OD at the end of the Late Bronze Age and up to 1.4m OD at the end of the...
Early Iron Age (Scaife 2001). There may have even been occasional, brief phases of brackish water influence in both the Flag Fen (Pryor et al. 1986, 21) and Bradley Fen embayments (Scaife 2006, 2010) – events that may well have been associated with the deposition of the marine Terrington Beds in the Late Iron Age further to the northeast beyond Thorney (Hall 1987) and/or a marine incursion moving westwards up the Nene palaeochannel.

At the end of this millennium, widespread deposition of alluvial overbank silt and clay sediments began. This commenced after 400–90 cal BC (GU-5619: 2290±50 BP and GU-5616: 2180±60 BP) on the Fengate and Northey ‘horeses’ (Scaife 2001, 378–81) and strongly suggests that there was far greater uptake of land for arable usage in the immediate hinterland and in the Nene valley to the west, leading to substantial soil erosion (French 2003). Associated with this were increases in the number and frequency of herb taxa along with increases in arable and pastoral indicators in the pollen record (Scaife 2001), all suggesting an intensification of agricultural use on the dry gravel terrace areas associated with the nucleated settlements such as that at Cat’s Water, Fengate (Pryor 1980).

Flood-scape topographies

As Scaife and French’s overview demonstrates, the resolution we now have on the environmental sequence in the Flag Fen Basin is truly impressive. Indeed, there are few landscapes in the whole of Britain where a comparably detailed picture of changing environmental textures can be set against an equally impressive record of archaeological remains (although see Bell (2013)). Yet the task of marrying these two elements has never been straightforward. In fact, when reviewing the literature on the prehistory of the Flag Fen Basin, there is a tendency for ‘fen’ to be treated as an omnipresent and more or less static component of the landscape, particularly when tackling questions of economy. Although the environmental reconstruction illustrates a landscape that went from dry to wet – with fen conditions gradually emerging and peat progressively subsuming the contours of the gravel terraces – the impression is that life in the Flag Fen Basin was always played out along a fen-edge whose margins were only subtly different to the present day peat cover. For some then, it might come as a shock that there is a section of prehistory to write for this landscape without an adjacent wetland.

Counterfeit wetlands

Pinpointing the reasons why the archaeological and environmental narratives of this space often jar with one another is far from straightforward. However, many of the problems seem to stem from the difficulties we have visualizing the changing sediment history of the Basin. Though the increasing saturation story is well rehearsed, there is seldom explicit reference to exactly where the fen-edge was as at different times. This ‘where and when’ of fen has not been adequately problematized and, as a consequence, the fen seems to simply loom alongside whatever remains are recovered. Yet without a form of period-by-period wetland map, it is easy to be deceived by the juxtaposition of features and sediments in the Flag Fen Basin. Indeed, Waller (1994) cautioned against taking the relationships between Fenland environments and archaeological features at surface value:

> the distribution of a group of sites around the edges of, but not on, a body of sediment can at first sight appear to suggest that the two are contemporaneous. However, this may be illusory; the sites may pre-date the sediments, and continue to occur on the buried land surface beneath them. Waller (1994, 3)

By not understanding the history of the sediments and their extent in space and time, we run the risk of not only thinking that adjacent archaeological remains are contemporary to the sediments, but delineated by them. Put simply, things have the potential to always appear ‘fen-edge’ in this landscape unless we venture beneath the peat.

It is easy to see how this illusion has persisted. A top-down perspective was almost inevitable, as top-down is exactly how the prehistoric archaeology of Fenland has come to light (Hall & Coles 1994). Since the beginning of the first drainage schemes and the subsequent drying-out of this landscape, the process of sedimentation has gone into reverse – what was previously being covered is currently in the process of being exposed. Accordingly, traces of past inhabitation have emerged more or less in reverse order: the last things first and the first things last. The process has been relatively slow and most of the earlier prehistoric landscape still remains deeply buried. To date only the higher parts of the former land surface have been accessible and, as a consequence, our understanding suffers from a kind of upended truncation.

In adopting a top-down approach it has been possible to see most of the late things but only some of the early things, or to put it another way, the earlier the archaeology, the more partial the view. In reality, our view is truncated in both directions, as the deep archaeology is out of reach and the shallow archaeology is subject to continuing destruction. Unsurprisingly,
the archaeological focus has concentrated on the intermediate zone, a place generically recognized as the fen-edge. Here prehistory is comparatively easy to access and at the same time relatively well preserved. Alas, however, it seems we have mistaken accessibility and intactness for attributes or indicators of genuine pattern or bona fide past practice, where in reality what these characteristics actually point towards is precisely the opposite.

The much used term ‘fen-margin’ springs to mind, only this time used not to describe something situated along the edge of something else, but to describe something delineated, separated or even detached from everything else, a world observed in narrow isolation. When comprehended this way, one could suggest that our perspective has been entirely marginal. Whilst we thought we were focusing on the heart of the matter, the crucial zone in which everything that was significant resided, we were actually investigating just another space amongst many with no special claim to prominence other than being rather easy to gain access to and reasonably well preserved.

So how do we pull Fenland prehistory away from the margins and begin to implement a fully articulated

prehistory? First of all, it is imperative that we invert our perspective and start to explore this ‘unique’ environment from the bottom-up (Fig. 2.9). As Waller advocated, we need to venture below the sediment. Contrary to impression, the mantle of peat and silt has a restricted chronology and best of all, one that is wholly commensurate with later prehistory. The sediments might be geological but they date to the Flandrian or Holocene and are accordingly coincident with histories of prehistoric occupation.

Modelling the pre-Flandrian land surface (Donald Horne)

The palaeotopographic reconstruction of the Flag Fen Basin depicts the pre-Flandrian land surface (Fig. 2.11) in effect, it strips the basin of its peat and silt cover to expose the underlying, and predominantly gravel-based, terrain. The topographic model was generated utilizing 3D height data gleaned from the multiple investigations that have taken place within the embayment and its immediate surroundings. As the model clearly illustrates the bulk of the large-scale interventions occurred around the basin edge with the deeper parts of the embayment seeing relatively little

Figure 2.11. Modelling the pre-Flandrian land surface, a ‘predictive’ palaeotopographic reconstruction. The uneven distribution of height data generated an irregular point cloud that was rectified using a 20m grid and a Kriging algorithm. The Kriging algorithm was chosen because it ‘smoothes’ the result to reproduce an environment shaped by natural processes. The ensuing model incorporates both high accuracy (i.e. high volume, high precision deposit levels) and low accuracy (i.e. broad OS surface contour detail) information. With the original processing, where two sources of data overlapped, the higher accuracy level was always privileged.
work aside from occasional test-pitting programmes, borehole or dyke surveys; exceptions being the Flag Fen platform and post-alignment trenches (21) and our own Bradley Fen (9), Must Farm (23), Horsey Hill (14) and King’s Delph (22) investigations. Equally, the surrounding ‘developed’ hinterland or high-ground has been comparatively under-investigated. As a result the available height data over represent the margins and under represent the adjacent higher and lower ground. On top of this, many of the trenches and test-pits situated within the deeper parts of the basin stopped short of the pre-Flandrian surface. There has also been a tendency to consider the landscape as being essentially flat and consequently several projects recorded only minimal height detail (e.g. Daniel 2009). The absence of height data reflecting the high ground (above 5m OD) was supplemented by introducing current contour information sourced from the Ordnance Survey Pathfinder Series.

Rising waters – six flood maps of the Flag Fen Basin
The six maps (Fig. 2.12 and Fig. 2.13) represent a deliberate emulation of Waller’s lithostratigraphic and chronostratigraphic reconstructions of the Fenland Basin (Waller 1994) and as such make up a comparable series for the Flag Fen Basin and its immediate environs. As with Waller, our series suffered a little from an uneven distribution of spatial and temporal data but as they stand the maps embody the most detailed and up to date palaeogeographic reconstructions of the Flag Fen Basin. The maps differ from the sequence produced by Waller in that his series illustrated a contour representation of the pre-Flandrian land surface (Waller 1994, 64, fig. 5.13, map 1) followed by a series of 10 deposit or sediment maps which showed ‘changes in the spatial distribution of Fenland environments (the extent of both marine and freshwater sedimentation) through time’ (ibid., 65–80, figs 5.14–5.23, maps 2–11). Instead of presenting a deposit model, our series are straightforward flood maps, in that they show the loss of dry land over time as well as the approximate speed of the shifting fen-edge. The sequence spans a period of about 1500 years and records a difference of 2.00m in 50cm increments. In accordance with Clark’s Peacock’s Farm terminology, each map is more a ‘surface available for settlement’ model (Fig. 1.3; Clark et al. 1935, pl. XLVI) than it is an illustration of ‘the spatial distribution of fenland environments’ (Waller 1994, 60) and in this sense they represent a significant change in focus.

Figure 2.12. Two flood maps: pre-Flandrian and c. 2000 cal bc (Areas in black = fen sediment cover).
Figure 2.13. Four flood maps: c. 1800, 1500, 1300 and 1000-500 cal bc (Areas in black = fen sediment cover).
On Waller’s maps, dry land is, in reality, absent. Its presence is inferred, but only by showing where it is no longer, i.e. where dry land has been covered by either freshwater or marine derived sediments. The precise opposite is true of our Flag Fen Basin series, in that these images emphasize dry land in all its detail and illustrate the cover of sediment as exactly that, cover. The switch in emphasis is subtle but nevertheless interpretively important. Whereas Waller’s series serves to accentuate relative wetness, our series accentuates relative dryness. The intention here is not only to animate the processes of how spaces came to be covered but also, and perhaps more crucially, to articulate the transformation of the spaces being covered.

The six maps, as simplified spatial-temporal frames, illustrate the protracted process of land loss over time. When seen together, the sequence is reminiscent of geological illustrations depicting the formation of continents and oceans, only in this case the parting of land was instigated by increasing saturation rather than by landmasses breaking apart. With each new frame, differently shaped landforms emerge and, as part of the inexorable process of inundation, we are also able to witness large low-lying regions disappearing beneath the rising waters. Arguably, the actual timescale of the maps (six in nearly 1500 years) is more geological than it is archaeological and does not necessarily portray a lived historical process. The temporal scale of the maps stretches beyond the experience of the people that frequented these places and the transformations illustrated happened at different speeds to that of inhabitation. If we attempted to depict people and animals in the same spatial-temporal framework their movement would render them invisible. Only lasting constructions, things with extended durations such as the earthworks of monuments, fieldsystems and formalized causeways have a chance of registering in these frames.

It is extremely tempting to think of someone in prehistory being able to adopt a position similar to ourselves. A Bronze Age body situated at the centre of all six maps, just stationed there in order to observe a world speeded up and all of the time experiencing flooding, shifting environments and a steady loss of dry land. Alternatively, we could slow things right down and think about how actual patterns of occupation interrelated with this fluctuating landscape. What effects, if any, did the transformations illustrated in these maps have on the people who built the monuments, constructed the field boundaries or made the causeways? Again this is not about imagining a Bronze Age bystander passively absorbing the incremental growth of peat or stepping back to avoid the fast advancing and all-invasive tide, but about understanding and articulating the lives of people. In looking at these maps, we need to enquire, what was the frequency and tenure of occupation in these spaces during these times?

The archaeology of these spaces represents a material testimony to the loss of the lower contours of the Flag Fen Basin accompanied by the seemingly inevitable retreat of terrestrial occupation towards elevated ground (Table 2.5). The idea of a retreating occupation, however, does not adequately reflect the contextual evidence, as at different times there appeared to be a deliberate engagement with the encroaching wetness. The character of this engagement was rarely consistent, except perhaps when the pace of the inundation was slow enough to bring a sense of landscape stability. Indeed, the speed of inundation would not necessarily have seemed constant. Early on, even a slight rise in the water table would have subsumed large stretches of the lower broadly spaced contours whereas later, a similar rise would have had comparatively little impact on the higher closely spaced contours. Dependent on the contour spacing, the process of saturation and subsequent transformation could have appeared at one time extremely dramatic and at another barely perceptible. The subtlety of the contours of the lower basin demonstrate that large parts of it had the potential to ‘disappear’ almost before the eyes, whilst at the steeper island edge the transformation might have been no more than a couple of centimetres difference in a lifetime.

Table 2.5. A quantitative measure of increasing saturation in the Flag Fen Basin based on the flood map models of Figure 2.12. The table highlights the dramatic loss of dryland during the Early Bronze Age, where the subtle contours of the basin bottom were inundated relatively rapidly.

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Area of window (ha)</th>
<th>% landmass dry</th>
<th>% landmass wet</th>
<th>Area of landmass wet (ha)</th>
<th>Loss of landmass over time (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Flandrian</td>
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<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>c. 2200 bc</td>
<td>6290</td>
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<td>18</td>
<td>1132</td>
<td>1132</td>
</tr>
<tr>
<td>c. 1800 bc</td>
<td>6290</td>
<td>65</td>
<td>35</td>
<td>2201</td>
<td>1069</td>
</tr>
<tr>
<td>c. 1500 bc</td>
<td>6290</td>
<td>60</td>
<td>40</td>
<td>2516</td>
<td>315</td>
</tr>
<tr>
<td>c. 1300 bc</td>
<td>6290</td>
<td>50</td>
<td>50</td>
<td>3145</td>
<td>629</td>
</tr>
<tr>
<td>c. 1000 bc</td>
<td>6290</td>
<td>46</td>
<td>54</td>
<td>3397</td>
<td>252</td>
</tr>
</tbody>
</table>
Setting out

Having established a sense of setting for the King’s Dyke and Bradley Fen excavations, this final introductory section lays out the spatial and temporal extent of the volume and, in doing so, addresses head-on the inter-relationship between matters of scale and environment.

As detailed above, the King’s Dyke and Bradley Fen sites were situated within an exaggeratedly time-transgressive environment and, therefore, an especially fluid terrain. Here, very little remained the same and, as will be made evident, the physical ‘backdrop’ to the landscape at the beginning of one period could be fundamentally different by the start of another. Shifting too was the character of occupation, the traces of which are captured by the excavation transect, these being at times extensive or ephemeral in their nature and, at others, intensive and reiterative. Finally, as these things and the worlds they were a part of operated at varying social and geographic scales, it is proposed that an understanding of them can only be achieved through shifting landscape resolution.

In presenting the prehistoric archaeology of King’s Dyke and Bradley Fen, it is essential that we keep changing our frame of reference in order to grasp and articulate a sense of these dynamics. Our objective is therefore to describe a series of different landscapes but, at the same time, be sure that we are portraying them at the appropriate scale. In essence, this volume attempts to carry out a prehistory that joins environment with scale.

Structuring scale and environment

With these objectives in mind, our perspective on the archaeology will not only be viewed through the frame of the excavation transect, but also through three principal landscape ‘windows’ set at increasing geographical scales: 1) the Bradley Fen Embayment; 2) the Flag Fen Basin; and 3) the Lower Reaches of the River Nene (Fig. 2.14).

Although the boundaries of these frames are to some extent arbitrary, they encompass a series of different environments, topographies and, most importantly, archaeological contexts which help to understand the nature of the sites’ remains. Not all of these scales are relevant to every period or discussion in the following chapters. However, alternating between them at appropriate points in the narrative helps to convey a sense of differing social geographies.

Figure 2.14. Landscape windows: 1) Bradley Fen Embayment; 2) Flag Fen Basin; 3) Lower Reaches of the River Nene.
and their changes through time. Of course, the pace of these changes is not always commensurate with the transformation in the environment. The proceeding chapters therefore include summaries of the alterations in landscape texture, charting the transformation over time of dry places into wet places.

**Structuring text and data**

In accordance with the landscape trajectory, the chapters in this book will make a similar progression – from dry to wet – and stand, therefore, as a kind of measurement or index of increasing saturation. A marker in this narrative is therefore peat and, as will be demonstrated, evidence of prehistoric occupation survived below, within and above this most characteristic of fen deposits. Moreover, since the accretion of peat takes us from the bottom of the basin up – through time – it is logical to explore these occupations sequentially in their temporal order, with the archaeology presented in four chapters:

**Chapter 3:**

*A Pre-Fieldsystem Landscape* 2400–1500 cal bc

**Chapter 4:**

*Fieldsystem, Settlement & Metalwork* 1500–1100 cal bc

**Chapter 5:**

*Settlement in the Post-Fieldsystem Landscape* 1100–400 cal bc

**Chapter 6:**

*The Arrival of Fen-Edge Settlement* 400–100 cal bc

These chapters concentrate on the Bronze Age and the Iron Age and do not include accounts of the adjoining Neolithic or Roman periods. The archaeology of these times is described in summary at the end of the chapter, as a pair of contextual ‘brackets’ to the primary landscape narrative of Chapters 3–6. The decision to present the archaeology in this way was brought about by our landscape circumstance and, in particular, the correspondence between age and altitude. Consequently, the monograph’s temporal focus is aligned to its altitudinal focus and the layout adopted is essentially chronological.

As a landscape, the Flag Fen Basin, perhaps unlike any other, has become synonymous with its prehistoric fieldsystems, to such an extent that the two things have become virtually indivisible (e.g. Pryor 1998b; Yates 2007; Evans 2009c). The intention here is to make the prehistory of the Flag Fen Basin divisible, primarily as a means of circumventing what has become a kind of Bronze Age gridlock.

What follows then is a purposefully ‘in depth’ and disaggregated history of prehistoric occupations. If in previous narratives difference and contingency have been suppressed or undeveloped, here, such attributes are given maximum expression. Inevitably, the pulling apart of things means at times the archaeology itself can be relatively ephemeral and extensive in nature. Indeed, in virtually all periods the artefact totals are comparatively low (for example, see Fig. 2.15). Yet, this is simply another indicator of the character or qualities of occupation and cannot be taken as a barometer of significance. As such, this volume resists the temptation to amalgamate finds data across various periods and seeks instead to represent them for what they are – in some chapters encouraging material and environmental studies to ‘speak’ to more thematic topics (the specialist reports being integrated within the main body of the text). This is a far more challenging prehistory to write: one that does not seek solace in the quantitative aspect of recovery, but the qualities of past inhabitation.

**Summary contextual ‘brackets’: Neolithic (1) and Roman (2) archaeology at King’s Dyke and Bradley Fen**

1) Features of Neolithic origin were few and far between and, as a group, represented a thin ‘background’ scatter in comparison with the Bronze Age and Iron Age distributions (Fig. 2.15). All of the features belonged to the earlier Neolithic and incorporated Early Plain Bowl (c. 3800–3600 cal bc), Mildenhall (c. 3700–3300 cal bc) and Peterborough Ware (c. 3500–3000 cal bc) pottery types. The feature-set included small pits, large pits and tree-throws. The distribution of the different pottery associations showed some patterning with all of the Mildenhall occurring exclusively along the low contours and the majority of the Peterborough Ware across the high contours. The Early Plain Bowl distribution was limited to the middle-ground.

The thinly dispersed character of Neolithic features stands in contrast to the archaeology of later periods, both in terms of density and distribution. This patterning would appear to relate to the absence of an equivalent environmental frontier or fen-edge to delimit their distribution. Accordingly, the palaeoenvironmental detail for the fourth millennium bc indicates a pre-fen or terrestrial situation extending far below the contours exposed at Bradley Fen, down to at least –4m OD. The same detail can be used to reconstruct a landscape defined not by an encroaching fen but instead, by the much deeper floodplain of an early course of the Nene, as identified at the nearby Must Farm investigations (Evans et al. 2005; Gibson & Knight 2009; Tabor 2010).
Pottery
A small assemblage of Neolithic pottery (437 sherds weighing 2681g; MSW 6.1g) was recovered from 19 features. Odd pits and tree-throws, as well as later residual contexts, produced low quantities of early and late Neolithic pottery that included Early Plain Bowl, ‘Etton-style’ Mildenhall and assorted Peterborough Ware type fragments (Table 2.6).

Early Plain Bowl – open, shallow bipartite bowls
Pottery from F.280 comprised 64 sherds weighing 511g. The assemblage included plain rim, neck, carinated and rounded body fragments belonging to two, possibly three, different vessels. The bulk of the sherds came from at least one undecorated carinated bowl with an open and shallow bipartite profile and a simple everted rim (diameter 34cm). A single out-turned rim sherd represented the obvious remains of a second vessel. All of the sherds were made of a soft to medium hard fabric with regular small, medium and large voids (dissolved shell?; Fabric 8). The surfaces of several of the pieces were pitted and generally the material had a corky appearance. The material from F.978 shared the same fabric although appeared to belong to slightly more neutral form with a simple rim.

Mildenhall (Etton-style) – neutral, deep bag-profiled shouldered bowls
Pottery from F.1271 comprised 76 sherds weighing 412g. The assemblage included rim, neck, shoulder and body fragments belonging to two, possibly three, different vessels. A pair of refitting flattened, ‘heavy’ out-turned rims (diameter 36cm) represented one vessel and one of these rims retained faint traces of diagonal incised lines across its top. Refitting flat or upright neck fragments with remnants of an out-turned rim along the top and hints of a slight shoulder along the bottom represented a second vessel (diameter 34cm). The fabric was soft to medium, corky, and very similar to the fabric associated with the carinated forms from F.280 (Fabric 8). The material from F.1184 shared the fabric (Fabric 8).

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<td></td>
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</tr>
<tr>
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<td>50g</td>
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Peterborough Ware

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**Figure 2.15.** Prehistoric pottery totals by period (weight and sherds).

Table 2.6. Neolithic pottery (* denotes residual context).

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TOTAL 437 2681g
Figure 2.16. Neolithic archaeology at King’s Dyke and Bradley Fen.
The large watering hole/pit F.1278 produced a diminutive assemblage of small body sherds that included a possible shoulder fragment decorated with incised slashes. All of the pieces were made with the same crushed shell-abundant medium hard fabric (Fabric 6). The only other feature to produce unambiguously Early Neolithic pottery was pit F.1257. The assemblage consisted of an upright, externally thickened rim alongside 59 plain body sherds that weighed a combined total of 303g.

**Peterborough Ware**

The Peterborough Ware assemblage consisted of small abraded pieces with exaggerated rim forms, deep necks, pronounced shoulders and profuse decoration characteristic of the type. The fabric varied, but more often than not included fragments of calcined flint and/ or small linear voids (dissolved shell). Feature sherds included 14 rims, 8 shoulders and a total of 29 decorated pieces. The decoration occurred on the rim, upper neck and shoulder and comprised designs executed with combinations of incised lines (F.293), whipped-cord (F.381, F.424), fingernails (F.424), short stabs (F.293, F.982), impressed reed (F.424) or shell impressions (F.381). The designs were carried out in simple horizontal rows or as herring-bone. A few small abraded sherds were retrieved from tree-throw F.1250 including two decorated pieces, one of which was a slightly out-turned and rounded rim. Both sherds contained small rounded stabs or reed impressions and the rim also had short vertical incisions. Crushed calcined flint formed the opening material for these sherds (Fabric 11). A fragment of a T-shaped rim sherd was recovered from a surface context close to the southern circumference of the henge and a pit (F.894), located beneath the position of the southern bank of the henge, produced a single sherd of flint tempered ware. 20 residual sherds of Fabric 21 were retrieved from a Roman well context (F.507) and included a T-shaped rim sherd decorated with whipped cord impressions in a herring-bone motif along its top and sides.

**Flint**

Small assemblages of worked flint of Neolithic date were recovered from features, deliberately cut pits or natural features, especially tree throws (Table 2.7). The two largest assemblages came from Peterborough Ware associated deposits but smaller assemblages were found associated with Early Neolithic pottery and without secure ceramic associations.

### Table 2.7. Flint assemblages from Neolithic features (*excluding chips*)

<table>
<thead>
<tr>
<th>Ceramic association</th>
<th>Early Neolithic</th>
<th>Peterborough Ware</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>978</td>
<td>1278</td>
<td>1250</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chip</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Chunk</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Flake</td>
<td>6</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>Blade/bladelet</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Narrow flake</td>
<td>3</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Core fragment</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Flake core</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Retouched flake/blade</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Serrated flake/blade</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Piercer</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Plano-convex knife</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chisel arrowhead</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Laurel leaf</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Side scraper</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sub circular scraper</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Side and end scraper</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total worked</strong></td>
<td>12</td>
<td>5</td>
<td>55</td>
</tr>
<tr>
<td><strong>Burnt unworked flint (g)</strong></td>
<td>1 (1.3)</td>
<td>2 (26.1)</td>
<td>10 (31.6)</td>
</tr>
<tr>
<td><strong>Burnt and worked (%)</strong></td>
<td>3 (25)</td>
<td>0</td>
<td>10 (18.1)</td>
</tr>
<tr>
<td><strong>Broken (%)</strong></td>
<td>2 (16.7)</td>
<td>3 (60)</td>
<td>15 (31.3)</td>
</tr>
<tr>
<td><strong>Retouched (%)</strong></td>
<td>0</td>
<td>1 (20)</td>
<td>5 (10.4)</td>
</tr>
<tr>
<td><strong>Unretouched utilized (%)</strong></td>
<td>1 (8.3)</td>
<td>0</td>
<td>5 (10.4)</td>
</tr>
</tbody>
</table>
Early Neolithic

Two pits associated with Early Neolithic bowl pottery contained small flint assemblages, F.978 and F.1278. An assemblage of 12 worked flints was recovered from pit F.978, consisting entirely of unretouched flakes and blades. Fine secondary and tertiary removals dominate with a clear emphasis on blade and narrow flake production. Over half of the striking platforms have been carefully trimmed to remove overhangs and strengthen the platform edge and there is evidence for the occasional use of soft hammers. A single narrow flake bears macroscopically visible traces of use along one edge. Pit F.1278 contained only five worked flints including two thin tertiary waste flakes and a broad flake minimally retouched to form a point or piercer.

Peterborough Ware

A total of 128 worked flints were recovered from Peterborough Ware associated features, all from Bradley Fen. The most substantial assemblages were recovered from pit F.424 and tree throw F.1250. The raw material from F.1250 was of very high quality, much of it chalk flint. Several of the flakes appear to have come from the same nodule but no refits were possible. Narrow flake blades are well represented, often with carefully trimmed platforms and marginal striking platforms. Secondary, partly cortical, flakes dominate the assemblage and judging by the fine dorsal scars on some of these flakes and the high quality of the knapping it seems that the later stages of core reduction are underrepresented. The assemblage does not solely represent working waste, with a high proportion of utilised and retouched pieces. Fine narrow flakes and blades were clearly favoured for use. Most were used in an unmodified state, although a single example is serrated and two show limited retouch as well as utilisation. These relatively informal tools are accompanied by a sub-circular scraper and a fine bifacially flaked laurel leaf. The laurel leaf is made on a distinctive orange flint, standing out dramatically from the rest of the assemblage, which is almost exclusively of dark grey/black flint. This recalls the Early Neolithic assemblage from Hurst Fen, where it was suggested that orange flint was selected for, or restricted, to the manufacture of arrowheads and laurel leaves (Clark 1960, 216, fig. 9). The assemblage from pit F.424 offers something of a contrast with the material from F.1250. Raw material is, again, generally of very high quality, but the range of different materials in terms of quality and colour is greater. Blade and blade-like pieces are present in smaller numbers, including three large narrow flake blades, but the emphasis of core reduction is predominantly flake based. Platform trimming is rare and plain platforms predominate. Several of these may represent thinning flakes from working bifacial tools but most appear to be deliberate blanks produced from prepared platform cores. The two complete cores are both flake cores with multiple platforms. Representing the final stages of core reduction, both have been heavily exploited, with an average weight of just 10.3g. There are few retouched pieces in the assemblage — a side and end scaper on a mostly cortical flake and one of the large narrow flakes, which retains visible serration on one edge. A high proportion of the unretouched flakes show clear evidence for utilisation, with a clear preference for the more carefully produced pieces including blades, narrow flakes and pieces struck from prepared platforms.

The remaining Peterborough Ware associated assemblages were small, consisting exclusively of unretouched flakes, invariably of good quality flint. Posthole F.982 and tree throw F.687 contained several broad, relatively thin flakes, some with faceted platforms, reminiscent of the technologies seen in pit F.424.

The larger Peterborough Ware associated assemblages from F.1250 and F.424 share many characteristics, including the use of high quality flint, some demonstrably from a primary chalk source, and a structured and controlled approach to core reduction. The assemblages also have a similar composition, with partly represented reduction sequences and well used, generally informal, tools. A high proportion of both assemblages have been burnt, indicating that some parts of the assemblage have been caught up, probably inadvertently, in other settlement activities prior to their deposition. Differences between the assemblages become more apparent at a technological level (Table 2.8). The material from F.1250 is in many ways typical of earlier Neolithic blade-based technologies, together with the laurel leaf, a classic earlier Neolithic form. In contrast, the assemblage from F.424 shares more traits with later Neolithic technologies, which see a marked shift towards the production of broader flakes and the use of prepared core technologies and classically Levallois-style flake production.

Other Neolithic features

Several other features contained small assemblages of flint of probable Neolithic date but lacked ceramic associations. Tree throw F.1274/5 contained only six flints but had high percentage of blade based removals with carefully trimmed platforms, characteristic of earlier Neolithic technologies. Two pieces had been utilised and two were serrated. Tree throw F.1277 also contained a probable earlier Neolithic assemblage comprising blades and narrow flakes alongside waste flakes and cores. The upper fills of pit F.378 contained a probable earlier Neolithic assemblage made up entirely of unretouched flakes; several were fine narrow secondary and tertiary removals and five flakes showed careful platform trimming. Pit F.260 contained two Neolithic transverse arrowheads. The arrowheads were very similar in form, both were made on thin flake blanks, truncated by abrupt retouch. Despite their similarity in form, they had passed through different pre-depositional processes, one being burnt while the other was in fresh condition.

2) The Roman archaeology at King’s Dyke and Bradley Fen had four principal components – quarry, roads, fieldsystem and small-scale settlement. The relationship between the quarry and the roads was straightforward, as the former supplied the aggregate for the
Figure 2.17. Roman archaeology: top, Bradley Fen and Kings Dyke; bottom, The Fen Causeway and the Flag Fen Basin. The course of the Fen Causeway in relationship to the Flag Fen Basin is known to be very close to the route of the Bronze Age Flag Fen post-alignments (Pryor 2001, 80, fig. 5.1; Britchfield 2010, 31–38). The Fen Causeway shared the same ‘shortest point’ east to west crossing (Northey ‘landfall’ to Fengate Power Station) and it has been postulated that the Roman road utilized protuberant elements of the earlier avenue (Britchfield 2010, 35–36). The bifurcation of the Fen Causeway shown at Bradley Fen and King’s Dyke would appear to reproduce an equivalent configuration to that recorded on the opposite side of the basin at Fengate. The Storey’s Bar Road sub-site exposed a droveway of road-like proportions that ran parallel to the causeway revealed at Newark Road (Pryor 1984, 229).
construction of the latter. Two ‘main’ roads (11.0–14.0m wide) and an adjoining side-road (4.2–5.1m wide) were identified. The main roads, one at Bradley Fen and one at King’s Dyke, ran roughly parallel to each other and both persisted as partially preserved gravel-rich ‘aggers’ with ditches on either side. The Bradley Fen side-road was ditched but had no agger, although remnants of a metalled surface survived in small hollows along its route. The parallel ditches that accompanied the main routes were recut numerous times and, as a consequence, the King’s Dyke stretch of road narrowed considerably over time (14.0 to 4.0m wide). Elements of a fieldsystem abutted the main roads and comprised a collection of small, discrete roadside enclosures or paddocks as well as larger, extensive ditch-defined fields. The smaller paddocks were focused exclusively along the King’s Dyke road section and coincided with discrete ‘settlement’ features such as large wells, furnace-like features and rubbish pits. A dark soil or rich, black ‘loam’, full of comminuted organic matter and charcoal, overlay the paddocks and northern half of the King’s Dyke road; this deposit also incorporated large quantities of fragmented pottery, as well as an assemblage of coins, the majority of which dated to the third century AD. Settlement features at Bradley Fen included a post-ring and associated eaves-drip gully as well as a set of short, curvilinear enclosure ditches. These features were situated away to the west of the side-road but immediately adjacent to the outer limits of the aggregate quarry.

The bulk of dateable material came from King’s Dyke which, in association with the site’s greater stratigraphic detail, indicated a three-phase development sequence: 1) AD 43–150 (construction of Fen Causeway and its early history including a pottery kiln and roadside burial); 2) AD 150–250 (first roadside enclosures and paddocks); 3) AD 250–350 (narrowing of road, new enclosures/paddocks and manifestation of dark soil). The Bradley Fen road development sequence suggested a similar first century inception (as indicated by the related large-scale quarrying activity) and subsequent late second/early third century ‘enclosure’ activity, but without the late third/early fourth century settlement/dark soil conclusion.
Chapter 3

A pre-fieldsystem landscape

Chapter 3 is the first of the four evidence chapters and, as its title suggests, presents Bronze Age landscapes that existed prior to the imposition of mid second millennium BC field boundaries. In its narrative structure, the chapter offers contextual detail on three principal feature groups revealed: Monuments, Early Settlement and Watering Hollows and Burnt Mounds. In chronological terms, the majority of the features belong to the Early Bronze Age, though some of the metalled surfaces revealed traces of earlier occupations.

As well as presenting material in a broadly chronological order, the chapter offers the first real chance to illustrate how this landscape has its own intrinsic spatial-temporal coherency, which can be drawn upon to articulate different occupations and activities. It demonstrates how subtle changes in altitude can correspond to a change in time and how particular deposits can separate things into their authentic temporal order. This is crucial. In gathering together all of the pre-fieldsystem features and presenting them as seen through the King’s Dyke and Bradley Fen excavation apertures, there exists a very real danger of assembling compelling spatial constellations out of things that were once temporally distinct. The task, then, is to work against this foreshortening effect by placing the emphasis as much on temporal duration as on spatial extent. To do this it is vital to explore patterning in the vertical as well as the horizontal; the result being that seemingly ‘self-evident’ relationships begin to dissipate and become less certain or fixed.

Describing the pre-fieldsystem archaeology also presents an opportunity to put into practice ideas about how the disassembly of palimpsest makes possible a much clearer comprehension of tenure. Part of the reason for approaching the archaeology this way is to establish a contrast between this chapter and those subsequent, on the premise that the features described here may have belonged to a kind of long fallow system of landscape inhabitation, as opposed to the kind of short fallow systems described in the later chapters. This is a deliberate consideration of Barrett’s ideas about tenure and different intensities of land-use as defined by the length of time things were allowed to go fallow (Barrett 1994, 143). In keeping with Barrett’s understanding, the use of the terms long fallow and short fallow are taken beyond the ways and means of cultivation and applied to other types of landscape ‘use’ or tenure, such as the building of monuments, the burial of the dead and, most crucially, the movement of people and animals. If the features incorporated in this chapter shared anything, it was a sense of cumulative practices dislocated by extended periods of inactivity. Similarly, the dispersed character of the archaeology would appear to be a direct manifestation of extensive, rather than intensive, systems of occupation equivalent in many ways to much earlier traditions. To borrow from Thrift, as places in the landscape, these features represent ‘stages of intensity’ (1994, 212–13 our emphasis) and are tangible ‘traces of movement, speed and circulation’ as much as they are the remains of past practices. As with Pollard’s thoughts concerning settlement practices in the British Neolithic, we also identify ‘temporality and mobility’ as well as scale as key areas when it comes to appreciating settlement as social practice (Pollard 1999, 77–79).

Topographies and environments c. 2200–1500 cal BC

It has been proposed that there were three main kinds of wetlands – peat bogs, sedimentation basins
Chapter 3

Fen Basin and The Lower Reaches of the River Nene); the key geographical focus throughout being the Flag Fen Basin, in all of its different ecological guises.

The Flag Fen Basin (c. 2200–1500 cal bc) – from marine conditions to fen encroachment

At the start of the sequence considered in this volume, the Flag Fen Basin was predominantly free draining with only the very deepest contours (below -1.00m OD) submerged (Fig. 3.1). Toward the close of the third millennium bc, the adjacent stretch of the River Nene was tidal and estuarine, with an accompanying floodplain that was largely made-up of salt marsh.

The same marine conditions pervaded within the low areas between Thorney and Whittlesey, whilst reed swamp (initiated by localized ponding rather than direct fen encroachment) began to invade the deepest parts of the Flag Fen basin (Scaife 2001, 351–81). Sediment and pollen analysis carried out at King’s Delph as well as 4km to the south at Farcet indicate that this marine environment reached its maximum extent sometime after 2140–2080 and 2060–1920 cal bc (Geary et al. 2009) and 2175–1985 cal bc (Waller 1994, 191) respectively. Both dates were obtained from the base of the upper peat which overlay the marine clays. At King’s Dyke the peat/marine clay contact was located at -1.55m OD whilst at Farcet it was -1.03 to -1.05m OD.

Most importantly, in terms of the basin reconstruction, it would appear that apart from the channel corridor, the landscape was dry and as yet unaffected by the adjacent, encroaching fen. Indeed the pollen and buried soils suggest that the high ground, including large parts of the basin itself, was characterized by areas of well-drained brown earth soils. These are indicative of a landscape composed of mixed deciduous woodland (French 2001d, 400–01), which, since the Neolithic, were subject to episodes of ongoing forest clearance and the subsequent establishment of open pastoral vegetation (Scaife 2001, 351–81).

By c. 1800 bc, the infringement of true fen conditions along the Nene Valley corridor as well as the deeper contours to the north of Whittlesey Island was well underway (Fig. 3.1). The silts that had characterized the presence of salt marsh in these spaces were now being succeeded by steady peat growth. The consequent increase in the water table encouraged further localized development of wet reed swamp (dated to 2030–1680 cal bc (ibid.)) which in turn led to the formation of a large lagoon or pool situated more or less centrally within the Flag Fen Basin. At the same time, the Bradley Fen Embayment was becoming a much more prominent feature. Concurrently, the accompanying pollen sequence indicates the formation of wet woodland along the fringes of the river corridor as

Figure 3.1. Pre-Flandrian landscape c. 2200–1500 cal bc. Dashed line delineates -1.0m OD contour and land-edge delineates ordnance datum.

and drowned land – ‘each with its specific qualities and restrictions’ (Kooijmans 1999, 109). Of these three categories, it is the last that best represents Bradley Fen and King’s Dyke. As a category, it combines both the wet (water) and the dry (land), with the former condition inexorably transforming the latter. In addition, as a category, drowned land shares exactly the same spatial-temporal trajectory as our publication – from dry to wet. As stated before, this trajectory is our scale and consequently, out of all of the chapters presented in this publication, Chapter 3 is by far the driest.

Before embarking on descriptions of the contextual evidence, it is imperative to outline the wider landscape setting; the topographies and environments which characterized the site and its immediate surroundings in the late third and early second millennium bc. Here we present a series of brief summary ‘snapshots’ of what was a fluid landscape, the texture of which was radically transformed over the course of the period in question. Clearly, this was anything but a static backdrop to occupation and this dynamic can be described across different scales including in relation to the three principal landscape frames outlined in the previous chapter (The Bradley Fen Embayment, The Flag
De Vareilles and Ballantyne’s reconstruction of the immediate environs of sampled features can be used to generate a series of landscape textures or environments contemporary with Early Bronze Age occupation (indicated by features shown in black). The plant remains derived from the King’s Dyke monument contexts included ‘successional plant communities’ indicative of disturbed or cleared ground whereas the upper slopes of Bradley Fen yielded plant remains symptomatic of sandy, well-drained and nutrient-rich soils coinciding with cultivated seeds and arable weeds. At the same time, the lower end of Bradley Fen was becoming damp but not yet waterlogged woodland. The intervening embayment zone (below -0.40m OD) was wet and frequently underwater whilst its immediate fringes were subject to seasonal flooding. Formally, in the Neolithic, the lower contours were dry and colonized by oak woodland and grassland. Subsequently, in the Middle Bronze Age, the same zone became waterlogged and dominated by alder carr. The Early Bronze Age pre-fieldsystem low zone was a landscape in transition – neither completely dry nor entirely wet.

Figure 3.2. Changing textures – transitional landscape c. 2200–1500 cal bc.
Figure 3.3. Pre-fieldsystem landscape – Bradley Fen and King’s Dyke excavation areas with schematic transect. Note the vertical scale is greater than the horizontal scale.
well as around the intervening skirtlands associated with the encroaching fen.

Shifting resolution, the Bradley Fen Embayment appears to replicate the broader environmental history of the Flag Fen Basin in microcosm (Fig. 2.13). The deepest parts of this landscape (at c. -1.00m OD) have revealed a sediment sequence equivalent to the series recorded within the Nene corridor, only at a greatly reduced scale. The presence of a thick band of fen clay demonstrates that a salt marsh environment had also once persisted in and around the mouth of the inlet around c. 2200 cal bc. Similarly, along its ‘higher contours’ (0m OD) ongoing work on the soils and pollen profiles suggests the area was also characterized by well-drained dry woodland soils with patches of open vegetation.

By the opening of the second millennium bc, fen had encroached within the embayment. Conditions conducive to invasive reed swamp development had emerged, as reflected by the presence of a myriad of preserved reed cases found throughout the lower contours where they penetrated the old land surface. Slightly higher-up, on what might be described as the embayment’s own skirtland, damp and wet woodland was beginning to circumscribe its margins. Higher still, the evidence points towards well-drained nutrient-rich soils suitable for dry arable cultivation, within areas previously stripped of their forest cover.

At the more concise ‘site’ scale of Bradley Fen and King’s Dyke, it is possible, drawing upon the pollen, soils and plant remains, to map a mosaic of environments ranging from disturbed scrubland on the highest ground to standing water on the lowest (Fig. 3.2). The intervening spaces included seasonally flooded margins as well as damp woodland/pasture. Higher up successional plant communities indicative of disturbed or cleared ground bordered well-drained, nutrient-rich soils, with features containing cultivated seeds and the remains of arable weeds. Formally, in the Neolithic, Bradley Fen’s lowest contours were dry and colonized by mixed deciduous woodland interrupted by areas of grassland. But by the Middle Bronze Age, the same zone had become waterlogged and dominated by alder carr. Temporally situated between these, the Early Bronze Age pre-fieldsystem low zone was a landscape in transition – neither completely dry nor entirely wet.

The challenge now is to re-situate monuments, early settlement, burnt mounds and watering hollows into this fluid terrain and, at the same time, articulate how these things related to its ever-changing textures (Fig. 3.3). Crucially, attributes of particular features were straight reflections of the different qualities of the landscape during these times. The Flag Fen Basin was made-up variously of dry-space and wet-space architectures: a place where certain types of features ‘favoured’ free-draining locations whilst others ‘preferred’ increasingly wet ground. Accordingly, our narrative begins at the driest end of this ‘hydrological’ spectrum and opens with the monuments. It then moves to examine settlement remains, before culminating in a description of the burnt mounds and watering hollows. However, the connections between these features and individual spaces are also explored, with the intention of linking contemporary processes and patterns of movement in the landscape.

Monuments

The King’s Dyke henge and barrow group represents the first major monument complex to be excavated in the Flag Fen Basin since E.T. Leeds’s investigations of the Eye barrow group at the beginning of the twentieth century (Leeds 1910; 1912; 1915). In addition, their discovery adds to an ever-increasing distribution of ‘new’ monuments both within and around the basin. In combination, the emerging monument pattern is beginning to illustrate a previously unacknowledged and deeply buried facet of this landscape’s history. In view of this, the morphology and chronology of the King’s Dyke complex have important implications for the way in which we might understand the broader relationship between monuments and the Flag Fen Basin.

Four monuments were revealed by the excavations, all confined to the most elevated contours of King’s Dyke (Fig. 3.4). The group comprised a Class II henge with internal pit-circle, two round barrows (Round Barrow 1 and Round Barrow 2) and a diminutive ring-ditch. Both barrows were constructed over central inhumations whilst secondary/satellite cremations occurred inside, around and between the monuments. Non-monument-related burials of this period also occurred across both King’s Dyke and Bradley Fen, including both inhumations and cremations (4 in total).

The monuments are described below by order of size, whilst the inhumations and cremations are presented either by context (e.g. Round Barrow 1) or as part of the isolated burial groups.

The henge and pit-circle

Henge

The henge was 30.80m in diameter and consisted of two large C-shaped ditches, F.851 and F.857 (Fig. 3.5). The gaps, or causeways, between the two ditches measured 7.40m in the southeast and 7.80m in the northwest. The
ditches were of equivalent size to each other displaying steep V-shaped profiles, narrow bases (average width: 2.28m; average depth: 1.29m, see Table 3.1) and similarly shaped rounded terminals, lending symmetry to the monument’s overall appearance.

The initial infilling sequence for the ditches was consistent and asymmetric with edge erosion deposits, comprising major slumps of fine silty-sand from the interior edge, overlapping with minor slumps of coarse gravel from the exterior (both regularly interrupted by pockets of slow-accumulating silt; Fig. 3.6). Higher up

Table 3.1. Henge ditch dimensions.

<table>
<thead>
<tr>
<th>Slot</th>
<th>Feature</th>
<th>Context</th>
<th>Width (m)</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
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<td>851</td>
<td>1076</td>
<td>2.32</td>
<td>1.32</td>
</tr>
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<td>B</td>
<td>851</td>
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<td>2.48</td>
<td>1.35</td>
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<tr>
<td>C</td>
<td>851</td>
<td>1087</td>
<td>2.38</td>
<td>1.40</td>
</tr>
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<td>D</td>
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<td>E</td>
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<td>1089</td>
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</tr>
<tr>
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</tr>
</tbody>
</table>

![Figure 3.4. King’s Dyke monument complex.](image)

![Figure 3.5 (opposite). King’s Dyke pit-circle and henge overall plan. (Collared Urn capping deposit highlighted); plus plans of pit-circle and henge and relative distribution of capping deposit.](image)
A pre-fieldsystem landscape
Figure 3.6. Pit-circle and henge sections; includes schematic reconstruction of combined depositional sequences of ditches F.851 and F.857.

Of note is the south-eastern terminal of F.851 (Slot G), where one of these charcoal lenses was substantial and included a pattern of overlapping pieces of compacted charred wood. Other finds from the lower half of the ditch profile comprised five pieces of Neolithic flint derived from the early outer-edge erosion slumps in the profile, as the ditches splayed outwards, silt pockets of increasing thickness accumulated, indicating longer periods of stability between punctuated moments of edge erosion. Occasionally small lenses of charcoal accompanied the upper profiles of the silt deposits, but otherwise direct evidence of adjacent activity was rare.
Slot C. Elsewhere, very small amounts of worked flint and butchered animal bone (8 and 6 pieces respectively) were recovered from the upper silt deposits in Slots D of F.851 and Slots J, K and M of F.857. Such small quantities would appear to be representative of the scale and character of deposition during the early 'use' of the henge.

In stark contrast, the very top of the southern ditch was capped with a dark 'midden'-like deposit (blackish-brown sandy-silt with abundant charcoal) that included a comparatively rich array of finds; five 1m wide sample slots produced 45 sherds of Early Bronze Age pottery (Collared Urn), 73 pieces of worked flint, 74 pieces of animal bone (including calcined pieces) and 12 fragments of burnt clay. Generally the appearance of the capping fill and its material content made it comparable with the backfills of the Collared Urn settlement pit clusters located about 160m to the east (described below). More significantly, the same capping deposit was not obviously present along the northern ditch of the henge, but was identified within the tops of the internal pit-circle.

Concentric monuments – henge and pit-circle

Superficially, the pit-circle and henge have the appearance of a single unified monument, with one being arranged inside the other (Fig. 3.7). The external diameter of the pit-circle corresponds almost exactly with the internal diameter of the henge, whilst both shared the same dominant northwest–southeast orientation. Crucially, the two features abut rather than overlap, which, as a consequence, means that it is not immediately obvious what sort of temporal gap, if any, might have existed between their construction: were the pit-circle and henge built together or one after the other? A lack of material culture from the basal contexts also adds an opacity to the order of things. The presence of fragments of Early Bronze Age pottery as well as worked flint from the uppermost fills of both the henge and the pit-circle, demonstrated that the latter stages of both features were contemporaneous.

Initially, it looked as if the henge was built after the pit-circle as the ditch appeared to just truncate the fringes of Pits 5 and 9. However, on closer scrutiny this 'stratigraphic relationship' is far less secure than first appeared. For instance, it is equally possible that the pits were dug up against the weathered internal circumference of the henge ditches and had therefore acquired the appearance of being 'cut' by the further erosion of its internal edges. Similarly, since the former presence of external up-cast banks can be deduced from the slumping patterns observed in both ditches, it is arguable that their location would have structured any subsequent elaboration of the
Analogous examples dictate that post-circles precede henges (Barclay 1983; Gibson 1998) and so following this model it is, on balance, the more likely sequence. Of course, this interpretation hinges on the status of the pit-circle as a post-ring, for which the evidence is admittedly inconclusive. Nevertheless, the uniform spacing of these features combined with the elaborate ‘porch-like’ arrangement does suggest that the pits were never just backfilled hollows, but settings for timber uprights. Thus, it can be argued that the circle did indeed precede the earthwork and that, as an architectural feature, this ring of posts also became the context for the building of a henge.

It is worthwhile reflecting on what the artefacts recovered from these architectures reveal about the nature of activity. In general, the distribution of material from the henge and pit-circle indicates varying intensity in activity. What began somewhat quietly in terms of material accumulation ended with what amounts to a ‘Collared Urn flourish’ – a flourish that perhaps coincided with the deposition of whole Collared Urns into, and around, the neighbouring barrows (discussed below).

As will be shown, the earlier depositional history of the henge and that of the adjacent barrows were comparatively uneventful, beyond slumping caused by weathering, silt accumulation during periods of standstill and the formation of occasional, diminutive lenses of charcoal, blown in from adjacent activities (Table 3.3). From this perspective, there was very little to distinguish the different monuments other than the effects of time.
The round barrows and associated ‘cemetery’

The linear arrangement of monuments at King’s Dyke was completed by a series of three ring-ditches or barrows, two of which were exposed in the investigations (Round Barrow 1 and Round Barrow 2); the third evidenced as a cropmark to the north of the site (Round Barrow 3). The two barrows excavated in the project share the same distinctive penannular, or causewayed, ring-ditch plan: Round Barrow 1 oriented southeast and Round Barrow 2 oriented northeast. The enlarged Round Barrow 1 all but abutted the south-eastern circumference of the henge, whilst Round Barrow 2 was located nearly 55m to the southeast. Between these two barrows was situated a small flat ‘cemetery’ comprised of two cremations (one of which was contained within a pot) and three empty inverted urns. These were accompanied by two Deverel-Rimbury type cremations buried high up within the southern arc of the Round Barrow 1 ring-ditch.

Round Barrow 1

Round Barrow 1 consisted of a central inhumation, F.795, a post-ring, F.758 and a penannular ring-ditch F.761 (Fig. 3.8). Three cremations were present: one immediately inside the southern arc of the post-ring F.755 and two situated within the upper fill of the southern part of the ring-ditch, F.812 and F.813. No barrow mound survived although circumstantial evidence suggests that one did exist.

The central inhumation, F.795, consisted of a large, oblong grave pit (dimensions: 2.30 × 1.40m; depth: 0.77m) at the base of which was a small rectangular grave-shaped cut oriented northeast–southwest (dimensions: 1.50 × 0.60m; depth: 0.22m). The lower grave cut contained a single tightly crouched inhumation (length: 0.70m; width: 0.40m), positioned on its right-hand side (Fig. 3.9). The head was located at the south-western end of the cut, facing towards the southeast, with the hands raised upwards towards the face. Behind the head, approximately 0.05m from the skull, was a small flint knife.

The body was surrounded by a dark black humic material which was discrete to the lower grave cut and distinct from the main grave fill. This material was found to both cover and underlie the skeleton and would appear to represent traces of a small log coffin that had decayed to the point where it collapsed under the weight of the upper grave fill.

Round Barrow 1 primary inhumation F.795 – Sub-adult (Natasha Dodwell)

The body, aligned southwest–northeast, lay tightly crouched on its right side with its head in the southwest of the grave. The skeleton was fragmentary, with many post-mortem breaks, and the cortical bone was extremely abraded. Much of the face and all of the vertebrae were absent. There was a septal aperture, a non-metric trait more commonly, but not exclusively, found in females on the left humerus. The dentition was complete except that the third molars were unerupted. No pathological changes were observed.

Encircling the inhumation was post-ring F.758, an 8.25m diameter post-trench averaging 0.50m in width and 0.90m in depth. The cut of the trench, the profile of which displayed a vertical outside edge and angled inner face, was filled with a post-packing soil matrix preserving a series of clear post-pipes (0.25–0.35m diameter) located tight against the exterior wall of the trench. The excavation of eight 1m-wide slots at cardinal points around the trench circuit revealed a total of 23 post-pipes. All were of irregular size and shape; some being full-circles others half-circles. The base profiles of the post-pipes suggested that the uprights had rounded rather than pointed ends. The gaps in-between post-pipes varied with some touching while others were separated by up to 0.30m.

Located just within the post-ring was a partially truncated cremation F.754/755 that had been so badly disturbed by later ploughing that there was no obvious definition of a cut feature. The interment comprised two clumps of calcined bone found together alongside a flint knife and sherds from a possible Collared Urn, which may have once served as a receptacle for the bone.

Table 3.3. Distribution of principal materials in F.851 and F.857 (greatest quantities highlighted). The distribution of material culture, charcoal and charred plant remains can be separated into three groups: henge, pit-circle and capping fill. The last of these categories affected the other two in that it topped or covered parts of both and as such represented the last significant depositional event. The bulk of the material culture was restricted to the third category whereas the primary fills of the henge and pit-circle were comparatively sterile except for occasional charcoal ‘events’ characterized by large fragments of oak wood (pits F.879, F.892, F.893) or by discrete, compacted remains or shadows of bigger pieces of burnt wood (F.851 and F.857). Charcoal was also present in the capping fill but here it was broken-up and dispersed throughout the deposit. Charred plant remains coincided with charcoal dumps found in the pit-circle and also occurred within the capping fill. Fossiliferous material from primary fills of the henge, associated with the construction and use of the monument itself was scarce, amounting to a total of four assessable bone specimens, three of which were identified as cattle.

<table>
<thead>
<tr>
<th></th>
<th>Burnt clay</th>
<th>Animal bone</th>
<th>Flint</th>
<th>Pottery</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.851 Capping</td>
<td>121g (79.1%)</td>
<td>996g (94.7%)</td>
<td>764g (93.4%)</td>
<td>402g (99.0%)</td>
</tr>
<tr>
<td>F.851 Capping</td>
<td>0 (0.0%)</td>
<td>11g (1.3%)</td>
<td>4g (1.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>F.857 Capping</td>
<td>32g (20.9%)</td>
<td>0 (0.0%)</td>
<td>37g (4.5%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>F.857 Capping</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>153g (100%)</td>
<td>1052g (100%)</td>
<td>818g (100%)</td>
<td>406g (100%)</td>
</tr>
</tbody>
</table>
Figure 3.8. Plan of Round Barrow 1 showing detail of central grave F.795 plus secondary and satellite cremations and associated material culture.
Further encircling this suite of funerary features was a penannular ring-ditch (diameter: 25.65m), with a south-east-orientated causeway measuring 3.25m. The width of the ditch ranged from 2.35–3.15m and displayed a broad V-shaped profile up to 1.30m in depth. Its infill sequence was comparable with that of the henge, comprising an asymmetrical edge erosion pattern interrupted by silts indicative of gradually increasing stabilization periods. Towards the top of this sequence, two cremations, F.812 and F.813, were inserted; one of which (F.812) survived within fragments of a coarse ‘bucket’ type urn.

The relationship between the post-ring and the ring-ditch was unclear. In plan, the former appears off-centre to the latter suggesting that the two features were constructed at different times. However, given the relationship between the post-ring and the coffin inhumation, it seems likely that ring-ditch was a secondary construction, probably dug to form an up-cast mound to cover cremation F.754/755. Once established, these earthwork then became a focus for future burial, evidenced by the surviving cremations in upper profile of the ring-ditch.

**Round Barrow 2**
Round Barrow 2 was situated 27m to the southeast of Round Barrow 1. It comprised a central inhumation, F.757, encircled by a penannular ditch, F.734, with an east-facing causeway (Fig. 3.10).
Figure 3.10. Plan of Round Barrow 2 and Ring-ditch 1 plus detail and photograph of central grave.
As with Round Barrow 1, the central inhumation was crouched, with the skeleton positioned on its left-hand side, its head located at the southeast end of the grave cut. The body faced west, with the left hand raised to its face and the right arm bent across the chest. The grave cut itself (oriented northeast–southwest) was a deep (0.89m), narrow rectangular hole measuring 2.00 × 1.35m. Mirroring the grave of Round Barrow 1, the base contained a faint trace of the same black humic material, suggesting that the body had also been interred inside a wooden coffin.

Round Barrow 2 primary inhumation F.757 – Young adult male, ht 1.66m (5' 5'') (Natasha Dodwell)
This skeleton was aligned northwest–southeast with his head in the south of the grave. He lay on his left side, legs tightly flexed at right angles to the body, portraying a ‘seated’ posture. His right arm was flexed at a right angle across the torso and the left hand curled under the chin. The bones were in excellent condition although many of the long bones had suffered recent post-mortem breaks and there was insect and root damage to the cortical bone. There were lesions characteristic of porotic hyperostosis on the occipital and parietal portions of the skull. The muscle attachments in his right shoulder (proximal humerus and inferior clavicle) were very pronounced and he had a bifurcated right rib, an asymptomatic congenital abnormality where the sternal end of the rib is cleaved in two. One of the third molars was not present and another tooth was lost post mortem. Slight to moderate deposits of calculus were recorded on all of the remaining teeth.

The surrounding ring-ditch was 15.40m in diameter and displayed an V-shaped profile (width: 2.30m; depth: 1.05–1.25m), with a 1.75m wide causeway. The fill sequence was unremarkable with very little artefactual material recovered (25 flints in total). As with the henge and Round Barrow 1, some charcoal staining was observed within lenses of silt interrupting edge erosion deposits.

‘Cemetery’ and isolated inhumation
The ‘cemetery’ group was made up of two cremations: F.748 and F.852 and three empty inverted urns F.750, F.779 and F.905. The cremations were located roughly centrally between the two barrows whereas the three urns were situated immediately adjacent to the causeway of Round Barrow 1.

Cremation F.748 consisted of two ‘joined’ Collared Urns (one upright and one inverted) propped against the western edge of an oval-shaped grave pit measuring (0.75 × 0.67m; depth: 0.40m; Figure 3.11). The upright urn was complete and contained the remains of two cremated individuals. The vessel mouth was sealed by the inverted urn which served as a lid. This urn was missing its collar and neck and had been purposefully trimmed so as to fit flush on top of the upright vessel in a manner that concealed the decorated collar. This ceramic ‘capsule’ was effectively held upright in the pit by the backfilled soils. These were essentially clean, gravel-rich sands, except in the capping, which appeared to comprise residual charcoal-rich pyre material. However, this was notably free of any calcined bone, suggesting the pyre debris had been carefully scoured, with human remains picked for inclusion in the urn (which was itself free of pyre material).

In contrast, the adjacent cremation F.852 was unurned and formed a discrete circular ‘plug’ of calcined bone (diameter: 0.40m; depth: 0.10m) found centrally within a larger back-filled circular pit (diameter 0.67m; depth: 0.35m). The cremated bone, like that from F.748, was free of pyre material and was accompanied by an unburnt plano-convex flint knife (Fig. 3.8a). The surrounding fill consisted of a fine sandy-loam with abundant pea-gravel and occasional...
Isolated Burial F.611 – Younger middle adult female, ht. 1.56m (5’1”) (Natasha Dodwell)
The skeleton lay in a crouched position, lying slightly on her right side with her head in the northeast of the grave, facing west. The bones are extremely fragmentary with many of the joint surfaces missing. Cribra orbitalia, indicative of anaemia was recorded in the left orbit. Both femora are platymeric (flattened), once thought to result from the persistent adoption of the squatting posture, although nutritional deficiencies are often cited as a possible cause. The dentition is complete with the exception of a single tooth lost post mortem and a premolar lost some while prior to death. Slight to moderate deposits of calculus were recorded on the surviving teeth. Hypoplastic lesions on the enamel of the central maxillary incisors are indicative of episodes of ill health or nutritional stress in childhood.

The small penannular ring-ditch, F.735, consisted of a discontinuous shallow gully (diameter: 4.00m; depth: 0.12m; Fig. 3.10). The break in its circuit was oriented to the northwest and measured 0.40m. Its infill was similar to the uppermost fills of the adjacent ring-ditch (pale-brown silty-sand with common gravel) and, internally, the gully encompassed a small off-centre oval-shaped pit (0.90 × 0.50m; depth: 0.12m) that was devoid of finds and backfilled with re-deposited natural. A lack of material culture makes the dating of this feature problematic although its ring-ditch form and proximal relationship with Round Barrow 2 suggests that it too belongs to the monument complex.
A pre-fieldsystem landscape

Beyond the King’s Dyke ‘cemetery group’, there were three non-monument-related burials at Bradley Fen: two in situ cremations or pit-pyres (F.1024 and F.1279) and a single ‘urned’ cremation (F.1; Fig. 3.13). The lowest of these was F.1279 which was situated at 0.00m OD and approximately 10m to the west of Burnt Mound 4. On the surface it appeared as a small ovoid-shaped pit (0.54 × 0.41m) with a black, charcoal-rich core and a fire-reddened circumference. White flecks of calcined bone and iron-stained lumps of charcoal added to the contrast of colours. Excavation showed the feature to be 0.18m deep and full of sizeable fragments of cremated human bone and large fragments of charcoal. In amongst this mix were 32

Figure 3.13. Cremation pit-pyres and cremation-associated Collared Urns.
Monuments, burials and material culture

The monument complex was built up over an extended period of time that included relatively short, material-rich bursts of activity separated by sustained lulls (Fig. 3.14). The bursts involved acts of deposition which included the incorporation of human remains, as well as whole pots and discrete flint tools (Fig. 3.15). In the case of the two barrows, it was mortuary practice that generated the majority of material, whereas for the henge, it was a form of occupation (as indicated by the ‘midden’-like capping deposit). Part of the depositional history of the monument complex is obscured because of the abrasiveness of the various sand and gravel-rich fills and the inherent leaching effect characteristic of gravel sites. As will be made apparent by the different specialist reports (by their very presence or absence), in these circumstances the bias of preservation has favoured robust inorganic remains and, in particular, things that were deposited with a certain degree of care. General contexts such as the fills of the ring-ditches produced remarkably little material except for the odd piece of abraded/mineralized animal bone. The specialists’ section includes human bone, flint, ecofacts, animal bone and fired clay. Pottery from the monument complex is described and interpreted alongside pottery from settlement contexts in the Early Settlement specialist section, in order to investigate the relationship between funerary and settlement derived ‘types’.

Treatting the dead (Natasha Dodwell)

A total of 11 burials accompanied the monument complex and the King’s Dyke/Bradley Fen broader Early Bronze Age settlement spread (Table 3.4). These included two primary inhumations associated with Round Barrow 1 and Round Barrow 2, an isolated inhumation north of the monument group and eight cremation burials. Five of these cremation burials formed a ‘cemetery’ comprised of both urned and unurned Bronze Age cremations, inserted in and around Round Barrow 1.

As the inhumations have been described earlier in the chapter, the focus here will be on the cremation burials, with a wider context provided by a brief discussion of other contemporary formal burials in the Flag Fen Basin.

Early and Middle Bronze Age cremations from the King’s Dyke ‘cemetery’

The King’s Dyke cemetery included five cremation burials (Table 3.5). Three of these are dated to the Early Bronze Age on the basis of their material associations: Collared Urns from F.754/755 and F.748 and plano-convex flint knives from F.754/755 and F.852. The cremation in F.754/755 constitutes a secondary burial in Round Barrow 1, located within the inner post-ring, whilst the two other Early Bronze Age cremations were buried between Round Barrow 1 and Round Barrow 2. The ring-ditch of Round Barrow 1 was also the focus for two later cremations in the Middle Bronze Age, one deposited in Deverel-Rimbury-type urns (F.812).

F.748 – Middle adult female and sub-adult/adult (urned): A total of 1677g of cremated bone was examined. The majority of fragments (78.4%) were greater than 10mm and the largest fragment measured 118mm, although two fragments of radius shaft from different spits within the urn refitted to give a maximum length of 124mm. The bone was a uniform buff white colour. There was no deliberate organization of skeletal elements within the urn, although smaller elements such as phalanges and teeth had filtered down towards its base. Two right
Figure 3.14. Preferred monument succession together with burial sequence (key: black = new phase; grey = old phase; red = new interment); accompanying chart shows diminishing diameters over time.
Figure 3.15. *Vertical and horizontal distribution of burials.*
A pre-fieldsystem landscape

Table 3.4. Early Bronze Age and monument associated burials at King’s Dyke (KD) and Bradley Fen (BF).

<table>
<thead>
<tr>
<th>Burial</th>
<th>Site</th>
<th>Age/sex</th>
<th>Location</th>
<th>Context</th>
<th>Feature</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhumation</td>
<td>KD</td>
<td>Sub-adult/?</td>
<td>Round Barrow 1</td>
<td>Primary</td>
<td>F.795</td>
<td>EBA</td>
</tr>
<tr>
<td>KD</td>
<td>Young adult/male</td>
<td>Round Barrow 2</td>
<td>Primary</td>
<td>F.757</td>
<td>EBA</td>
<td></td>
</tr>
<tr>
<td>KD</td>
<td>Younger middle adult/female</td>
<td>Isolated</td>
<td>-</td>
<td>F.611</td>
<td>EBA</td>
<td></td>
</tr>
<tr>
<td>Cremation</td>
<td>KD</td>
<td>Adult/?</td>
<td>Round Barrow 1</td>
<td>Secondary</td>
<td>F.754/755</td>
<td>EBA</td>
</tr>
<tr>
<td>KD</td>
<td>Middle adult/female &amp; sub-adult/?</td>
<td>Flat cemetery</td>
<td>Satellite</td>
<td>F.748</td>
<td>EBA</td>
<td></td>
</tr>
<tr>
<td>KD</td>
<td>Adult/?</td>
<td>Flat cemetery</td>
<td>Satellite</td>
<td>F.852</td>
<td>EBA</td>
<td></td>
</tr>
<tr>
<td>KD</td>
<td>Adult/female?</td>
<td>Round Barrow 1</td>
<td>Tertiary</td>
<td>F.812</td>
<td>MBA</td>
<td></td>
</tr>
<tr>
<td>KD</td>
<td>Middle mature adult/? &amp; infant/?</td>
<td>Round Barrow 1</td>
<td>Tertiary</td>
<td>F.813</td>
<td>MBA</td>
<td></td>
</tr>
<tr>
<td>BF</td>
<td>Juvenile?</td>
<td>Isolated</td>
<td>-</td>
<td>F.1</td>
<td>EBA</td>
<td></td>
</tr>
<tr>
<td>BF</td>
<td>Older sub-adult/young adult/?</td>
<td>Isolated</td>
<td>-</td>
<td>F.1024</td>
<td>EBA</td>
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<tr>
<td>BF</td>
<td>Adult/female?</td>
<td>Isolated</td>
<td>-</td>
<td>F.1279</td>
<td>EBA</td>
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</tr>
</tbody>
</table>

Table 3.5. King’s Dyke cremation burials (b=burnt, ub = unburnt).

<table>
<thead>
<tr>
<th>Feature</th>
<th>Weight &gt;2g</th>
<th>Deposit type</th>
<th>Age/sex</th>
<th>Colour</th>
<th>Pathology</th>
<th>Pyre/grave goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.748</td>
<td>1677g</td>
<td>Urned (2 Collared Urns)</td>
<td>Middle adult female (&amp; sub adult/adult)</td>
<td>Buff white</td>
<td>Schmorl’s nodes</td>
<td></td>
</tr>
<tr>
<td>F.754/55</td>
<td>1891g</td>
<td>Urned (Collared Urn)</td>
<td>Adult</td>
<td>Buff white</td>
<td>?compression fracture (lumbar vertebra)</td>
<td>Flint plano-convex knife (ub), sheep-sized limb &amp; frags (b)</td>
</tr>
<tr>
<td>F.852</td>
<td>771g</td>
<td>Unurned, organic container</td>
<td>Adult</td>
<td>Buff white with charred distal femur &amp; shaft</td>
<td>Porotic hyperostosis</td>
<td>Flint plano-convex knife, 2x flakes, flake core (ub)</td>
</tr>
<tr>
<td>F.812</td>
<td>770g</td>
<td>Urned (Deverel-Rimbury Urn)</td>
<td>Adult ??female</td>
<td>Buff white with blue/black ulna head &amp; femur shaft</td>
<td>?porotic hyperostosis</td>
<td>Fish vertebra (b)</td>
</tr>
<tr>
<td>F.813</td>
<td>1576g adult + 21g (min.) immature</td>
<td>Unurned</td>
<td>Middle/mature adult &amp; infant (c. 2yrs)</td>
<td>Buff white with blue/black adult skull, femur shaft, clavicle &amp; scapula</td>
<td>Adult skeleton exhibits porotic hyperostosis &amp; marginal osteophytes on vertebral bodies, eburnation on a sesamoid</td>
<td>Utilized flint flake (b), pig scapula (ub), sheep/goat humerus, radius, vertebra (b)</td>
</tr>
</tbody>
</table>

Patellae were identified but they were the only identifiable duplicated elements and so although two individuals were represented in this burial the proportion of each is unclear. Schmorl’s nodes were recorded on several of the thoracic vertebral bodies.

F.754/755 – Adult (urned): This cremation was disturbed by ploughing. A total of 1891g of cremated bone was examined with the majority of the fragments (54.6%) measuring greater than 10mm. The largest bone fragment was 72mm. The bone was uniformly a buff white colour. The wedge-shape observed on a lumbar vertebral body may be evidence of a compression fracture. A small quantity of burnt sheep-sized bone was recovered from the vessel, as was an unburnt flint plano-convex knife.

F.852 – Adult (urned): A total of 771g of cremated adult bone was examined, with the majority of fragments (92.5%) measuring >10mm. The largest bone fragment was 87mm. The fragments were predominantly well calcined, although the distal end and shaft fragment of a femur were charred black. All areas of the body were represented, although there is an under representation of the axial skeleton and small bones of the hands and feet. Pitting, similar in appearance to orange peel on the ectocranial surface of several skull fragments was characteristic of porotic hyperostosis. A plano-convex knife, two flakes and a small flake core, all unburnt, were recovered.

F.812 – Adult(?) female (urned). A total of 770g of calcined bone was examined. The bone fragments size was relatively small, the largest fragment measuring only 59mm, with 45.3% of bone fragments being between 5–10mm and 42.9% being over 10mm. The bone fragments were predominantly a buff white colour with blue/black charred femur shafts and an ulna head. Pitting on the ectocranial surface of several small fragments of skull may be evidence of porotic hyperostosis. A single burnt fish vertebra was recovered.

F.813 – Middle/mature adult and infant (unurned): Skeletal elements from two individuals were identified; amongst the 1597g of cremated bone that were examined, at least 21g were from an immature individual aged c. 2 years old (more could be amongst the unidentifiable fragments). The largest bone fragment was 66mm and although many (47%) of the bone fragments were larger than...
of calcined bone (57g). An unburnt sheep-sized rib was recovered.

The main deposit was capped by a buried soil in colour with some blue/black elements (patella and tibia, femur and scapula) were charred a blue/black colour. Marginal osteophytes were recorded on the surviving vertebral bodies and almost half of the surface of a sesamoid bone (from either a hand or foot) was eburnated. Burnt artefacts, presumably placed on the pyre with the bodies, included a utilized flint flake and several sheep/goat bones. An unburnt pig scapula was also recovered.

**Isolated Early Bronze Age cremations from the rest of the site**

The site’s three other Early Bronze Age cremations were widely dispersed across Bradley Fen (Table 3.6). Two of the cremations were dated by their Collard Urn associations; one interred within a vessel (F.1); the other mixed amongst fragments of a burnt Collared Urn in a scorched pyre-pit (F.1024). The final cremation (F.1279) was unurned, but was also recovered from a pyre-pit located east of Burnt Mound 2.

**F.1 – Juvenile (urned):** The urn contained 396g of calcined human bone in a matrix of mid-brown sandy-silt with occasional charcoal fragments and rare small stones. The main concentration of bone fragments was towards the lower two-thirds of the vessel and towards the base of the pot the bone size decreased. The upper third contained very little bone. In contrast, the pit fill that surrounded the vessel contained <1g of unidentifiable cremated bone and rare small fragments of charcoal. The bone was moderately well burnt and buff white in colour. The fragment size was generally small (the largest fragment measuring 53mm), with only 43.2% measuring over 10mm and a similar quantity, 38.4%, being recovered from the 5–10mm sieve.

**F.1024 – Older sub-adult/young adult (unurned, pit-pyre):** The cremated bone (568g) had been deposited in a small sub-rectangular pit (0.52 × 0.40 × 0.38m) whose upper 0.15m was scorched red. The main deposit of bone (511g) lay at the base of the pit, mixed in a black charcoal-stained silt with large fragments of burnt wood (100mm) and occasional small fragments (50mm) of burnt clay. The largest bone fragment was 70mm and, although most were far smaller, 81% of the bone measured >10mm. A lumbar vertebrae exhibited evidence of a compression fracture. The fragments were generally buff white in colour with some blue/black elements (patella and tibia, femur and humerus shafts). The main deposit was capped by a buried soil mixed with occasional fragments of charcoal and small fragments of calcined bone (57g). An unburnt sheep-sized rib was recovered.

**F.1279 [1402] – Adult (?) female (unurned, pit-pyre):** The cremated bone was contained within a small oval pit, with near vertical sides and a flat base (0.54 × 0.42 × 0.18m). The edges of the cut were scorched red at the surface, especially in the northern half of the pit, but not at the base. The fill at the base of the pit was predominantly large fragments of wood charcoal and, above this, well-preserved calcined bone (1253g) was recovered mixed within a dark matrix of grey silty-sand with ash and fragments of charcoal. The largest bone fragment measured 89mm and most of the fragments were c. 40–50mm, with 87.4% being greater than 10mm. The bones were predominantly buff white in colour, although fragments of the femur shaft and patella were dark blue/black as were a metatarsal and metacarpal. A large quantity of refitting Collared Urn sherds were recovered with the burnt bone. These represent a complete vessel, which appears to have been burnt on the pyre with the body.

**Discussion**

The remains of 10 individuals were identified in the 8 cremation burials; F.748 and F.813 contained the remains (or partial remains) of two individuals. The ‘population’ represented in this small group comprises six adults (three of which have been sexed with various degrees of confidence as female), one older subadult/young adult, one subadult/adult, one juvenile and one infant.

The weight of bone recovered from the cremation burials ranges from 396–1891g, with the weight range for features containing a single adult being 770–1891g (Tables 3.5 & 3.6). Given that the quantity of recoverable bone from a modern adult cremation ranges from c. 1000g–2400g, depending on the sex and build of the individual (McKinley 1993), the weights achieved in this instance suggest that very little or none of the bone originally interred has been lost, despite a degree of truncation of most features. This is not to say that all the remains were ultimately interred. Indeed, it is rare for cremation burials from any period to contain all of the bone that would remain at the end of the cremation process. The adult burial F.852 illustrates this phenomenon; despite being an un-truncated cremation, the total bone weight is only 771g and there is an under representation of the axial skeleton and small bones of the hands and feet.
In general, the colour of cremated bone reflects the efficiency of the cremation process, specifically the temperature to which the bone is exposed. This, in turn, is dependent on factors such as the architecture of the pyre, the position of the body on the pyre, fuel type, the length of time that the pyre was allowed to burn and how carefully (or not) the pyre was tended. The vast majority of the cremated bone fragments analysed from the King’s Dyke cemetery group and the isolated cremation burials were a buff white colour, indicative of complete oxidization. However, some fragments displayed a grey, blue or black colouration, which results from a more reduced atmosphere during burning. The bones most affected were from the lower limb, particularly the femoral shaft, although the skull, clavicle, scapula, ulna and extremities in several of the graves also have a charred appearance. This could result from insufficient time for the completion of the cremation process or from the pyre not being tended closely enough to allow for complete oxidation (although see below for comments on fragment size). The charred metatarsals and metacarpals from the pit-pyre F.1279 may be the consequence of the extremities protruding beyond the intense heat of the pyre. Alternatively, poorly fired fragments may derive from those elements which fell to the base of the pyre and became smothered with wood which would cut off the supply of oxygen and thus curtail the cremation process.

Analysis of cremated bone fragment size can also reveal further details of the cremation process and funerary practices more generally. Fragment size is dependent on numerous factors such as the efficiency of the pyre, the depositional environment, methods of excavation and post-excavation processing (McKinley 1994). Although the number of burials associated with the barrows is small, it is striking that the bone fragment size is considerably larger in the Collared Urn burials than in the later Deverel-Rimbury interments (Table 3.7 and Fig. 3.16) and this mirrors the pattern observed in other sites in the region (Dodwell 2016). Not only is the largest fragment size observed in the earlier burials (72–118mm rather than 59–66mm), but the majority of bone was recovered from the 10mm sieve fraction.

Whilst there is almost no evidence for the deliberate post-depositional fragmentation of cremated bone from burials in any period in Britain (McKinley pers. comm.), the possibility should not be discounted. Although the sample size is very small, it could be argued that smaller bone fragments in the two Middle Bronze Age burials, if not indicative of deliberate fragmentation, suggest better/more attentive pyre-tending than in the Early Bronze Age.

Of the bodies themselves, two adults from cremations F.748 and F.813 exhibited lesions associated with joint disease in the spine, with the individual from F.813 having also suffered from osteoarthritis in the hand or foot. Individuals in F.754/755 and F.1024 both had a wedge-shaped lumbar vertebra, possibly a compression fracture resulting from trauma such as a falling from a height. Moreover, fragments of adult skull from three of the cremation burials (F.852, F.812 and F.813) and one of the inhumations (F.757) exhibited porosity on the outer surfaces of the vault, characteristic of porotic hyperostosis, a condition usually associated with chronic iron deficiency anaemia. This type of anaemia results from not only an iron deficient diet but iron malabsorption or loss of iron due to diarrheal disease and intestinal parasites (Roberts & Manchester 1995, 166). Further evidence that the population may have been under nutritional stress and/or a high parasitic load, is reflected in the orbital roof lesions and hypoplastic defects in the teeth of inhumation F.611.

In terms of understanding the Early Bronze Age cremation process, the unurned burials with heavily

<table>
<thead>
<tr>
<th>Feature</th>
<th>Age</th>
<th>Date</th>
<th>Largest fragment (mm)</th>
<th>Bone &gt;10mm Weight (g)</th>
<th>Bone &gt;10mm %</th>
<th>Bone 5–10mm Weight (g)</th>
<th>Bone 5–10mm %</th>
<th>Bone 2–5mm Weight (g)</th>
<th>Bone 2–5mm %</th>
<th>Total &gt;5mm Weight (g)</th>
<th>Total &gt;5mm %</th>
<th>Total &gt;2mm Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.1/48</td>
<td>I</td>
<td>EBA</td>
<td>53</td>
<td>171</td>
<td>43.2</td>
<td>152</td>
<td>38.4</td>
<td>73</td>
<td>18.4</td>
<td>323</td>
<td>396</td>
<td></td>
</tr>
<tr>
<td>F.748</td>
<td>A+A/SA</td>
<td>EBA</td>
<td>118</td>
<td>1314</td>
<td>78.4</td>
<td>299</td>
<td>17.8</td>
<td>64</td>
<td>3.8</td>
<td>1613</td>
<td>1677</td>
<td></td>
</tr>
<tr>
<td>F.754/5</td>
<td>A</td>
<td>EBA</td>
<td>72</td>
<td>1033</td>
<td>54.6</td>
<td>736</td>
<td>38.9</td>
<td>122</td>
<td>6.5</td>
<td>1769</td>
<td>1891</td>
<td></td>
</tr>
<tr>
<td>F.812</td>
<td>A</td>
<td>MBA</td>
<td>59</td>
<td>330</td>
<td>42.9</td>
<td>349</td>
<td>45.3</td>
<td>91</td>
<td>11.8</td>
<td>679</td>
<td>770</td>
<td></td>
</tr>
<tr>
<td>F.813</td>
<td>A+I</td>
<td>MBA</td>
<td>66</td>
<td>741</td>
<td>47</td>
<td>687</td>
<td>43.6</td>
<td>148</td>
<td>9.4</td>
<td>1428</td>
<td>1576</td>
<td></td>
</tr>
<tr>
<td>F.852</td>
<td>A</td>
<td>EBA</td>
<td>87</td>
<td>711</td>
<td>92.2</td>
<td>58</td>
<td>7.5</td>
<td>2</td>
<td>0.3</td>
<td>769</td>
<td>771</td>
<td></td>
</tr>
<tr>
<td>F.1024</td>
<td>A/SA</td>
<td>EBA</td>
<td>70</td>
<td>460</td>
<td>81</td>
<td>87</td>
<td>15.3</td>
<td>21</td>
<td>3.7</td>
<td>547</td>
<td>568</td>
<td></td>
</tr>
<tr>
<td>F.1279</td>
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<td>EBA</td>
<td>89</td>
<td>1095</td>
<td>87.4</td>
<td>147</td>
<td>11.7</td>
<td>11</td>
<td>0.9</td>
<td>1242</td>
<td>1253</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.7. Degree of fragmentation of cremated bone. (In many site reports, the smaller residues remain unsorted and only the total weight of bone >5mm is recorded. For comparative purposes both weights are presented. The percentage of bone collected from each mesh size is from total bone weight >2mm). A=adult, SA=subadult/adult, I=immature.
scorched sides (F.1024 and F.1279) are of particular interest. Both pits had scorched salmon pink/red edges (not bases) and contained large quantities of pyre debris, including fragments of burnt timber up to 0.10m long mixed with the cremated bone; this is suggestive of \textit{in situ} burning. Recent experimental pyres constructed above small pits (0.7 $\times$ 0.5 $\times$ 0.35m) resulted in temperatures of almost 1000$\degree$C (high enough to cremate a body) and left the pits with highly scorched edges, identical to those observed at Bradley Fen (Dodwell 2012). The pit would act as a flue for the pyre and the subsequent high temperatures and oxidizing environment would mean that the sides became bright red, almost ceramic-like, while the base was smothered in falling ash/timber and so remained unaltered. These types of pit-pyre features have been recorded elsewhere in Cambridgeshire; at Briggs Farm, Thorney (Dodwell 2011), Butcher’s Rise, Barleycroft (Dodwell 1998), Diddington (Evans 1997b), Eyebury (Leeds 1915), Over (Dodwell 2016) and Snow’s Farm, Haddenham (Lee 2006). Unlike those recorded at Bradley Fen, all these other examples were directly associated with monuments. In several of these pit-pyres, a degree of articulation between skeletal elements has been observed and the spatial arrangement of the skeletal elements within the pits suggests that the cremation itself occurred \textit{in situ}, i.e. that the body was placed on a pyre built over the small pit, into which it collapsed as the cremation progressed, similar to Roman \textit{bustum} burials (Dodwell 2012). Unlike the pit-pyres at Snow’s Farm, Haddenham (Lee 2006), Butcher’s Rise, Barleycroft (Dodwell 1998) and several from the Over Barrows (Dodwell 2012; 2016), neither of the pit-pyres from Bradley Fen showed any clear (partial) articulation of calcined skeletal elements. However, through careful excavation (Fig. 3.17) and planning of the bone in F.1279 the spatial patterning of the elements within the pit suggests that the body was placed in a tightly crouched position on the pyre, possibly on her left side with her head in the north.

\textit{Bustum} style burials or pit-pyre burials appear to be a distinct burial type and enrich our understanding of attitudes to the body and death in the Early Bronze Age. The direct deposition of the body into the pit would negate the need to handle the bone (i.e. collect it from the pyre) and although the cremation process itself might transform the body/corpse into another substance it does not necessarily destroy the body.

On a broader note, the 11 Bronze Age formal burials detailed in this chapter join a growing corpus from the Flag Fen Basin, which now includes 46 definite or probable Early and Middle Bronze Age cremations and 26 largely undated, but probable Bronze Age inhumations (Table 3.8). Despite these figures, the deeply dug crouched coffin inhumations from the King’s Dyke monument complex are best paralleled outside of the Basin, with similar burials recovered upstream in the Nene Valley at Raunds (Harding & Healy 2007, 217, fig. 4.3). In terms of body posture, burial F.611 would appear to be related to this group and, purely by merit of its form, has some parallels with the crouched inhumations excavated at Cat’s Water, particularly Burial 3 (Pryor 1984, 119, fig. 93). Lacking grave goods, these were
Figure 3.17. Excavation of pit-pyre F.1279.

Table 3.8. Bronze Age formal burials in the Flag Fen Basin (total cremations 46; total inhumations 29).

<table>
<thead>
<tr>
<th>Site</th>
<th>Cremations</th>
<th></th>
<th>Inhumations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EBA</td>
<td>MBA</td>
<td>BA/uncertain</td>
<td>EBA</td>
</tr>
<tr>
<td></td>
<td>Urned</td>
<td>Unurned</td>
<td>Urned</td>
<td>Unurned</td>
</tr>
<tr>
<td>Cat’s Water (i)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Briggs Farm, Thorney (ii)</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stanground (iii)</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Tanholt Farm (iv)</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Elliott Site (v)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Storey’s Bar Road (vi)</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Newark Road (vii)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Padholme Road (viii)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>King’s Dyke (ix)</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Bradley Fen (x)</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pode Hole (xi)</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
<td>31</td>
<td>9</td>
</tr>
</tbody>
</table>
Chapter 3

Henge

A total of 24 worked flints, together with three unworked burnt flints came from the henge ditches (excluding material from the Collared Urn deposit, discussed by Billington below in Settlement finds and material practice – Flint) and the pit-circle (Table 3.9). Among the 14 flints recovered from the ditches were a high proportion of blades and narrow flakes, including a fine retouched blade from F.857, representing residual Mesolithic and earlier Neolithic material. The size of the assemblage and large proportion of demonstrably residual material suggests that flintwork rarely, if ever, made its way into the ditches during the use of the monument.

The small number of flints from the pit-circle features includes small squat flakes, several with cortical platforms, accompanied by a crudely flaked gravel flint core from F.865. This material is closely comparable to the Collared Urn associated flintwork from the upper fills of F.851 and suggests this deposit, or contemporaneous activity, may have spread over a portion of the south-western half of the monument’s interior. A fine narrow flake from F.892 is probably residual, whilst a retouched flake from F.867 may be broadly contemporary with the construction of the pit-circle or its use.

Round Barrow 1

Thirty-two worked flints were recovered during the excavation of Round Barrow 1; five of which were directly associated with the inhumation or cremation burials (Table 3.10). The lower fill of central grave cut, F.795, contained a small flake, probably inadvertently caught up in the backfill of the feature. A flake knife made on a very worn and yellow-stained flake blank was found placed behind the head of the inhumation. Grave goods were also included in two of the cremation burials. F.754 contained an exceptionally fine plano-convex knife, unburnt; this would appear to have been added to the deposit after the body’s cremation. The medial segment of a utilized narrow

Flint (Lawrence Billington)

A total of 60 worked flints were recovered from features associated with the monument complex at King’s Dyke, including the henge, the two round barrows and several burials. This mostly represents residual material incorporated into the monument ditches as they silted. Some pre-date the monuments’ construction and attest to low-level Mesolithic and earlier Neolithic activity the residue of which was incidentally caught up in these features. Other finds, most deriving from a flake-based technology consistent with later Neolithic/Early Bronze Age industries, could be broadly contemporary with the monuments, reflecting, in very broad terms, the pulse of activities occurring in and around these architectures.

Against this background rhythm of visitations, where flint was periodically worked, discarded and eventually incorporated into the fabric of the monuments, there were moments when flint became much more central to the practices and proceedings in these spaces, namely during the funerary process where bodies were burnt and interred. Here we find flints being used as used as grave goods – sometimes accompanying the body on the pyre – with artefacts including scrapers and plano-convex knives being deposited alongside burials F.795, F.754, F.813 and F.852. These deposits are detailed below, together with a summary of the assemblages from each of the major components in the monument complex.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Henge ditches</th>
<th>Pit-circle</th>
<th>Unstrat.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flake</td>
<td>F.851 F.857 F.865 F.866 F.867 F.873 F.892</td>
<td>2 4 1 2 1 2 -</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Blade/bladelet</td>
<td>2</td>
<td>- - - - -</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Narrow flake</td>
<td>1</td>
<td>3 - - - -</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Irregular core</td>
<td>-</td>
<td>- 1 - - -</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Retouched flake/blade</td>
<td>1</td>
<td>1 - - 1 -</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Total worked</td>
<td>6</td>
<td>8 2 2 2 1 1</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Burnt unworked flint (wt g)</td>
<td>-</td>
<td>- - 3 (34.8) - -</td>
<td>-</td>
<td>3 (34.8)</td>
</tr>
</tbody>
</table>

Table 3.9. Flint assemblage from the henge monument (with Early Bronze Age material from F.851 excluded).
A pre-fieldsystem landscape

A pre-fieldsystem landscape associated with the central inhumation. Only one of these, an invasively flaked thumbnail scraper, appears to have deliberately accompanied the body. Pit F.792 contained a well-reduced, burnt, bladelet core, probably of Mesolithic date. The 14 flints from the ring-ditch included a high proportion of flake cores alongside flake based debitage. A serrated flake, probably of Neolithic date was also recovered. A flake knife with invasive bifacial retouch may be broadly contemporary with the construction and use of the barrow, as could the broken tip of an arrowhead, which has markedly straight sides suggestive of a barbed and tanged form.

Cemetery features
Cremation F.852 contained a plano-convex knife alongside two secondary flakes and a small flake core, all unburnt.

The flintwork deposited with inhumation and cremation burials in and around the round barrows draws on a restricted range of Early Bronze Age tools, familiar from funerary deposits at a national level but also readily paralleled in the Beaker and Collared Urn domestic assemblages from the site. Flintwork thought to have deliberately accompanied the body in death

<table>
<thead>
<tr>
<th>Context</th>
<th>Grave</th>
<th>Pit</th>
<th>Ring ditch</th>
<th>Cremation F.812</th>
<th>Cremation F.794</th>
<th>Buried soil</th>
<th>Cremation F.813</th>
<th>Total</th>
<th>Grave</th>
<th>Pit</th>
<th>Ring ditch</th>
<th>Total</th>
<th>Cremation F.852</th>
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<tr>
<td>Chip</td>
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<td>4</td>
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<td>-</td>
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<td><strong>Total worked flint</strong></td>
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<td>24</td>
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<td>1</td>
<td>33</td>
<td>4</td>
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<td>14</td>
<td>19</td>
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<tr>
<td>Burnt unworked (wt g)</td>
<td>-</td>
<td>-</td>
<td>12 (26.5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12 (26.5)</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>
remains were recovered from the late capping fills associated with fragments of Collard Urn and other artefacts indicative of nearby settlement. As well as more pronounced charcoal content, these deposits, yielded three seeds: a single cereal grain (not identifiable), a wild oat seed (*Avena* sp.) and a possible arable weed seed of orache (*Atriplex patula/prostrata*). These are the earliest evidence for cultivated plants from the excavations and show how the use of the monument was transformed during the Early Bronze Age. Like the henge capping deposits, the postholes of the pit-circle were also rich in charcoal, predominantly of oak (*Quercus* sp.), possibly derived from the burning of the uprights (though the status of the remains as *in situ* is ambiguous). This is thought to mark the end of the first sequence of monument development. However, given the contrast in charcoal quantities between the early episodes of henge infilling and that of the pit-circle postholes, it can only be assumed that the burnt posts and evidence of other activities associated with the monument, were cleared away before the construction and primary silting of the henge ditches.

Aside from charcoal, three of the postholes in the pit-circle (F.872, F.873 and F.893) yielded fruits of shrubs: wild rose (*Rosa* sp.), sloe (*Prunus spinosa*), hawthorn (*Crataegus monogyna*) and dogwood (*Cornus sanguinea*), none of which were found in the Collared Urn capping deposits of the henge. These species are common in hedges and scrub-land and are often found together as a successional plant community upon calcareous soils (Rodwell 1991). The absence of obvious charcoal from these species relative to oak could indicate that the fruits had been collected. Such fruits have indeed been found at other Neolithic and Early Bronze Age sites in Britain, suggesting the continuing importance of seasonally foraged foods in the diet throughout this period (Greig 1991; Moffett et al. 1989).

**Henge**

Charcoal was found throughout the henge fills, although concentrations remained constantly low, except in the tertiary silts of F.851. This paucity of remains from the early fills suggests that few activities resulting in burnt plant macro-remains were performed in or around the monument during the initial stages of its life history. In fact, most of the

### Table 3.11. Worked flint grave goods associated with inhumation and cremation burials.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Round Barrow 1</th>
<th>Round Barrow 2</th>
<th>Cemetery</th>
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<td>795</td>
<td>813</td>
<td>754</td>
<td>757</td>
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<td>Burial type</td>
<td>inhumation</td>
<td>cremation (unurned)</td>
<td>cremation (urned)</td>
</tr>
<tr>
<td>Age</td>
<td>subadult</td>
<td>adult and infant</td>
<td>adult</td>
</tr>
<tr>
<td>Sex</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>Flintwork</td>
<td>plano-convex knife</td>
<td>utilized flake (burnt)</td>
<td>plano-convex knife</td>
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</table>

### Round Barrows 1 and 2

The Early Bronze Age ring-ditch monuments were both sampled twice. The samples were similar in containing no artefacts or ecofacts other than a little

<table>
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<th>1084b</th>
<th>1084c</th>
<th>1080</th>
<th>1091</th>
<th>1129</th>
<th>1127</th>
<th>1128</th>
<th>1086</th>
<th>1099</th>
<th>1100</th>
<th>1123</th>
<th>1124</th>
<th>1125</th>
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<tr>
<td>Large charcoal (&gt;4mm)</td>
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<td>-</td>
<td>++</td>
<td>++</td>
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<td>Prunus spinosa L.</td>
<td>Sloe</td>
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<tr>
<td>Crataegus monogyna Jacq.</td>
<td>Hawthorn</td>
<td>4</td>
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<tr>
<td>cf. Cornus sanguinea L.</td>
<td>Dogwood</td>
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<td>1</td>
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<tr>
<td>cf. Avena sp.</td>
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<td>Burnt bone fragments</td>
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<tr>
<td>Modern contamination (roots, seeds etc.)</td>
<td>P</td>
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</tr>
</tbody>
</table>
Table 3.13. Early Bronze Age cremations & Round Barrow 1 plant remains. Key: '-' 1 or 2, '+'<10, '++' 10-50, '+++' >50 items. P = present WL = waterlogged, U = untransformed.

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<th>Bradley Fen</th>
<th>King’s Dyke</th>
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<td>1402</td>
</tr>
<tr>
<td>Feature</td>
<td>5</td>
<td>890</td>
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<td>Feature type</td>
<td>Collared Urn Cremations</td>
<td>Barrow 1</td>
</tr>
<tr>
<td>Sample volume (litres)</td>
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<td>15</td>
</tr>
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<td>Estimated charcoal volume (ml)</td>
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<td>800</td>
</tr>
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<td>Flot fraction examined (%)</td>
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<tr>
<td>Large charcoal (&gt;4mm)</td>
<td>+++</td>
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<tr>
<td>Med. charcoal (2-4mm)</td>
<td>+++</td>
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</tr>
<tr>
<td>Small charcoal (&lt;2mm)</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Twig charcoal</td>
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<td>+</td>
</tr>
<tr>
<td>Parenchyma frags - undifferentiated plant storage tissue</td>
<td>+</td>
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</tr>
<tr>
<td>Charcoal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ranunculus acris/ repens/ bulbosus L. - Buttercup</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ranunculus ficaria L.</td>
<td>Lesser Celandine bulbs</td>
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<tr>
<td>R. subgen. BATRACHILUM</td>
<td>Crowfoot</td>
<td>1 u</td>
</tr>
<tr>
<td>Alnus glutinosa (L.) Gaertner</td>
<td>Alder seeds (cones)</td>
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</tr>
<tr>
<td>Chenopodium rubrum L.</td>
<td>Red Goosefoot</td>
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</tr>
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<td>Chenopodium polyspermumL.</td>
<td>Many-seeded Goosefoot</td>
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</tr>
<tr>
<td>Chenopodium sp.</td>
<td>Goosefoot</td>
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</tr>
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<td>Stellaria neglecta Weihe</td>
<td>Greater Chickweed</td>
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<td>Cerastium sp.</td>
<td>Mouse-ears</td>
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<tr>
<td>Indeterminate Caryophyllaceae - seed of the Pink family</td>
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<tr>
<td>Fallopia convolulus (L.) A’ Löve</td>
<td>Black bindweed</td>
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<td>Small Rumex sp.</td>
<td>Dock kernel</td>
<td>1</td>
</tr>
<tr>
<td>Brassica / Sinapis sp.</td>
<td>Cabbages / Mustards</td>
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</tr>
<tr>
<td>Alchemilla/ Aphanes sp.</td>
<td>Lady’s-mantle/ Parsley piert</td>
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<tr>
<td>Large Medicago/ Trifolium sp.</td>
<td>Medick or Clover</td>
<td>2</td>
</tr>
<tr>
<td>Myosotis sp.</td>
<td>Forget-me-not</td>
<td>1u</td>
</tr>
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<td>Lamium sp.</td>
<td>Dead-Nettle</td>
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<tr>
<td>Mentha sp.</td>
<td>Mint</td>
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<td>Lycopus europeae L.</td>
<td>Gipsywort</td>
<td>1</td>
</tr>
<tr>
<td>Veronica cf. chamaedrys L.</td>
<td>Germander Speedwell</td>
<td>2</td>
</tr>
<tr>
<td>Veronica hederifolia L.</td>
<td>Ivy-leaved Speedwell</td>
<td>1</td>
</tr>
<tr>
<td>Odontites vernus (Bellardi) Dumort. - Red bartsia</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Small Galium sp.</td>
<td>Cleaver</td>
<td>1</td>
</tr>
<tr>
<td>Bromus sp.</td>
<td>Brome</td>
<td>2</td>
</tr>
<tr>
<td>Phleum bertolonii DC.</td>
<td>Lesser Cats-tail</td>
<td>1</td>
</tr>
<tr>
<td>Medium Poaceae indet.</td>
<td>medium wild grass</td>
<td>3</td>
</tr>
<tr>
<td>Small Poaceae indet.</td>
<td>small wild grass</td>
<td>1</td>
</tr>
<tr>
<td>Indeterminate wild plant seeds</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Other residues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern contamination (roots, seeds, leaves, insects,…)</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Burnt bone</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Small burnt bone</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>?Burnt sand/soil</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Pottery sherds</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Fired clay</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Burnt stone</td>
<td>+++</td>
<td>++</td>
</tr>
</tbody>
</table>
charcoal dust (<2mm fragments). This suggests that, unlike the Collared Urn deposits in the henge and settlement area, few burning events or activities occurred close to these ring-ditches during their infilling. Given the presence of cremated remains in both barrows, this is somewhat surprising and implies that the pyres were not located in the immediate vicinity.

Cremations
Two Collared Urn cremations from Bradley Fen were flotation sieved: F.1, an urned cremation, and F.1279, which showed evidence of in situ burning. The plant remains differed both in quantity and type, with charcoal clearly more abundant in F.1279, where remains had not been displaced after the funerary rite. F.1 contained four seeds, all of which are indicative of dry arable or waste ground. Uncharred seeds of goosefoot (\textit{Chenopodium} sp.) and one forget-me-not (\textit{Myosotis} sp.) appear to be modern intrusions.

Charred seeds from plants immediately around and within the pyre-pit dug for cremation F.1279 provide some of the clearest evidence for the nature of vegetation in the area immediately around the Bradley Fen embayment. This was evidently characterized by damp woodland where alder (\textit{Alnus glutinosa}) dominated the canopy whilst lesser celandine (\textit{Ranunculus ficaria}) tubers, along with other plants that favoured damp soils, covered the ground. Red goosefoot (\textit{Chenopodium rubrum}), greater chickweed (\textit{Stellaria neglecta}) and germander speedwell (\textit{Veronica chamaedrys}), amongst others, indicate that although the top soil was not waterlogged in this lowland zone, it remained damp throughout most, if not all, of the year. Moreover, the numerous charred lesser celandine tubers suggest that, as has been found in other Bronze Age cremations, turf may have been used to cover the funerary pyre to create more heat and less flame; sites with botanical signatures for similar practices include Barleycroft Farm and Over in the Ouse Valley, Cambridgeshire (Stevens 1997; de Vareilles 2010b).

Other finds (Grahame Appleby and Vida Rajkovača)
Other finds from the monument complex included a very small quantity of fired clay and bone. In total, only 14 fragments of fired clay (177g) were recovered from two features associated with the henge monument, F.851 (11 fragments, 145g) and F.857. One piece from F.857 (22g) measured c. 30mm by 35mm and preserved a flat surface with a curved edge. The remaining fragments are undiagnostic. Faunal remains were almost completely absent, with the barrows yielding just five fragments of bone (246g), two of which were assigned as cattle.

Monument discussion
The King’s Dyke barrows shared similar beginnings, both originating with single crouched inhumations placed in small wooden coffins, buried in deeply cut graves. Architecturally, the burial beneath Round Barrow 1 was commemorated primarily by a small, round mound encompassed by a ring of tightly spaced vertical posts. This was erected several metres from the south-eastern entrance of the henge and was sufficiently offset so as not to interfere with the projected alignment or ‘passage’ of the earlier monument. A secondary burial, this time a cremation accompanied by the remains of a small Early Bronze Age urn and a flint knife, was inserted into the southern side of the mound and ring. This interment prompted, or initiated, the digging of a much larger encircling ditch and the consequent construction of a much larger barrow mound. On the other hand, the burial under Round Barrow 2 was not subject to such a complex succession of builds and burials, but was instead ‘instantaneously’ enclosed by a ditch and covering mound.

Having then diverged in their trajectories, both monuments came to share one last flourish in the Middle Bronze Age, at the close of their sequences. In Round Barrow 1, the last significant event involved the interment of two Deverel-Rimbury type cremations into the top of its ditch. Whilst at Round Barrow 2, the final traceable act involved the construction of a small Ardleigh-type ring-ditch (Ring-ditch 1) onto its westernmost circumference – a ditch presumably also surrounding a cremation now lost to plough truncation (Brown 1999).

Looking at the sequence more broadly, it would appear that the architectural progression for the monument complex was ostensibly a story of ever decreasing-circles and ever-diminishing earthworks (Fig. 3.14). The opening constructions, the pit-circle and henge, attained a total diameter of at least 30m (not including a possible external bank), whereas the ultimate construction, the diminutive ring-ditch (Ring-ditch 1) achieved only 4m. If diameter or size can be employed as a measurement of sequence then perhaps it is significant that the final form of Round Barrow 1 measured nearly 26m whereas Round Barrow 2 only managed 15m. In the context of this particular monument complex, it seems, diminishing scale could also be a straightforward indicator of changing levels of investment from the start of the Early Bronze Age to its end.

What is absolutely certain in this space, however, is that monuments – be they ceremonial or sepulchral – diminished in size over time. The remains of the dead entered this telescopic succession only part way through (after the henge) but once they became
involved they remained so until the very end. The first dead were buried deeply and always at the ‘new’ centre of things. By way of contrast, the last dead were placed in shallow graves and located at the periphery. Appropriately, the middle dead quite literally fell between two stools and occupied the ground in-between monuments. The first bodies were buried whole and the last as small calcined fragments; overall the pattern was of things disappearing or coming to an end.

Early settlement
The structures of early settlement occupied different ground to the monuments and so, in order to explore these constructions, it is necessary to move down the slope and away from post-circles, ring-ditches and barrow mounds. As will be shown, this detachment is purely spatial as there is ample evidence to suggest that the people who made these monuments chose different spaces when it came to building dwellings. Once again, the scale of investigation – literally the different ground that it covers – has enabled these things to be observed in actual relationship: house – henge – burial (scale articulating pattern). In an archaeological context where tangible structural remains of settlement of this period are often non-existent and certainly far less visible or ubiquitous compared to contemporary monuments, this represents a novel window on the patterning and articulation of the social landscape. Indeed, genuine early structures remain extremely rare across the whole of East Anglia (Bradley 1993, 7–8), so to locate them in the same vicinity as a major monument complex is nothing short of remarkable.

In relation to the King’s Dyke/Bradley Fen transect, three early dwellings were located almost as far apart as they could be from one another across the 1.35km excavation window (Fig. 3.3). Structure 1 occupied a small knoll at the low-lying western end of Bradley Fen (0.10m OD), whilst Structures 2 and 3 were situated towards the top of the high ground, at 2.8m OD (King’s Dyke) and 3.6m OD (Bradley Fen) respectively. A substantial assemblage of Beaker pottery was found in association with Structure 1, whilst Structures 2 and 3 generated impressive collections of Collared Urn pottery. In addition, the assemblage also includes a cluster of Collared Urn pits and a Collared Urn ‘midden’ spread situated within the confines of the aforementioned henge monument. As a group, these early structures and their associated settlement scatters have been separated for analysis from the other evidence of pre-fieldsystem activity because they are pottery-period ‘attributable’ in a way that the burnt mounds and watering hollows are not. Single radiocarbon dates were obtained for each of the buildings and indicated a gap of at least 200 years between the Beaker structure and the two Collared Urn structures (Table 3.14).

### Table 3.14. Early Bronze Age structures – radiocarbon dates.

<table>
<thead>
<tr>
<th>Structure</th>
<th>Feature</th>
<th>Pottery type</th>
<th>Height OD</th>
<th>Conventional age</th>
<th>Radiocarbon date (2 sigma)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1299</td>
<td>Beaker</td>
<td>0.10m</td>
<td>3690±40 BP</td>
<td>2200–1950 cal BC</td>
</tr>
<tr>
<td>2</td>
<td>636</td>
<td>Collared Urn</td>
<td>3.60m</td>
<td>3390±40 BP</td>
<td>1760–1610 cal BC</td>
</tr>
<tr>
<td>3</td>
<td>349</td>
<td>Collared Urn</td>
<td>2.80m</td>
<td>3360±40 BP</td>
<td>1740–1530 cal BC</td>
</tr>
</tbody>
</table>

Beaker house and associated pits and postholes
The Beaker house, Structure 1, was built upon a slight rise (up to 0.10m OD) sited along the then dry western margins of Bradley Fen Embayment (Fig. 3.18). The structure was made up of a circle of postholes (F.1291–98), fronted by an exaggerated post-built porch extension (F.1283–86) and arching façade-like arrangement (F.1287–90; Fig. 3.19). The house plan was symmetrical and, by British prehistory standards, its footprint was both relatively robust and visually impressive (Brück 2000, 283; Brück 2008, 25). All of these features cut the old land surface and were constructed, used and abandoned prior to the formation of peat at these contours.

The post circle had a diameter of 5.15m and comprised eight small postholes (diameter 0.24–0.33m, 0.16–0.43m in depth) spaced approximately 1.75m apart (Fig. 3.20). Four larger postholes (diameter: 0.39–0.55m, 0.33–0.48m in depth) framed the east-facing porch, which was a narrow funnel-like setting, 3m long, with a 2.50m wide entrance. The inner set of porch posts were flanked by a façade of four regularly spaced postholes (1.75m apart, diameter: 019–0.28m, depth: 0.08–0.28m). Inside the structure was a large hearth feature (F.1299) accompanied by a small oval pit (F.1300). The hearth was central to the post-ring and consisted of a large but shallow irregular hollow (2.00 × 1.25m; depth: 0.15m) that had been scorched a pink-orange colour, but still retained the relatively intact remains of four charred logs – a sample of which generated a radiocarbon date of 2200–1950 cal BC (Beta-205539: 3690±40 BP). The adjacent pit was by comparison plain (0.80 × 0.65m; depth: 0.18m) and distinguished only by a high charcoal content. Eastwards, and 2.50m in front of the house, were a small...
Figure 3.18. Bradley Fen – Western end features: Structure 1, burnt mound 4, watering hollows and metalled surfaces.
cluster of pits/postholes, F.1280, F.1281 and F.1282. These had similar fills to those of the structure, comprising light grey silty-clay.

Slightly further away to the west, but occupying the same contour as the house, was a large pit, F.1258 (diameter: 5.45 × 3.89m; depth: 0.41m). The uppermost profile of the feature was ‘uneventful’ and comprised a pale grey silt-rich fill sequence. However, at its base was a small circular pit, F.1259 (diameter: 0.35m; depth: 0.27m), made visible because of its dark brown silt fill and the presence of three large slabs of Beaker pottery. A further four somewhat slighter pits/postholes with light grey silty-clay fills were scattered between the 0.00 to -0.10m OD contours. Amongst them was pit F.1183, which had a pointed profile (diameter: 0.32m; depth: 0.30m) and produced 55 sherds pottery from a single rusticated Beaker. Also of note was pit F.1182, which displayed steep-sides, a flat base (diameter: 0.45m; depth: 0.22m) and yielded 20 fragments of Food Vessel Urn.

In terms of material culture, only a few artefacts were found in direct association with the adjacent structure (either within features or within the confines

Figure 3.19 (opposite). Structure 1 plan and sections (includes small finds distribution).

Figure 3.20. Photograph of Structure 1 (looking southwest).
of its plan), postholes F.1286 and F.1298 yielding single sherds of Beaker. In addition, two fragments from a fine incised Beaker, which matched the sherd recovered from F.1298, were retrieved from between postholes F.1291 and F.1298 (SF 198). A small plano-convex knife was also found between the central hearth and its adjacent pit, with burnt flint and a piece of calcined bone deriving from the hearth itself. Adding to this was a small but coherent assemblage of flint tools collected from between the postholes of the structure (Fig. 3.21). Buried soil test-pits produced very little material although discrete zones of the old land surface did produce localized concentrations especially in the same area as the house but also adjacent to a small group of earlier pits. An ‘unfinished’ or incomplete perforated stone or macehead was recovered from just 12m to the east of Structure 1.

Structure 1 and its smattering of contemporary external features can be understood as belonging to a far more extensive pattern of occupation, that extended throughout the lower contours of the Flag Fen Basin and, in particular, along the drier margins of the Bradley Fen Embayment. Given the magnitude of the investigations in this context and the range of spaces covered, its singular occurrence could be seen as a direct expression of the authentic scale of Beaker settlement (a house every 25ha?). Most importantly, its discovery makes explicit the presence of early ‘terrestrial’ sites below, rather than beside, fen-sediments.

The Collared Urn structures and associated settlement swathes

To explore the Collared Urn settlement evidence, it is necessary to move upslope to the higher contours of the western end of Whittlesey Island and away from the margins of the Bradley Fen Embayment (Fig. 3.22). This is a temporal as well as a spatial shift and reflects a deliberate change in the choice of settlement location. Whilst movement was in part a consequence of the increasing saturation of the embayment’s skirtland, the shift was no doubt motivated by other considerations, such as proximity to the comparatively well-drained and nutrient-rich soils of the upper gravels. Certainly, the lower contours were not entirely wet at this stage, as
Figure 3.22. Location of Structure 2, Burnt Mounds 1–3, watering hollows and metalled surfaces. Plus relative location of Structures 2 & 3.
demonstrated by a pre-peat in situ pit-pyre containing a Collared Urn close to the edge of the Bradley Fen Embayment at about 0m OD (Fig. 3.18).

Aside from this interment, and within the wider context of the King’s Dyke/Bradley Fen transect, the Collared Urn settlement evidence consisted of two feature concentrations situated either side of the elevated monument complex: one major (King’s Dyke, Structure 3) and one minor (Bradley Fen, Structure 2; Fig. 3.22). Bridging the gap between these two occupation foci, was the ‘midden’-like deposit situated within the confines of the henge, which yielded a similar material assemblage as the two adjacent settlement concentrations.

**Structure 2 and adjacent feature scatter**
Structure 2 comprised a small circle of five postholes (F.632–36) with an external diameter of 4m (Fig. 3.23). The postholes ranged between 0.35 and 0.80m in diameter and 0.17 and 0.34m in depth. From the surface, the structure was made obvious by its grey silty-clay fills and occasional darker, charcoal-rich post-pipes (visible in every posthole except F.680 and F.693). Posthole F.636 produced a radiocarbon assay of 1760–1610 cal bc (Beta-269126: 3390±40 bp) from a charred seed.

The structure’s post-ring surrounded a central arrangement of four further postholes (F.647–49, F.693) and a central pit (F.637). An additional external pit/posthole, F.680, was located 0.50m immediately to the north of the circle. The central pit, F.637, produced the greater number of artefacts, including fragments of Collared Urn pottery as well as pieces of burnt clay. Otherwise, the artefact count was low and restricted to odd pieces of worked flint or pottery from the various postholes (flint: F.632–35; pottery: F.636).

Fragments of Collared Urn pottery were also recovered from nearby pits such as F.653, a large oval-shaped pit (2.00 × 1.40m; depth: 0.55m) located 3 metres to the south of the building and F.671 (1.25 × 1.10m; depth: 0.43m), situated 7 metres to the east. Both of these features contained dark charcoal-rich fills equivalent to the post-pipe fills of the adjacent structure. F.681, located immediately beside F.653, also produced a piece of Bronze Age pottery and, like F.653, displayed an undercut profile (1.50 × 0.90m; depth: 0.30m) and a dark charcoal-stained fill.

**Structure 3 and adjacent feature scatter**
Structure 3 comprised a small circle of six pits (F.347–48, F.374, F.376, F.906–07) with an external diameter of 4m and a southeast-facing ‘porch’-like structure.

![Figure 3.23. Structure 2 plan and sections.](image)
composed of four postholes (F.373, F.428, F.433, F.913; Fig. 3.24). The pits ranged between 0.45 and 0.55m in diameter and 0.13 and 0.32m in depth. They displayed steep bowl-shaped profiles filled with mid-grey sandy-silt with occasional charcoal; none showing obvious post-pipes. Similar fills characterized the postholes in the porch structure, which were smaller, but shared features in common with the other post-settings revealed within, or immediately adjacent to, the building’s interior (F.372, F.429–31, F.910–13, F.433; diameters ranging from 0.15 to 0.45m; depths 0.02 to 0.12m).

Of note is pit F.349 (0.80 × 0.70m and was 0.27m deep) which cut the eastern side of structural pit F.374. As with the majority of the pits that made up the structure’s footprint, F.349 contained a large number of distinctively calcined flints. Unlike the other fire-cracked flints encountered elsewhere on the site, these nodules and flakes had been burnt to such an extent that they had turned a brilliant white colour. F.349 also contained 38 sherds of Collard Urn; all of which had been burnt, including three sherds that had been so severely heat distorted that they had begun to vitrify. Along with the burnt flint and burnt pottery, large lumps of fired clay were also recovered from pit F.349. The fired clay came in different shapes but nearly all the pieces had fingertip, wood grain, cereal

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Figure 3.24. Structure 3 plan, sections and associated pits.
similarly scattered, with only a few inter-cutting features and loosely defined clusters – most pits being shallow, irregularly profiled hollows with individual fills. Few of these are worth detailing individually, though note can be made of some of the larger pits which contained important assemblages or more complex fill sequences. The first of these is shaft F.259, which was the only feature of substantial depth (1.81m). The infilling sequence comprised primary weathering deposits (yellow-brown sandy-silt followed by pale brown/yellow silty-sand) overlain by a 0.30m thick silt accumulation (mid brownish-grey clayey fine silt). Above the silt deposit was a 0.65m deep slump of brown silty-sand derived from the weathering of the upper profile. Finally, a capping fill similar in character to the surrounding buried soil horizon (pale grey silty-sand) would appear to illustrate a combination of further weathering and the eventual re-establishment of the soil profile. Abraded sherds of Collared Urn-type fabric pottery were present at the top and base of the shaft but these would appear to be incidental inclusions, whereas a basal dump of unarticulated animal bones would appear to represent a deliberate deposition.

The largest assemblage of artefacts came from a set of inter-cutting pit features (F.276, F.317 and F.318), located to the east of the shaft. The primary pit F.318 was relatively empty but the two features

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**Figure 3.25.** Diameters/depths of Early Bronze Age pit/posthole swathe associated with Structure 3. Larger pits labelled.
A pre-fieldsystem landscape

(F.276 and F.317) that infringed its boundaries produced substantial amounts of pottery and flint. F.318 was irregular in plan (1.50m × 1.25m), cut to depth of 0.27m, and much of its upper fill had been truncated by the two later pits. By comparison, F.317 was larger (1.45m × 1.40m), deeper (0.33m) and contained a darker fill (brownish-black sandy-loam). F.276 was smaller in size (0.97m × 0.56m) but was also cut to a greater depth (0.35m) and contained a darker fill (Fig. 3.26).

Summary
The scale of Collared Urn settlement was different to that of Beaker settlement, even if the overall spatial distribution of the two pottery types was almost identical (Table 3.15). Whereas structurally, Beaker settlement indicated a singular focus, Collared Urn settlement revealed at least two, possibly three significant concentrations. By dwellings alone, the incidences of occupation was doubled. At the same time, the ‘midden’ deposit allied patterns of settlement to the closing moments of the henge’s depositional history and, along with the funerary contexts, established an explicit relationship between occupation and the middle stages of the overall monument complex. If anything, the scale of Collared Urn occupation was equivalent to that of the ongoing and contemporary development of the monuments. The suggestion being that those who inhabited the structures also initiated/attended the activities within and around the henge and barrows. As with the monuments, the

Table 3.15. Structure/settlement material culture breakdown (no./wt).

<table>
<thead>
<tr>
<th></th>
<th>Pot</th>
<th>Flint</th>
<th>Burnt flint</th>
<th>Fired clay</th>
<th>Animal bone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure 1</td>
<td>2 (14g)</td>
<td></td>
<td>1 (1g)</td>
<td>0</td>
<td>3 (3g)</td>
</tr>
<tr>
<td>Associated settlement</td>
<td>61 (689g)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>63 (703g)</td>
<td>0</td>
<td>1 (1g)</td>
<td>0</td>
<td>3 (3g)</td>
</tr>
<tr>
<td>Structure 2</td>
<td>17 (532g)</td>
<td>6</td>
<td>2 (5g)</td>
<td>2 (5g)</td>
<td>19 (170g)</td>
</tr>
<tr>
<td>Associated settlement</td>
<td>12 (147g)</td>
<td>3</td>
<td>1 (2g)</td>
<td>1 (318g)</td>
<td>8 (175g)</td>
</tr>
<tr>
<td>Total</td>
<td>29 (679g)</td>
<td>9</td>
<td>3 (7g)</td>
<td>3 (323g)</td>
<td>27 (345g)</td>
</tr>
<tr>
<td>Structure 3</td>
<td>49 (755g)</td>
<td>9</td>
<td>236 (492g)</td>
<td>32 (1009g)</td>
<td>18 (26g)</td>
</tr>
<tr>
<td>Associated settlement</td>
<td>211 (1931g)</td>
<td>93</td>
<td>30 (178g)</td>
<td>117 (3356g)</td>
<td>170 (879g)</td>
</tr>
<tr>
<td>Total</td>
<td>260 (2686g)</td>
<td>102</td>
<td>266 (670g)</td>
<td>149 (4365g)</td>
<td>188 (905g)</td>
</tr>
<tr>
<td>Henge ‘capping’</td>
<td>31 (402g)</td>
<td>85</td>
<td>4 (116g)</td>
<td>4 (121g)</td>
<td>112 (996g)</td>
</tr>
<tr>
<td>Grand total</td>
<td>383 (4470g)</td>
<td>196</td>
<td>274 (794g)</td>
<td>156 (4809g)</td>
<td>330 (2249g)</td>
</tr>
</tbody>
</table>
unambiguous ground plans of the two structures helped to specify set points in the landscape; precise places where movement coalesced. In this context, the interpretive value of two recognizable structures is qualitative as much as it is quantitative in that it expresses a change in the density of settlement as much as in the frequency.

**Watering hollows, metalled surfaces, hoofprints and burnt mounds**

Having explored the architecture of settlement, as characterized by post-built structures and features bearing relatively large concentrations of domestic debris, it is now time to return to the margins of the Bradley Fen Embayment and explore a suite of features that shared a similar chronology but almost no artefactual material. This section addresses a group of burnt mounds and watering hollows, as well as a series of metalled surfaces and animal tracks found in association with them.

Out of all the pre-fieldsystem features, the burnt mounds and hollows that encircled the embayment represent the most palpable manifestations of cumulative or reiterative practice. These were features made-out of individual processes, repeated over and over again and, as such, portray an entirely different kind of landscape imprint to that made by the developed monument sequences or contracted settlement patterns described above. Collectively, they outlast specific monument stages or individual settlement episodes and, accordingly, they appear to represent an enduring class of feature which, for this part of the landscape, persisted all the way through the Early Bronze Age, more or less unchanged. In truth, an absence of artefacts might represent a direct expression of the enduring quality of these features; the processes involved in the creation of mounds and hollows were not ‘period’ or ‘type’ specific but corresponded instead to a kind of lasting practice (such as boiling water (see Barfield & Hodder 1987, 370–79).

The shift in focus back down the slope to the embayment edge shows the burnt mounds and watering hollows to be spatially ‘governed’, in that their location corresponded precisely to the embayment’s increasingly wet margins. The enhanced preservation of these features (i.e. the fact that they survived as positive entities) was more or less dependent on such circumstances, as the ensuing saturation eventually led to these things being subsumed by a deep blanket of peat. The evidence implies that the location was damp (hence the erosion of the old land surface, the preservation of animal prints and the need to consolidate patches with metalling) but not yet fully saturated. First and foremost, the features described in this section were integral to an occupation that occurred on the old land surface as it was becoming increasingly wet but before it was wet enough to instigate peat growth. The distinction is subtle but nevertheless significant in that it shows to the mounds to be significantly pre-peat.

Detailed here is the patchwork of features that occupy this zone: 1) Watering hollows, metalled surfaces and animal tracks and 2) Burnt mounds (BM1–4). It is difficult to disentangle the various activities without turning them into a series of disjointed fragments. However, for the sake of narrative, this sequence has been adopted since it basically mirrors the collective order of things, placing burnt mounds last, as a way of illustrating their cumulative quality and the manner in which, stratigraphically, they fitted into, or accrued amongst, the wider patchwork of activities.

**Watering hollows**

The shape and form of the early waterholes was that of large, relatively shallow pools or ponds, as opposed to deep wells or shaft-like features. As gradually descending pits, they were purpose-built for groups of animals to gain easy access to water, sometimes via clear ramp-like cuttings. The addition of metalled surfaces covering the approaches to these features, as well as their bases, indicates that they were regularly used and carefully maintained.

The quasi-regular spacing of the waterholes suggests a linear distribution strung out along the embayment margins, at the general divide between increasingly wet and persistently dry ground. Some, but not all of these waterholes, later became the foci for burnt mounds. Dependent on which side of the embayment the features were situated, the waterholes can be split into Eastern and Western groups. The eastern group comprised F.859, F.866, F.1093, F.1102 and F.1038 (Fig. 3.22); the western group: F.1266, F.1292 and F.1316 (Fig. 3.18).

**Eastern group**

By far the largest of the waterholes was F.859 and its accompanying ‘internal’ pit F.866 (Figs 3.27 & 3.29). Combined, these two features made a very large, irregular C-shaped hollow (3.8m wide east–west; 14.2m wide north–south) which descended to a maximum depth of 1.50m. F.866 was situated at the deep, eastern end of F.859 and was connected via a shallow access ramp (Fig. 3.28). The eastern edges of F.866 were very steep, except for the weathered upper reaches of the cut. These were filled with edge-erosion deposits of yellowy-orange sandy-clay, which overlay a slow-forming deposit of brown-grey silty-loam. In plan, F.866 was sub-rectangular (8.10 × 5.90m), its base contiguous with the access ramp. The bases of F.866 and F.859 were
Figure 3.27. Plan of waterhole F.859/F.866 with accompanying burnt mound features (Burnt Mound 1) and later wattled pit-guard F.892 (described in Chapter 4).
Figure 3.28. *Section of waterhole F.859/F.866 with accompanying burnt mound.*
A pre-fieldsystem landscape

covered by a metalled surface made up of compacted gravels and re-deposited rounded river pebbles. The orientation of the ramp was such that access by animals to the depths of F.866 was gained from the embayment side of the complex. The eastern edges of F.866, on the dry or upslope side, were too steep, meaning access to the water could only be gained by ladder or bucket.

Just 12m to the south of this complex was another shallow hollow, F.1093 (dimensions: 7.41 × 7.28m; depth: 0.30m), whose appearance was not dissimilar to the southern end of F.859 (Fig. 3.30). The feature had an undulating base and gently sloping sides, filled with mid-grey silty-clay beneath peat. Further south still, around 20m from F.1093, were two more large irregular hollows, F.1102 and F.1038 (Fig. 3.30). The first of these, F.1102, was roughly kidney-shaped and predominantly shallow (0.30m) except where it was punctuated towards its eastern end by a single circular pit, F.1062 (dimensions: 1.50 × 1.40m; depth: 0.75m). Blue-grey silt infilled the hollow but only after a metalled surface had been laid across its broad flat base. A fragment of human skull was recovered from close to its base along its north-eastern edge. The second hollow, F.1038, was L-shaped in plan. It displayed a very shallow cut (0.18m in depth) but incorporated a deeper north–south trench within its eastern arm (1.0m deep). Combined, the two arms were just less than 10m in length, whereas the width at the centre measured 4.39m; fills comprised a sequence of slow-forming bluish-grey silts and slumps of bright orange sands.

Western group

The western group comprised two very large irregular watering hollows, F.1266 and F.1292, situated about 35m apart. F.1266 was 11.10m long, 6.80m wide and up to 0.28m deep (Fig. 3.31). In plan, it was made up of a narrow, shallow ‘pathway’ (5.25m in length, 1.80m in width and 0.03m in depth) that connected to an elongated ramp, leading down to a large sub-circular hollow (diameter c. 6.00m; depth: 0.25m). All three of these elements were lined with the same compacted gravel surface (Fig. 3.32). The fringes of the complex were uneven but generally survived as a series of gentle slopes leading down to the base of the hollow. In places, the sides were disturbed by hoofprints discussed below. The southern end of the ramp was disturbed by an irregular-shaped pit, F.1282 (dimensions: 0.51 × 0.42m; depth: 0.13m), which cut the metalled surface. The same relationship was observed towards the centre of the main hollow, where two postholes were encountered, F.1267 and F.1268. The former was a deep set posthole, 0.35m in diameter and 0.58m in depth, the latter shallower and smaller (0.18m in diameter and 0.09m in depth).

Figure 3.29. Photograph of commencement of excavation of F.859/F.866.
Figure 3.30. Waterholes (F.1093, F.1102 & F.1038) and metalled surfaces (F.951, F.1052 and F.1100).
Figure 3.31. Photograph of waterhole F.1266 (looking to the west) and detail of Area 2 hoofprints.
Chapter 3

Metalled surfaces
 Certain attributes were common to all of the metalled surfaces. In their make-up they comprised spreads of small to medium sized stones that had been forcefully compacted to make a hard-standing surface. They

The second hollow, F.1292, was kidney-shaped in plan (dimensions: 12.80 × 6.55m; depth: 0.26m) and had gently sloping sides and a broad flat base. It was very similar in character to F.1266 but did not share the same frequency of hoofprints.

Figure 3.32. Plan and section of waterhole F.1266 and sections of selected Area 2 hoofprints.

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occurred in places were the buried soil had been removed either by the digging of features or through erosion. In some places, prolonged and continual trample of the exposed underlying aggregate was enough to create a hardened surface, whilst in other areas the metalling was purposely laid or augmented with imported materials, such as re-deposited gravels or rounded river pebbles. As described above, the surfaces occurred along the bottom of waterholes and on access ramps, along pathways and as a patchwork of pavements around the margins of the embayment.

The best preserved areas of metalling, independent of the waterholes, were located along the eastern edge of the embayment, slightly upslope of the cut features. The largest section was F.1100 which survived as a broad, if irregular, strip or pathway, measuring approximately 24m in length and nearly 10m in width (Fig. 3.30). The strip was oriented roughly east–west traversing the 0.6–0.4m OD contour. Its surface was patchy and in places punctuated by an irregular group of small scoops or puddles. The surfaces of the surviving metalling were worn smooth and, through continued use, made extremely hard. Adjacent areas of exposed natural had been similarly compacted and transformed into something equivalent to a rammed mud-floor. Immediately above both these surfaces was a horizon of waterborne sandy-silt (medium grey), which blanketed the metalling and compacted ground to a depth of between 0.10 and 0.15m. Artefacts, including pieces of worked flint, a cattle scapula (with a perforated blade; Fig. 3.33) and human clavicle were recovered from this deposit at the interface with the underlying metalled surface.

A smaller patch of metalling (F.1052, dimensions: 9.36 × 7.41m) was located 20m to the south of F.1100. Here the surface was subsumed by the same waterborne silt as F.1100 and, as before, the interface between the two horizons yielded artefacts – a total of 166 worked flints (Figs 3.34 & 3.35). Again the surface was patchy and some of its edges were caught by machining.

Figure 3.33. Perforated scapulae (Vida Rajkovača): The perforated cattle scapula SF.249 (left; oval-shaped puncture: 34 × 25mm) came from F.1100. An analogous example, SF.1007 (right; oval-shaped puncture: 62+ × 45mm), was found at the adjacent Must Farm investigations (Knight & Murrell 2011b). Both examples were found in low lying areas in association with metalled surfaces. The puncture on the Bradley Fen scapula appears to have been made by an object being pushed through from the posterior side, whereas the Must Farm scapula was made from the anterior side. This type of butchery mark is characteristic of Romano-British faunal assemblages and interpreted as evidence of meat hanging for smoking or brining. Equivalent Late Neolithic examples have been found in the south of France, near Montpellier (Fontbouisse culture, Vianney Forest, INRAP [Institut National des Recherches en Archéologie Préventive], pers. comm.).
Metalled surface F.1052 (Lawrence Billington)

A total of 166 worked flints were collected from metalled surface F.1052 and the surrounding eroded natural. The majority of the flints were recovered from the surface of the metalling and must represent activity contemporary with the use of the surfacing. It seems unlikely that much residual material could have come to be deposited on the metalled surfaces, excepting perhaps larger pieces such as cores which may have been collected alongside natural stones and incorporated into the surface. The flintwork therefore provides important evidence for the date of the metalling as well as hinting at the use of these areas.

The assemblage is almost exclusively good quality fine grained flint. Approximately 20% of the flints are made from a translucent orange flint, probably derived from local gravel deposits. Where cortex survives it is generally thin and weathered. The remainder of the assemblage is made up of good quality dark flint, often with a reddish colour and sometimes with lighter brown bands. Several pieces retain the fresh unabraded cortex suggestive of primary chalk flint. The condition of the pieces is very good and fresh although the assemblage is dominated by small, often fragmentary tertiary removals. Chips, pieces with a maximum dimension of 10mm, are well represented at 18.7% of the assemblage. The unretouched flakes are often little bigger than the chips: 51.6% weigh 1g or less. Despite a concerted effort, no refits could be made between any pieces and it is clear that the assemblage represents numerous episodes of reduction and that parts of these sequences, especially larger flakes and blades, are missing. On the basis of

**Figure 3.34.** Plan of metalled surface F.1052 and distribution of worked flints.
A pre-fieldsystem landscape

cortex character and distinctive inclusions, it can be suggested that several pieces are from the same nodule, most notably a large trimming flake (SF 95) and core (SF 132).

The technological traits of the material indicate a mixture of core reduction strategies concerned both with the production of narrow flakes and blades and with the production of broad, relatively thin flakes. Some of the small, thin tertiary removals could also represent tool manufacture. Blades and narrow flakes are relatively well represented (15.7% of the debitage),

Figure 3.35. Sample of worked flints from metalled surface F.1052: 1) crested flake (SF95), 2) leaf-shaped arrowhead (SF.100), 3) Levallois-like core (SF.132), 4) blade (SF.134), 5) serrated blade (SF.186), 6) multiple platform narrow flake/blade core (SF.211), 7) end scraper (SF.219).
these invariably have trimmed or abraded striking platforms and are soft hammer struck. One heavily utilized or serrated blade has opposed blade scars on its dorsal surface indicating the use of an opposed platform core. Several other flakes show different characteristics including the distal end of a large broad and thin flake probably struck from a Levallois-type core and several pieces with carefully faceted platforms. Seven cores were recovered. One is a single platform core with narrow flake scars and carefully trimmed platform edges. Two further single platform cores on small gravel nodules appear to have produced only a few small flakes, but also show traces of platform trimming. Two well worked out multiple platform cores weighing 14.4g and 14.6g show very similar technological traits, with fine narrow flake scars and platform trimming. Two further cores, with somewhat different technological characteristics, were recovered: one was a keeled core with some platform faceting and some fine narrow blade scars whilst the other was a very neatly worked and exhausted Levallois-type discoidal core.

Nevertheless, the compaction was not restricted to the metalling but extended across areas of the exposed or eroded natural, as did the scatter of lithics.

As little as 20m to the south, F.948 was a small oval-shaped mound of buried soil (6.00 × 4.50m; 0.15m in height) that stood proud within an area where most of the buried soil had been truncated. The mound itself was encircled by a compacted spread of gravel pebbles, F.951, that formed a hard, resilient surface which masked the softer underlying clay-rich natural (Fig. 3.30). Overlying the metalled surface was a thin deposit of grey sand-rich silt that looked very much like buried soil but was much more friable in texture and had a water-lain appearance. As with the metalled surface, the grey sandy-silt deposit also encircled the mound butting up against its lower edges. A large deer antler (SF 71) came from this context.

Stratigraphically, the surfaces can be shown to have been formed early in the sequence and to pre-date the burnt stone mounds in their final form. They survived as a tangible artefact of people and animals progressing up and down the sides of the embayment and, as such, they represent past movement made manifest. The damp, softened ground that made up the margin was, it seems, particularly susceptible to being affected in this way and because of this the surfaces are only fragments of much bigger journeys that happened to cross yielding ground. In effect, these spaces were critical points, where it really mattered that practicable access was maintained.

### Animal tracks

Discrete patches of hoofprints were found at Bradley Fen. All of the prints occurred below 1.5m OD and all were below the peat. Unambiguous examples were recorded over the top of the small buried soil knoll, F.948, on the old land surface beneath Burnt Mound 4, around the exposed edges of at least three of the large watering hollows and across the primary silts, that infilled one of the hollows. The prints comprised clusters of small to large cloven-hoof impressions that occasionally formed discernible paths or tracks. The quality of prints varied between contexts with the watering hollow sets being the best preserved. Dependent on context, fills included silt, peat and burnt mound matrix. The sub-1.50m OD distribution of hoofprints corresponded to the deepest and best preserved areas of the site. It also corresponded to the increasingly wet zone of the site. The prints were present on exposed surfaces of the old land surface or the exposed edges of contemporary features. The prints were absent in areas of metalling and exposed areas of natural gravels.

<table>
<thead>
<tr>
<th>Table 3.16. Flint assemblage from metalled surface F.1052 (*excludes chips).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F.1052</strong></td>
</tr>
<tr>
<td>Chip</td>
</tr>
<tr>
<td>Chunk</td>
</tr>
<tr>
<td>Flake</td>
</tr>
<tr>
<td>Blade/bladelet</td>
</tr>
<tr>
<td>Narrow flake</td>
</tr>
<tr>
<td>Core rejuvenation flake</td>
</tr>
<tr>
<td>Flake core</td>
</tr>
<tr>
<td>Blade/narrow flake core</td>
</tr>
<tr>
<td>Retouched flake/blade</td>
</tr>
<tr>
<td>Serrated flake/blade</td>
</tr>
<tr>
<td>End scraper</td>
</tr>
<tr>
<td>Leaf arrowhead</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Burnt and worked (%)</strong></td>
</tr>
<tr>
<td><strong>Broken (%*)</strong></td>
</tr>
<tr>
<td><strong>Retouched (%*)</strong></td>
</tr>
<tr>
<td><strong>Utilized (%*)</strong></td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>99</td>
</tr>
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<td>1</td>
</tr>
<tr>
<td>6</td>
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<td>1</td>
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<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>166</td>
</tr>
<tr>
<td>7 (4.2)</td>
</tr>
<tr>
<td>57 (42.2)</td>
</tr>
<tr>
<td>4 (3)</td>
</tr>
<tr>
<td>8 (5.9)</td>
</tr>
</tbody>
</table>
The deepest, sharpest and best defined of the clusters of prints survived within the exposed un-metalled edges of watering hollow F.1266 (Figs 3.31 & 3.32). Some of the prints were up to 13cm deep and the high clay content of the surrounding natural was, it seems, the perfect consistency for preserving prints. A group of 20–25 cloven-hoof prints were recorded around the hollow’s north-western circumference and the majority of these had been made by the larger middle toes or cleaves (toes 3 and 4) although some also incorporated the back toes or dew claws (toes 1 and 5). The prints appeared to represent more than one kind of animal and included both large (length: 12cm; width: 12cm) and small (length: 4.5cm; width: 5cm) examples. The majority of the prints were longer than they were wide (72%) with the remainder having either an equal length–width ratio (17%) or a greater width to length (17%) ratio (Fig. 3.36). Some prints were identifiable as particular species and included cow, pig and deer, but not sheep. Similarly, walking patterns were also apparent with sets of prints entering and leaving the waterhole. The full palimpsest effect was visible around F.1266 in that animal tracks were identified both below and above its silt infilling. Splayed and exaggerated forms suggested that some of the prints had been made by animals slipping down the edge of the hollow.

The prints that cut the top of the buried soil knoll and the old land surface beneath Burnt Mound 4 were less sharp and considerably less deep (4cm max.) and as a result they were difficult to identify in terms of species. Their overall size matched those found around the hollows and their density was also the same.

**Burnt mounds**

Four burnt mounds were revealed at Bradley Fen (Burnt Mounds 1–4): their details listed in Table 3.17. Three were located along the eastern fringe of the Bradley Fen Embayment (Burnt Mounds 1–3; Fig. 3.22), whilst the fourth was uncovered directly opposite, on its western margin (Burnt Mound 4; Fig. 3.18). All were situated below the 1.00m OD contour and lay within areas where the old land surface was still mostly intact. Without exception, the currency of the mounds pre-dated the formation of a peat horizon across the contours at this altitude.

Architecturally, the mounds comprised large accumulations of fire-cracked stones incorporated within a dark, humified sandy-silt matrix. Though the group shared features in common, such as the presence of a hearth beneath every mound, individually, however, the sub-mound and extra-mound features were quite distinct, particularly with regard to the relationship to existing, possibly ‘relict’ waterholes.

**Burnt Mound 1**

Burnt Mound 1 was irregular in plan, measuring c. 15m in length, 13m in width and was up to 0.20m thick (Figs 3.27 & 3.28). The mound material comprised dark grey...
to black humified sandy-silt replete with fragments of fire-cracked sandstone river pebbles. The mound was formed alongside the south and western edges of the large C-shaped watering hollow F.859.

Located underneath the mound and central to a very slight hollow in the preserved buried soil (0.11m thick), were a series of features including two hearths, (F.877 and F.890), six postholes (F.878, F.883–88) and two further pits (F.875 and F.876). Hearth F.877 was oval-shaped (0.90 × 0.80m), whilst F.890 was circular (diameter: 0.85m). Both stood out as orangey-red scoops against the grey buried soil background, filled with a pale orange sandy-silt with occasional fragments of burnt stone. The postholes, on the other hand, were filled with the same matrix as the mound material. These displayed small diameters (0.19–0.29m) and shallow, U-shaped profiles (0.06–0.18m in depth), with postholes F.884–87 forming a neat four-post arrangement that partially encompassed hearth F.890.

Three metres to the northwest of this ‘structure’ was circular pit F.875 (diameter 1.60m), which had a bell-shaped profile (depth 0.60m) accentuated by a splayed weathering cone. Its basal fill included fragments of burnt stone held within a soil matrix, comparable with the mound material itself. A similar fill characterized pit F.876, which was situated nearly 4m to the east. It had a squar profile comprising a flat base with splayed sides (diameter: 0.90m).

Burnt Mound 2
Burnt Mound 2 was also irregular in plan and measured 15.5 × 14.0m (Fig. 3.37). At its thickest, the mound was 0.28m thick and overlain by a thin (0.08m max.) buried soil horizon. The mound material comprised dark brown, almost black, humified sandy-silt with occasional yellowy-orange sandy-silt lenses and abundant fragments of burnt stone.

Four features were sealed beneath the burnt mound: a hearth (F.966) and three pits (F.1086–88). Of these, F.1086 proved to be the deepest and displayed a complex depositional sequence. The pit was roughly oval in plan (3.40 × 3.00m) and had near-vertical sides and a stepped base (1.52m in depth). This had been re-cut, but only after the original feature had been completely infilled.

The basal fills of the primary cut consisted of grey-brown organic silts with fragments of waterlogged roundwood and small pebbles. Hazelnut shells were also present. Three fragments of animal bone (30g) were recovered from the paler, secondary fills. The lower dark organic silt fills associated with the re-cut produced fragments of bark, moss, hazelnut shells, worked wood, nine pieces of animal bone (175g) and three pieces of burnt stone (555g). In contrast, the capping fill was continuous with the overlying burnt stone spread.

To the west of F.1086 were two smaller pits, F.1087 and F.1088, both of which were also capped by mound material. F.1087 was an irregular shaped hollow (1.55 × 1.30m and 0.16m in depth), whereas the adjacent F.1088 was ‘trough-like’, having a box-shaped lower profile but eroded upper edges (2.10 × 1.35m and 0.55m in depth). As well as the mound-derived capping fill it also appeared to be lined with mottled grey sandy-clay along its two longest sides.

Burnt Mound 3
Burnt Mound 3, F.1148, was oval in plan (12.00 × 8.00m) and up to 0.08m thick (Fig. 3.38). The mound overlay a buried soil horizon that varied between 0.02 and 0.07m in thickness. As with the other two mounds, the burnt mound matrix comprised dark grey-black humified silty-sand with abundant burnt stone.

Features located beneath the mound included hearth F.1150 and pit F.1149. The hearth feature was located centrally to the burnt mound spread and stood out as a scorched (orangey-pink) hollow in the surface of the underlying buried soil. Immediately adjacent to

<table>
<thead>
<tr>
<th>Burnt Mound</th>
<th>Area m²</th>
<th>Height OD</th>
<th>Sub-mound features</th>
<th>Extra-mound features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (F.874)</td>
<td>148.55</td>
<td>0.70m</td>
<td>11 (F.875–78, F.883–90)</td>
<td>MT: F.865 WH: F.859 F.866</td>
</tr>
<tr>
<td>2 (F.1095)</td>
<td>155.33</td>
<td>0.80m</td>
<td>4 (F.966 F.1086–88)</td>
<td>MT: F.1102 WH: F.1038 F.1102 F.956</td>
</tr>
<tr>
<td>3 (F.1148)</td>
<td>69.29</td>
<td>0.70m</td>
<td>2 (F.1149, F.1157)</td>
<td>MT: None WH: F.1151</td>
</tr>
<tr>
<td>4 (F.1284)</td>
<td>31.15</td>
<td>0.00m</td>
<td>1 (F.1283)</td>
<td>MT: None WH: F.1280 F.1286</td>
</tr>
</tbody>
</table>
A pre-fieldsystem landscape

The western edge of the mound was bordered by a crescent-shaped hollow, F.1281 (3.75 × 0.95; depth this was the basin-shaped pit, F.1149 (2.05 × 1.05m), which displayed a U-shaped profile cut to a depth of 0.49m. Fragments of burnt stone lay on the base of the pit, overlain by a silt deposit that also yielded fire cracked stones. Above this, the upper fill was effectively a continuation of the burnt mound spread, which slumped noticeably into the pit.

Smaller, shallower pits with profiles not dissimilar to F.1149 were recorded close to the southern and eastern edge of the mound. One, F.1145 (1.70 × 1.10m, 0.36m deep), had a basal fill rich with fragments of burnt stone. Like F.1140 its upper fills were essentially composed of burnt mound material. The other, F.1146 (diameter: 1.10m, 0.30m deep), contained similar fills once again replete with fragments of burnt stone.

**Burnt Mound 4**

Burnt Mound 4 was oval in plan (7.00m in length, 5.50m in width), with an accumulated deposit that was 0.15m thick (Fig. 3.39). It was situated upon a slight rise, resting above a 0.10m thick buried soil. As with the other three burnt mounds located along the opposing eastern edge of the embayment, the composition of Burnt Mound 4 was dark grey to black humified sandy-silt with abundant fragments of burnt stone.

Located beneath the centre of the mound, but above the buried soil, was a small hearth, F.1283. It was oval in plan (1.75 × 1.20m) and survived as a 0.08m deep hollow infilled with a mottled orange-yellow-grey ash deposit. The surface of the hollow was scorched, transforming the underlying buried soil from pale grey to reddish-orange. Outside of the hearth, the surface of the buried soil beneath the mound was pock-marked with very small semi-circular hollows (c. 0.15m in diameter) that held pockets of the burnt mound material. These had the appearance of weathered or compacted hoofprints, perhaps partially obliterated by the creation of the mound.

**Figure 3.37. Plan of Burnt Mound 2 incorporating earlier waterholes F.1102 and F.1038.**
0.33m), infilled with pale grey sandy-silt over a lower fill of sandy-gravel that included flecks of charcoal as well as a single fragment of animal bone.

A few metres away from the mound were two sub-circular pits, F.1280 and F.1286, both of which were capped with peat. F.1280 was 0.85m in diameter and 0.38m deep, had a basal fill of pale grey clayey-silt and a U-shaped profile. By comparison, F.1286 was over three times as deep (1.10m deep) and had a worn profile indicative of an ‘open’ feature. A broad weathering cone (1.50m in diameter) marked the top of the pit, whilst the lower profile was only 0.85m in diameter, with vertical sides and an irregular base. The primary fill was a blue sandy-silt and included small twigs, a tangential wood chip and some fragments of bark. Above this deposit was a split roundwood stake (0.80m in length and 0.10m in diameter) which was engulfed by a 0.70m thick deposit of re-deposited natural. The uppermost fills consisted of pale grey silt beneath peat.

**Burnt mound scale and composition**

Whilst the four burnt mounds differed both in total area (31.1–155.3m²) and the overall density of their burnt heavy fraction (average weight of burnt fraction per 15 litres ranged between 676.5 and 1707.5g), they nonetheless demonstrated remarkable consistency in terms of relative composition (Table 3.18; Fig. 3.40). From this, it may be surmised that the four mounds represent the products of equivalent processes or practices but that they differed in their intensity of use. The largest mounds (Burnt Mound 1 and Burnt Mound 2) had the

![Figure 3.38. Plan of Burnt Mound 3 incorporating waterhole F.1151.](image)

![Figure 3.39. Plan of Burnt Mound 4 (with photograph looking north).](image)
suggest that Burnt Mound 4 was, in reality, the first of the four mounds and that the almost indistinguishable dates generated by Burnt Mounds 1 and 3 represent, or are indicative of, a distinct burnt mound horizon to which Burnt Mound 2 also belonged.

In places the burnt mounds and large watering hollows were located side by side, whilst in others the two feature-types were much more distinct. Remarkably, the mounds consistently coincided with areas where the buried soil horizon was still intact, whereas the metalled surfaces only occurred where the same horizon had been effaced. Occasionally, there were subtle suggestions that the burnt mounds overlapped with the metalled surfaces or even that the circumstances that brought about the necessity to augment the ground surface with compacted spreads of gravels were being circumvented by the intervention of large accumulations of burnt stones. So, for example, the hoofprints located beneath Burnt Mound 4 or in the ‘trampled’ hollow beneath Burnt Mound 1 might have indicated places which would have eventually required metalling, had it not been for the making of the mounds.

Table 3.18. Burnt mounds – area and heavy fraction composition.

<table>
<thead>
<tr>
<th>Burnt Mound</th>
<th>Area (m²)</th>
<th>Average weight per 15 litres</th>
<th>Burnt stone Average % per 15 litres</th>
<th>Burnt gravel/flint</th>
<th>Unburnt gravel/flint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>148.5</td>
<td>1087.5g</td>
<td>78.5 (1241g)</td>
<td>8.3 (131g)</td>
<td>13.2 (208g)</td>
</tr>
<tr>
<td>2</td>
<td>155.3</td>
<td>1707.5g</td>
<td>79.8 (1459g)</td>
<td>11.3 (206g)</td>
<td>8.9 (163g)</td>
</tr>
<tr>
<td>3</td>
<td>69.3</td>
<td>983.5g</td>
<td>69.7 (1622g)</td>
<td>11.5 (268g)</td>
<td>18.8 (438g)</td>
</tr>
<tr>
<td>4</td>
<td>31.1</td>
<td>676.5g</td>
<td>69.8 (598g)</td>
<td>19 (163g)</td>
<td>11.2 (96g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aver. 74.4%</td>
<td>Aver. 12.5%</td>
<td>Aver. 12.8%</td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>Mound</th>
<th>Sample</th>
<th>Conventional age</th>
<th>2 sigma (cal bc)</th>
<th>1 sigma (cal bc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (SQ 35)</td>
<td>Charcoal</td>
<td>3360 ± 40 bp</td>
<td>1740–1530</td>
<td>1690–1610</td>
</tr>
<tr>
<td>2 (SQ 1)</td>
<td>Charcoal</td>
<td>3770 ± 40 bp</td>
<td>2300–2120 &amp; 2100–2040</td>
<td>2270–2260 &amp; 2220–2140</td>
</tr>
<tr>
<td>3 (SQ 2)</td>
<td>Charcoal</td>
<td>3320 ± 40 bp</td>
<td>1690–1510</td>
<td>1650–1530</td>
</tr>
<tr>
<td>4 (SQ 3)</td>
<td>Charcoal</td>
<td>3490 ± 40 bp</td>
<td>1910–1700</td>
<td>1880–1750</td>
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</tbody>
</table>
### Settlement finds and material practice

The majority of the finds came from the higher, drier zones, whilst low-lying features that occupied what was to become the saturated zone yielded comparatively small quantities of all materials, except for fragments of burnt stone. As stated above, pottery assemblages from both monument and settlement contexts are presented in this section. Although comparatively small, the faunal and plant assemblages from settlement-related contexts were substantial enough to offer some insight into facets of diet and waste management as well as glimpses into aspects of livestock, agriculture and environment.

#### Prehistoric pottery (Mark Knight)

This report focuses on the site’s Early Bronze Age ceramic component and describes a small collection of Beaker and a large assemblage of Collared Urn (Figs 3.41 & 3.42). The latter section also includes other Early Bronze Age ‘non-collared’ forms such as vase-type Food Vessels, biconical and ancillary vessels. By any standard, the Collared Urn assemblage is impressive. It also represents a significant facet of the earlier landscape material trace and as such warrants particular attention. Similarly, the composition and scale of the Collared Urn assemblage has implications on the interpretation of the preceding and subsequent ceramic phases, in particular the ensuing Deverel-Rimbury component. Consequently, the contextual and distributional differences between the Collared Urn and Deverel-Rimbury assemblages are explored further in the following chapter. For now, it is necessary to demonstrate the composition and scale of the Early Bronze Age pottery.

#### Beaker

The Beaker assemblage comprised 163 sherds weighing 1237g. The pottery can be separated into three spatially distinct groups: King’s Dyke, Bradley Fen (high) and Bradley Fen (low). The bulk of the assemblage came from the last of these groups (Table 3.20). Most of the material comprised small sherds and included fine, comb-zone and incised decorated forms along with coarse, rusticated or raised plastic forms. The focus of the assemblage was a singular structure (Structure 1) situated at the low end of Bradley Fen whilst everything else pointed towards a thin or diluted background distribution.

#### King’s Dyke

The King’s Dyke excavations generated 12 sherds of Beaker pottery weighing 95g (Table 3.21). Ten fragments came from a tree-throw feature (F.82) and the remaining pieces from the backfill of a grave (F.757). The tree-throw contained abraded pieces from a single Beaker decorated with incised lozenges. The two pieces from the grave included a small comb-impressed fragment and an equally small rusticated piece decorated with crude ‘crowsfoot’ or fingernail-raised pellets. The comb-impressed piece was made of a grog-tempered fabric and the rusticated piece was flint tempered.

#### Bradley Fen (high)

The Beaker fragments incorporated thin-walled pieces with incised or comb-impressed decoration alongside thicker pieces with rusticated raised plastic or ‘crowsfoot’ designs. Fabric-wise the sherds were predominantly sand and grog rich. Of the 39 identified pieces, 5 were rim fragments (simple rounded) and 26 were decorated (Table 3.22). F.225 contained fragments of a small thin-walled vessel (c. 12cm diameter) decorated with a compact pattern of comb-impressed lines forming horizontal bands, filled chevrons and herring-bone decoration. Abraded fragments from at least two vessels came from F.652 with pieces of a fineware form decorated with bands of short vertical incised lines bounded by horizontal lines, a comb-zoned fragment and three rusticated pieces with ‘crowsfoot’ decoration. A residual ‘crowsfoot’ sherd was also located within F.544.

#### Table 3.20. Beaker pottery distribution by site and by elevation.

<table>
<thead>
<tr>
<th></th>
<th>No. sherds</th>
<th>Weight (g)</th>
<th>% Weight</th>
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<tr>
<td>King’s Dyke</td>
<td>12</td>
<td>95</td>
<td>7.7</td>
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<tr>
<td>Bradley Fen (high)</td>
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<td>Bradley Fen (low)</td>
<td>113</td>
<td>986</td>
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<tr>
<td>Total</td>
<td>163</td>
<td>1237</td>
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</table>

#### Table 3.21. King’s Dyke features with Beaker pottery.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Context</th>
<th>No. sherds</th>
<th>Weight (g)</th>
<th>Fabric</th>
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<tbody>
<tr>
<td>82</td>
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<td>10</td>
<td>81</td>
<td>12</td>
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<td>757</td>
<td>897</td>
<td>2</td>
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<td>12</td>
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#### Table 3.22. Bradley Fen (high) features with Beaker pottery.

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<th>Feature</th>
<th>Context</th>
<th>No. sherds</th>
<th>Weight (g)</th>
<th>Fabric</th>
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</thead>
<tbody>
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<td>132</td>
<td>20</td>
<td>50</td>
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<tr>
<td>329</td>
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<td>353</td>
<td>284</td>
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<td>3</td>
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<tr>
<td>544</td>
<td>500</td>
<td>1</td>
<td>4</td>
<td>1</td>
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<tr>
<td>652</td>
<td>613</td>
<td>12</td>
<td>76</td>
<td>3</td>
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<tr>
<td>Total</td>
<td>6</td>
<td>39</td>
<td>160</td>
<td>4</td>
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</table>
Figure 3.41. Beaker (Str. 1) and Collared Urn (Henge, Cemetery and Settlement) pottery: 1) Beaker, rim, body and base sherds of 'fluted' form incised all-over with horizontal grooves punctuated with small oval-shaped dots (SF.197); 2) Beaker, rim and neck fragments with incised lozenges infilled with a single line of short stabs (SF.198/F.1266); 3) Collared Urn, large bipartite form with incised 'herring-bone' decoration around its collar and neck (F.749); 4) Collared Urn; small bipartite form with impressed herring-bone decoration extending across its collar, neck and uppermost shoulder (F.750); 5) Food Vessel (bipartite 'vase-type'), angular outline with impressed cord decoration (F.851); 6) Collared Urn, collar fragment with impressed twisted cord lattice (F.851); 7) Collared Urn, small bipartite form with twisted cord herring-bone decoration on collar only (F.349); 8) 'collarless Urn', plain with internally bevelled rim (F.349); 9) Collared Urn, rim sherds (internally bevelled) with twisted cord triangles (F.349); 10) Collared Urn heavy slab-built collar decorated with impressed twisted cord (filled triangles; F.636); 11) Collared Urn, decorated collar fragment impressed twisted cord triangles (F.276); 12) Collared Urn, small collar fragment with twisted cord impressed decoration (F.276).
Chapter 3

Figure 3.42. Distribution of Beaker and Collared Urn pottery.
**Bradley Fen (low)**

A concentration of Beaker pottery was found in the vicinity of Structure 1. The find spot SF 197 generated 49 sherds, 23 of which were decorated and 10 of which were base fragments. On 21 of the 23 decorated sherds the decoration comprised ‘all-over’ incised horizontal grooves punctuated with rows of small oval stabs. This decoration was associated with an internally bevelled rim and the various body sherds indicated a splayed or slightly fluted overall form. The fabric was medium hard with frequent small sand, common grog and occasional small voids. Found alongside these fragments were three other decorated sherds made of the same fabric; one with lines of twisted cord, another with thin parallel, incised lines and a base angle with vertical, incised grooves.

Find spot SF 198 and posthole F.1266 of Structure 1 produced three sherds belonging to the same elaborately incised fineware Beaker. The mouth of the vessel was slightly closed and had a short tapered profile with a flattened top that was impressed with a single line of short stabs. The front of the rim had horizontal lines bordering an incised zigzag. The neck was decorated with incised lozenges also infilled with a single line of short stabs.

F.1183 produced 55 fragments of a very large, high-shouldered Beaker decorated with widely spaced, lightly plastic, paired thumb and finger-nail ‘pinches’. Aside from crumbs, every piece showed signs of the same characteristic finger-nail decoration (c. 40 pieces). The fabric contained frequent grog and occasional small calcined flint. Non-plastic, widely spaced finger pinching was also present on three large sherds from F.1259 as well as a single sherd from SF 48.

**Collared Urns and other Early Bronze Age forms**

By far the largest part of the earlier prehistoric pottery assemblage was made up by the Early Bronze Age component (Table 3.23). Collared vessels dominated this category and included whole pots, as well as fragmented remains of both tripartite and bipartite urn forms. Parts of non-collared urns were also present but, significantly, these were found in the same contexts and alongside fragments of urns with collars. They also shared the same fabrics, surface treatments and characteristic pale colouring. A few undecorated forms were identified but decoration was common and was mostly executed with impressed twisted cord, but also included comb-point, linear and non-linear incision and impressed whipped cord. Decoration was confined to the upper half of vessels (rim, collar, neck and shoulder) and consisted predominantly of horizontal lines or filled-triangles motifs.

Whole urns (small and large) were exclusive to funerary contexts although not always in direct association with human remains, whilst the settlement or ‘domestic’ element comprised mixed assemblages of small sherds with most vessels being represented by just one or two fragments. Significantly, other attributes of the funerary urns differed noticeably from those connected with settlement contexts suggesting divergent patterns of deposition as well as potentially dissimilar chronologies. At the very least, the spectrum of fragmentation (ranging from complete urns in fresh condition through to small abraded fragments) would appear to indicate that whilst some vessels were removed from ‘circulation’ early, others continued in ‘use’ and as a consequence experienced increasing levels of attrition.

King’s Dyke produced the greatest quantity of Early Bronze Age pottery (72.8% by weight) and its assemblage can be split into three key contexts: funerary (282 sherds, 6313g), pit-circle and henge (60 sherds, 946g) and settlement (255 sherds, 2568g). By comparison, the Bradley Fen assemblage included a relatively small funerary component (98 sherds, 3063g) and an even slighter settlement component (32 sherds, 607g; Table 3.24). In reality, the pottery retrieved from the King’s Dyke pit-circle and henge context was more or less identical in character to the adjacent settlement material and as such probably corresponds to the same or possibly another occupation event.

When calculated by weight, there appears to be a significant disparity between the funerary- and settlement-related contexts across the two sites, with the funerary category generating twice as much pottery as the settlement. When calculated by number of sherds, however, the disparity is much less obvious, with the former generating 380 sherds and the latter 347 sherds. Importantly, the differences in weight illustrate the intactness, or less fragmentary character, of the ceramics

<table>
<thead>
<tr>
<th>Table 3.23. Collared Urn pottery by site.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. sherds</strong></td>
</tr>
<tr>
<td>King’s Dyke</td>
</tr>
<tr>
<td>Bradley Fen</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3.24. Early Bronze Age/Collared Urn pottery context division (the King’s Dyke settlement category includes the pit-circle and henge assemblage).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funerary</strong></td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>King’s Dyke</td>
</tr>
<tr>
<td>Bradley Fen</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>
recovered from contexts associated with burial; whole pots weigh a lot more than the disassembled and abraded remnants of broken-up pots. To get at the authentic scale of the different assemblages (whole versus broken) it is necessary to look beyond overall weight or the total number of sherds and to focus instead on the number of vessels represented in each of the key contexts. This exercise will produce a conservative estimate based upon recognizable individual forms and is distorted to a degree by the incompleteness of forms present. The minimum number of vessels for each of the different contexts shows the balance to be significantly different with the highest number of vessels coming from the most ‘fragmented’ context (i.e. settlement pits; Table 3.25). The henge, house and settlement contexts can be understood as being equivalent in that they all generated mixed and partial assemblages. Understood this way, the assemblage looks very different with over 78% of the total number of vessels coming from occupation-related contexts.

The condition of the material varied dramatically between contexts with the pottery associated with burial contexts being predominantly fresh whereas the mixed settlement assemblages comprised mainly small pieces of which most were abraded and/or burnt. Crucially, the prevalent contextual evidence suggests that the relatively poor condition of the settlement material, its damage so to speak, had happened for the most part after the pots had been broken but prior to deposition. In comparison to the whole urn cemetery context, the delay in deposition was extra-prolonged and expressed a sequence or trajectory of whole urn – sherds – delay – deposition.

**Fabric types**

Two main fabrics types were identified. Both contained grog as the principal opening material but were distinguishable by the differing amounts of sand present. As a result, fabrics varied texturally between being exceptionally abrasive to being particularly soapy; Fabric 1 was medium to medium hard and included frequent to abundant amounts of grog and common to frequent amounts of sand; Fabric 2 was medium hard with frequent to abundant grog and rare sand. Occasionally, rare to moderate amounts of small burnt flint or other small grits were also recorded within the two main fabrics (Fabric 1a and Fabric 2a). The grog inclusions varied in size (small to large) and sometimes occurred as multicoloured lumps that contrasted with the main fabric colour. The pots’ exteriors were oxidized and pale pink, pale orange, pale grey or reddish-brown in colour. The un-oxidized interiors showed much less variation, being either black or dark grey. Fragments displaying evidence of being burnt or re-fired after being broken were quite common and very often had lost any definition between an oxidized exterior and an un-oxidized interior. At the same time, burnt sherds had a tendency to be noticeably lighter in weight and also have a ‘dry’ pumice-like texture.

**Forms**

Variations in form were best illustrated by the differences in overall shape between the complete urns found in association with funerary contexts located adjacent to the round barrows and the reconstructed urns of the mixed sherd-based assemblages from settlement contexts. Isolated cremation urns buried away form the monument complex had forms equivalent to the settlement pots. Consequently, it is possible to determine two broad types or groups:

**Group 1**: Tripartite – simple rims above a convex or straight collar, above a concave vertical or concave asymmetrical neck; the diameter of the collar being either equal to, or smaller than, the diameter of the shoulder.

**Group 2**: Tripartite and Bipartite – simple or expanded rim above concave or S-shaped collar, above an S-shaped, straight vertical and straight angled neck; the diameter of the collar being either equal to or greater than the diameter of the shoulder.

Variants on these forms included simple bipartite profiles with vestigial or ‘false’ collars constructed out of raised cordons as well as plain, almost neutral, bipartite forms without collars and simple internally bevelled rims. In addition, the truncated upper portion of a small vase-type Food Vessel was recovered from next to two Collared Urns (one of which was similarly truncated) and sherds from a second and, possibly, third vase-type Food Vessel were found alongside Collared Urn sherds within the capping deposit of the southern henge ditch.

**Decoration**

Techniques of decoration included corded and non-corded examples and in almost all cases their application was confined to rim, collar and neck areas of vessels (Table 3.26). In all, five different methods were identified and in order of frequency these included: Twisted Cord (21 times), Comb-point (2

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**Table 3.25. Early Bronze Age/Collared Urn pottery – minimum number of vessels by principal context.**

<table>
<thead>
<tr>
<th>Context</th>
<th>MNV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cemetery</td>
<td>8</td>
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<tr>
<td>Henge</td>
<td>6</td>
</tr>
<tr>
<td>House</td>
<td>6</td>
</tr>
<tr>
<td>Settlement</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>
A pre-fieldsystem landscape

Table 3.26. Collared Urn Decoration: Technique (Non-linear incision, Linear incision, Whipped cord, Comb-point and Twisted cord) and Motif (A = Horizontal lines; E = Diagonal lines; G = Zigzag; H = Filled triangles; J = Herringbone; M = Horseshoes, loops and rings; after Longworth (1984)). Vase-type Food Vessels denoted in bold.

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<th>Pot</th>
<th>NLI</th>
<th>LI</th>
<th>WC</th>
<th>CP</th>
<th>TC</th>
<th>A</th>
<th>E</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>M</th>
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<td></td>
</tr>
</tbody>
</table>

Decoration made by non-linear incision and whipped cord occurred only in cemetery contexts; settlement-related contexts had almost exclusively twisted cord. Undecorated or plain urns were also present. Within the range of reconstructed forms, there were no incidences of urns with more than one type of decorative technique although the technique was often employed to create more than one type of motif on the same vessel. A total of six different motif types were recorded and, in order of frequency, these included: Horizontal Lines (18 times), Filled Triangles (9 times), Herringbone (6 times), Diagonal Lines (4 times), Zigzag (1 time) and Horseshoe/Loops (1 time). Horizontal lines were absent on urns associated with the cemetery contexts but present on almost all of the settlement related vessels.

Law, in his analysis of Collared Urns in the East Anglia region (2008, 180), recognized similar patterns and suggested a propensity for the use of vertical lines and herring-bone motifs for funerary contexts. Conversely, he also recognized a balance in favour of filled triangles and lattice designs for non-funerary contexts. Importantly, however, there are singular examples that cross the division, illustrating that the pattern is not rigid.
Chapter 3

or plain base angles. Parts of what may have been two vase-type bipartite Food Vessels came from this context; sherds incorporating an angular outline with impressed cord decoration on the inside of an open rim and on the external surface of the neck. These were found in the same deposit as two unambiguous collar fragments (one with incised decoration and one plain).

Structures and settlement
Structure 2 and Structure 3 and their accompanying settlement features, produced an assemblage of 213 sherds weighing 2276g. In total, it included 21 rims, 10 base fragments, 31 decorated pieces and 19 collar fragments. Except for a couple of examples, most vessels were represented by just one or two small sherds and, because of this, only fragmentary profile reconstructions were achievable. As well as being partial, the assemblage also included sherds that had been burnt or re-fired and that, as a consequence, had an appearance remarkably similar to the urn fragments from the in situ pit-pyre F.1279. Frequently, the burnt pieces were found alongside burnt flints, fired clay, pieces of calcined animal bone and also within a charcoal-rich matrix. Characteristics such as bubbled, extremely pale or even iridescent surfaces, as well as dried-out textures showed that some of the sherds had experienced high re-firing temperatures. Much of the re-firing appears to have occurred post-breakage as the sherds’ broken edges also exhibited the same range of transformation.

Structure 2
The structure produced five pieces of pottery weighing 168g (Table 3.28). Posthole F.636 yielded two refitting rim/collar fragments belonging to a medium-sized

---

**Table 3.27. ‘Cemetery’ Collared Urns and Vase-type Food Vessel.**

<table>
<thead>
<tr>
<th>Pot</th>
<th>Mouth (dia. cm)</th>
<th>Height (cm)</th>
<th>Base (dia. cm)</th>
<th>Weight (g)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.1</td>
<td>estimated: 40.0</td>
<td>estimated: 45.6</td>
<td>15.0</td>
<td>2555</td>
<td>CU</td>
</tr>
<tr>
<td>F.749</td>
<td>21.0</td>
<td>29.5</td>
<td>8.5cm</td>
<td>2758</td>
<td>CU</td>
</tr>
<tr>
<td>F.750</td>
<td>11.6</td>
<td>15.0</td>
<td>6.3</td>
<td>813</td>
<td>CU</td>
</tr>
<tr>
<td>F.779</td>
<td>11.6</td>
<td>-</td>
<td>-</td>
<td>85</td>
<td>CU</td>
</tr>
<tr>
<td>F.905</td>
<td>14.7</td>
<td>-</td>
<td>-</td>
<td>371</td>
<td>FV</td>
</tr>
<tr>
<td>F.1279</td>
<td>12.8</td>
<td>17.8</td>
<td>8.0</td>
<td>508</td>
<td>CU</td>
</tr>
</tbody>
</table>

**‘Whole’ cinerary urns and associated vessels**
The cemetery or burial group comprised eight urns in total (four whole and four partial; Table 3.27). Of these, six were Collared Urns (F.1, F.748–50, F.779 and F.1279), one was a vase-type Food Vessel (F.905) and another survived as little more than a pile of crumbs interspersed with the odd sherd and lots of calcined human bone (F.754). Urns F.748 and F.749 were found as a conjoined pair – the base of the body section of one (F.748) being inverted and utilized as a lid for the, whole, other (F.749; Fig. 3.43). Five of the eight urns, including the conjoined vessels, were found in association with cremated human bone and the remaining three (F.750, F.779 and F.905) were found empty. The largest vessel (F.1) was found as an isolated cremation situated close to the eastern edge of Bradley Fen. The other Bradley Fen urn was F.1279 which comprised a complete collection of refitting sherds caught up in a matrix of partially articulated cremated human bone and large pieces of charcoal. The empty urns were found close to the ‘entrance’ of Round Barrow 1, two inverted (F.779 and F.905) and one on its side (F.750; Fig. 3.43). The inverted vessels had lost all but the upper portions of their respective profiles and consequently may have once contained bone. Alternatively, the small empty vessels may have accompanied cremation burials within the mound of Barrow 1 but when the mound was truncated by later Roman activity the pots were disturbed/re-deposited, separating them from the cremated remains.

Differences in form showed some correspondence with differences in context with Group 1 type profiles occurring exclusively within contexts located between the two round barrows and Group 2 profiles occurring in ‘isolated’ contexts away from the burial mounds. However, it should be noted that six urns in total represents a very small sample size.

**Sherd assemblages – henge**
A small assemblage was recovered from the capping fill of the southern henge ditch and from the upper or capping fills of some of the pits that made up the internal pit-circle. Most of the fragments were small and abraded and comprised mainly plain body sherds

---

**Table 3.28. Structure 2 – pottery assemblage breakdown.**

<table>
<thead>
<tr>
<th>Feature</th>
<th>No. sherds</th>
<th>Weight (g)</th>
<th>Fabric</th>
<th>MSW (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>636</td>
<td>2</td>
<td>135</td>
<td>1</td>
<td>67.5</td>
</tr>
<tr>
<td>637</td>
<td>3</td>
<td>33</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>653</td>
<td>9</td>
<td>104</td>
<td>1</td>
<td>11.5</td>
</tr>
<tr>
<td>671</td>
<td>2</td>
<td>20</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>292</strong></td>
<td><strong>1</strong></td>
<td><strong>18.2</strong></td>
</tr>
</tbody>
</table>
A pre-fieldsystem landscape

Urn. In fact, the material from F.349 was the most substantial and included complete profiles of two diminutive urns (one with a collar and one without) as well as the uppermost profile of a third. All of the sherds had been transformed through being re-fired or burnt. The smallest vessel was collarless, plain and distinguished only by a slight lip and an internally diameter (c. 17cm) urn (Fig. 3.41). The rim/collar was decorated with impressed twisted cord in the form of two parallel lines along the rim and filled triangles around the collar (Fabric 19). The rim was internally bevelled. A small piece of a rounded internally bevelled rim came from a rectangular pit inside the structure (F.637).

External pits F.653 and F.671 also produced small collections of Collared Urn: a plain rim and collar belonging to a bipartite form and a decorated rim (twisted cord, filled triangles) from the former, a decorated rim (twisted cord, filled triangles) from the latter.

Structure 3

Three of the principal postholes of Structure 3 generated pottery (F.347, F.348 and F.906), as did the ancillary posthole F.911 (Table 3.29). A small pit, F.349, which superimposed part of the entrance to the structure, also produced a significant assemblage of Collared Urn. In fact, the material from F.349 was the most substantial and included complete profiles of two diminutive urns (one with a collar and one without) as well as the uppermost profile of a third. All of the sherds had been transformed through being re-fired or burnt. The smallest vessel was collarless, plain and distinguished only by a slight lip and an internally

<table>
<thead>
<tr>
<th>Feature</th>
<th>No. sherds</th>
<th>Weight (g)</th>
<th>Fabric</th>
<th>MSW (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>347</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>348</td>
<td>10</td>
<td>219</td>
<td>1, 1a</td>
<td>21.9</td>
</tr>
<tr>
<td>349</td>
<td>35</td>
<td>512</td>
<td>1, 1a</td>
<td>14.6</td>
</tr>
<tr>
<td>373</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>906</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>911</td>
<td>1</td>
<td>6</td>
<td>1, 1a</td>
<td>6.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>752</td>
<td>2</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Figure 3.43. Whole Collared Urn vessels (F.749 & F.750).
bevelled rim (11cm tall; diameter c. 11cm). Of similar size was a small bipartite form (12cm tall; diameter 11cm) with a collar and pointed rim. This vessel was decorated with twisted cord in a herring-bone design on its collar only. Its profile retained a vestigial shoulder. The third vessel was present as four rim/collar fragments only. Unfilled twisted cord triangles adorned the external surface of the collar. These fragments had been so intensively burnt that they had a bubbled surface with an almost iridescent aspect, as well as a stark bright yellow colouring and two of the fragments had adhered together.

A posthole on the opposite side of the structure yielded 10 burnt sherds amongst which where a couple of small, internally bevelled rim fragments decorated with twisted cord in parallel horizontal lines.

Structure 3 settlement swathe
The settlement swathe comprised a spread of pits and postholes some of which contained substantial pottery assemblages (Table 3.30). Six pits (F.92, F.272, F.276, F.287, F.317 and F.394) produced assemblages greater than 100g.

The principal characteristic of the pit assemblage was small sherd size. It included an assortment of body, rim, collar, neck, shoulder and base fragments belonging to multiple vessels. Selection was not evident as there was an approximate correspondence between rim, body and base pieces.

Table 3.30. Structure 3 settlement swathe – pottery assemblage breakdown.

<table>
<thead>
<tr>
<th>Feature</th>
<th>No. sherds</th>
<th>Weight (g)</th>
<th>Fabric</th>
<th>MSW (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>92</td>
<td>13</td>
<td>191</td>
<td>2</td>
<td>14.7</td>
</tr>
<tr>
<td>259</td>
<td>8</td>
<td>33</td>
<td>1</td>
<td>4.1</td>
</tr>
<tr>
<td>269</td>
<td>6</td>
<td>19</td>
<td>1</td>
<td>3.1</td>
</tr>
<tr>
<td>272</td>
<td>27</td>
<td>109</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>276</td>
<td>34</td>
<td>337</td>
<td>1</td>
<td>9.9</td>
</tr>
<tr>
<td>277</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>278</td>
<td>1</td>
<td>11</td>
<td>2</td>
<td>11.0</td>
</tr>
<tr>
<td>287</td>
<td>20</td>
<td>386</td>
<td>1, 2</td>
<td>19.3</td>
</tr>
<tr>
<td>292</td>
<td>3</td>
<td>96</td>
<td>1</td>
<td>32.0</td>
</tr>
<tr>
<td>303</td>
<td>2</td>
<td>20</td>
<td>1, 2</td>
<td>10.0</td>
</tr>
<tr>
<td>317</td>
<td>35</td>
<td>404</td>
<td>1</td>
<td>11.5</td>
</tr>
<tr>
<td>383</td>
<td>2</td>
<td>23</td>
<td>1, 2</td>
<td>11.5</td>
</tr>
<tr>
<td>390</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>394</td>
<td>47</td>
<td>196</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>396</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>405</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>8.0</td>
</tr>
<tr>
<td>439</td>
<td>2</td>
<td>36</td>
<td>1</td>
<td>18.0</td>
</tr>
<tr>
<td>Total</td>
<td>205</td>
<td>1891</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
more realistically, to the context of their deposition. Unlike many other later prehistoric ceramics, it would appear that Collared Urns were invariably buried before they could break or be broken. So much so that Burgess was convinced that urns of the collared variety were made exclusively for sepulchral use (1986, 341). His argument was predicated upon Longworth’s comprehensive and nationwide survey of Collared Urns which showed thousands of whole-urn examples related to funerary contexts but only a handful of sherd-based examples associated with occupation (1984). In the case of Collared Urns, and at a national level, the balance of evidence strongly favours urns over sherds or, in our terminology, curtailed trajectories over redistributed ones.

In reality, Longworth records 22 ‘occupation sites’ of which 11 are located in East Anglia, including 9 (41%) situated adjacent to the Fens (1984, 76–78). In addition, his catalogue lists many other fen-edge, sherd-based assemblages and includes multiple entries for Fengate as well as several other Lower Nene Valley sites. The majority of entries document single sherds and, judging by the accompanying descriptions, all of smallish size. Evidently, not only does Collared Urn of the long trajectory variety exist but it would appear to have a discernible Fenland distribution and, especially, a strong relationship with the lower reaches of the Nene.

Since Longworth’s study, investigations at Oversley Farm, Cheshire, generated small fragments of at least 64 different Collared Urns associated predominantly with a midden-like deposit (Allen 2007, 53). Whereas in the more immediate region, excavation of the West Row Fen surface scatter managed to articulate a large collection of Collared Urn sherds with unambiguous settlement evidence (Martin & Murphy 1988). Slightly closer to hand, and maintaining the Fenland connection, the ongoing Over Lowlands investigations which straddle the lower reaches of the Great Ouse, have consistently produced substantial pit-related assemblages (Evans & Knight 2001; Evans & Vander Linden 2008a; Evans & Tabor 2008).

It is at a local level, however, that sherd-based assemblages have the greatest prevalence and, to date, several Lower Nene Valley excavations have yielded extraordinary collections. Together, sites such as Tanholt Farm (McFadyen 2000; Patten 2002b; 2009) and Edgerley Drain Road (Beadsmoore & Evans 2009), as well as the earlier Fengate sites of Newark Road, Fourth Drove and Storey’s Bar Road (Pryor 1978, 1980) corroborate a discernible localized focus. In the same way, lesser sherd-based assemblages from Pode Hole (Morris et al. 2009) and Briggs Farm (Knight 2011) add to the impression of a connection between Collared Urn settlement and this particular stretch of the Nene. It is within this pattern that we must situate the King’s Dyke and Bradley Fen Collared Urn assemblage. In the context of this space, the prevailing ‘national’ pattern of urns over sherds would appear to be turned firmly on its head, with the balance tipping in favour of thousands of sherds over just a handful of urns.

**Fragmentation**

Levels of fragmentation were analysed in relation to the four principal contexts: cemetery, henge, house and settlement. An arbitrary measurement scheme, equivalent to that employed for the Late Bronze Age and Iron Age assemblages, was used to split sherds into large (>8cm), medium (4–8cm) and small (<4cm) size categories. Under this scheme, fragments of vessels that were deposited whole are counted as still part of a complete vessel and therefore recorded as greater than 8cm.

Firstly, the different contexts revealed contrasting patterns of fragmentation. The ‘intactness’ of the cemetery pottery stands in stark contrast to the ‘brokenness’ of the settlement pottery, with the two categories being situated at opposite ends of the fragmentation spectrum. The pattern of large, medium and small sherds from the henge context was remarkably similar to that of the settlement, in that it too was made up of predominantly small fragments, suggesting equivalence between these contexts. Perhaps most tellingly, the house context produced its own unique configuration, which revealed a preponderance of medium-sized sherds. Just as in Fig. 3.44, by this patterning we could suggest that the house context resided somewhere between the cemetery and the settlement. In our understanding of long and short, or redistributed and curtailed, trajectories, the house context falls somewhere amid the two and shows a much greater depositional immediacy or exigency than the settlement context but much less than the cemetery. Whole pots in the context of a house were either recently broken or ‘removed’ (either to be used elsewhere or employed in a cinerary capacity).

An equivalent house and settlement assemblage from Edgerley Drain Road revealed a remarkably similar fragmentation pattern, with its ‘house’ retaining for the most part medium to large fragments (mean sherd weight ≥25g) whilst the adjacent ‘settlement’ features yielded comparatively small pieces (mean sherd weight <15g; Knight 2009c, 162). At the same time, the whole-urn component of the greater landscape maintains its indubitable funerary connection at sites such as Newark Pits, Fengate (Longworth 1961), Storey’s Bar Road, Fengate (Pryor 1978) and Briggs Farm, Thorney (Pickstone & Mortimer 2011)
that Collared Urns represented ‘specialized funerary pottery’ with little or no settlement constituent (pace Burgess 1980; 1986). Within the specific context of this landscape, Collared Urn had an unambiguous settlement signature which took priority over the funerary component.

Flint (Lawrence Billington)
A total of 579 worked flints were recovered from Early Bronze Age settlement related features and deposits on the site, including material from the Collard Urn associated capping fill of the henge. Although this combined assemblage includes a number of residual Mesolithic and Early Neolithic artefacts, primarily from the burnt mounds, most of the material is typical of Early Bronze Age industries and derives from securely dated contexts. Of greatest significance are the flints recovered from the site’s three Early Bronze Age structures, which offer a rare insight into the artefact repertoires and material practices associated with ‘domestic’ architectures of this period. These are duly described in detailed below, along with other flint from contemporary features.

Summary
Although relatively small, the character and composition of the Beaker assemblage is comparable with other fen-related assemblages including the material from across Fengate. Its domestic make-up fits with a growing corpus of fen-edge/East Anglian material, as typified by the presence of fine ware comb-decorated vessels alongside fine and coarse, fingertip and fingernail decorated Beakers (Bamford 1982; Gibson 1982).

First and foremost, the Collared Urn assemblage serves to reiterate the presence of a localized focus situated within and around the lower Nene Valley/Flag Fen Basin. At the same time, the distributed and curtailed fragmentation patterns established for this particular assemblage addresses the false impression that Collared Urns represented ‘specialized funerary pottery’ with little or no settlement constituent (pace Burgess 1980; 1986). Within the specific context of this landscape, Collared Urn had an unambiguous settlement signature which took priority over the funerary component.
A pre-fieldsystem landscape

A pre-fieldsystem landscape

An arrowhead, made up of two co-joining pieces, with a transverse break, typical of accidental breaks during pressure flaking. It is notched on one side at the base, suggesting it was intended to be barbed and tanged. Accompanying these retouched tools was a small number of unretouched flakes. Two blades, one from hearth F.1299, are clearly residual and reflect the wider scatter of Mesolithic and earlier Neolithic material across the site. The remaining flints are consistent with an Early Bronze Age date, consisting mostly of irregular hard hammer struck flakes. One exception is a thin tertiary flake with a carefully faceted platform, probably a discoidal core product. The small amount of flint working waste implies little core reduction took place in the immediate vicinity of the structure, although the arrowhead blank suggests it may have been an appropriate setting for the final stages of tool manufacture.

The assemblage includes all the retouched forms classically associated with Beaker assemblages, including small invasively flaked scrapers, flake knives and a possible barbed and tanged arrowhead blank. Such forms are familiar from ‘domestic’ Beaker sites in the wider region, but are generally associated with large amounts of flint working waste, pottery and burnt flint (e.g. Wainwright 1972; Bamford 1982; Healy & Peterson 1986; Garrow 2006, 128–30). In contrast, the Bradley Fen assemblage does not represent flintwork caught up with other materials in midden-like deposits, be they surface spreads or the fills of cut features, but represents a set of tools intimately associated with activities taking place in and around the structure.

### Burnt mounds

Very little worked flint was found during the excavation of the burnt mounds and their associated features

<table>
<thead>
<tr>
<th>Table 3.31. Flint assemblage associated with Beaker Structure 1 and other securely dated features.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feature</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chip</td>
</tr>
<tr>
<td>Chunk</td>
</tr>
<tr>
<td>Flake</td>
</tr>
<tr>
<td>Blade</td>
</tr>
<tr>
<td>Retouched flake/blade</td>
</tr>
<tr>
<td>Arrowhead blank</td>
</tr>
<tr>
<td>Thumbnail scraper</td>
</tr>
<tr>
<td>Sub-circular scraper</td>
</tr>
<tr>
<td>End scraper</td>
</tr>
<tr>
<td>Flake knife</td>
</tr>
<tr>
<td>Plano-convex knife</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
Chapter 3

the partly silted-up south-western ditch of the henge monument, F.851, which produced 107 worked flints. Despite some differences in condition and composition between the assemblages from different contexts, notably the burning of the Structure 3’s flint, there is an underlying uniformity to the Early Bronze Age flintwork signature, both in terms of technological traits, suggesting similar reduction strategies, and in the presence of a fairly restricted and distinctive retouched tool component. The assemblages are listed by type and feature in Tables 3.33 and 3.34. Selected technological traits of the unretouched removals from the larger feature assemblages are also presented in Table 3.35.

None of the assemblages represent anything like complete reduction sequences and the heterogeneity of the raw materials alone suggests that the material derives from numerous episodes or working. In contrast to the site’s earlier material, there is no evidence for the use of chalk flint and, instead, small nodules of gravel flint, probably collected locally, appear to have been used in most circumstances. Some of the flint is of very poor quality with unworkable inclusions and flaws. This has resulted in a high proportion of irregular waste, split nodules and tested pieces, which partly accounts for the high number of cortical or partly cortical flakes.

Together with this catholic approach to raw material selection, there is evidence for a more casual and informal approach to core reduction. In general, flakes are relatively small and squatty, with large striking platforms. The high frequency of cortical striking platforms is notable, demonstrating that reduction commenced without the creation of a striking platform. The dorsal scar patterns on the flakes also suggest that

(Table 3.32). The majority of the pieces appear to represent residual material incorporated into later deposits and reflect the relatively abundant flint from the buried soil and surface deposits around the mounds. This residual element is seen most clearly in the relatively high proportion of blade and narrow flake based material of Mesolithic/earlier Neolithic date.

A small number of retouched forms may represent activity broadly contemporary with activity at the mounds. Amongst the burnt stone and flint of Burnt Mound 3 was an unburnt plano-convex knife; a scraper was also recovered from associated hollow F.1151. The hollow associated with Burnt Mound 2, F.1038, produced a fine side scraper (or flake knife?) made on a distinctive coarse-grained flint.

The Collared Urn structures and other contemporary features

Over a quarter of the entire flint assemblage from King’s Dyke and Bradley Fen was recovered from features and deposits associated with Early Bronze Age, generally Collared Urn, pottery. The two structures identified produced very different lithic assemblages. Structure 3 contained a large assemblage of 203 worked flints and 37 unworked burnt flints, concentrated in features making up the western part of the building. All but one of the worked flints had been heavily burnt, with many thermally fractured fragments and chips. In contrast, only 10 worked flints were recovered from Structure 2. Most of the Early Bronze Age pits and postholes produced similarly small assemblages, with the exception of intercutting pits F.276, F.317 and F.318 which contained a total of 139 worked flints. Another focus for the deposition of substantial amounts of flintwork was the partly silted-up south-western ditch of the henge monument, F.851, which produced 107 worked flints.

Despite some differences in condition and composition between the assemblages from different contexts, notably the burning of the Structure 3’s flint, there is an underlying uniformity to the Early Bronze Age flintwork signature, both in terms of technological traits, suggesting similar reduction strategies, and in the presence of a fairly restricted and distinctive retouched tool component. The assemblages are listed by type and feature in Tables 3.33 and 3.34. Selected technological traits of the unretouched removals from the larger feature assemblages are also presented in Table 3.35.

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Table 3.33. Flint assemblage from Early Bronze Age pits and postholes *excluding chips.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Settlement Swathe (King’s Dyke)</th>
<th>Pits (Bradley Fen)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pit</td>
<td>Ph</td>
</tr>
<tr>
<td>Chip</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chunk</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Flake</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Blade/bladelet</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Narrow flake</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Core fragment</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Irregular core</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Flake core</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Retouched flake</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Flake knife</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Plano-convex knife</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Notched flake</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>End scraper</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Sub-circular scraper</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Thumbnail scraper</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Misc scraper</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chisel arrowhead</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total worked</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Burnt unworked flint (wt g)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Burnt and worked (%)  

| Burnt and worked (%) | 0   | 2  | (100) | 0   | 0   | 1   | (100) | 6   | (11.5) | 1   | (20) | 6   | (37.5) | 1   | (33.3) | 1   | (1.4) | 2   | (12) | 1   | (14.2) | 0   | 0   | 0   | 0   | 0   | 1   | (100) | 1   | (100) | 0   | 0   | 23  | (11.2) | 0   | 0   | 4   | (44) | 4   |

Broken (%)  

| Broken (%) | 0   | 1  | (50) | 0   | 0   | 1   | (50) | 16  | (32) | 3   | (60) | 4   | (26.7) | 1   | (33.3) | 9   | (14.1) | 1   | (6.7) | 1   | (14.2) | 0   | 1   | (10) | 1   | (20) | 0   | 1   | (100) | 1   | (100) | 0   | 0   | 42  | (22.1) | 1   | (50) | 0   | 1   | (14) | 2   | (20) |

Retouched (%)  

| Retouched (%) | 2   | (66.7) | 0   | 0   | 0   | 0   | 5   | (9.6) | 3   | (60) | 2   | (13.3) | 0   | 6   | (9.1) | 1   | (6.6) | 2   | (28.5) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 21  | (10.9) | 0   | 0   | 0   | 0   | 0   |

Unretouched utilised (%)  

| Unretouched utilised (%) | 0   | 0   | 0   | 0   | 2   | (4.1) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | (20) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 10  | (5.3) | 0   | 0   | 0   | 0   | 0   | 1   | (10) |
Table 3.34. Early Bronze Age flint assemblage from henge ditch F.851, Structure 2 and Structure 3 *excluding chips.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Henge</th>
<th>Structure 3, King’s Dyke</th>
<th>Structure 2, Bradley Fen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>851</td>
<td>374</td>
<td>906</td>
</tr>
<tr>
<td>Chip</td>
<td>4</td>
<td>51</td>
<td>1</td>
</tr>
<tr>
<td>Chunk</td>
<td>14</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Flake</td>
<td>58</td>
<td>1</td>
<td>36</td>
</tr>
<tr>
<td>Blade/bladelet</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Blade like/narrow flake</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Polished axe flake</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core fragment</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Irregular core</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flake core</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Retouched flake/blade</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Flake knife</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plano-convex knife</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fabricator</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End scraper</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sub-circular scraper</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Thumbnail scraper</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Misc scraper</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Irregular scraper</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core scraper</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total worked</td>
<td>106</td>
<td>2</td>
<td>103</td>
</tr>
<tr>
<td>Burnt unworked flint (wt g)</td>
<td>3 (91.3)</td>
<td>1 (2.8)</td>
<td>6 (7)</td>
</tr>
<tr>
<td>Burnt and worked (%)</td>
<td>13 (12.1)</td>
<td>2 (100)</td>
<td>103 (100)</td>
</tr>
<tr>
<td>Broken (%)*</td>
<td>27 (26.2)</td>
<td>0</td>
<td>21 (40.4)</td>
</tr>
<tr>
<td>Retouched (%)*</td>
<td>14 (13.5)</td>
<td>0</td>
<td>5 (9.6)</td>
</tr>
<tr>
<td>Unretouched utilized (%)*</td>
<td>5 (4.9)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

cores were commonly flaked from one platform. The cores themselves are most readily divided into two main groups. The first comprises cores of good quality material, invariably with multiple striking platforms. These have been extensively worked down and reflect the final stages of reduction. Knapping errors appear to have been frequent, with many hinged scars, crushed platforms and misplaced hammer blows. The second group consists of irregular, often unclassifiable cores – tested and flaked pieces usually of poor quality, coarse-grained gravel flint with frequent flaws and inclusions. A core from pit F.276 appears to have been worked to produce very small flakes. Cores of this type, whilst not common, were recognized in a Collared Urn associated assemblage from Edgerley Drain Road, on the western edge of the Flag Fen Basin, where it was suggested they could represent a distinctive Early Bronze Age type (Beadsmoore 2009).

Very few refits were identified in the assemblage, but they are consistent with the technological traits seen...
Table 3.35. Selected non-metric traits of unretouched flakes from selected Early Bronze Age features.

<table>
<thead>
<tr>
<th>Settlement swathe</th>
<th>%</th>
<th>Henge</th>
<th>%</th>
<th>Structure 3</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cortex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>9</td>
<td></td>
<td>2</td>
<td>3.4</td>
<td>4</td>
</tr>
<tr>
<td>Secondary</td>
<td>84</td>
<td>62</td>
<td>39</td>
<td>66</td>
<td>44</td>
</tr>
<tr>
<td>Tertiary</td>
<td>42</td>
<td>31</td>
<td>18</td>
<td>31</td>
<td>28</td>
</tr>
<tr>
<td><strong>Platform type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plain</td>
<td>66</td>
<td>62</td>
<td>21</td>
<td>43</td>
<td>27</td>
</tr>
<tr>
<td>Trimmed</td>
<td>7</td>
<td>6.6</td>
<td>4</td>
<td>8.2</td>
<td>1</td>
</tr>
<tr>
<td>Faceted</td>
<td>1</td>
<td>0.9</td>
<td>2</td>
<td>4.1</td>
<td>0</td>
</tr>
<tr>
<td>Cortical</td>
<td>28</td>
<td>26</td>
<td>18</td>
<td>37</td>
<td>16</td>
</tr>
<tr>
<td>&gt;1 scar</td>
<td>4</td>
<td>3.8</td>
<td>4</td>
<td>8.2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Scar direction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>91</td>
<td>79</td>
<td>48</td>
<td>86</td>
<td>53</td>
</tr>
<tr>
<td>Single blade</td>
<td>5</td>
<td>4.3</td>
<td>1</td>
<td>1.8</td>
<td>0</td>
</tr>
<tr>
<td>Blade</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multiple</td>
<td>19</td>
<td>17</td>
<td>7</td>
<td>13</td>
<td>3</td>
</tr>
</tbody>
</table>

in the rest of the material. Pit F.349, part of Structure 3, produced a core to which two flakes could be refitted; both were small and struck from the cortical platform of the core (Fig. 3.45). Two refitting flakes were also recovered from henge capping deposit fills and a chip was refitted with an exhausted core from pit F.375.

Residual pieces were present in small numbers. Particularly distinctive were a number of Mesolithic/earlier Neolithic bladelets, including individual pieces from pits F.276, F.317 and F.318. The inclusion of three polished axe fragments in the deposits from the top of the henge ditch is also noteworthy, especially considering the small quantity of more ‘mundane’ residual material.

The retouched tool types are dominated by scrapers, over half of which are of thumbnail form. These are neatly retouched, generally with a regular convex scraper edge, although few display truly invasive retouch. The flake blanks for these scrapers are often somewhat irregular, with little evidence for careful production or selection. Of the other scrapers, two, from posthole F.906 and from the henge capping deposit were expeditiously produced, with minimal retouch. A flake core from henge deposit has also been retouched as a scraper. The remainder are generally finely retouched, again showing care in the secondary modification of flakes rather than in the production of the blanks themselves. The finer examples include a side and end scraper, with shallow, knife-like retouch, from pit F.278 and two sub-circular scrapers, from pits F.317 and F.319.

Other tools include a variety of flake knives, three of these are of plano-convex type with fine invasive retouch. A fabricator was recovered from henge capping deposit. Alongside these relatively carefully produced pieces were a number of more expeditiously edge-retouched flakes, one of which, from pit F.277, reused an old corticated flake. In some cases, there appears to have been a preference for the use of longer blade-like flakes, although irregular and broad flakes were also retouched. Among the unretouched utilized flakes there is a clearer preference for such narrow flakes and also for the use of edges which are naturally backed with cortex.

The range of tools is characteristic of Early Bronze Age assemblages (Ford et al. 1984, table 4), showing a more restricted range of forms than in the later Neolithic. Although thumbnail scrapers and knives have strong funerary associations, it is clear they were also being used in a domestic context (e.g. Petersen & Healy 1986; Bamford 1982). Barbed and tanged arrowheads are absent from this assemblage, perhaps suggesting that they were rare part of the domestic ‘tool-kit’ or were subject to different practices of deposition.

Assessing the conditions under which flintwork was deposited is more difficult. It is clear from the incompleteness of reduction sequences that the assemblages represent only a small component of larger groups of material, perhaps midden-like accumulations containing flint working waste and discarded tools. Complex pre-depositional histories for the assemblages can be seen in the way some pieces have been burnt or broken whilst others remain relatively fresh. Most striking is the burning of almost all the flint from Structure 3 at King’s Dyke. That being said, there was no obvious evidence for the patterned or structured deposition of artefacts, the flint assemblage being part of a broader range of materials – pot, bone, fired
Figure 3.45. Worked flint from Collared Urn contexts: 1-7) scraper on flake core (1 from F.581), flake core with two refitting flakes (2; F.349), multiple platform flake core (3; F581), scrapers (4; F.349, 5; F.581 and 6; F.906) and a flake knife (7; F.851).
clay and so on. This, together with the representation of all stages of core reduction, suggests a wide range of domestic activity took place alongside the actual working of flint.

Comparable assemblages and broader contexts
The small number of comparable Collared Urn associated flint assemblages includes recently published material from outside the region at Oversley Farm, Cheshire (Wenban-Smith 2009) and Taplow Hillfort, Buckinghamshire (Cramp & Lambdin-Whymark 2009). Locally, the assemblage recovered from excavations at Edgerley Drain Road is very similar in terms of technological traits and retouched tool forms, including flake knives and thumbnail scrapers (Beadsmoore 2009). The circumstances of deposition also appear broadly similar, with deposition of flintwork in pits and features making up a circular structure, although the higher percentage of retouched tools (19%) at Edgerley perhaps suggests subtle differences in the nature of occupation. Investigations along the lower Ouse, at Over, have revealed a number of Collared Urn features with lithic assemblages which contained a similarly high proportion of retouched pieces, dominated by scrapers (Billington 2016). These assemblages also included a very high proportion of burnt flintwork, comparable to the material from Structure 3 at King’s Dyke.

When seen in the relation to these wider parallels, the material from Bradley Fen and King’s Dyke West appears to reflect a distinctive Early Bronze Age approach to flint working. Flake production is very informal, with the use of a wide range of locally available raw material with no evidence for the production of pieces with a specific morphology. This contrasts with Late Neolithic, Grooved Ware associated, technologies, which invariably include evidence for the use of specialized, prepared core technologies, alongside more expedient core reduction (see Ballin 2011). It seems likely that some production of specialized flakes was taking place in the Early Bronze Age, particularly to produce blanks for the larger knives and arrowheads that often appear in funerary contexts. That there is no evidence for this here, in an ostensibly domestic assemblage, suggests that such practices may have become more restricted, perhaps to certain individuals, places or times.

In some respects, the material from these Collared Urn contexts has as much in common with Middle to Late Bronze Age technologies as it does with later Neolithic material. The important differences between earlier bronze age and later assemblages would appear to reside in the character of retouched tools and in the amount of flintwork recovered from contemporary features. Whether this trend reflects a reduction in the amount of flint working being carried out, a transformation in depositional practices, or simply changes in the places and times at which flint working was conducted, is difficult to assess. Traditionally, such changes were seen to reflect the increased availability of metal tools (Ford et al. 1984), but in recent studies, a greater emphasis has been placed on the declining social role of flintwork (e.g. Edmonds 1995; McLaren 2010). The Early Bronze Age assemblages considered here would suggest that considerable effort was spent on teaching and learning skills surrounding the production of specific retouched tools, rather than specialized aspects of core reduction. The foregrounding of these later stages of tool production perhaps indicates that the retouch and finished form of tools had become central to the discourse surrounding the use of flint, whereas the importance given the working of cores and production of flakes was increasingly marginalized. This trend is thought to have its roots in technological changes during the Neolithic (Brown 1991), but seems to reach its peak in this period, prior to the apparent abandonment of many finely retouched forms in the Middle Bronze Age.

Faunal remains (Vida Rajkovača)
Early Bronze Age faunal material was sparse (96 assessable specimens, 3738g), poorly preserved and mostly calcined (Table 3.36). No bone was found in connection with Structure 1, but the two Collared Urn structures (2 and 3) generated small assemblages, as did the henge capping deposit and the pit cluster associated with Structure 3. Livestock species dominated the structure/pit cluster collections, whilst henge material showed some variation with red deer and wild boar also being identified.

Henge and henge capping deposit
Three cattle elements were recovered from the primary fills of both ditches (F.851 and F.857). The composition of the bone assemblage from the tertiary or capping fills of F.851 exceeded that recovered from the structures and their associated pits.

In terms of skeletal element representation, the henge material showed a prevalence of mandibular elements and loose teeth (12 specimens), although cattle and red deer meat-bearing bones were also recorded. Overall, the moderate level of preservation enabled three-quarters of the sub-set to be identified to species (c. 76%). It also offered the possibility of recording butchery, gnawing (cow scapula) and even the sex of a small number of elements (male pig canine). Unlike the settlement material, only four specimens showed signs of burning; all of which were calcined bone crumbs smaller than 1cm in diameter. In addition, there
Faunal material, amounting to just 14 fragments from 6 features (F.349, F.369, F.373, F.374, F.376 and F.906). The remains were highly fragmented, with 12 recorded as calcined (c. 86%). This only allowed three specimens to be identified to species level; two as ovicaprids and one as vole (Table 3.36). The remaining calcined material was not diagnostic, with the fragments usually measuring <1cm in diameter. Owing to these circumstances of preservation, it was not possible to record levels of weathering, surface erosion, ageing or to take measurements.

The high level of burning and paucity of remains suggests that food waste was regularly cleared away and disposed of elsewhere, probably on rubbish heaps/surface middens. The size and condition of the calcined bone crumbs recorded here support this notion, representing what could be sweepings from cleared-out hearths, or other material ‘missed’ by the inhabitants.

### Table 3.36. Number of Identified Specimens for all species from all Early Bronze Age features from King’s Dyke and Bradley Fen. The abbreviation n.f.i. denotes that the specimen could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Structure 2</th>
<th>Structure 3</th>
<th>Pit cluster</th>
<th>Henge</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Pig</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Red deer</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Wild boar</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Vole sp.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sub-total ID to species</td>
<td>2</td>
<td>3</td>
<td>11</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>-</td>
<td>5</td>
<td>3</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>14</td>
<td>21</td>
<td>21</td>
<td>60</td>
</tr>
</tbody>
</table>

The size and condition of the calcined bone crumbs recorded here support this notion, representing what could be sweepings from cleared-out hearths, or other material ‘missed’ by the inhabitants.

### The Collared Urn structures and associated settlement features
The two Collared Urn structures yielded very small, highly fragmented faunal assemblages. Structure 2, pit F.653, contained four fragments of animal bone: a cow tibia axially split for marrow, a sheep/goat humerus and two unidentifiable mammal bone fragments derived from the heavy residues of wet-sieving.

The group of small pits and postholes that made up the Structure 3 and formed the focus of settlement at King’s Dyke, yielded a similarly small quantity of faunal material, amounting to just 14 fragments from 6 features (F.349, F.369, F.373, F.374, F.376 and F.906). The remains were highly fragmented, with 12 recorded as calcined (c. 86%). This only allowed three specimens to be identified to species level; two as ovicaprids and one as vole (Table 3.36). The remaining calcined material was not diagnostic, with the fragments usually measuring <1cm in diameter. Owing to these circumstances of preservation, it was not possible to record levels of weathering, surface erosion, ageing or to take measurements.

The high level of burning and paucity of remains suggests that food waste was regularly cleared away and disposed of elsewhere, probably on rubbish heaps/surface middens. The size and condition of the calcined bone crumbs recorded here support this notion, representing what could be sweepings from cleared-out hearths, or other material ‘missed’ by the inhabitants.

Beyond Structure 3 at King’s Dyke, six pits in the Collard Urn associated settlement swathe yielded faunal material (F.259, F.276–79, F.317 and F.439). Pit F.259 was the richest in terms of the quantity of bone, though this contained just 11 specimens in total (c. 58% of the sub-set). The other features, however, contained no more than two or three fragments each; most being unidentifiable specimens or calcined bone crumbs, c. 5mm in diameter. That being said, the degree of burning noted on the faunal material was not as severe as that from Structure 3, with only five specimens showing signs of calcination (a near complete combustion of the organic component). Nonetheless, the remains were heavily fragmented and sometimes weathered, especially one juvenile cow metatarsal from F.259, which represents the only ageable specimen within the sub-set (death occurring before the age of two years). In fact, of the 19 specimens recovered, 8 were loose teeth...
Discussion

The relative paucity of faunal material derived from Early Bronze Age contexts limits interpretation. The henge, house (Structure 3) and settlement swathe relationship showed some patterning which included differences in the distribution of wild and domestic species (Fig. 3.46), as well as some indication of contrasting taphonomies. Consequently, the main thrust of this discussion focuses on these attributes, followed by a short summary of regionally analogous assemblages.

Unlike the faunal material from the henge contexts, settlement features (both pits and the Structure 3) contained no evidence of wild species, except for a single red deer antler being recovered from the easternmost pit within the settlement swathe. The absence of evidence for the consumption of wild species from settlement features is further emphasized by the fact that the red deer antler did not represent a consumable portion of meat, but was probably intended to be used as a raw material.

The faunal material identified from features that were associated with, or constituted, Structure 3 was sparse and comprised exclusively of ovicaprid remains. The extent of calcination of the faunal assemblage points to either relatively intense or prolonged periods of burning (Fig. 3.47). Other material types recovered from the structure such as flint, pottery and burnt clay also displayed signs of exposure to high temperatures. Interestingly, a comparable assemblage was recovered from an almost identical context at Edgerley Drain Road. A pit connected to an almost identical Collared Urn structure produced a single cow molar and 12 unidentifiable fragments of calcined bone (Swaysland 2009, 169). Regardless of any other emerging patterns, the overall dearth of faunal material represents a recurring theme of the Early Bronze Age for this locality.

Table 3.37. Number of Identified Specimens for all species from features associated with burnt mounds.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>BM 1</th>
<th>BM 2</th>
<th>BM 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>12</td>
<td>3</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Pig</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Red deer</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Fox</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total ID to species</td>
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<td>6</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
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<td>Sheep-sized</td>
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<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>9</td>
<td>3</td>
<td>36</td>
</tr>
</tbody>
</table>

Figure 3.47. Percentages of calcined animal bone by feature categories; Henge includes all contexts associated with the monument.

Figure 3.46. Percentage of domestic species relative to wild by feature categories; *Henge includes all contexts associated with the monument.
Plant remains and ecofacts (Anne de Vareilles)

Structure 1
Three postholes of the Beaker house were 100% sampled for plant macro-fossils: F.1261, F.1293 and F.1295. The only plant remains consisted of charcoal in relatively high amounts.

Structure 2, Structure 3 and adjacent pit features
All five structural postholes of Structure 2, four of its interior pits/postholes and two pits external to the structure (F.680 and F.653) were sampled. Of Structure 3, pits/postholes F.376, F.906 and F.349 were sampled, as was F.278, from the adjacent pit cluster.

Six-row naked barley (Hordeum vulgare subsp. vulgare) and spelt wheat were the most cultivated cereals. Other types of glume wheat and barley may be present within the samples but poor preservation has precluded further identification. Naked barley is not unusual in Neolithic and Early Bronze Age sites in Britain (Greig 1991). However, a preference for spelt over emmer wheat has commonly been attributed to the Iron Age, although evidence for the early use of spelt in the East of England is growing – sites include West Row Fen (Martin & Murphy 1988), Barleycroft Farm (Stevens 1997) and Must Farm (de Vareilles 2010a).

The wild plant seeds produced good evidence for cultivation upon sandy, well-drained but nutrient-rich soils. Goosefoots (Chenopodium ficifolium and C. album) and black nightshade (Solanum nigrum) are well represented and tend to grow on wasteland and cultivated soils rich in nutrients (Hanf 1983). The latter species is considered a common early prehistoric crop weed in small plots of non-intensive cultivation, e.g. hoe or garden cultivation (Bakels 2000). Other species include musk mallow (Malva moschata), corn spurrey (Spergula arvensis) and small vetches or wild peas (Vicia/Lathyrus spp.), all of which are also associated with cultivated and disturbed land. Corn spurrey is a calcifuge species, found mainly on sandy, calcareous soils with a good to average nutrient supply (ibid.). Vetches and wild peas also point to cultivation upon sandy soils.

The distribution of plant remains is uneven, with botanical finds prevalent in pit/posthole F.349 of the Structure 3. This pit not only contained the most cereal grains but also had many wild plant seeds, despite the near absence of any chaff. Structure 2 was relatively rich in wild plant seeds, 90% (45 out of 48) of which were found in the external ring of postholes, namely F.634. The only chaff in the Structure 2, a spelt glume base (Triticum spelta), was also found in F.634. The removal of remaining weed seeds after chaff had been threshed and sieved out appears to have occurred in individual houses. It is possible that the removal of chaff was a communal effort and one wonders if it was done before storage (Stevens 2003). The concentration of burnt crop processing waste/loss in the external wall, relative to the interior pits, could indicate that such activities were allocated to the periphery of dwellings. F.349 appears to have been an entrance pit and contained the most artefacts and ecofacts from that structure. This pattern is repeated in the later prehistoric structures at Bradley Fen suggesting either that entrance postholes were traps to surface accumulations once posts had wasted away/been removed, or that the entrance way, where light was prominent, was where most activities occurred.

Pit F.278 contained only four seeds, a thorn and a little fine charcoal. The botanical and artefactual remains from the Early Bronze Age pits and structures correspond well to the henge’s ‘Collared Urn’ capping deposit and, though the latter contained fewer finds, results clearly indicate a settlement environment where mixed farming played an important role.

Burnt mounds
Samples were taken from all four burnt mounds but, apart from Burnt Mound 4, only generated small flots with very low densities of charcoal. These results were not altogether unexpected since the mounds were primarily composed of burnt stone, the majority of which had passed from heat source to water before creating the mounds. Features around the mounds, however, have enabled a description of their contemporary environments.

Six samples were taken from features associated with Burnt Mounds 1 and 2. F.890, beneath Mound 1, and the nearby pit F.875 produced few plant remains other than charcoal. The adjacent waterhole F.866 and its smaller re-cut F.879 both contained waterlogged assemblages. The basal fill of a large pit beneath Burnt Mound 2 (F.1062) and waterhole F.1086, located immediately to the north of Burnt Mound 2, also produced waterlogged assemblages. All four waterlogged assemblages were very similar and contained a mix of semi-aquatic herbs and plants commonly ascribed to open landscapes of human occupation with arable land and/or pasture. Stinging nettles (Urtica dioica), fat-hen (Chenopodium album), common chickweed (Stellaria media), knotgrass (Polygonum aviculare), black nightshade and thistles (Carduus/Cirsium sp. and Sonchus oleraceus/asper) point to an open, disturbed and nutrient-rich environment. Crowfoot (Ranunculus Subgen. BATRACHIUM), fool’s water-cress (Apium nodiflorum), gypsywort (Lycopus europaeus) and true sedges (Carex spp.) not only suggest that the waterholes were vegetated but that the land around the mounds was damp.
and, perhaps, seasonally flooded. The occasional alder, brambles (Rubus sp.) and elder (Sambucus nigra) add an element of scrub to the otherwise open, damp land surface. Water-flea egg cases (Daphnia sp.) in the water-holes indicate shallow, stagnant water. F.879 contained a slightly higher relative ratio of semi-aquatic plants which may indicate a rise in the water table since the original construction of the waterholes.

F.1157, beneath Burnt Mound 3, and its adjacent waterhole F.1151 had not retained waterlogged assemblages. Only charcoal was found in F.1157 and the occasional seeds of stinging nettles, brambles and crowfoot were the only untransformed plant remains in F.1151. Burnt Mound 3 appears to have accumulated in a similar environment to that described for Burnt Mounds 1 and 2.

**Fired clay objects (Grahame Appleby)**

A total of 179 fragments of fired clay, weighing 4900g (range: 2–1348g), were recovered from pits and post-holes associated with Structures 2 and 3 and the capping deposit of the henge. The majority of the smaller fragments are irregular, undiagnostic. All the pieces, notably the larger fragments are highly fired and completely converted to ceramic.

Several fragments contain impressions of wattles and roundwood, with surviving wood-grain impressions. One piece also preserved the impression of axe or adze marks where the wood has been worked. At least one, probably two, cylindrical loomweights were also recovered in addition to a largely complete conical loomweight (F.287; Fig. 3.48). These are described in more detail below.

**Pit F.287**

Some 15 fragments, weighing 2220g, including one complete, one partially complete and one identifiable fragment of a third cylindrical loomweight, were recovered from pit F.287. Additional small fragments with curved edges were also recovered, possibly also from loomweights of the form of the broken examples described here.

**F.287 (a)** Complete, large cylindrical loomweight, 1220g in weight, slightly tapering, 80mm high, c. 100mm in diameter on the upper surface and 120mm diameter at the base (Fig. 3.48.3). Possessing a single, central perforation 16.6mm in diameter, the weight appears to be expeditiously made from two clay types and fired in an oxidizing atmosphere. The surface varies from reddish-pink to a pale beige colour; the clay, although fired at a high temperature, is not completely converted to ceramic. A possible cord impression is present on the lateral surface, originating towards the base and ‘spiralling’ towards the middle.

**F.287 (b).** Large, conical-shaped loomweight, weight 808g, with flat upper and lower surfaces (diameters c. 60 and 116mm), height 122mm (Fig. 3.48.4). Approximately 50% survives. There is one transverse perforation 22.5mm from the top of the weight 15.5mm in diameter. Due to the colourization of the surfaces the loomweight may have broken prior to secondary firing, with evidence for an oxidizing and reducing atmosphere evident on the interior exposed surfaces, dark grey and buff-orange surfaces both being present. Secondary firing at a high temperature has resulted in the clay being converted to a hard ceramic.

**F.287 (b).** Fragment of a small cylindrical loomweight weighing 212g, (Fig. 3.48.5). Approximately one third survives, including the base (estimated diameter of 85–90mm) and part of an off-centre lateral and incomplete perforation. The surface has a pale orange colour indicative of firing in an oxidizing atmosphere after it was broken.

**Structure 2**

Only a small quantity of fired clay was recovered from Structure 2. This consisted of five fragments, with a total weight of 335g. One fragment (318g) is bun-shaped, c. 85mm in diameter and c. 45mm thick (from pit F.653). Consisting of a relatively sandy fabric with large angular sub-angular pieces of flint and gravel, heat exposure and penetration has reddened one side in comparison to the other (pale creamy-grey). Although slightly friable, this fragment has been heated to a high temperature and it probably represents a fragment of hearth lining.

**Structure 3**

A total of 32 fragments of fired clay (1009g) were recovered from features associated with Structure 3. These include 31 largely non-diagnostic pieces of varying hues of buff to pale orange/red coloured fragments. Four fragments preserve impressions of wood and possibly cordage, all recovered from pit F.349. Pieces that are vesicular in nature were recovered from F.906.

**F.349 [367].** This is a thin, highly fired fragment c. 73mm long, 9.5mm thick and slightly curved along its longest length. The ‘inner’ surface has a smooth appearance, possibly lightly wiped with either wet fingers or a tool, while the ‘outer’ flatter surface are more rough, preserving wood-grain impressions. This fragment may therefore represent an exposed daubed surface.

**F.349 [367].** Two refitting fragments with combined weight of 161g; the smaller piece has broken off the end of the larger. The outer surface has an irregular, pale beige coloured appearance as if roughly manufactured. This contrasts with the inner and flat bottom surfaces, both either pale pink or grey. The inner surface is also relatively smooth, with what appears to be either finger-nail or grain-like impressions. This surface also breaks to a grey, curved surface with possible cordage impressions; the base has a clear impression of a split, flat piece of wood. The overall appearance of this fragment, tapering from a flat base to a thin upper wall, with an interior smooth surface, suggests it was part of a larger object used to either line a pit or hold a secondary container, possibly organic.

**F.349 [367].** This is an irregular fragment of structural daub (or similar), weighing 162g. One surface preserves finger smoothing from where the clay has been fixed around the wood. Two pieces of wood are represented by the preserved impressions, both clearly the proximal ends of worked roundwood. One impression provides an estimated diameter of 130mm for the wood, with the wood-grain clearly visible. The second impression, some 25mm by
This small assemblage consists of fragments of vesicular burnt clay, weighing 108g. The three larger lumps refit, are crumbly and have, on initial inspection, a slag or fuel-ash like appearance. However, these fragments are neither of these and are included here due to their similarity in nature and appearance to Collared Urn pottery recovered from the same feature.

This is a relatively small assemblage, but when considered together with the quantity of Collared Urn pottery recovered from the same structures and features it assumes a greater importance than when considered

31mm, preserves chop or cut-marks caused by working the wood with either an axe or adze, the former most likely.

F.349 [367]. This is a large, relatively heavy fragment (313g) of structural daub, triangular in cross-section. Measuring c. 160mm long, one surface clearly shows numerous finger impressions where the clay has been pressed between two pieces of relatively wide roundwood; one impression (24mm long) shows part of an adult finger in profile. The other two surfaces, both slightly concave, preserve traces of the wood grain and give an estimated diameter for the timbers in the region of 250–300mm, although these may have been shaped/trimmed along their long axis prior to use.

F.906 [380]. This small assemblage consists of fragments of vesicular burnt clay, weighing 108g. The three larger lumps refit, are crumbly and have, on initial inspection, a slag or fuel-ash like appearance. However, these fragments are neither of these and are included here due to their similarity in nature and appearance to Collared Urn pottery recovered from the same feature.

This is a relatively small assemblage, but when considered together with the quantity of Collared Urn pottery recovered from the same structures and features it assumes a greater importance than when considered

Figure 3.48. Loomweights and ‘perforated’ pebbles.
alone. Fired clay is ubiquitous on many prehistoric sites within the region and is generally classified as structure related or associated with hearths. The assemblage described here shows remarkable similarity to that recovered from the Edgerley Drain Road (Appleby 2009), where 84 fragments of fired clay were recovered from pits and postholes containing Collared Urn sherds and are thus clearly contemporary in their deposition into these features.

What is less clear, and discussed by Morris in relation to the remarkable assemblage of loomweights recovered from probable Middle Bronze Age features at Pode Hole (Morris 2009, 73), is whether the objects were in fact re-deposited from elsewhere. The secondary firing of the fragments post-breakage would suggest this is a distinct possibility. Nonetheless, the similar condition of some of the Collared Urn assemblage demonstrates that both class of object have been subjected to the same pre- and post-firing processes.

Cylindrical loomweights are thought to be of Early/Middle Bronze Age date and similar weights have been recovered from the Fengate investigations including a complete example found in a pit in association with Collared Urn pottery (Site O (Pryor 2001, fig. 2.11). Parts of the Fengate fieldsystem produced seven other axially perforated loomweights: two from the Padholme Road sub-site (Pryor 1980), four from Newark Road (ibid.) and one from the Elliott Site (Evans & Beadsmoore 2009, fig. 3.25).

Worked stone (Simon Timberlake)

Worked pebble F.276a (276a). 144g. Dimensions: 50mm × 65mm × 28mm (Fig. 3.48.2). A broken and slightly heat-cracked sandstone pebble, perhaps originally a small glacial erratic from the gravels. This has been worked from both sides in the middle (as circular grinding hollows each approx 10mm deep), though the perforation is incomplete.

Macehead SF 49. 590g. Dimensions: 90mm × 70mm × 40–60mm (Fig. 3.48.1). A well-shaped worked stone macehead composed of a carefully chosen dense rock type, possibly dolerite. The macehead shows little evidence of having been used and the hour-glass perforation through the middle of this is also incomplete. The deepest of these perforations is between 20–25mm in diameter and about 20mm deep and is conically shaped.

The incompletely perforated pebble may have been an attempt to produce a shaft-hole implement or a perforated stone weight or net-sinker. However, given the unworked nature and relative poor quality of the pebble, this was probably intended as a practice piece. Given the position of the fracture through the pebble, it seems likely that it cracked as a result of the percussive activity associated with trying to make the hour-glass perforation. The macehead may be a rejected example.

Discussion

In a chapter which has moved back and forth between different parts of the site, describing different architectures and features with different durations and extents, it is understandably difficult to wrap these things up in a straightforward narrative. Such difficulties are further compounded by the fact that in our pursuit of movement we have chosen to emphasize process over form, both in terms of features and in terms of the landscape they occupied. As detailed at the very beginning of this chapter, every facet of the pre-fieldsystem landscape was fluctuating, including its environment. But how then do we make sense of this mutability without reducing everything into a single mean image of a pre-fieldsystem landscape?

The approach taken here is to be more selective in our focus and concentrate the discussion on just two fronts. Here, we allow the monuments to set the discursive tone for everything else, for as a collective, these constructions out-endured everything else and, as will be shown, had a distribution that extended beyond the reach of all other features. As such, the best way of illustrating the monuments’ spatial-temporal pre-eminence is to compare them to the burnt mounds, the sites other enduring features, and the second focus for the following discussion. This way we can establish a series of landscape parameters or boundaries into which we can situate the more obvious traces of settlement or inhabitation.

Critically, not only did the monuments share a different distribution to the mounds, they also shared markedly different ecologies. If the henge and barrows were, to all intents and purposes, dry features, then the burnt mounds were increasingly damp. The two feature-sets existed at opposing ends of our particular landscape spectra and, therefore, framed everything detailed in this chapter. For sure, compelling evidence for single household-based settlement resided within this sphere. However, it has been decided to postpone a detailed discussion of this evidence until the final chapter (Chapter 7), where it can also be related to settlement from other places and periods. This is partly because unambiguous structural evidence for Early Bronze Age settlement is exceptionally rare, both regionally and nationally, and therefore warrants extra attention.

The other key discursive benefit of contrasting monuments and mounds is that, as feature-types, they are both easily identified in other landscapes, at a local and regional scale. Through these entities it becomes possible to articulate significant scalar shifts and reach beyond the narrow confines of site without having to resort to bland universals.
Monuments

Nene Valley geometries and distributions

The distinctive single causewayed ground-plans of the two King’s Dyke barrows have immediate parallels at Fengate (Pryor 2001) and at Must Farm (Knight & Murrell 2011b). Sharing the same penannular plan but different orientations and different dimensions (largest diameter 25.6m; smallest 14.2m), the four examples also occupied different topographies. The King’s Dyke pairing occupied the high ground (4.4m OD), Fengate the middle ground (1.08m OD) and Must Farm the low (-0.2m OD). Together, the monuments bracketed the available contours of the immediate landscape. Importantly, the low-lying situation of the Must Farm monument ensured that its barrow mound was almost fully preserved whereas the ‘high’ King’s Dyke monuments were, by contrast, bereft of their earthworks beyond the tip-lines of mound erosion within their respective ditch profiles. Pryor (2001, 46) records the Fengate ring as being without any obvious mound or associated burial and accordingly described its appearance as ‘hengi-form’ (ibid., 47). Conversely, the King’ Dyke and Must Farm examples both contained burials.

Material culture was uncommon in all of the causewayed forms although a plain Peterborough Ware, Mortlake-style, bowl was found at the centre of the Must Farm mound and the King’s Dyke pairing produced some fragments of Beaker and Collared Urn pottery early on in their respective sequences. Unfortunately, none of these causewayed forms have been securely dated (a radiocarbon sample from King’s Dyke Round Barrow 1 failed), although a similar penannular form situated nearly 100km upstream at Raunds has an estimated construction date of 3340–3020 cal bc (95% probability (Harding & Healy 2007, 102)). Other than sharing analogous geometries and a Nene Valley distribution there would appear to be little consistency between these monuments. If nothing else, the implication here is that we should not focus on geometry when comparing monuments, but instead, as suggested above, place the emphasis on individual processes and their wider distribution.

Practice made place

The King’s Dyke monument complex incorporated a sequence of timber and earthen architectures, knitted together by a succession of deposits and burials. In plan, the overall monument geometry implies a straightforward linear progression of henge to hengi-form barrows, diminishing in scale and elaboration, and simultaneously evolving from the ceremonial to the sepulchral. The actual monument morphology, however, suggests that the architectural division between henge and barrow was much less opaque and that an intentional distinction was made between the different types of earthwork, expressed by the conscious construction of open (henge) or closed (barrow) spaces. The foundations of the monuments may have been similar, but the superstructures were not. Part of the difference was also relational and this was made tangible, for example, by the close association of the principal barrow (Round Barrow 1) to the henge.

Individually, each of the monuments had its own ‘internal’ sequence, which was often long and relatively complex. When brought together, these sequences can be seen to reflect configurations of concerted activity as well as patterns of dormancy across the different spaces. In this sense, it may be more appropriate to think of these different features (the timber and earthen architectures) as continuously shifting in and out of active focus, rather than being simple expressions of sequence, i.e. one monument followed by another, followed by another. When viewed in this light, the monuments can be considered not as finished and therefore concrete, but as enduring construction sites – features always in flux and open to further material flourishes.

The raw timescale of the monument complex was informed by two radiocarbon dates and typological parallels. The chronology of the complex appeared to incorporate at least three ceramic periods, with a ‘Beaker’ beginning, Collared Urn middle and a Deverel-Rimbury end. A failed date for the primary interment of the first of the barrows means that its start has to be deduced via analogy. Likewise, the first moments of the pit-circle and henge configuration must also be approximated. A charred seed from the pit-circle generated a radiocarbon date of 1960–1750 cal bc, though the burning episode to which this relates is thought to correlate with the small charcoal deposits in the middle henge fills. At best then, this date only provides a terminus ante quem for the beginning of the monument complex. Fortunately, the exaggeratedly deep ‘coffin’ burials situated at the centre of the King’s Dyke barrows have parallels further up the Nene Valley at Raunds (Harding & Healy 2007, 240–243), where they have been shown to have Beaker affiliations (c. 2400–1900 cal bc) or date to the late third millennium bc. Similarly deep ‘coffin’ burials have been excavated in Cambridgeshire (Evans & Tabor 2010) and Norfolk (Lawson 1986) and shown to be part of a broader Beaker-related tradition. Meanwhile, small diameter timber circles equivalent to the one that encircled the primary interment of Round Barrow 1 have been exposed at low tide at Holme-next-the-Sea and demonstrated to belong to the very end of the third millennium bc (Brennand & Taylor 2003).
If the opening chronology of the monument complex was ‘Beaker-like’ then its core was coincident with Collared Urn. The pit-circle and henge capping deposit along with the satellite burials and ‘empty’ urns were all allied to this ceramic phase. The double Collared Urn ‘capsule’ cremation produced a date of 1880–1630 cal BC, whilst two samples linked directly to adjacent settlement accumulations (equivalent to the henge capping deposit) generated dates of 1760–1610 and 1740–1530 cal BC respectively (Table 1.1). The other end of the monument chronology, its final flourish so to speak, was defined by two Deverel-Rimbury cremations and the construction of a diminutive Middle Bronze Age ring-ditch. Fittingly, the end of the monuments corresponded with the end of urns.

The extended duration of the complex shows it to be as much a product of temporal practice as spatial. By this we mean the gross chronology was extremely long (minimum 600 years) and those involved in its construction could only ever have had a partial association. At best, the complex represents a kind of architectural composite; an amalgam made-up of familiar elements, but brought together in a distinctive arrangement. One can envisage similar processes occurring throughout the Flag Fen Basin, or along the Nene Valley, with different ‘monument’ spaces being transformed or added to at different times. The inference being drawn is that, if the King’s Dyke complex was a composite, then so were other monument groups in the region, both large and small. Seen this way, there never was a single burial space, or even a single monument, but in truth, a whole series of spaces interconnected or unified by analogous kinds of monument practice. Individually, each site evolved its own inimitable arrangement, or its very own composite, each regulated or articulated by time. As such, apparent gaps in the different composites can be equated to gaps in time, or dormant periods, when very little happened at these particular places. However, these disjunctions are not reflective of holes in the record, but equate to long fallow or fluid systems of tenure in the early Bronze Age (Barrett 1994). In this sense, we are describing a kind of inhabitation that bears a strong resemblance to earlier traditions such as those also envisaged for the Early Neolithic (Pollard 1999), a time when monuments also predominated the architectural range. Perhaps, what is absent from this Early Bronze Age version of the monuments and mobility model are palpable points of episodic, large-scale settlement aggregation, such as the big enclosure or pit agglomeration sites typical of eastern England in the fourth millennium BC (Garrow 2006, 25–58; Pryor 1998a). Instead, the post-Neolithic Nene Valley settlement pattern was epitomized by individual households dotted up and down its length.

Here the episodic character of settlement matched the episodic character of monument construction in that it too was broadly distributed.

With this perspective, we might begin to situate the dead in relation to these constructions somewhat differently. Given the extremely protracted time-spans involved in the making of these sites, it is hard to envisage each individual barrow as a predetermined ancestral place, as if every monument was built in anticipation of accommodating future members of the same family or restricted lineage. The evidence suggests the exact opposite. The realized genealogy of these spaces was seldom linear. Instead, it entailed a much more convoluted process. Crucially, these were not architectures made for the dead – they were architectures made of the dead (Barrett 1988, 39). The development of a monument was conditional on fresh interments, otherwise the whole thing stagnated. In this light, we might better think of composite burial monuments as points of temporal convergence (they were, so to speak, short spaces made over long times).

Understood in this way, burial monuments represent a unique kind of stratification in that they contain major gaps between ostensibly analogous practices. As constructions, round barrows are the spatial unification of temporally discordant, but socially equivalent, performances.

Understandably, there is something compelling about the physical stratification of bodies, especially when it comes to finding ways of understanding past social relationships. It is easy to see how physical stratification can be taken as a straightforward index of social relationships (in all of its variants: Garwood 1991; Mizoguchi 1993; Last 1998). This is especially true if the overriding perspective is spatial and for that reason the evidence is flattened. Under these interpretive circumstances, individual monuments, or monument groups, can be understood as fixed ancestral plots tied to specific places in the landscape (Garwood 2007, 47; Healy & Harding 2007, 66). Conveniently, each plot accommodates or amasses its own collection of ancestors (primary, secondary, satellite etc.) and each collection of ancestors can be used to advocate an unbroken lineage rooted to one particular locale. To top it all, each unbroken lineage comes supplied with its very own ceramic line of descent (Beaker, Collared Urn and Deverel-Rimbury). From a purely spatial point of view, there is little discordance and stratification prevails at several levels.

Paradoxically, in the context of burial monuments, stratigraphy is used to conflate rather than separate and thus form is once again given priority over process. In this way, we end up with monuments as static foci connected to individual ‘families or other close-knit
social groupings’ (Harding & Healy 2007, 210), whilst the super-extended time-spans associated with these spaces become a straightforward proxy for concepts such as inheritance, obligation and commemoration (ibid., 216), a kind of continuity from discontinuity (Mark Edmonds pers. comm.). Equally, with form as the controlling frame of reference, monuments can be subdivided into specific types and given quantified chronologies (Garwood 2007, 30–52). Space and time are certainly present within these discourses but they occur as disconnected properties related to the same retrospectively privileged point of view.

An alternative approach is to reconnect duration and extent and at the same time reorientate ourselves in terms of scale. Instead of thinking of individual burial monuments as spatially distinct but sharing the same broad temporalities, we might think of them as spatially related but incorporating different temporal intensities. The distinction is subtle and involves a change in perspective that once again prioritizes process over form and simultaneously situates ‘stratification’ at a scale much larger than that of individual monuments or even necessarily monument groups. It also entails a change in the scale of movement as, under these new conditions, barrows can no longer be regarded as static foci or plots connected to individual families or groups.

To understand this particular point of view, it is necessary to envisage a whole series of equivalent practices occurring at different parts of the landscape, but carried out by members of the same social groupings. No one group builds anything, but instead shared practices, such as deep graves with coffins, post-rings, causewayed ring-ditches or cremations accompanied with Collared Urns, develop over time into forms we come to recognize as burial monuments. The process was such that some spaces developed more than others. This is why we can find more or less developed combinations of different elements at different places. Practice was regulated temporally, as well as spatially, which is why specific features or architectures can be absent as much as present. In this sense, practice made place, not the other way around. By the same token, persistence was determined by practice not place.

Crucially, at any given time, the buried population was represented not at a single monument but across a chain of monumental practices, stretched out over the distance of a landscape, pathway or river. The burials found at individual monuments or monument complexes represent a composite of divergent communities, communities that frequented similar spaces but at completely different times and in different ways. The inconsistency of monuments, their heterogeneity, can be understood as exact architectural expressions of how they were made. Each one was an amalgam of different durations and extents.

Individual Early Bronze Age monuments or monument groups cannot simply be interpreted as repositories of restricted lineages or genealogies (real or invented). The scale at which people lived and died was far more dispersed. Family, or other close-knit social groupings, were not attached to one place but to a whole chain of places and, as such, created wide-ranging constellations of the dead that extended way beyond a single place or monument. Lineages or genealogies were made manifest horizontally, not vertically, and were purposely constructed to be comprehended on these terms. The historical component of past social relationships had its own kind of stratigraphy that could only be appreciated in the course of protracted movement. If nothing else, this way of seeing things proposes that during these times and within in these spaces, people had a distributed rather than centred notion of what it was that constituted place (cf. McFadyen 2008). Furthermore, while there is not necessarily a contradiction between an extensive wide-ranging use of a landscape and individual groups being connected to particular monument clusters, this relationship still needs to be demonstrated and not just assumed (especially as it is questionable that the vertical arrangements of bodies within burial monuments ever stood as a straightforward index of past social relations).

**Burnt mounds**

At the time of discovery, the four burnt mounds from Bradley Fen, reported in this volume, represented the first such features ever to be found along the western edge of the Fens. Previously, the Fenland Survey had established a direct relationship between large isolated piles of fire-cracked flint and the eastern edge of the Fens (Silvester 1991), with principal, published examples of burnt mounds on the eastern fen-edge at sites such as High Fen Drove, Northwold (Crowson 2004), Feltwell Anchor, Feltwell (Leah & Crowson 1994) and Swailes Fen, West Row (Martin 1988) and more recent discoveries at Fairstead, King’s Lynn (Beadsmore 2005b) and Fordham (Mortimer 2007). Burnt mounds are also scarce on the Lincolnshire fen-edge: the Fenland survey found two, both in East Kirkby, on the northern edge of the fens (Lane 1993, 104). Although three further mounds have now been found at Must Farm on the western edge (Tabor 2008a; Tabor 2010; Knight & Murrell 2011b) and isolated mounds have been recorded along the southern fen margins in the lower Ouse Valley, with examples at Haddenham (Evans & Hodder 2006a) and Over (Evans & Tabor 2010, 47–51; Tabor & Evans 2013, 46), the distribution
is still very much concentrated around the eastern fen-edge in Norfolk and Suffolk.

The western edge has never been renowned for its large lithic scatters (burnt or otherwise) and even beneath the surface, its sites have tended to produce markedly diminutive assemblages when compared to the east (Healy 1991). Breckland-sourced flint has been identified along the western edge but invariably as imported ready-worked material rather than in its ‘raw’ state. Mostly, the western-edge assemblages comprise small flints in low densities, as characterized by the features in around the Bradley Fen burnt mounds. Significantly, the dearth of ‘good’ flint along the western fen-edge was visible in the composition of the Bradley Fen burnt mounds in that they were made-up of masses of fire-cracked sandstone river pebbles as opposed to heaps of burnt flint.

Samples from the centre of each of the Bradley Fen mounds produced an average mixture of 78.5% burnt stone, 12.5% burnt gravel and 12.8% unburnt stone/gravel. The Must Farm mounds were also made up predominantly of burnt stone and the southern example at Over generated a composition almost identical to the Bradley Fen mounds. At Fairstead, on the eastern edge, however, the mound composition was almost the exact reverse: 3.5% burnt stone, 94.5% burnt flint and 2% unburnt stone/flint (Fig. 3.49). Published descriptions of the other eastern mounds describe a similar pattern of only small amounts of burnt stone amongst masses of heat-shattered flint (Crowson 2004). Overall, the pattern suggests that the eastern mounds had access to copious amounts of flint (‘enough to burn’), whereas the southern and western examples did not. Importantly, the different materials seem to reflect differences in geography rather than differences in practice as all of the mounds – east, west or south – shared almost identical morphologies. The dark, humified matrix that held the fire-cracked rocks was the same regardless of stone type and in plan and profile these distinctive heaps are indistinguishable.

Returning to the distribution of the mounds at Bradley Fen, their spacing and close linear relationship to the embayment edge hint at a pattern of burnt mounds occurring every 60m or so, continuing to the north and south of the excavation area, between the 0.60 and 0.80m OD contour. Likewise, we can extrapolate that their associated features, made up of water hollows, metalled surfaces, hearths and small pits and postholes, also occurred with equivalent regularity. Such a configuration would be comparable to the ‘pot-boiler’ pattern recorded along the edge of the Wissey Embayment, where Silvester (1991) identified 23 discrete burnt flint scatters spread out over a distance of about 1300m: one approximately every 55m. These occupied a juncture between the chalk upland and the deeper peat fen, sandwiched between Early/Middle Neolithic flint scatters (ostensibly found further out in the peat fen) and a series of Iron Age sites (located inland and higher up on the chalk); just as at Bradley Fen, the pattern was linear, edge-related and, most pertinently, historically contingent.

In both landscapes, the burnt mounds were intimately linked to the presence of a wet-ground skirtland. At Bradley Fen, the slow but progressive saturation of the site’s lowland embayment generated a series of wet edges, or localized damp/dry margins, along which the burnt mounds and other features were established. Through the close association between burnt mounds and increasingly damp ground these features had an almost magnetic relationship with

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**Figure 3.49.** ‘Fen-edge’ mound composition contrast (Beadsmoore 2005b; Evans & Tabor 2010).
the transforming hydrology of the landscape and, as barometers of such change, they represent particularly sensitive entities. Indeed, it seems that the inexorable progression of the increasingly wet edge was marked by, and therefore can be measured from, the upward progression of the burnt mounds.

The mounds corresponded to the contemporary ‘high-water’ mark, a thin strip of ground which, according to the season, shifted between being entirely sodden or comparatively dry. Those involved in setting fires and heating stones were presumably very familiar with the changing textures of the encroaching saturation. Seeing the mounds in plan, it is tempting to orientate them as facing-outwards, like a series of small havens dotted around the edge of the embayment, although there is every possibility that these particular features faced inwards and encircled or enclosed the land still open for settlement.

Whatever their orientation, these features are testimony to the shifting perimeter of the embayment, with the Bradley Fen and Must Farm burnt mounds falling between the -0.90m and +0.80m OD contours. The corresponding dates of these features reflect the shifting embayment edge over time, with the deepest mound at Must Farm (Burnt Mound 6), being associated with a radiocarbon return of 2200–1970 cal bc (Beta-263158: 3710±40 yr (Tabor 2010, 7)), whilst two of the highest mounds at Bradley Fen (Burnt Mounds 1 and 3), produced dates of 1740–1530 and 1690–1510 cal bc respectively. Appropriately, the ‘middle’ mound, Burnt Mound 4, produced a ‘middle’ date of 1910–1700 cal sc. The only glitch in this neat upward trajectory was Burnt Mound 2, whose early date may be a product of wood-age offset (2300–2120 & 2100–2040; Table 1.1).

Here, in the space of few hundred metres, the accepted chronological currency of Fenland burnt mounds is played out in a spatial and temporal sequence. The absence of burnt mounds from the higher contours, i.e. above 1m OD, would explain why similar features have not been found elsewhere around the Flag Fen Basin or, for that matter, elsewhere along the western fen-edge. At Bradley Fen and Must Farm at least, these features inhabit a limited window both in time (c. 2300–1500 cal bc) and in space (c. -1 to +1m OD).

Similarly, the same limited window revealed a series of watering hollows and metallised surfaces related to earlier, pre-fen occupation associated with the increasingly damp fringes of the Bradley Fen embayment. Billington’s analysis of the lithics recovered from immediately on top of the metallised surface F.1052 identified the assemblage as being coherent and therefore in situ and dated it to the ‘middle’ Neolithic on the basis that it incorporated both Early and Late Neolithic traits. None of the other surfaces produced anything so chronologically attributable but all of the metallised surfaces represented primary features in relationship to almost all adjacent activities; separately, areas of metalling occurred pre-burnt mounds, pre-peat and pre-fieldsystem. As features made principally through, or by concerted movement over, areas of increasingly soft ground the patches of metalling were not easy things to fix in time and there is every possibility given the necessary conditions, that surfaces like these were ‘made’ throughout prehistory. So for instance, compacted gravel surfaces have been found at Fengate overlying infilled fieldsystem ditches (Evans et al. 2009), but also at Northey in association with animal hoofprints and soft marginal ground close to 1m OD (Britchfield 2010).

At Bradley Fen, the metalling was also integral to many of the large waterholes which encompassed the Bradley Fen/Must Farm Embayment. Cow, pig and deer tracks ‘stitched’ the edges of the holes and surfaces together and collectively presented a footfall pattern of large ungulates moving across and along the embayment. New metallised surfaces, including narrow sinuous pathways and large irregular ‘yard’ surfaces, have since been found both across and around the southern fringes of the same embayment at Must Farm and in particular where the embayment narrowed and ‘debouched’ into the nearby river system and down the edges of the river valley (Gibson & Knight 2009; Tabor 2008a; 2010; Knight & Murrell 2011b). Similarly, and as a direct result of the Bradley Fen discoveries, large areas of animal hoofprints have been found punctuating the pre-peat land surface at Must Farm around -0.2m OD (Murrell 2011). All the evidence suggests that the activities or movements that gave rise to, the metallised surfaces had also been happening much further down the edge.

The Bradley Fen investigations show that unambiguous and undisturbed evidence for Early Bronze Age occupation activity increases in intensity below 1m OD. The very intactness of these early features reflects their stratigraphic relationship to the increasingly deep peat cover and at the same time indicates that former notions of an all-encompassing defined landscape edge are no longer appropriate.

Previously, the deepest Beaker features were thought to also delineate the wet–dry divide of the Flag Fen Basin. Excavations ‘Towards the Northey Landfall’ or eastern shoreline of the Flag Fen Basin revealed a small cluster of Beaker pits, some features containing burnt stones and a series of stake-alignments or fence-lines (Britchfield 2010). In 1989, the Power Station investigations on the opposing eastern shoreline located a small cluster of pits, including a feature replete with burnt
Figure 3.50.
The Bradley Fen Embayment (incorporating the Must Farm landscape); Top, c. 2000 cal bc; bottom, c. 1800 cal bc. (Burnt mounds and settlement structures in red).
stone, which also produced Beaker or Beaker-like pottery (Pryor 2001, 71). Both the Northey and the Power Station features pre-dated the peat and were located just below the 1m OD contour and as such were seen as being exceptionally low-lying examples of Beaker activity. Both Pryor and Britchfield assigned these features a boundary or liminal role, contemporary with, or equivalent to, the fen-edge ditch and bank boundaries of the fieldsystems.

The Bradley Fen Beaker house (Structure 1) was located nearly 1m below the Northey landfall and Power Station features. The structure pre-dated the formation of the peat and its large central hearth with surviving charred logs visibly illustrated its terrestrial location. Our understanding of the contemporary landscape suggests that it was built within an area that was predominantly dry except for some localized ponding in lowest-lying areas. Further insights into the structure of this deeply buried landscape are now emerging from the adjacent excavations at Must Farm, which serve to flesh-out the texture of these lowland river terraces. The discovery of preserved stake-line boundaries, similar to those identified at the Northey Landfall, is particularly notable (Tabor 2010; Knight & Murrell 2011b). These seem to delineate small paddocks of cleared ground, dry enough to parcel up, but far too wet to inhabit. As well as providing an unprecedented perspective on pre-fieldsystem forms of land allotment in the Flag Fen Basin, the very preservation of these stake lines demonstrates that this patch of landscape was in hydrological transition by the start of the second millennium BC. In other words, the paddocks and ground below -0.50m OD were becoming saturated, if not permanently waterlogged, at this stage (Fig. 3.50).

Increasing saturation along the Bradley Fen embayment may be one reason for the ‘jump’ up-slope of house architectures during the Early Bronze Age; the Collared Urn-related structures being erected above the 2m OD contour. However, the time-transgressive upward trend of settlement was in part counteracted by a continued and deliberate engagement with the ensuing saturation of the lower contours. The relatively narrow focus of the King’s Dyke/Bradley Fen aperture appears to capture movement between what we might call the convex and concave spaces of a river valley. At the same time as the elevated, or convex, terrain of King’s Dyke and parts of Bradley Fen witnessed ongoing monument sequences as well as increasingly tangible evidence of settlement, Bradley Fen’s low-lying or concave embayment saw the incremental displacement of enduring practices that, amongst other things, involved heating stones and watering livestock. This particular landscape-transect was flanked by monuments at one end and burnt mounds at the other.

In articulation, these were the social situations and configurations of the Early Bronze Age as realized along the lower reaches of the Nene Valley. The appearance of this landscape is at variance with the

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**Spatial-temporal configuration 1 – the pre-fieldsystem landscape**

The spatial-temporal diagrams are designed principally to reintroduce a vertical or temporal dimension to the features excavated at Bradley Fen and King’s Dyke. As such, the diagrams present a different perspective from the more orthodox plan view, which places all of the emphasis on the horizontal or spatial relationship between things. In the context of this project, a re-emphasizing of the vertical corresponds to the site’s subtle, but intricate, topographic and sedimentary history. The diagrams work by replicating the age/altitude or time/depth dynamic intrinsic to this particular landscape by situating key features both horizontally (the X axis) and vertically (the Y axis). Essentially, the diagram replicates the landscape-edge by showing the relative topographic situation (X) and base altitude (Y) of each feature, or activity. So for the henge, the X axis shows its contour location whilst the Y axis shows the altitude of its deepest component (i.e. the height at the base of its ditch). Viewed individually, X/Y coordinates mean very little, but when seen in relationship to other feature-coordinates, it becomes possible to identify authentic spatial-temporal configurations.

In the beginning, the patterns are more spatial than temporal, or more geographical than historical. In the first diagram, for example, it is the spatial rather than the temporal relationships that stand out. The diagram shows a clear split between Beaker and Collared Urn settlement as well as between the location of monuments and the burnt mounds and watering hollows. By introducing different features with each new chapter, the age/altitude dynamic will become apparent as features are articulated temporally as well as spatially. As the lower contours are buried beneath escalating sediments and the ‘surface available for settlement’ decreases in extent, features will move.
Movement occurs vertically and horizontally and shows itself as a series of spatial-temporal shifts. Just like the earlier flood maps, it is only by presenting things in succession that we can begin to distinguish movement. Since movement is conditional on time, as much as it is on space, its recognition should help to substantiate the spatial-temporal potential of these diagrams as well. Ultimately, the idea is to extend the temporal-mapping up and down the contour, as a means of further demonstrating how this particular ‘landscape-edge’ comes complete with its very own heightened historical-geographical scale. At the same time, it should also illustrate just how difficult it is to divide such a fluid and mutable space into separate, constitutive elements.

In the first of our diagrams, settlement, in the form of the Beaker structure, starts at the low end of the gradient and shares the same ground as the watering hollows and burnt mounds. Meanwhile, the henge and barrow group sit at the high end with Collared Urn settlement located near-by. The extreme ends of this range are bracketed by an assortment of cremations all of which had Collared Urn affinities. There is a marked spatial division between Beaker settlement and the inchoation of the monument complex, especially when compared to the auxiliary situation of the Collared Urn settlement features to the same complex. In this pattern, settlement moves but the mounds and monuments stay put. Sharing similarly extended temporal currencies, the monuments and burnt mounds persisted long enough to absorb successive and distinctive episodes of settlement. In these diagrams, ‘staying-put’ is symptomatic of an enduring existence. The spatial-temporal detachment of one settlement episode from another reflects a deliberate upward trajectory perhaps encouraged by the escalating saturation of the lower contours. Alternatively, its movement might actually represent a simple correspondence between increasing occupation and amplified activity at or about the monuments. For example, the henge’s final flourish coincided precisely with this shift in settlement position.
Bronze Age inhabitation within a single frame. If this was the case, then the impression of this inhabitation was light and, it would seem, indicative of episodes of relatively short-term coalescence rather than the concerted occupation of a set place or a place-bound way of living. Thus, although the spatial configuration of the evidence is so compelling that it is tempting to overlook its temporality altogether and just call it ‘an Early Bronze Age landscape’, in all likelihood, the communities who frequented these dwellings, built these monuments and added to these mounds also attended to equivalent features away from the confines of our landscape window. Without extensive movement into and out of our frame this particular spatial-temporal situation has way too much time for its space. By necessity, extended movement or mobility would have entailed prolonged fallow periods and, as a consequence, involved expansive and comparatively flexible systems of tenure (Barrett 1994, 143–145). In these times, in these spaces, it seems that the ‘tenurial expectation’ of the community (ibid., 144) was far greater than the south-eastern margins of the Flag Fen Basin and instead encompassed a major river valley in all of its aspects (see Harding & Healy 2007, 277). The next chapter describes a new kind of tenurial expectation which happened to coincide, or overlap, with the relatively rapid loss of large tracts of land to the encroaching fen. As phenomena, the two occurrences were not intrinsically linked but all the same had a significant impact upon each other. Paradoxically, at the point when land was formally being divided up it was also fast disappearing.

Conclusion

In this river valley, at this time, the settlement imprint was subtle and the interval between dwellings was wide. In total, the King’s Dyke/Bradley Fen Early Bronze Age window revealed three dwellings, three monuments and four burnt mounds. The rough correspondence in numbers between dwellings, monuments and mounds should not be read as a straightforward index of lived scale, but there would appear to be a crude correlation between places to live, places to die and perhaps even places to cook or bathe (Barfield & Hodder 1987). It might be that the scale of our investigation window, its aperture, was just big enough to capture some of the key facets of Early Bronze Age inhabitation within a single frame. If this was the case, then the impression of this inhabitation was light and, it would seem, indicative of episodes of relatively short-term coalescence rather than the concerted occupation of a set place or a place-bound way of living. Thus, although the spatial configuration of the evidence is so compelling that it is tempting to overlook its temporality altogether and just call it ‘an Early Bronze Age landscape’, in all likelihood, the communities who frequented these dwellings, built these monuments and added to these mounds also attended to equivalent features away from the confines of our landscape window. Without extensive movement into and out of our frame this particular spatial-temporal situation has way too much time for its space. By necessity, extended movement or mobility would have entailed prolonged fallow periods and, as a consequence, involved expansive and comparatively flexible systems of tenure (Barrett 1994, 143–145). In these times, in these spaces, it seems that the ‘tenurial expectation’ of the community (ibid., 144) was far greater than the south-eastern margins of the Flag Fen Basin and instead encompassed a major river valley in all of its aspects (see Harding & Healy 2007, 277). The next chapter describes a new kind of tenurial expectation which happened to coincide, or overlap, with the relatively rapid loss of large tracts of land to the encroaching fen. As phenomena, the two occurrences were not intrinsically linked but all the same had a significant impact upon each other. Paradoxically, at the point when land was formally being divided up it was also fast disappearing.
A remarkable attribute of the Bradley Fen investigations was the impression that the site was made-up of many levels, each as spectacular as the next. This chapter describes such a change, which saw the implementation of a coaxial fieldsystem, its settlement and the deposition of a large number of bronze weapons. As component parts, these features resonate with key facets of the opposing Fengate shoreline (Pryor 1991; 2001) and, as such, the two landscapes stand as close counterparts. The similarities and the differences between the two set the framework for this chapter.

By comparison, the chronology of this chapter is considerably shorter than the last, in that it covers less than half a millennium – c. 1500 to 1100 cal BC. Most significantly, its time scale is commensurate with the emergence of the Flag Fen Basin as a tangible landscape feature and, where previously occupation was aligned in relation to a river, it was now beginning to be oriented in relation to a small fenland embayment. The conditions that created the Flag Fen Basin were progressive. As a consequence, features that had been constructed partially in response to its ever expanding development were eventually subsumed beneath it. For example, relatively shortly after its construction, low-lying elements of the fieldsystem disappeared below the advancing peat. In fact, the visible superposition of the grid corresponded so closely with the changing environmental conditions that it might even be suggested that the two things were interconnected, with the apparent extensification of agriculture (Bradley in Evans 2009c, 266) potentially hastening the nearby saturation (Van de Noort 2004, 168).

In this chapter, the relationship between dryland and wetland is particularly prominent, as is the relationship between fieldsystems, settlement and metalwork. Whereas the fieldsystem was something that truly straddled the shifting dryland/wetland divide, settlement and metalwork perpetuated the distinction. This chapter looks at how things such as fieldsystems, peat growth and metalwork deposition interrelated and what the relative imposition of these things might tell us about life in the later Bronze Age.

**Putting back the fieldsystem**

The previous chapter described a prehistory devoid of an overarching grid. In presenting the evidence of earlier occupations, it was essential to ‘lift off’ the fieldsystem in order to truly appreciate pattern. For this chapter, however, it is imperative that we put the fieldsystem back. In doing so, it is critical that we locate the fieldsystem accurately both temporally and spatially. Fortunately, in this landscape, the construction of the first land divisions coincided with conditions contributory to continuous peat growth. The relationship was unequivocal. As peat development engulfed one set of features (those described in Chapter 3), it established a ‘fresh’ backdrop for another (those described here). Peat intervened between things and as a result it accentuated sequence.

The manner in which we ‘put the fieldsystem back’ is also important, as we must decide whether this should be done all at once or incrementally. Simultaneously, it is important to keep in mind that its linear boundaries are in fact just the enduring outlines of otherwise intangible plots of land; without the presence of the former it would be all but impossible to recognize the presence of the latter. From this we might ask, which came first, plots or boundaries?

We can make an attempt to answer these and other questions by returning to the beginning of the previous chapter and our consideration of Barrett’s theories about long and short fallow systems of tenure (1994, 143). As he suggested, systems of cultivation or animal husbandry have never been contingent on the building of permanent boundaries, especially as agriculture was practised long before the construction of fieldsystems. Following on from this argument, could it be that formal land division was the very last
thing to happen in the making of fields? And that the digging of ditches and the raising of banks was actually about holding on to something already in the landscape (cf. Johnston 2005, 18), as opposed to setting out something completely new? When understood like this, formalized field boundaries could be seen as enunciating a process of land fossilization rather than of simple agricultural innovation; an architecture that projects backwards as much as it projects forwards (cf. Fleming 1985). Such a comprehension may be less about fundamental changes in farming practice, or even novel kinds of land management, and more about bolstering some kind of unconditional claim over particular ‘areas of ground surface’ (Barrett 1994, 94). If this is the case, the institution of more or less ineradicable divisions marked a transformation in boundary practice not farming practice. It was a system of dealing with land already freighted with connections between people, farming, land use and inhabitation.

David Yates presents second millennium BC fieldsystems the opposite way around and argues for innovation over fossilization. Accordingly, he projects these same grids into a bright new future of ever-escalating wealth that materialized itself in a metalwork boom (Yates 2007, 135). This is his agricultural revolution (2001, 65). Yates’ model also proposes a triangle of production which envisages fieldsystems, metalwork and large ringworks as integral components of the same economic scheme. For him, the systematic division of land can be equated to a whole new kind of labour (land and labour being the same thing). For this interpretation to work, however, it is fundamental that fieldsystems, metalwork and ringworks occurred almost simultaneously. These things must share the same political and geographical spheres otherwise the model falls apart. The argument is one of timing, as much as orientation and, ultimately, comes down to demonstrating that the three points of this triangle of production happened as closely in time as they did in space.

With these interpretive ideas in mind, this chapter tackles head-on the relationship between fieldsystems, settlement and metalwork as excavated at Bradley Fen and King’s Dyke. It incorporates evidence from the rest of the Flag Fen Basin and its immediate environs and attempts for the very first time to produce a detailed contextual understanding of fieldsystems, settlement and metalwork for this landscape. Integral to the construction of this understanding are the investigations of the Must Farm post-alignment (Gibson et al. 2010) as well as the newly discovered ringwork at Horsey Hill (Gibson & Knight 2009).

A small group of radiocarbon dates connected with the inception of the fieldsystem, the duration of associated settlement and the deposition of metalwork suggests an unequivocal chronological break between the establishment of field boundaries and the burial of bronzes, with the settlement features bridging the intervening gap. The same order of things also revealed itself stratigraphically in that one of the settlement features abutted part of the fieldsystem, whilst the bronzes were deposited only after a large part of the fieldsystem had been submerged beneath the advancing peat. In keeping with rest of the book, this chapter presents these things in order of occurrence. As before, the chapter opens by establishing the wider landscape setting as well as its topographical and environmental texture.

**Topographies and environments c. 1500–1100 cal BC**

The lower contour deposit sequence demonstrates that the transition from river valley to fen embayment occurred sometime around the sixteenth century BC, when saturation levels, at or about ordnance datum, reached a level at which sustained waterlogged conditions ensued. The ever-increasing water-table extended beyond the confines of the river corridor and started to inundate the low-lying plain that separated the ‘shorelines’ of mainland Peterborough and the island of Whittlesey. The subtle contours of the plain ensured that the transformation was comparatively rapid and its impact was made all the more impressive because these new environmental conditions effectively severed the land bridge that once connected the two land masses. At the same time, the main channel of the previously tidal River Nene migrated southwards incising a new course below King’s Delph; its former course being fossilized in the form of a large meandering roddon caught within the confines of the deep sediments south of the now wet plain.

**The Flag Fen Basin c. 1500 cal BC – the emerging fen embayment**

It is now appropriate to write about the Flag Fen Basin as an actual historical-geographical setting as opposed to an abstract area of study or as a place where a collection of well-known Bronze Age sites are located. The development or emergence of this small fen embayment was diachronic and absolutely contingent on metamorphosing environmental conditions which led to a terrestrial space being made sodden (Fig. 4.1). By 1500 cal BC, the ground below 0.50m OD was covered by peat and the land mass of Whittlesey became an island. The formerly dry plain was fast disappearing, although crucially, in terms of the early stages of the Flag Fen Basin, an elongated spit of land remained above the initial inundation.
Fieldsystem, settlement and metalwork deposits dated to 1530–1260 cal BC (2001, 367). Overall, his pollen analysis depicted the basin as dry land that became ‘progressively waterlogged from the centre outwards’ (ibid.) and, as a record of landscape change, the profiles illustrated a dynamic interrelationship or correspondence between altitude, environment and time. As far as the Flag Fen Basin was concerned, this outward movement was a dynamic that had its greatest force towards the very end of the Early Bronze Age (c. 1500 cal BC), as the onset of fen peat deposits and more or less permanently saturated ground compelled those that preferred things dry to migrate towards its margins like ripples in a pond. In accordance with the pollen record, this chapter concentrates on the paludification of the Flag Fen Basin and the progressive distancing of ‘terrestrial species’ from the centre of the embayment.

According to Scaife, the outward expansion of the fen basin can also be interpreted from the fluctuating pollen values of alder (Alnus). For him, the variable pollen counts can be taken as compelling evidence of a shifting alder carr fringe. Above the carr, the well-drained edges of the basin continued to be zones of clearance and mixed agriculture with cereals and dryland herbs persisting (Scaife 2001, 381). Perhaps significantly, given the character of the features being imprinted upon this landscape, the overriding palynological pattern in terms of agricultural practice appears to be one of broad continuity rather than significant change.

From these descriptions, it is possible to construct a basin-shaped landscape made up of a series of successively displaced environments. Like the rise of the water-table, the trajectory of displacement was predominantly upward, as an apparently fixed agricultural practice simply stayed ahead of the deluge. Alternatively, the earlier patchwork of pastoral and arable agriculture might actually reflect different topographical settings, for example pastoral farming on low ground, arable cultivation on high ground. In this model, the inexorable upward trajectory might involve one kind of agricultural practice displacing another.

As before, the challenge is to situate our feature-sets in these fluctuating spaces and describe how they interrelated. At the same time, it is important that we attend to the speed of things, especially in relation to the landscapes that went before. If the previous chapter described a space that was essentially smooth, in that it was stretched out and open, this chapter describes a kind of striated space, a place where land was visibly parcelled out and, to all intents and purposes, in the process of being contracted and closed. Here we follow Deleuze & Guattari’s use of the terms smooth and striated and their comprehension of nomadic and
Figure 4.2. Changing textures – Middle Bronze Age.
Figure 4.3. Field system landscape – Bradley Fen and King’s Dyke excavation areas with schematic transect.
sedentary trajectories, which argues that the use of space and, in particular, how people moved differed fundamentally between the two ways of being in the world (1986; Cresswell 2006, 49). This is not necessarily an argument for a fundamental change in the way people lived at or about 1500 cal bc but a suggestion that the imposition of an overarching grid might have had an impact beyond its original design. Again it is an issue of extent and here we explore the effects on movement and mobility precipitated by the construction of endless vertical barriers across formally open ground (Fig. 4.3).

The coaxial fieldsystem

To achieve an understanding of the duration and extent of the Bradley Fen fieldsystem, it is essential first to appreciate its scale. Whereas previously individual features, such as a round barrow or a burnt mound, were found at a scale that could be fully comprehended within the confines of the excavation, the fieldsystem was always greater than the site. Pryor’s Fengate and Northey investigations demonstrated that the margins of the Flag Fen Basin were similarly enclosed (Pryor 2001; Pryor & Bamforth 2010), whilst work at Tanholt Farm (Patten 2009), Pode Hole (Daniel 2009), Briggs Farm (Pickstone & Mortimer 2011), West Deeping (Murrell 2010) and Langtoft (Hutton 2008a; 2008b) indicate that equivalent systems continued well beyond the limits of the embayment. Current knowledge suggests that the second millennium bc fieldsystems were present across most, if not all, of the western fen-edge and can also be traced far up the adjoining river valleys of the Welland, Nene, Ouse and Cam (Yates 2007, 83–100). In our search for a limit to the true extent or distribution of Bronze Age land enclosure our perspective must therefore be at least at a scale equivalent to that of the western fen-edge and its feeder rivers.

With this viewpoint in mind it becomes obvious that the Bradley Fen fieldsystem represents only a very small part of a much larger landscape phenomenon. Nevertheless its form is different enough from the other adjacent systems to suggest patterns of localized variability. For example, for the most part Bradley Fen is different to Fengate and, in some ways, a lot less spectacular. Absent are the distinctive droveways, double-ditched boundaries and regular paddocks or stockades – the hallmarks of the Fengate system. Instead, the system comprised a simple series of parallel boundaries that delineated long linear field-strips aligned diagonally across the edge of the island (Fig. 4.3). Apart from the main island-edge boundary, the ditches were much smaller and more fragmentary than at Fengate, so much so that parts of the system seemed hardly marked out at all. Yet what the Bradley Fen system lacks in appearance it more than makes up for in detail. The site has attributes that investigations of other fieldsystems, including Fengate, have yet to reveal. For the first time, a fen-edge coaxial fieldsystem has been traced to its real edge and appreciably below 1m OD. Rather than being situated in the midst of the fields, the site straddled the system’s actual terminus. As a result, it is possible to describe all of its principal components rather than just surviving parts.

The Bradley Fen fieldsystem was made up of a series of linear ditches occasionally accompanied by preserved up-cast banks. The main foci of enclosure were the western slopes of Whittlesey ‘island’ whilst the eastern margins of the Bradley Fen embayment was delineated by a single continuous land division. The King’s Dyke investigations contained a couple of short linear ditches which may also belong to the same system.

As well as the preservation of fragments of bank, the Bradley Fen system incorporated unambiguous evidence of concerted boundary maintenance including episodes of re-cutting. Perhaps most significantly, however, the best preserved elements of enclosure also provided tangible evidence of wooden fence-lines preceding the ditch and bank boundaries. Articulating the relationship between comparatively delicate lines of stakes and the considerably more durable linear earthworks represents a key point when it comes to comprehending the instigation and development of fields both in and around the Flag Fen Basin. Part of this comes down to preservation, especially as evidence for earlier, organic or ‘wet’ land divisions only survived in low-lying, sub-1m OD zones where the ground was fully waterlogged soon after the boundaries had been erected and has remained so ever since.

The difference in preservation helps to explain the ill-defined character of the higher parts of the fieldsystem, which survived as little more than short stubs of ditches with shallow profiles. It also suggests that the earthwork element of the fieldsystem represents an enduring manifestation of much more delicate, or insubstantial, antecedents. This pattern implies that in studying these things it might be better to consider fields and field boundaries as divisible entities: a system of fields and a system of boundaries (with the latter articulating the former). Accordingly, the next section begins by describing the pattern of fields (their dimensions etc.) followed by a description of the various boundaries (fence-lines, ditches and banks). This might at first appear to be back to front, as without the concrete divisions the fields would not have been visible. The switch in order, however, places the emphasis on plots of land above the kind
of boundary employed to define them. It also allows the fieldsystem to develop rather than be presented as an accomplished fact.

**Fields (Bradley Fen)**
Combined, the fields formed a series of narrow parallel strips aligned predominantly northeast–southwest, whilst the western end of the main section revealed an abrupt change in direction with a single band of rectangular fields aligned north–south (Fig. 4.4). Many of the parallel strips were also sub-divided into individual blocks. Consequently the field dimensions varied (Table 4.1; Fig. 4.5), although significantly there was a degree of regularity in the width of the strips (Fig. 4.6). The widest measured around 60m and the narrowest just below 30m, suggesting a potential pattern of ‘full’ and ‘half’ divisions. The greatest variability occurred amongst the field blocks themselves with the largest field measuring up to 160m in length (Field 11) and the smallest 34m (Field 4; Fig. 4.7). The irregular patchwork quality of the parallel strips was contrasted by the relative uniformity of the north–south band of fields, with the three measurable blocks equalling between 90–115m in length (Fields 17–19).

The meeting of the two different field alignments was awkward, to such a degree that it appeared to reveal one set of fields (north–south) truncating another (northeast–southwest). Crucially, this awkward switch in alignment coincided with the increasingly wet margins of the Bradley Fen embayment and could therefore represent a straightforward artefact of the shifting edge of the embayment. The spatial juxtaposition of the different alignments made it look as if the end of the system was folded back on itself, either as a direct response to, or in anticipation of, the encroaching fen. As will be demonstrated, the impact of this encroachment was even more apparent in the evolved morphology of the field boundaries.

**‘Wet’ boundaries**
The system of field boundaries was made up of more than one phase and in places involved makeshift fence-lines replaced by lasting ditch and bank divisions which in turn witnessed episodes of localized refinement or enhancement. This layered development or pattern of augmentation was best expressed by the boundaries located either side of the Bradley Fen Embayment and in particular by the uninterrupted land division located along its western margins. As the lowest and deepest placed boundary, it was inundated very early on in its establishment and accordingly contained waterlogged components of an earlier manifestation within its final form.

**Fence-line**
The boundary (F.1306) that delineated the western margins of the Bradley Fen Embayment originated as a simple stake-built fence-line or ‘dead-hedge’ (Fig. 4.8).

---

**Table 4.1. Field dimensions (‘complete’ dimensions in bold).**

<table>
<thead>
<tr>
<th>Field</th>
<th>Length (m)</th>
<th>Width (m)</th>
<th>Area (m²)</th>
<th>Hectares</th>
</tr>
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<tr>
<td>6</td>
<td>70</td>
<td>45</td>
<td>3150</td>
<td>0.32</td>
</tr>
<tr>
<td>7</td>
<td>60</td>
<td>45</td>
<td>2700</td>
<td>0.27</td>
</tr>
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<td>8</td>
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</tr>
<tr>
<td>14</td>
<td>108</td>
<td>45</td>
<td>4860</td>
<td>0.49</td>
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<td>15</td>
<td>105</td>
<td>27</td>
<td>2835</td>
<td>0.28</td>
</tr>
<tr>
<td>16</td>
<td>34</td>
<td>27</td>
<td>918</td>
<td>0.09</td>
</tr>
<tr>
<td>17</td>
<td>115</td>
<td>25</td>
<td>2875</td>
<td>0.29</td>
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<tr>
<td>19</td>
<td>92</td>
<td>25</td>
<td>2300</td>
<td>0.23</td>
</tr>
<tr>
<td>20</td>
<td>8</td>
<td>25</td>
<td>200</td>
<td>0.02</td>
</tr>
</tbody>
</table>
In its primary manifestation, this land division involved an interrupted line of 98 small wooden stakes (diameter: 90–120mm), extending over a distance of 141.66m and oriented northwes-t–southeast. The uprights, which had been erected after the first few centimetres of peat growth, had simple pencil-like points and endured as a series of short groups or strands of up to 9.96m in length. The strands were separated by gaps of anywhere between 2.17m and 13.71m whilst the smallest gap between individual uprights was 0.09m. Many
Figure 4.8. ‘Wet’ boundary: stake-built fence-line or ‘dead-hedge’ F.1306 and the subsequent bank and ditch (F.1291 & F.1276).
of the shorter breaks in the alignment appeared to be genuine as they occurred beneath preserved sections of the later up-cast bank whereas the more extended breaks appeared to represent truncated stretches. The stakes varied greatly in depth (0.05–0.25m) with some barely penetrating the underlying palaeosol. One of the uprights provided a radiocarbon date of 1620–1390 cal bc (Table 1.1).

Accompanying the alignment was an equally long, flattened heap of brushwood which entwined the groups of uprights and also post-dated the first few centimetres of peat growth. The heap was preserved beneath the succeeding up-cast bank and comprised a jumble of woody detritus including lengths of cut roundwood, pieces of bark and tree roots. A direct stratigraphic relationship between the uprights and brushwood demonstrated that the two things were contemporaneous and suggests that the jumble of brushwood may once have formed part of a crudely fashioned barrier or woven dead-hedge. Rooted saplings along with small coppiced stools were identified during the excavation of the brushwood and it would appear that elements of the dead-hedge had returned to life. Whatever its original character, its preservation was contingent on its context – it was wet when the boundary was constructed and it became increasingly wet afterwards.

**Bank and ditch**

The fence-line or dead-hedge was superseded by the building of a continuous ditch (F.1276) and bank (F.1291). The new construction followed the same alignment as the old, although its various subtle twists and bends deviated slightly from the original (Fig. 4.8). In fact, the serpentine character of the new boundary compared to the sinuosity of the old was such that its superimposition was made all the more apparent. As with the organic fence-line, the ditch and bank were exceptionally well preserved and as a consequence maintained a sharpness and level of detail not normally observed. The ditch was situated on the western side and maintained a consistent U-shaped profile along its entire length (0.70–0.95m in width and 0.30–0.35m in depth). The up-cast bank varied in height (0.02–0.30m) and breadth (1.84–3.15m) and was in places severely disrupted by intrusive tree roots. The bank had a flattened, convex profile and was made of material derived directly from the cutting of the ditch (a mixture of gravel, sand, pale yellow or orange silty-clay, redeposited grey-brown buried soil and redeposited peat). In section, the mix of up-cast material had a distinctive marbled appearance indicative of soils deposited when wet. The uppermost surface of the bank was compacted or trampled in a manner which suggests it had been utilized as a narrow, elevated causeway (Fig. 4.9). Towards the northernmost end of the bank, a preserved tree-stump had been incorporated into its make-up, indicating that the tree was still standing when the bank was constructed (Fig. 4.10). A sharp kink in the ditch corresponded with the location of the tree stump as if it too had been cut around the obstruction. From this, we could surmise that other twists and bends in the course of the boundary were related to similar obstacles.

In areas where the natural was particularly clay-rich, the outside edge of the ditch was poached as though it had been encroached upon by animals (Fig. 4.11). Sections of the base of the ditch were similarly affected and on one occasion the inside edge revealed a preserved single cloven hoofprint pointing upwards. The infill sequence was asymmetric and involved spills of bank erosion deposits along its inside and bands of dark green-brown organic waterborne silts along its outside. Pieces of waterlogged roundwood and twigs were recovered from the basal silts, whilst snail shells were present throughout. The nature of the principal fills suggests that the ditch was frequently full of water and acted as a kind of linear waterhole for cattle. Beyond the wood, the only artefacts to be recovered from the ditch were a single duck bone and a residual flake of a Langdale axe.

Peat, waterlogging, wet up-cast bank material and an inundated ditch represent successive attributes of a boundary built and maintained within an increasingly saturated environment. The boundaries located higher up the contour did not share these attributes in that they were built and at least primarily maintained within a comparatively dry environment where the conditions conducive to peat growth occurred after they had been erected. An examination of these boundaries follows Michael Bamforth’s wood report and Rob Scaife’s pollen analysis of the buried soil and peat sequence situated beneath and besides the bank and ditch.
Fieldsystem, settlement and metalwork
Figure 4.10. Plans of bank and ditch feature (×3 details).
Figure 4.11. Photographs of effects of animal poaching on the sides of the ditch.

Fence-line and woodworking debris (Michael Bamforth)

Wood was preserved in two key contexts: beneath the up-cast bank (F.1291; Figs 4.9 & 4.10) and within the bank’s adjoining ditch (F.1276; Fig. 4.11). The material found beneath the bank comprised a single fence-line constructed of relatively light vertical stakes along with a linear spread of horizontal ‘brushwood’ and woodworking debris. The wood within the ditch consisted of broadly similar brushwood and woodworking debris to that seen under the bank. The extent of preserved wood matched the extent of the bank or ditch it was found beneath or within and represented a ‘protected’ sample of what must have been a much larger spread. However, the line of stakes was discrete to the line of the later bank and a large amount of the wood found intertwined around the uprights may have once been integral to the fence-line. In straightforward stratigraphical terms, the wood beneath the bank pre-existed the wood within the ditch and it is therefore possible to separate the material into two distinct contexts: 1) the remains of a wooden fence-line and general woodworking debris contemporary with the fence-line and 2) general woodworking debris contemporary with the early stages of the ditch. This wood report is divided accordingly, although there were strong similarities between the two contexts. No microscopic species identification was undertaken. Oak (Quercus sp.) was identified where possible from macroscopic features.

1 Wood associated with the fence-line

A total of eight driven stakes were recovered from the fence-line for detailed recording. One stake was in moderate condition, with the remainder in poor condition (Tables 4.2 & 4.3). Several cases of radial shrinkage and breakage were noted. Woodworking evidence was not always visible or clear. Only one stake was identified as oak. The stakes varied in length from 240 to 500mm. Several of the stakes had trimmed ends. Five of the stakes were roundwood, with two items displaying evidence of coppicing. The roundwood stakes varied in diameter between 45 and 105mm. The remaining three stakes were classified as timber debris, two of which were radially aligned and one of which was aligned across the grain. Breadths varied between 44 and 125mm and thickness between 25 and 75mm.

The apparent lack of uniformity within the stake assemblage suggests the feature was constructed from material to hand, with no particular selection of a certain type of wood and, consequently, the forward fence-line would have had a somewhat ad hoc appearance.

Sections of the fence-line were surrounded by accumulations of horizontal brushwood, much of which was twisted between uprights. Two ‘control’ slots were hand excavated across the brushwood spread from which a total of 34 items were selected for detailed recording. A single item (3%) was not scored for condition (Table 4.2). The majority of the assemblage was in moderate condition (65%), 21% in poor condition and 12% in good
Woodchips: Eight items were categorized as woodchips, two of which were identified as oak. Four were radially aligned, one of which was trimmed at both ends from one direction. They varied in length between 60 and 260 mm, in breadth between 45 and 85 mm and in thickness from 3 to 40 mm. Three of the woodchips were tangentially aligned slabs – layers of bark with sapwood adhering to the inside, indicative of bark removal (Taylor 2001). They measured 230 × 30 × 22 mm, 240 × 80 × 30 mm and 380 × 31 × 20 mm. There was a single cross-grained woodchip measuring 95 × 46 × 10 mm. Woodchips are a direct product of woodworking. However, as these woodchips are very unlikely to have been produced by the production of the condition. This represents an assemblage in moderate condition, with woodworking evidence likely to be visible, although not always clear. Debris was the most common category of material (65%). Roundwood (24%), root (6%) and tree (6%) were also present (Table 4.4). No artefacts or material classed as timber were recovered from this context.

Debris
The debris consisted of several sub-groups, comprising woodchips (36%), timber debris (32%), bark (23%) and roundwood debris (9%) (Table 4.5).

<table>
<thead>
<tr>
<th>Condition</th>
<th>Score</th>
<th>Frequency</th>
<th>% of assemblage</th>
<th>Frequency</th>
<th>% of assemblage</th>
<th>Frequency</th>
<th>% of assemblage</th>
<th>Frequency</th>
<th>% of assemblage</th>
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<td>3</td>
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<td>7</td>
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<td>0</td>
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<td>12</td>
<td>28</td>
<td>33</td>
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<td>0</td>
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<tr>
<td>Total</td>
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<td>34</td>
<td>100</td>
<td>84</td>
<td>100</td>
<td>126</td>
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</table>

<table>
<thead>
<tr>
<th>Feature</th>
<th>Wood type</th>
<th>Woodworking evidence</th>
<th>Conversion</th>
<th>Coppicing evidence</th>
<th>Damage</th>
<th>Bark (B)/ Sapwood (S)/ Heartwood (H)</th>
<th>Length (mm)</th>
<th>Max breadth (mm)</th>
<th>Max thickness (mm)</th>
<th>Diameter long axis (mm)</th>
<th>Diameter short axis (mm)</th>
<th>Diameter (mm)</th>
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</thead>
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<tr>
<td>1293</td>
<td>Timber debris</td>
<td>-</td>
<td>Radial (1/4)</td>
<td>-</td>
<td>Both ends missing</td>
<td>SH</td>
<td>350</td>
<td>45</td>
<td>25</td>
<td>-</td>
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<tr>
<td>1300</td>
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<td>-</td>
<td>-</td>
<td>BSH</td>
<td>251</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>1301</td>
<td>Roundwood</td>
<td>1 end trimmed from 4 directions to tapered point</td>
<td>-</td>
<td>-</td>
<td>One end missing</td>
<td>SH</td>
<td>260</td>
<td>-</td>
<td>-</td>
<td>86</td>
<td>64</td>
<td>-</td>
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<td>1302</td>
<td>Roundwood</td>
<td>1 end trimmed from 4 directions to tapered point</td>
<td>-</td>
<td>-</td>
<td>Very fragmented</td>
<td>SH</td>
<td>300</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>105</td>
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<tr>
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<td>1 end trimmed from 3 directions</td>
<td>Radial (1/2)</td>
<td>Heel point</td>
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<td>Roundwood</td>
<td>Distal end trimmed and split to tapered point</td>
<td>-</td>
<td>Straight rod with curve and flair</td>
<td>-</td>
<td>BSH</td>
<td>500</td>
<td>-</td>
<td>73</td>
<td>66</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1305</td>
<td>Roundwood</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Extreme radial shrinkage</td>
<td>BSH</td>
<td>410</td>
<td>-</td>
<td>-</td>
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<td>Timber debris</td>
<td>Split fades to point; sq cross-section; Quercus sp.</td>
<td>x-grain</td>
<td>-</td>
<td>-</td>
<td>H</td>
<td>240</td>
<td>44</td>
<td>38</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Eight items of roundwood were recovered, none of which were identified to species. Four had their bark intact and four did not. Three of the items had morphological traits indicative of coppicing (Rackham 1977). Only one item had any evidence of woodworking, in the form of two side branches that had been trimmed away. The material varied in length from 50 to 230mm, with the majority (14 items, 74%) falling between 100 and 199mm. The material varied in diameter from 3 to 64mm, with three of the items between 10 and 19mm in diameter.

Where roundwood showed the effects of compression from the weight of deposits above, in the form of an oval cross-section (the longer axis being in the horizontal plane, the shorter in the vertical) the maximum and minimum diameters were recorded. By dividing the longer axis by the shorter axis, the extent of compression can be described, with a ‘1’ representing a round item and higher numbers representing items which have suffered a greater compression. A score of ‘2’ would result if the long axis was twice the length of the short axis. 12.5% of the items score a ‘1’, having suffered no compression. 12.5% are moderately compressed, scoring between 1.01 and 1.25 and 75% are very compressed, with a score greater than 1.26.

The lack of woodworking and relatively low prevalence of morphological traits indicative of coppicing suggests this material represents gathered detritus, perhaps with no particular selection taking place.

**Roots**

Two roots were recovered, neither of which were growing in situ and neither of which have been identified to species. One item measures 72 × 41 × 21mm and the other 47 × 29 × 17mm. It seems stakes of the fence-line, it seems likely that this material represented general woodworking debris contemporary with the fence-line.

**Timber debris:** Seven items of timber debris were recovered. Two of the items were long and thin, with a square cross-section, the split sides of which were aligned in both the radial and the tangential planes. The items measured 216 × 46 × 42mm and 560 × 22 × 12mm. These items may represent debris from wood splitting, in the form of the long, square ‘streamers’ that often run between two separated surfaces during splitting. Of the remaining four items, one was identified as oak and all were radially aligned. The material varied between 140 and 500mm in length, 30 and 50mm in breadth and 15 and 27mm in thickness. Items classed as timber debris represent broken timbers or ‘off cuts’ associated with the production of timbers. The timber debris recovered from this context seems to be related to the splitting and subsequent reduction of predominantly non-oak timbers. It is unlikely that this material was a by-product of the sharpening of the stakes of the fence-line. Therefore, it seems likely that this material is again detritus associated with woodworking contemporary with the fence-line.

**Bark:** The five items of bark were of little interest as it was not possible to identify them to species and they showed no evidence of woodworking. Although their presence could represent deliberate bark removal, it is equally likely that they represent naturally accumulated debris. The smallest piece measures 90 × 41 × 18mm, the smallest piece 50 × 40 × 13mm.

**Roundwood debris:** Two pieces were recovered, neither of which has been identified to species. A radially half split item measured 54 × 52 × 27mm, a radially ¼ split item measured 250 × 25 × 22mm.
likely that the roots represent detritus gathered and placed with the other material around the fence-line.

2 Wood associated with the ditch

The material forming the brushwood layer associated with the fence-line and deposited in the ditch was a mixture of coppiced small diameter roundwood, roots and woodworking debris. It seems likely that whatever material was available to hand was collected and brought to the fence-line to be used in the construction of an ad hoc boundary.

All the wood encountered during the excavation of ditch F.1276 was recorded. In total, 84 items were recovered. Almost half the material (49%) was in moderate condition, 33% good and 11% poor (Table 4.2). The remaining 7% was not scored for condition. This represents a relatively well-preserved assemblage, with woodworking evidence likely to be clear or very clear throughout the majority of the assemblage. The material was spread throughout the infill of the ditch. The majority of the material recovered from the ditch was classified as debris (64%). Roundwood (32%) and root (4%) were also present (Table 4.4). No artefacts or material classed as timber were recovered from the ditch. With the notable exception of the two trees, the ditch assemblage has a markedly similar make-up to the brushwood assemblage recovered from beneath the bank.

Debris

The debris consisted of several sub-groups, comprising woodchips (39%), bark (28%), timber debris (28%) and roundwood debris (6%) (Table 4.5).

Woodchips: Twenty-one items were categorized as woodchips, with 15 identified as oak. All were formed of heartwood only, and 13 were radially aligned. They varied in length between 50 and 150mm, in breadth between 21 and 100mm and in thickness between 4 and 39mm. Five were tangentially aligned; one was trimmed at one end from one direction. They varied in length between 55 and 159mm, in breadth between 31 and 51mm and in thickness between 9 and 22mm. Three of the woodchips were cross-grained; one of which was trimmed at one end from one direction. They varied in length between 80 and 150mm, in breadth between 30 and 54mm and in thickness between 8 and 21mm. Woodchips are a direct product of woodworking and, as such, this material may represent woodworking in the vicinity.

Bark: The 15 items of bark were of little interest as it was not possible to identify them to species and they showed no evidence of woodworking. Although their presence could represent deliberate bark removal, it is equally likely that they represent naturally accumulated debris. The largest piece measures 200 × 100 × 10mm, the smallest piece 40 × 35 × 8mm. Much of the bark is larger and thicker than would normally be expected, suggesting it was derived from large logs and had not been subjected to much disturbance, which would have caused it to break up into smaller pieces. This does raise the possibility that the bark was deliberately deposited in the ditch.

Timber debris: The 15 items of timber debris have, with the exception of a single item, all been identified as oak. With the exception of two items that also have sapwood present, the items consist of heartwood only. There is an interesting group of seven long, thin items with a square/rectangular cross-section, the split faces of which are aligned in the radial and the tangential plane. The length of these items varied between 80 and 300mm, the breadth between 30 and 51mm and the thickness between 16 and 42mm. Three of the items have been trimmed at one end from one direction. This group may represent debris from wood splitting, as described above.

One of the items may be a piece of a broken joint. This tangentially modified radial ¼ split measures 440 × 130 × 95mm. One edge is recessed by a depth of 45mm for a length of 270mm. This recessed section may represent a section of broken mortise or halving lap (Milne 1994). One of the pieces of timber debris is an oak burr, consisting of sapwood and heartwood. Multiple faces of the item display multiple facets, suggesting tool strikes from multiple directions. The burr measures 160 × 75 × 68mm. It seems likely that this burr was trimmed away from a larger timber and discarded, to make it easier to work the parent timber. The remaining items are a variety of conversions, one cross-grained, one boxed ½ split, two radially aligned items and two tangentially aligned items. A single item has been trimmed at one end from two directions and a single item at one end from one direction. They vary in length from 72 to 410mm, in breadth from 22 to 119mm and in thickness from 13 to 69mm.

Items classed as timber debris represent broken timbers or ‘off cuts’ associated with the production of timbers. As such, this material may represent woodworking in the vicinity or may be derived from the fence-line.

Roundwood debris: Of the three items of roundwood debris, one was identified as oak. Two of the items had their bark intact. The items varied in length between 80 and 169mm and were all derived from roundwood with an original diameter of <50mm. Two items had been trimmed at one end from one direction. All were split, one tangentially aligned and the remainder radially half split.

Roundwood

A total of 27 items classified as roundwood were recovered, five of which have been identified as oak. All but three of the items had their bark intact. This is of some interest as it suggests that the material has not been heavily disturbed – a process that would have been expected to result in more of the items being stripped of their bark. The items vary in length from 65 to 800mm, with the majority (52%) being between 100 and 199mm, 19% between 200 and 299mm and 15% between 0 and 99mm. Diameters range from 10 to 105mm, with the majority (21 items, 78%) spread between 10 and 59mm. In terms of compression, 30% of the items score ‘1’, having suffered no compression, 52% are moderately compressed, scoring between 1.01–1.25, and 18% are very compressed, scoring greater than 1.26. The only other evidence of taphonomy is a single item that has rotted away at its proximal end in antiquity.

Although the diameters of the material fall within the bounds of those recorded from prehistoric coppice (c. 10–60mm (Taylor 2003)), there is little evidence to suggest that the material was the result of coppicing. Indeed, only five items (18%) were noted to have morphological evidence suggestive of coppicing. Indeed, six items were recorded as appearing like branch or brushwood material. It seems very unlikely that the roundwood recovered from the ditch was, as an assemblage, the result of any form of coppicing. There is limited evidence for woodworking. There are five items where tool facets show trimming; four items have been trimmed at one end from one direction and one item trimmed at both ends from one direction. A single item had a partial tool mark measuring 51.8mm. The roundwood is likely to have been derived from brushwood or similar.

Roots

It was not clear whether any of the three items classed as root were growing in situ in the ditch or whether they instead represented accumulated debris. No woodworking evidence was recorded from any of the items. One example has been tentatively identified as oak and forms the junction of three stems, measuring 120mm long with a diameter of 44 × 40mm. The other two roots were in moderate and poor condition. The former had a length of 200mm and diameter of 35mm, the latter a length of 235mm and a diameter of 40 × 31mm.
‘Wet’ boundary pollen (Rob Scaife)

Pollen was recovered from a series of sediment sample columns associated the fence-line or dead-hedge as well as the ensuing bank and ditch boundary feature (P1–P4). Pollen diagrams have been constructed for four sections (Fig. 4.12); these included the sediments underlying the fence-line (P3), a profile through the organic fills of the sinuous ditch (P2) and adjacent buried soil (P1). The buried soil (P4) away from the boundary feature, which was generally present throughout the eastern area of the investigation, was also examined as a comparison to the profiles obtained directly associated with its alignment.

The samples (1–2ml volume) were processed using standard techniques for the extraction of the sub-fossil pollen and spores (Moore & Webb 1978; Moore et al. 1991). Pollen counts of up to 500 grains of dryland taxa per level were made. Pollen diagrams have been plotted using Tilia and Tilia Graph (Figs 4.13, 4.14, 4.15 & 4.16), with the percentages used calculated as follows:

\[ \text{Sum} = \% \text{ total dryland pollen (tdlp)} \]
\[ \text{Marsh/aquatic} = \% \text{ tdlp + sum of marsh/aquatics} \]
\[ \text{(incl. Alnus and Salix)} \]
\[ \text{Spores} = \% \text{ tdlp + sum of spores} \]
\[ \text{Misc.} = \% \text{ tdlp + sum of misc. taxa} \]

Alder has been excluded from the pollen sum because of its high pollen productivity and its on, or near, site growth which tends to distort the percentage representation of other taxa within the pollen sum (Janssen 1969). Consequently, the percentages of alder have been incorporated within the fen/marsh group of which it is botanically a part. As willow (Salix) may be associated with this fen carr taxon/habitat, this was also been included in this calculation. Taxonomy, in general, follows that of Moore & Webb (1978) modified according to Bennett et al. (1994) for pollen types and Stace (1992) for plant descriptions.

Figure 4.12.
Location of pollen profiles relative to the bank and ditch feature.
Figure 4.13. Pollen diagram 1.
Figure 4.14. Pollen diagram 2.
Figure 4.15. Pollen diagram 3.
Figure 4.16. Pollen diagram 4.
The ditch and adjacent soil profile (Profile P1 and P2)

Profile P1 (Figs 4.13 & 4.17) spanned the detrital fen peat (0–21cm) which overlay a thin, grey, poorly developed, leached brown earth soil (21–27cm) which formed the prehistoric land surface. Below this was a buff-coloured subsoil overlaying Pleistocene gravel.

The profile was in very close proximity to that from the ditch (Profile P2) but was taken beyond any obvious disturbance caused by the feature. The pollen and spores contained clearly show the character of the vegetation prior to woodland clearance and agriculture and the subsequent inundation and accretion of peat. Two principal pollen zones have been recognized which reflect these environmental changes:

Zone P3:1 (24–18cm): The old land surface and buried soil is distinguished by lime (Tilia; to 27%) which is absent in these sublevels. This is associated with other trees including oak (Quercus; 15–20%) and hazel (Corylus avellana type), especially in the lowest levels. There are few herbs with only grasses (Poaceae) of note (increasing from 20–35%). Alder (Alnus) with some bur reed and/or reed mace (Typha angustifolia type) and sedges (Cyperaceae) dominate the fen/marsh taxa. There are several substantial numbers of monolete (Dryopteris type) fern spores.

Zone P3:2 (18–0cm): Tilia, present in the lowest levels, is absent in these more organic sediments. Quercus (36%) and Alnus (57%) initially expand to their highest values and subsequently decline whilst grasses (Poaceae; to 80%), willow (Salix); to 10%), lesser reedmace (Typha angustifolia type; 58%) and sedges (Cyperaceae) become more important. There is a general increase in the diversity of herb types that include ribwort plantain (Plantago lanceolata) and cereal type. In the upper peat there are occasional aquatic taxa.

Profile P2 (Figs 4.14 & 4.17) relates to the field boundary ditch, which contained a substantial thickness of humic sediment that had accumulated under wet conditions. Two overlapping column profiles were obtained. There was a total of 0.5m of black detrital fen peat containing silt that overlay a lower humic sand and the underlying Pleistocene gravels. A total of 10 samples were analysed which extend to the top of the lower minerogenic layers.

From the palynology, two principal zones have been recognized. These are characterized from the base of the ditch fill upwards as follows:

Zone P2:1 (64–28cm): This zone is differentiated by greater numbers of Alnus glutinosa (40%) than in the overlying levels. Other trees and shrubs are dominated by Quercus (30–35%) with Corylus avellana type (to 37%). Of note are the slightly higher (6%) values of Dryopteris type and occasional arrowhead (Sagittaria) and water plantain (Alisma type).

Zone P2:2 (28–0cm): Alder (Alnus) of zone 1 is markedly reduced. Grasses (Poaceae) become more important (to 70%) along with a very substantial peak in monolete fern spores. Trees and shrubs remain with oak (Quercus) and hazel (Corylus avellana), though the small numbers of lime (Tilia) in the lower zones are absent here. Ten taxa remain dominant with sedges (Cyperaceae; 10–15%) and lesser reedmace (Typha angustifolia; 48%) remaining important. Willow (Salix) is consistently present.

Below the fence-line (Profile P3)

Profile P3 (Figs 4.15 & 4.17) relates to a monolith of 30cm taken from the sediments underlying the fence-line. The stratigraphy comprised 0–8cm of detrital peat/fence-line underlain by grey-black (detrital organic) humic sand which overlay the basal Pleistocene yellow sandy-gravel.

Four pollen samples have been examined which span the upper peat and underlying humic sand of the old land surface. There are some evident stratigraphical changes in the palynology. These largely relate to the change from mineral sediment to the overlying detrital, organic peat and associated changes in on-site vegetation and pollen taphonomy. Two pollen zones have been recognized and are characterized from the base of the profile upwards as follows:

Zone P4:1 (12–6cm): The lower humic sand/old land surface. Trees and shrubs are dominated by oak (Quercus; peak to 45%) with hazel (Corylus avellana type) and alder (Alnus; to 60%). There are also small, but slightly greater numbers of lime (Tilia) in this zone. Fern spores (Dryopteris type) are abundant (75%) in the lowest level examined.

Zone P4:2 (96–0cm): In this upper zone, oak (Quercus), hazel (Corylus avellana type) and alder (Alnus) remain largely unchanged. Lime (Tilia) is, however, reduced. Herbs remain dominated by Poaceae but with expansions of ribwort plantain (Plantago lanceolata; 16%), Apiaceae (6%), cereal type and other herb taxa that occur more sporadically. Fen herb types become more important with Typha angustifolia type and occasional arrowhead (Sagittaria), water plantain (Alisma type) and pondweed (Potamogeton type). Willow (Salix) is consistently present. The high values of monolete fern spores in the lower land surface are progressively reduced to relatively low levels.

The old land surface and overlying fen peat (Profile P4)

Profile P4 (Fig. 4.16) spans a section from the western perimeter of the site where the prehistoric land surface (underlying the peat) was well developed and preserved. Here, there was a typical sequence of detrital fen peat (0–16cm) overlying a poorly developed, dark grey, brown earth soil (16–23cm) developed in a yellow-grey gleyed sub-soil (23–29cm).

Four pollen samples were examined to establish the vegetation characteristics of the old land surface and subsequent changes brought about by waterlogging and the creation of fen peat. These changes are reflected in the pollen assemblages and three distinct zones may be delimited:

Zone P4:3 (4–0cm): The upper peat. In this single upper-most sample, there is a marked expansion of bur reed and/or reed mace (Typha angustifolia type; 58%) which is also associated with other fen taxa which include water starwort (Callitriches), Alisma type, iris and greater reed mace (Typha latifolia). Willow (Salix) also expands slightly.
Figure 4.17. Pollen sample process. Profile P1 and P2 (top); Profile P3 (bottom).
Dry boundaries – the main fieldsystem

The higher, dry boundaries comprised a series of linear ditches occasionally accompanied by upstanding banks. The visibility or preservation of the boundaries was dependent upon their elevation with the lowest-lying divisions being considerably better preserved than the highest. Consequently, the system had a truncated or partially erased appearance with the low, western half being fully articulated and the high, eastern half almost totally effaced (Fig. 4.18). The articulated western half included complete boundaries made up of continuous ditches sometimes accompanied by banks whereas the effaced eastern half was reduced to barely discernible ditch stubs. Fortunately, the pattern preserved within the lower half helped reconstruct the pattern of the upper half (Fig. 4.19).

The gridded ditch-system was made up of four key components: upslope coaxials (oriented northeast–southwest), the embayment-edge or terminal boundaries (north–south or northwest–southeast), short cross-boundaries (northwest–southeast) and equally short fenward projections (east–west; Table 4.6). The coaxials were oriented northeast–southwest and formed a series of parallel boundaries aligned diagonally up the slope of the western end of Whittlesey ‘island’. As its title suggests, the terminal boundary formed the principal end division of the system and formerly comprised a string of north–south aligned ditches which were on at least two occasions contiguous with the adjacent coaxials. If the coaxials were terrain oblivious, then the terminal boundary was the opposite, as it virtually followed the 1m OD contour. A larger, single ditch cut or replaced the original segmented ditch configuration and by doing so formed an almost continuous division (Fig. 4.20). Several cross-boundaries were laid-out perpendicular to the coaxials and as such represented an uncomplicated arrangement of sub-divisions, whilst the fenward projections performed a similar role across the narrow strip of ground on the embayment-side of the line demarcated by the terminal boundary.

The contiguous relationship between the coaxial and terminal configurations showed the two components to be contemporary and, in effect, cardinal to the system. In contrast, the sub-divisions (the cross-boundaries and fenward projections) consistently exhibited a secondary or supplementary relationship to the main arrangement. In turn, the refashioning of the terminal boundary post-dated the establishment of the fenward projections and appeared to represent a deliberate, if belated, accentuation or reinforcement of the system’s edge or ‘cut-off’ between fields and advancing fen. Its spatial-temporal proximity to the changing environment is made all the more apparent by the peat that infilled a large part of its profile. At the same time, its supplementary relationship was made even more obvious by its unerring adherence to the kinks and bends of the earlier alignment. The terminal boundary was pivotal both in outlining the ends of individual field strips and in its delineation of the increasingly wet embayment edge. It could even be suggested that in its original form(s) the terminal boundary was about defining individual fields whereas in its final form it was about defining the edge of the embayment, the switch in focus being made evident by it being the only boundary to receive such concerted attention.

The frequency of short intersections or gaps between adjoining boundaries indicates that the ditches were once accompanied by up-cast banks. Such a suggestion was substantiated by the survival of a low standing bank along the western side of the re-cut terminal boundary. Further evidence of the former presence of banks was provided by two small surviving sections of closely spaced parallel ditches which may have once flanked upstanding earthworks. Similarly, later episodes of metalwork deposition appeared to respect the location of a boundary’s earthwork as opposed to its ditch.

The vast majority of gaps or breaks within individual boundaries were caused through truncation and cannot be considered as real openings. However, at least two genuine entranceways were identified and these included an opening across the eastern end of one of the coaxial boundaries (Ditch C; Fig. 4.21) and an opening across the northern end of the terminal boundary (Ditch A; Fig. 4.20). The first of these occurred within a stretch of ditch that was heavily truncated but which coincided precisely with a discrete patch of metalling. The metalling comprised redeposited gravels and river pebbles that had been compacted within an irregular-shaped hollow presumably created by frequent use of the entryway. The second survived within an un-truncated section of ditch and presented itself as

Table 4.6. Fieldsystem feature dimensions.

<table>
<thead>
<tr>
<th></th>
<th>Widths (m)</th>
<th>Av. Width (m)</th>
<th>Depths (m)</th>
<th>Av. Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Boundary</td>
<td>0.40–2.25</td>
<td>1.08</td>
<td>0.19–0.58</td>
<td>0.35</td>
</tr>
<tr>
<td>Coaxials</td>
<td>0.20–1.10</td>
<td>0.51</td>
<td>0.13–0.42</td>
<td>0.26</td>
</tr>
<tr>
<td>Cross boundaries</td>
<td>0.50–1.05</td>
<td>0.64</td>
<td>0.06–0.53</td>
<td>0.24</td>
</tr>
<tr>
<td>Fenward projections</td>
<td>0.90–4.50</td>
<td>2.00</td>
<td>0.08–0.70</td>
<td>0.36</td>
</tr>
</tbody>
</table>
Figure 4.18. Issues of preservation – high, middle and low boundary forms.
Figure 4.19. Plan of main fieldsystem with associated settlement features (ditched boundaries delineated alphabetically).
Figure 4.20. Plan of key junctions.
a 3.06m wide opening between two ditch terminals. Significantly, this entranceway appears to have persisted throughout the different manifestations of the terminal boundary.

**Settlement traces**

This section details seven features that were coterminous with the inception and duration of the fieldsystem. It incorporates pits and postholes that post-date the Collared Urn related occupation but pre-date the Late Bronze Age or Post-Deverel-Rimbury associated settlement phase. The features fit within a relatively short chronology of approximately 400 years (c. 1500–1100 cal bc) and collectively represent the discernible remains of activities that were commensurate with the currency of the ditched system of fields. The saturation of the lower contours had a major impact on the distribution of these particular features in that there was a significant reduction in the ‘surface available for settlement’ compared to the preceding periods. Whereas previously the low zone was mostly dry, it was now mostly wet. The increased level of saturation was made apparent by the waterlogging of the terminal boundary and by the absence of other post-peat features below the 0.50m contour. Accelerated peat growth determined a marked shift upwards and it was only the dry parts of the system (above 1m OD) that were suitable for sustained settlement.

The evidence of this settlement was slight and comprised a small collection of sub-circular shafts or wells along with occasional large oval-shaped hollows or pits (Fig. 4.19; Tables 4.7 & 4.8). In pronounced contrast with the preceding (and following) periods, no structures were recognized and whereas previously settlement was concentrated or focused in particular areas it now appeared to be spread across an area equivalent to the (dry) fields. A number of pre-fieldsystem features, such as two of the large waterholes associated with the earlier burnt mounds (Burnt Mound 1 and Burnt Mound 2), also showed evidence of being modified or re-cut at the same time as the establishment of the ditched boundaries.

The shafts shared similar bell-shaped outlines as well as silt-rich basal fills; both characteristics being indicative of features which had initially been kept open and were of a sufficient depth to enable access to the localized water-table (Fig. 4.22). The connection with water was also illustrated by the occurrence of waterlogging. The shafts had undercut or eroded basal profiles as well as marked weathering cone-shaped upper profiles. By contrast, the unweathered profiles of the oval-shaped hollows had an appearance of features that had been dug and backfilled in reasonably quick succession. Large faunal assemblages were recovered from both sets of features, whilst fragments of Deverel-Rimbury pottery came from most. The shaft F.830 was exceptional in that it contained a fully articulated adult human skeleton buried beneath the semi-articulated remains of a fox. Peat was absent from all but the lowest-lying of this feature group and, as with the equivalent low-lying field ditches, when peat was present it only ever occurred at the very top of these features. Further up the edge and away from

**Table 4.7. Hollow F.991 – dimensions and find quantities.**

<table>
<thead>
<tr>
<th>Hollow</th>
<th>Dimension (m)</th>
<th>Depth (m)</th>
<th>Faunal (g)</th>
<th>Pottery (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.991</td>
<td>1.80 × 0.98</td>
<td>0.14</td>
<td>10560</td>
<td>255</td>
</tr>
</tbody>
</table>

**Table 4.8. Middle Bronze Age shaft features – dimensions and find quantities.**

<table>
<thead>
<tr>
<th>‘Shaft’</th>
<th>Diameter (m)</th>
<th>Depth (m)</th>
<th>Faunal (g)</th>
<th>Pottery (g)</th>
</tr>
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<tbody>
<tr>
<td>F.34</td>
<td>1.40</td>
<td>1.20</td>
<td>10479</td>
<td>44</td>
</tr>
<tr>
<td>F.391</td>
<td>1.30</td>
<td>1.05</td>
<td>7387</td>
<td>35</td>
</tr>
<tr>
<td>F.544</td>
<td>1.29</td>
<td>1.06</td>
<td>13150</td>
<td>626</td>
</tr>
<tr>
<td>F.830</td>
<td>1.10</td>
<td>1.20</td>
<td>354</td>
<td>-</td>
</tr>
<tr>
<td>F.879</td>
<td>1.02</td>
<td>0.99</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F.1062</td>
<td>1.30</td>
<td>0.95</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Figure 4.21. Gateway – opening in Ditch C with metalled surface.**
the ensuing peat, the same pits were characterized by their pale grey sandy-silt capping fills.

If the distinctive bell-shaped profiles of the shafts represented attributes of features that had been kept open to facilitate continued access to water, the dumps of animal bone in F.391 and F.544 or, as with F.830, the insertion of a human body (Figs 4.23 and 4.24), represented attributes of features that were being brought intentionally and somewhat dramatically to an end. Tellingly, the slow build-up of water-lain silts that had accumulated prior to the introduction of dumps of bone survived in obvious contrast with the rapid backfills that followed; successive layers made up of sterile gravels or redeposited buried soil constituted the uppermost fills. Sherds of pottery were found alongside the bone but also within the later deposits.

Figure 4.22. Sections and photographs of key settlement features.
For example, the shaft F.830 was sub-circular in plan (diameter: 1.10m; depth: 1.20m) with a profile made up of three parts: a weathering cone, a vertical shaft (diameter: 0.69m) and an eroded/undercut base (diameter 0.87m). It contained six different infilling episodes that began with a slow-forming silt deposit (mid-grey silt with occasional small stones) which occupied the bottom third of the feature. Inserted into the basal fill was a fully articulated human skeleton of an adult female that had, judging by its position, been thrown in head first. The lowest parts of the body were the hands and these were clenched with the palms facing upwards. The wrists were crossed (as if bound) and both arms were folded tightly under the body so as to obscure them when the skeleton was viewed from above. The skull faced downwards and had been twisted sideways. It was jammed against the northern edge of the hole, forcing it hard onto the right shoulder. The spine and rib-cage ran diagonally up the centre of the pit supporting the pelvic bones upwards towards the surface. Both legs were folded with the knees together pointing downwards whilst the lower legs were pressed against the southern edge of the pit. The highest points of the skeleton were the feet and these were turned inwards and pressed against the edge of the pit. The preservation of the skeleton was very good and the bone had a dark brown appearance with occasional patches of iron staining. A small piece of woven fabric was found attached to the left femur. Covering the body was a thin spread of organic material which had entered the pit from the eastern edge. In turn the organic deposit was capped by a backfill dump of grey-brown silty-loam which contained a single cattle bone. The upper most fill of the pit contained the remains of a semi-articulated fox skeleton (oriented so its head pointed southwards) which in turn was covered with a 0.18m thick deposit of pale grey sandy-silt that resembled the adjacent buried soil horizon. The pit’s weathered profile and slow-forming basal fill demonstrated that the feature had had an extended history as a watering-hole or well prior to the insertion of the body.

**Skeleton [853] F.830 – older middle adult female, ht. 1.63m (5'4'')**

(Natasha Dodwell)

The bones are in excellent condition although they are stained a dark brown/black colour and there are grey concretions on some of the surfaces. Slight marginal lipping was recorded around the joints of the distal femora, the right humerus head and the right proximal ulna. Changes characteristic of osteoarthritis were observed on right articulating processes of T3–5 and on L5 and the sacral body. Striated new bone, characteristic of a non-specific infection was recorded on the proximal third of the right fibula shaft. Deep pits (15 × 15 × 7mm deep) were recorded on the ventral aspect of the bodies of each pubis. These and the pronounced pubic tubercles are possible indicators of parity status. A non-metric trait was recorded in the spine: non-union of the left transverse process and the posterior arch of the atlas (i.e. an open transverse foramén).

```
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 np \ \ 6 5 4 \ \ 1 1 2 3 4 5 6 7 np
```

The dentine is exposed on the anterior dentition. A piece of possible textile (a loose, open weave) was identified on the anterior of the proximal 1/3rd of the left femur.

**Textile on skeleton in well F.830** (Penelope Walton Rogers)

There are two patches of textile adhering to the front of the left femur, one 45 × 18mm and the other 15 × 10mm. The textile is poorly preserved, but can be identified tentatively as tabby (plain weave).
Figure 4.24. Detailed photographs of shaft F.830 (articulated body, ‘bound’ hands and details of femur (including ‘textile’).
and more certainly as having S-spun yarn in warp and weft and 8 × 7 threads per square cm. Examination of the fibre by transmitted-light microscopy indicated that most of the fibres had decayed beyond identification, but at the core of one thread there were some plant fibres resembling flax, identifiable from the smooth fibre profile, the occasional ‘joints’ and the fine central lumen.

The tabby weave structure has been in use continuously since the Bronze Age and therefore offers no evidence for dating, but the S-spun yarn in a linen (flax) textile is more unusual and may be diagnostic. Some 45 textiles dated to the Bronze Age have been recovered from mainland Britain and, where the weave is identifiable, it is always tabby (Henshall 1950, 133–37, 158; Henshall 1964; Bender Jørgensen 1992, 116–18, 197–98). Those in wool are woven from Z × Z yarn, while linens are more usually made from plied yarn, either Z-plied or S-plied. The S-plied linens mostly have a northerly distribution and the Z-plied southerly, although there is considerable overlap between the two. The Z-plied threads of the southerly type are twisted together from a pair of S-spun yarns, which demonstrates that S-spinning of flax was practised in the southern half of Britain in the Bronze Age. By the Iron Age, Z-spinning was more usual for linen and a single piece of textile woven with S-spun yarn in warp and weft on an Iron Age sword from Guernsey (Wild in Cunliffe 1996, 109) may represent a throw-back to Bronze Age technology. After the Iron Age, Z-spinning remained standard for British linens into the post-medieval period and any rare examples of S-spun linens, such as the example wrapping some Roman coins from Woodcock Hall, Norfolk (Walton and Crowfoot 1988), are generally regarded as imports from the Mediterranean world. Thus, the S-spun yarn in a linen (flax) textile from Bradley Fen would support an attribution to the Bronze Age or Early Iron Age.

The lowest-lying shafts, F.879 and F.1062, did not contain dumps of bone or fragments of pottery, nor did they display signs of being intentionally backfilled. Both features were positioned within partially silted-up waterholes adjacent to the burnt mounds and as such appear to represent renewed attempts at obtaining water from spots that had been previously exploited for the same purpose. Notably, both shafts were sunk deeper than the earlier attempts and both had eroded outlines indicative of features that had been kept open. Their relatively deep and consequently more or less permanently saturated location was demonstrated by the presence of pieces of worked waterlogged wood within uninterrupted sequences of similarly waterlogged silt-rich fills. The mouth of shaft F.879 was protected by an impressive wattle cordon or hurdle (F.892) which encircled its position and was presumably constructed to prevent untended access by animals (Fig. 4.25 (see also Fig. 3.27)). The fence-work appeared to have stood to a height of about 0.50m and comprised a sub-circular ring (2.35 × 2.10m) of small uprights with bevelled tops bracing a series of interwoven branches. Much of the wattling had collapsed leaving the area around the uprights strewn with broken wattles. Lying alongside the wattle barrier was a log ladder which appeared to be a little oversized for the shaft. The other low-lying shaft, F.1062, did not have such protection, but it did yield a section of another log ladder as well as the stump of a tree. The ladder lay horizontal at the base of the feature whereas the stump was inverted and all but filled the entire pit. Despite their respective proximities to burnt stone mounds neither contained burnt stones.

Wattle cordon F.892 (Maisie Taylor)

The wattle structure, F.892, which encircled water-hole F.879, consisted of an oval of 12 verticals (2.40 × 1.95m) interwoven with the remains of multiple lengths of roundwood wattle. Other ‘debris’ was located amongst the roundwood including trimmings and off-cuts, as well as part of a log ladder and a fragment of a wooden mallet (Fig. 4.26).

The wattle verticals were oak heartwood, fairly roughly split and trimmed up. All were worked to a taper and driven in to a considerable depth, as indicated by the surviving lengths: 920mm, 640+mm, 850mm and 370+mm. The four sampled posts were quite substantial at ground level: 71 × 45mm, 70 × 60mm, 90 × 60mm and 65 × 55mm. They were not manufactured to precisely the same size and shape and could even be the debris from some other large timber working. Although there was not a great deal of debris associated with the structure, most of it could have derived from its construction, including the uprights, suggesting that the verticals were either made or were finished on site. The roundwood, most of which was derived from the wattle, measured between 20 and 40mm in diameter. The ideal diameter for wattle is between 15 and 50mm (Forestry Commission 1956, 33), which means that, if these pieces are typical, the structure was slightly light-weight.

The framework of the wattle’s verticals, if somewhat uneven, would have been very strong and would have lasted for a considerable number of seasons: function was obviously more important than looks. The choice of oak heartwood, together with the substantial size and deep fixing of the posts, all suggest that the framework was meant to be permanent. The verticals may have been designed to take a continuous fence, but could also have supported a series of wattle panels. Whichever it was, if it was of any height, it would have needed an access point. This would most likely be a section of the fence which was removable: a separate panel...
Figure 4.25. Plan and photographs of shaft F.879 and wattle cordon F.892.
or hurdle. If the verticals were chosen for durability and strength and were expected to last quite some time, the wattle work would need replacing every few seasons. The wattle hurdles at Flag Fen last seven years but are put in a sheltered store when not in use. A fence subjected to all kinds of wear and weather would not last as long (James Beatty pers. comm.). Roundwood used for weaving wattle fences or hurdles is usually derived from coppicing. Most of the material here, which has direct evidence for coppicing, appears to be discards and trimmings, i.e. short lengths. This may be an indication of repair and replacement rather than foundational construction.

Log ladder and mallet head or ‘beetle’ (Maisie Taylor)

Log ladder: The ladder was 1645mm in length, quite slender, with a diameter of only 86–89mm and a fork at the bottom end (Fig. 4.26). It had four steps cut into the log, the depth of which varied between 25 and 31mm. The bottom step was deeper at 45mm, but even so they were all very shallow.

The slender form and the fork at the bottom end, makes this ladder of unusual design. The bottoms of most log ladders are blunt, often utilizing the felled end, which could be rammed or wedged into soft ground. The light weight, plus the forked end, would make it quick and easy to get the ladder into a pit and made stable. Although the relatively sharp ends of the fork might sink in more than a large blunt base, they would also be easier to free after use, as they would build up less suction. The fork, however, would be more susceptible to rot and, indeed, the ends of this fork were heavily rotted. The shallowness of the ladder’s steps would have made its use quite precarious, as only a small part of the foot would be on the step. The steps were

Figure 4.26. Log ladder and mallet head or ‘beetle’ from F.892.
also angled in such a way that they ladder would have to be used at, or near, the perpendicular. It would certainly have been difficult to stand on a step for any length of time. The combination of the light weight, the forked bottom, ease of maneuverability but difficulty of use, suggests that this ladder was not designed to be left permanently in place. Maybe it should be seen as more of a portable step-ladder than a fixed access.

*Mallet:* The object measured 185mm in length and had a diameter of approximately 180mm. The striking-face of the mallet was sub-circular in shape and measured 110 × 100mm. A square-shaped perforation (40mm × 40mm) or handle hole pierced its centre, although only three of its four sides survived as the head had fractured at this point.

Middle Bronze Age or Deverel-Rimbury pottery (Mark Knight)
A total of 169 identifiable pieces of Deverel-Rimbury pottery were recovered from 15 contexts (or 11 features; Table 4.9). The sherds were consistently thick-walled and mostly shell-rich, although a vessel from F.604 had grog as its main opening material and F.460 contained a large chunk of rim (c. 40cm in diameter) made abrasive by an abundance of sharp quartz inclusions. Another common attribute was that the sherds came from large bucket-shaped forms with predominantly rounded or flattened rims (F.1157 produced a single out-turned example).

Decoration comprised fingertip impressions around the lip or along the edge of the rim in F.239, F.391 and F.544, diagonal incisions or cabling around the lip in F.460 and fingertip impressions around a raised cordon in F.544 and F.991. A lug fragment was recovered from F.1157. Perforations occurred on sherds from F.544 and F.604. The perforations in F.544 were made pre-firing and did not fully pierce the pot’s walls suggesting that these were another kind of decoration, whereas the holes in F.604 were made after the pot had been made and did pierce through the pot and were perhaps associated with repair or as a means of fastening. The grog inclusions within the fabric of the vessel from F.604 were large and, in one particular instance, survived as a small rim fragment from a previous vessel.

‘Beetles’ are a type of wooden mallet designed for driving fence posts. This particular beetle was quite small (Fig. 4.26), although the use of burr wood, with its dense, knotty grain, indicates that it was intended to take repeated hard impact and it certainly appears used and worn. Also, it was not a rough, ad hoc kind of implement but carefully carved with a symmetrical, slightly rounded shape. It was sophisticated and therefore likely to be part of the tool kit of an experienced hand rather than something made for casual use. The key attribute for post driving would probably be the length of the handle (which has not survived). Beetles or mallets for post driving need long handles (Edlin 1973, fig. 27) and although the length of the handle of this mallet will remain unknown, its hole is large enough to take a substantial handle.

Middle Bronze Age ‘foodways’ (Vida Rajkovača)
The Middle Bronze Age faunal assemblage was recovered from 15 contexts associated with 9 features (Table 4.10), all of which were pits or waterholes. Of the nine features, three features in particular accounted for c. 74% (by NISP) of the assemblage (F.34, F.544 and F.991). F.991 produced the largest quantity of the bone material, amounting to 256 assessable fragments and representing c. 36% of the entire Middle Bronze Age faunal record.

This type of environmental ‘signature’ is noticeably different from those of both earlier and later phases of occupation of the site. Looking at the preceding Early Bronze Age assemblage, the zooarchaeological record is quantitatively slim. Features excavated across the relatively broad settlement swathe, henge and structures, all generated a remarkably small faunal assemblage made up of highly fragmented (from settlement and
Table 4.10. Total animal bone fragment count and weight for Middle Bronze Age features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Fragment count</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>146</td>
<td>4702</td>
</tr>
<tr>
<td>239</td>
<td>103</td>
<td>1853</td>
</tr>
<tr>
<td>391</td>
<td>65</td>
<td>7387</td>
</tr>
<tr>
<td>394</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>544</td>
<td>119</td>
<td>13150</td>
</tr>
<tr>
<td>548</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>810</td>
<td>5</td>
<td>318</td>
</tr>
<tr>
<td>816</td>
<td>5</td>
<td>193</td>
</tr>
<tr>
<td>991</td>
<td>256</td>
<td>10560</td>
</tr>
<tr>
<td>Total</td>
<td>701</td>
<td>38364</td>
</tr>
</tbody>
</table>

Table 4.11. Number of specimens identified to species (or NISP) and MNI count for Middle Bronze Age contexts. The abbreviation n.f.i. denotes that a specimen was or could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>NISP %</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>426</td>
<td>87.5</td>
<td>17</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>17</td>
<td>3.5</td>
<td>3</td>
</tr>
<tr>
<td>Sheep</td>
<td>1</td>
<td>0.2</td>
<td>1</td>
</tr>
<tr>
<td>Pig</td>
<td>40</td>
<td>8.2</td>
<td>5</td>
</tr>
<tr>
<td>Dog</td>
<td>1</td>
<td>0.2</td>
<td>1</td>
</tr>
<tr>
<td>Red deer</td>
<td>2</td>
<td>0.4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sub-total to species</strong></td>
<td><strong>487</strong></td>
<td><strong>100</strong></td>
<td>-</td>
</tr>
<tr>
<td>Cow-sized</td>
<td>153</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>55</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>701</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Admittedly, this limited evidence precludes in-depth discussions about animal–human relations, yet it does say a great deal about the waste management of the Early Bronze Age community. Differing to the greatest possible extent and almost entirely made up of large bone dumps from pits and waterholes, the succeeding Middle Bronze Age assemblage was substantial and incredibly well preserved. As will become clear from subsequent chapters, the practices involving animal use and bone deposition were set to change again, resulting in the well-preserved sheep-dominated Late Bronze Age–Early Iron Age assemblage characterized by the articulated lamb deposits found in structures.

The assemblage totalled 701 (38,364g) assessable fragments, 668 of which were possible to assign to element (95%) and a further 487 to species (69%). Cattle accounted for more than a half of the assemblage and for c. 87% of the identified species (Table 4.11), with both methods of quantification (NISP and MNI) showing clear predominance of cattle. Pig and sheep were also identified, in considerably smaller numbers. Dog and red deer were also present, with one and two specimens respectively.

Preservation of the bone ranged from quite good to quite poor. F.34, F.391 and F.544 all provided an excellent preservational environment due to their waterlogged nature. Unfortunately, the well-like conditions and the changing water-table levels resulted in heavy iron-rich concretions adhering to the surface of the bone, unsurprisingly affecting the identification of species and the analyses of the age and butchery evidence. However, the near complete state of a lot of the elements allowed for the majority of specimens to be identified to species. The majority of bone did not show any signs of weathering, exfoliation and abrasion. The remarkably low incidence of gnawing marks (three specimens or c. 0.5% of the assemblage) is indicative of the quick deposition of the material.

Butchery marks were observed on 69 (c. 10%) specimens, 50 of which were identified as cow and further 12 as cattle-sized fragments. The remainder of the butchered assemblage was composed of sheep, pig or sheep-sized unidentifiable fragments. This is likely to be due to the fact that larger cow carcasses require more processing than sheep to obtain manageable portions for cooking or preserving. Cow bones were more commonly chopped than those of sheep or pig, perhaps reflecting the greater force required in butchering larger animals. Heavy cuts at the muscle attachments were used to detach ligaments and sinew when disarticulating bones and muscle. Similarities were noted between the location of the cut marks on cattle bones and those on sheep and pig bones, suggesting that they were processed and consumed in a similar manner.

**Cattle**

The dominant cattle cohort totalled 426 specimens or 87.5% of the identified species count. When MNI count is taken into consideration, the preponderance of cattle is emphasized even more. No fewer than 17 cows were deposited in these large bone ‘dumps’, pits and waterholes. Analysis of body part representation has shown that all parts of the beef carcass were equally represented, although with a slight over-representation of mandibles, loose teeth and tooth fragments, indicating the processing and consumption of complete individuals on site. Cattle were particularly abundant in three large bone ‘dumps’: F.34 (NISP=99; MNI=4); F.544 (NISP=87; MNI=4) and F.991 (NISP=141; MNI=6).

Butchery marks were noted on 50 (c. 12% of the cohort) cattle specimens, mainly implying disarticulation, meat or marrow removal. Limb bones were chopped mid-shaft and not further processed. The different parts of the skeleton all seemed to have been processed in a uniform fashion. In other words, all humeri and tibiae demonstrated slight charring, implying that the bones were heated and then smashed open to pour the liquid marrow out. Unlike the fore and hind limb bones, all of the cattle metapodials were vertically split, with the blow being delivered axially by a...
Fused/fusing epiphyses.

Fused/fusing epiphyses; U = unfused diaphyses and %F = percentage of

Middle Bronze Age (Bradley Fen) (O'Connor 1988) F = number of

cattle: number and percentage of fused epiphyses for

table 4.12.

Later stages in their life.

D and E (Fig. 4.27). There are a few mandibles assigned to an old

based on 12 mandibles, there appears to be a peak around stages

quantitatively inadequate for building a kill-off profile; however,

in addition, two examples of non-metrical traits were recorded: two

cattle mandibles have exhibited a variation in the appearance of the mental foramen

and the reduction of the hypoconulid (posterior cusp of the third molar).

Pig

Pork clearly contributed to people's diet on this site but the low

numbers of pig bones indicate that the economic contribution of

pigs was substantially less than that of cattle. Pigs could have been

of some use in arable agriculture for turning and fertilizing heavy

soils, but the capacity for pigs to destroy plant crops means that

they would have been herded away from arable fields (Serjeantson

1996, 222). The pig cohort accounted for 40 assessable specimens

representing a minimum of five animals on site and corresponding
to c. 8% of the identified species. Both meat and non-meat bearing

elements were represented in the assemblage. It was only possible
to age four specimens, all of which were mandibles, which suggests
slaughter during the second year. Butchery marks were almost
absent on pig elements with the exception of a femur with several
fine cut marks consistent with meat removal. Three large bone
'dumps', F.34, F.544 and F.991, contributed the majority of the pig

cohort recorded in this assemblage.

Ovicaprids

Although generally one of the most commonly exploited species in
domestic assemblages of prehistoric date, sheep/goat were relatively
rare in the Bradley Fen faunal record. As few as 18 assessable
specimens were identified as sheep/goat or sheep, representing
c. 4% of the identified species. The distribution of body elements
demonstrated a slight under-representation of mandibular, tooth
elements, as well as phalanges. The paucity of ovicaprid remains
hinders further interpretation of this species' economic significance
and use.

Other species

Dog was the least well represented of the domestic species –
positively identified based on a tibia found in F.991. As for wild
species, this sub-set has proved to be almost completely dominated
by livestock species. Red deer was the only wild species recorded,
identified by a patella (F.991) and antler fragments (F.544).

Discussion

Recovered from a total of nine wells and waterholes,
with its substantial and overwhelming cattle cohort,
the Middle Bronze Age faunal record from Bradley
Fen at first glance appears to be rather typical for the
period. To fully interpret the activities leading to the
accumulation of these bone deposits, we will start by

Figure 4.27. Mandibular tooth wear for cattle.

Figure 4.28. Epiphyseal fusion data for cattle.

blade starting between the distal condyles. A number of vertebrae
also showed signs of butchery. The majority of these had an axial
chop through the centre of the bone in the cranio-caudal direction
used to separate portions of a carcass. All butchered cattle pelvises
were cut in a similar fashion, with chop marks being noted on the
acetabulum. Cattle mandibles were another element which showed
a relatively uniform butchery pattern – the removal of the coronoid
and a chop on the diastema. In addition to the butchery, a cattle ulna
found in F.34 appears to have been worked into a point or a gauge.
The olecranon is missing, but part of the proximal articulation is
present with the distal epiphysis being sharpened, showing striations
and a slight polish to it.

The data obtained from mandibular toothwear were
quantitatively inadequate for building a kill-off profile; however,
based on 12 mandibles, there appears to be a peak around stages
D and E (Fig. 4.27). There are a few mandibles assigned to an old
adult, hinting at animals being kept for secondary products until
later stages in their life.

The fusion count for cattle produced more information which
could warrant developing the kill-off profile. Age estimations based
on epiphyseal fusion (Table 4.12; Fig. 4.28) indicates that only 2%
were <16 months of age, 51% were +16 months—28 months; 33% were
+28 months—<3.5 years and 14% were +3.5 years. It appears that the
cull was of cattle at or near their maximum body size, representing
the most efficient point of killing for meat.

Biometrical data were available from two metacarpals, two
metatarsals and two radii which produced the size-range between
105 and 119cm.

There are several examples of pathology and non-metrical traits observed in this sub-set. One of the complete cattle metacarpals
demonstrated signs of osteochondritis dissecans represented by lesions
on the joint surfaces of the proximal articulation. These lesions result
from the herniation of small portions of the joint cartilage through
the articular surface of the bone, giving rise to punched-out lesions.
It is thought that these are the result of sudden physical stress or
trauma to the joint (Dobney et al. 1996, 38). In addition, two examples
of non-metrical traits were recorded: two cattle mandibles have
exhibited a variation in the appearance of the mental foramen
and the reduction of the hypoconulid (posterior cusp of the third molar).

<table>
<thead>
<tr>
<th>Fusion category</th>
<th>F</th>
<th>U</th>
<th>%F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>48</td>
<td>3</td>
<td>94</td>
</tr>
<tr>
<td>Middle</td>
<td>21</td>
<td>17</td>
<td>55</td>
</tr>
<tr>
<td>Late</td>
<td>18</td>
<td>20</td>
<td>47</td>
</tr>
</tbody>
</table>
Table 4.13. The ‘normalized’ percentages for the three main ‘food species’ from comparative sites.

<table>
<thead>
<tr>
<th>Site</th>
<th>Sample size (NISP)</th>
<th>Cow%</th>
<th>Ovicaprid%</th>
<th>Pig%</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Deeping (Rajkovača 2010)</td>
<td>384</td>
<td>57</td>
<td>37</td>
<td>6</td>
</tr>
<tr>
<td>Langtoft (Rajkovača 2008a &amp; b)</td>
<td>219</td>
<td>70</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Tanholt Farm (Rajkovača 2009)</td>
<td>69</td>
<td>71</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Pode Hole (Rackham 2009)</td>
<td>180</td>
<td>79</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Briggs Farm (Faine 2011)</td>
<td>123</td>
<td>80</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Bradley Fen (this volume)</td>
<td>487</td>
<td>88</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Placing the assemblage in its regional context showed that the findings mirror the patterns recorded elsewhere in the area, if we were to look at the ratio of species only (Table 4.13). What is not so obvious from the table above is that the majority of accumulated bone (corresponding to a vast amount of meat) effectively came from three features (F.34, F.544 and F.991). The skeletal element count showed the presence of beef joints of high meat value, or rather that all parts of the beef carcasses were processed on site, which was not the case with oviscaprids or pigs. Although biometrical data were available from only a small number of specimens due to the degree of butchery and carcass processing, it appears that both male and female individuals were present as well as animals of all ages. Thus butchery does not seem to have followed a set strategy in relation to stock management and it looks as though animals were slaughtered as the need for meat arose. Even if we choose to take a ‘rough’ MNI count for the assemblage as a whole, no fewer than 17 cows amounts to a considerable amount of meat. In an attempt to give a general estimate, following Lyman’s (dated, yet straightforward) calculations (1979) and disregarding the differences in sex and size, the remains of the 17 cows from Bradley Fen would have amounted to between 4240 and 6477kg of meat. To emphasize this even further, the evidently quick deposition of the bone implies that the meat was consumed and the waste disposed of in one episode. This impressive fact can only lead to a question about the population size and the character of occupation, a theme which deserves to be explored further and which cannot simply be investigated through patterns observed in faunal material.

Plant remains (Anne de Vareilles & Rachel Ballantyne)

Nine waterlogged Middle Bronze Age samples were analysed. Three from the deep, sinuous boundary ditch (Ditch R), four from along the main terminal boundary (Ditch A) including one from adjacent well F.830, one from the terminal of a coaxial (Ditch D) and one from well F.34.

The three samples from Ditch R revealed very similar plant assemblages, both in terms of quantity and preservation status. Decayed wood fragments are prevalent in all samples. Alder was the only tree species identified, from seeds and cones. The dominant waterlogged seed species are crowfoot (Ranunculus Subg. Batrachium), meadow-rue (Thalictrum sp.) and water plantain (Alisma plantago-aquatica), all of which grow in wet ground and shallow water. The same habitat is also represented by fewer seeds of water-dock (Rumex hydrolapathum), fine-leaved water dropwort (Oenanthe aquatica) and marsh pennywort (Hydrocotyle vulgaris). The ditch appears to have been waterlogged, with arrowhead (Sagittaria sagittifolia), freshwater snails, algae, duckweeds (Lemna spp.) and pondweeds (Potamogeton spp.) living within it. Cristatella mucedo statoblasts (a freshwater invertebrate) provide further evidence that the ditch base contained still or gently flowing, clear water. Although signs of a drier landscape are seen in the occasional seeds of docks, brambles and sloe, the area around the ditch appears to have consisted of fen and alder carr. A marked rise in ground-water levels may therefore be inferred from earlier periods (see pit F.1278, also at c. 0m OD).

Whereas the lower fills of the main terminal boundary ditch (Ditch A) were waterlogged, the sample from Ditch D contained no waterlogged or carbonized plant remains other than a little charcoal. The same dominant species indicative of wet soils seen in Ditch R were found in Ditch A, but they occurred in lower numbers: crowfoot, meadow-rue and water plantain, marsh pennywort, fine-leaved water dropwort and spiked water-milfoil (Myriophyllum spicatum). There was very little variation between the samples from the terminal boundary, which show a continuous, unchanging landscape. The ground surface was slightly drier with elder (Sambucus nigra), brambles (Rubus sp.), orache, hawthorn (Crataegus monogyna) and ground ivy (Glechoma hederacea) symptomatic of open scrub more
than arable fields, although the same species may also be indicative of also hedgerows.

Shaft, or well, F.34 contained a molluscan assemblage and a very small amount of charred and possibly waterlogged plant remains. Charred fragments of hazelnut (Corylus avellana) and one fragment of hawthorn stone were present with a moderate amount of small charcoal. Hazelnuts are a common find on British pre-historic settlements and represent an important food source (Greig). Uncharred seeds of elder also occurred in some quantity and may represent the remains of a once waterlogged assemblage – these seeds are more resistant to desiccation than many other taxa.

The accompanying molluscan assemblage included aquatic and sub-aquatic species, most notably common bithynia (Bithynia tentaculata; represented primarily by the opercula rather than shells) and juvenile great ramshorn snails (Planorbarius corneus). Both these taxa are associated with lowland freshwater bodies, great ramshorn snails being particularly associated with sluggish or stagnant conditions (Pfleger 1990). The assemblage suggests that this feature was flooded during the formation of the basal fill, which would be consistent with the interpretation of a well.

The sample with the most intriguing data came from well F.830, taken just above an inverted inhumation. A small segment of the organic spread that partially covered the body was analysed and found to be a dense mat of nettles and/or grasses with numerous ripe nettle seeds. Although mature nettles could suggest that the body was interred in late summer/autumn, there is an unclear temporal relationship between the inhumation and overlying sediments. Nettles are common, invasive plants of disturbed nutrient-enriched land, in addition to being a food and as a fibre crop. The preparation of nettle fibres requires retting (steeping in water for days), which should be considered as a possibility for these remains. Additionally, stinging nettle seeds were abundant throughout the context, and the plant probably grew prolifically in the vicinity of the well. Waterlogged seeds of common chickweed (Stellaria media), knotgrass (Polygonum sp.), docks (Rumex spp.) and black nightshade (Solanum nigrum) are additional signs of disturbed, nutrient-enriched land. The only hydrophilic plant found is spiked water-milfoil that could have grown within the well. Occasional charcoal suggests burning activities occurred in the general area.

**Lithics (Lawrence Billington)**

**Fieldsystem**

Extensive excavation of cut features making up the fieldsystem produced only 27 worked flints from 18 features, ranging from one to four flints per feature (Table 4.14). This low density of flint suggests that the assemblage consists of pieces inadvertently incorporated into the fills of the features as they filled up. Most of this assemblage, including a blade core from F.846, blades and narrow flakes from F.367, F.400, F.812 and F.846 and a rejuvenation flake from F.377, is residual Mesolithic and Neolithic material comparable to the worked flint from surface deposits across the site. Only a few pieces show technological traits consistent with the Early to Middle Bronze Age date expected for the fieldsystem’s construction and use. Several flakes, including two examples from F.1000 and a multiple platform core from F.400, demonstrate the unstructured working commonly associated with later flint working and may be broadly contemporary with the fieldsystem. The denticulated flake from F.799 is a tool type commonly encountered in later prehistoric (Middle Bronze Age to Iron Age) lithic assemblages.

**Table 4.14 Fieldsystem lithics.**

<table>
<thead>
<tr>
<th>Feature</th>
<th>367</th>
<th>377</th>
<th>386</th>
<th>400</th>
<th>462</th>
<th>799</th>
<th>811</th>
<th>812</th>
<th>816</th>
<th>846</th>
<th>867</th>
<th>938</th>
<th>1000</th>
<th>1028</th>
<th>1060</th>
<th>1061</th>
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</tr>
<tr>
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<td>1</td>
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<td>Rejuvenation flake</td>
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<td>Flake core</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Total worked flint</td>
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<td>2</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</table>
The deposition of pieces of metalwork coincided with the latter part of this wetland progression; only when the lower sections of the fieldsystem had been engulfed were bronze weapons deposited. At Bradley Fen, the fieldsystem/metalwork association was contingent on such circumstances and the time-transgressive or diachronic character of the peat development showed that the relationship was as much chronological as it was contextual. Only now was it deemed appropriate to carry out these practices. The temporal dimension to the arrival of large amounts of metalwork into this landscape was most emphatically illustrated by the absence of deposition along the lower parts of the fieldsystem which were inundated much earlier.

This section describes the widespread deposition of bronzes along a particular stretch of the submerged margins of the fieldsystem (Fig. 4.29). In some ways the metalwork is pivotal in the history of this landscape in that its chronology encompasses the final stages of the Middle Bronze Age and the beginning of the Late Bronze Age. By this point the fieldsystem was a long established feature and if anything its tenurial jurisdiction was on the decline. Completely new kinds of landscape-scale constructions were supplanting the old as the first major timber alignments were erected across the Flag Fen embayment. For the first time, strategies were being conceived for reclaiming the submerged spaces of the basin and accordingly the prevailing trajectory of settlement was no longer exclusively upward. This reversal in settlement trajectory was, it seems, accompanied by large numbers of bronze objects made-up predominantly of swords and spears.

Settlement
Seventeen worked flints were recovered from seven Middle Bronze Age features (Table 4.15). The assemblage consists almost exclusively of undiagnostic flake based debitage. The expedient nature of some of the material including an irregular core from F.239 might suggest a date broadly contemporary with the features. Other pieces are likely to represent residual material, including a fine Mesolithic/earlier Neolithic blade from F.34 and a flake with a neatly faceted platform from F.544. Although some of this material may reflect Middle Bronze Age flintwork, it is clear that very little flint was deposited compared to the quantities of animal bone and pottery recovered from these features. This might suggest that the working and use of flint was no longer a habitual part of settlement activities or that the organization of its production, use and deposition was differentiated from the other residues of domestic activity. These potential changes in the use and deposition of worked flint coincide with the well documented transformation in lithic technology from the Middle Bronze Age onwards, which sees a marked decline in the use of flint and the disappearance of many formal tool types (Ford et al. 1984; Edmonds 1995).

Metalwork
So far in this chapter, we have described the implementation of a system of ditched field boundaries and the effect this had on the division of land and its settlement. At the time when the boundaries were being constructed, large tracts of land were being lost beneath the encroaching fen and settlement was compelled to move further and further upwards. The lowest-lying element of the fieldsystem was built on top of the developing peat whilst the rest of its boundaries were constructed above or away from its initial formation. In due course, other low-lying components of the fieldsystem were similarly inundated and to such an extent that only its upstanding field-banks remained visible.

The deposition of pieces of metalwork coincided with the latter part of this wetland progression; only when the lower sections of the fieldsystem had been engulfed were bronze weapons deposited. At Bradley Fen, the fieldsystem/metalwork association was contingent on such circumstances and the time-transgressive or diachronic character of the peat development showed that the relationship was as much chronological as it was contextual. Only now was it deemed appropriate to carry out these practices. The temporal dimension to the arrival of large amounts of metalwork into this landscape was most emphatically illustrated by the absence of deposition along the lower parts of the fieldsystem which were inundated much earlier.

This section describes the widespread deposition of bronzes along a particular stretch of the submerged margins of the fieldsystem (Fig. 4.29). In some ways the metalwork is pivotal in the history of this landscape in that its chronology encompasses the final stages of the Middle Bronze Age and the beginning of the Late Bronze Age. By this point the fieldsystem was a long established feature and if anything its tenurial jurisdiction was on the decline. Completely new kinds of landscape-scale constructions were supplanting the old as the first major timber alignments were erected across the Flag Fen embayment. For the first time, strategies were being conceived for reclaiming the submerged spaces of the basin and accordingly the prevailing trajectory of settlement was no longer exclusively upward. This reversal in settlement trajectory was, it seems, accompanied by large numbers of bronze objects made-up predominantly of swords and spears.

A metal-detector survey of the lower contours produced 26 bronzes. The distribution of metalwork was restricted to a narrow strip of peat between the 1.00m and 0.40m contours and incorporated a single hoard of 20 pieces as well as six individual spears. All of the metalwork was found in the peat and consistently above the first few centimetres of accretion. The hoard (F.786) comprised parts of at least three swords, nine

<table>
<thead>
<tr>
<th>Feature</th>
<th>34</th>
<th>239</th>
<th>322</th>
<th>474</th>
<th>490</th>
<th>528</th>
<th>544</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td>Chip</td>
<td>-</td>
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<td>11</td>
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<td>1</td>
</tr>
<tr>
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<td>Misc. scraper</td>
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<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total Worked</td>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Burnt unworked flint (wt g)</td>
<td>-</td>
<td>4 (125)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 (125)</td>
</tr>
</tbody>
</table>
complete or semi-complete spears, three fragments of a broken chape and two broken ferrules. Collectively, the hoard had the appearance of a group of objects that had been used and destroyed, whereas the individual spears were, by comparison, more or less pristine. Five out of the six spears were complete, whereas the hoard contained only two whole forms out of twenty.

The pattern or distribution of metalwork (hoard and single spears) corresponded closely to the configuration of the lower parts of the fieldsystem. Four out of the six spears were deposited parallel to fenward projecting boundaries whilst the hoard was buried alongside the main terminal division and exactly opposite to major junction. A distance of at least 25m separated the single spears from the terminal boundary whilst the furthest was located 50m away from the terminal boundary.

The spears
The spears occurred in three groups, two as isolated pieces, SF 55 and SF 69, and four as a rough line, SF 62, SF 63, SF 64 and SF 66. The isolated SF 55 was found on its side pointing northwards, whereas SF 69 was flat and pointed to the west. The group of four shared broadly similar orientations, northwest (SF 64), north (SF 66), northeast (SF 62) and east (SF 63) and together formed a ‘fanned’ distribution stretching over a distance of approximately 25m. Spear SF 62 was found semi-upright as if stuck point-first in the ground whilst the rest were found either lying flat or on their sides (Fig. 4.30). Of the line of four spears, three (SF 62, SF 63 and SF 64) were closely spaced and aligned more or less parallel to the northern edge of the fenward Middle Bronze Age field boundary Ditch O. Situated about 6m to the north, all four projectiles were found pointing away from the boundary as if they had been tossed or thrown from the boundary’s upstanding bank. Stratigraphically, the peat horizon in which the spears were found capped the adjacent ditches but abutted their accompanying banks.

Remnants of casting seams were present on the single spears and some of the edges were still sharp (Fig. 4.31). Occasional small nicks and dents on the blades of the spears indicated ‘use’ but only one of the single spears (SF 66) displayed a level of damage anywhere near equivalent to that present on most of the hoard bronzes. Preserved wooden haft fragments were present in two of the six spears (SF 63 and SF 66). The haft in SF 63 survived only within the socket of

Figure 4.29. Distribution of metalwork (hoard and spears).
end of a small mound of buried soil preserved beneath the peat and as a consequence the hoard was elevated several centimetres above its surrounding surface (Fig. 4.33). Two large saddle querns were found at the northern end of the same peat covered mound, whilst three fragments of human skull were located a few metres to the west.

The bulk of the hoard objects displayed extensive damage and, as well as being broken-up, the pieces were also bent, severely notched, gashed, perforated, dented, burred and burnt (Fig. 4.34). Small nicks and dents were also present on the blades of some of the hoard weapons but these use-wear indicators were consistently overshadowed by the severity of the later damage. The casting seams, prevalent on the single spears, were much less evident on the hoard pieces and none of the seven surviving spear sockets contained haft fragments. The burning of the pieces was to some extent an unseen dynamic in that it was metallographic evidence which confirmed that at least five of the hoard pieces (three spears, a sword and a ferrule) had been exposed to fire prior to deposition (Northover below).

The hoard
The hoard (F.786) comprised a jumble of 20 bronzes strewn within a space no larger than 1.60 × 1.30m (Fig. 4.32). It comprised three broken swords (surviving as hilts and shoulders), three sword blade fragments, three pieces of a long tongue chape, nine complete or semi-complete spears and two ferrules.

The hoard was deposited in the peat immediately next to the main terminal boundary (Ditch A) and almost exactly opposite a T-junction in the fieldsystem (Ditch E). Its position corresponded to the southern

Figure 4.30. Photograph of spears in situ (SF 63 and SF 62, plus close-up of upright spear SF 62).

the spear whereas the haft fragment in SF 66 extended a couple of centimetres beyond the lip of the socket and had a splintered or frayed appearance as if the remainder of the shaft had been snapped-off prior to deposition. The tip of spear SF 66 was also missing and its broken end was also slightly bent. Spear SF 64 was poorly preserved and survived as two pieces, blade and half of the socket, the other half of the socket being absent. In contrast with the hoard pieces, the damage or poor state of SF 64 appeared to be post-depositional.

The hoard (F.786) comprised a jumble of 20 bronzes strewn within a space no larger than 1.60 × 1.30m (Fig. 4.32). It comprised three broken swords (surviving as hilts and shoulders), three sword blade fragments, three pieces of a long tongue chape, nine complete or semi-complete spears and two ferrules.

The hoard was deposited in the peat immediately next to the main terminal boundary (Ditch A) and almost exactly opposite a T-junction in the fieldsystem (Ditch E). Its position corresponded to the southern
Figure 4.31. ‘Single’ spears.
Figure 4.32. Plan and photograph of the hoard.
Fieldsystem, settlement and metalwork

There was no evidence of in situ burning and the wet context the hoard was found in would appear to demonstrate that the burning of bronzes had occurred elsewhere. The orientation of the objects appeared to be random, although groups of the larger items shared similar alignments (northeast–southwest, north–south or east–west) as if they had once been part of a tight bundle. There was no sense of items being carefully placed or of individual pieces being deposited one at a time. If anything, the pattern of objects seemed to indicate a single dump of bronzes, perhaps held collectively in a sack or wrapped in a cloth. A single loose bronze rivet of the type found connected to all three of the sword hilts was found 1m to the south of the hoard.

**Deposition sequence**

<table>
<thead>
<tr>
<th>Peat (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoard – querns – fragments of human skull (5)</td>
</tr>
<tr>
<td>First peat (4)</td>
</tr>
<tr>
<td>Water lain sandy silt (3)</td>
</tr>
<tr>
<td>Fieldsystem ditches (2)</td>
</tr>
<tr>
<td>Small mound of buried soil pockmarked with hoof-prints and surrounded by a ‘metalled surface’ (1)</td>
</tr>
</tbody>
</table>

![Figure 4.33. Plan of hoard location and deposition sequence.](image-url)}
Figure 4.34. The hoard.
**Bradley Fen metalwork – patterns of deposition**

The period between the establishment of the fields and the deposition of bronzes was equivalent to the time it took for the lower fields to be ‘lost’ to the encroaching fen. Three radiocarbon determinations demonstrated a later Bronze Age chronology for the Bradley Fen metalwork (Table 4.16). The dates were obtained from the peat horizon immediately beneath the hoard, peat from inside one of the hoard spears (HD 3) and a haft fragment from inside one of the single spears (SF 66). The hoard dates were practically identical (1280–1010 & 1310–1040 cal BC respectively) whereas the single spear generated a potential chronological offset of approximately one hundred years (1190–930 cal BC).

The bronze weapons occurred along the saturated lower margins with an equivalent spatial regularity to that of the burnt mounds, waterholes or fenward land divisions and, as with these earlier features, the uniformity of spacing between pieces of metalwork suggests a pattern of deposition that continued well beyond the limits of the site. The scale of the Bradley Fen investigations enabled the recovery of multiple metalwork deposits but also revealed the spaces between them. In terms of understanding past practice, the magnitude and uniformity of metalwork deposition was made visible as much by the metalwork-free spaces as it was by the actual number of bronzes. The pattern of six spears, for example, gave the impression that similar acts of deposition happened with similar frequency all the way around the edge of the Flag Fen Basin. If the configuration of metalwork deposition here is representative of the rest of the landscape, there is every reason to believe that further bronzes will be found at intervals of about 90–100m and somewhere between the 0.40–1.00m OD contours. Conceivably there were hundreds, if not thousands, of pieces of later Bronze Age metalwork.

Metalwork radiocarbon dates.

<table>
<thead>
<tr>
<th>Context</th>
<th>Beta</th>
<th>Conventional age</th>
<th>2 Sigma Calibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoard Spear (HD 3)</td>
<td>205535</td>
<td>2970 ± 40 yr</td>
<td>1310–1040 cal BC</td>
</tr>
<tr>
<td>Peat beneath hoard</td>
<td>205536</td>
<td>2940 ± 40 yr</td>
<td>1280–1010 cal BC</td>
</tr>
<tr>
<td>Single Spear (SF 66)</td>
<td>205534</td>
<td>2880 ± 40 yr</td>
<td>1190–930 cal BC</td>
</tr>
</tbody>
</table>

The alignment of spears seemed to mimic the alignment of the boundary (see detailed plan Fig. 4.29) and, at the very least, utilized the land division as a reference or orientation in the landscape. Similarly, although buried in isolation, the southernmost spear was also deposited beside a boundary, whilst the hoard was buried at a major junction. The fieldsystem represented a frame of reference for metalwork deposition. If nothing else, this relationship demonstrates that at the time when metalwork was being deposited the boundaries were still visible and, very probably, still ‘active’.

In plan, the configuration of single spears appeared to be distinct from the hoard and this distinction may be indicative of different kinds of practice. One particular spear (SF 62) was discovered lodged point-first into the peat as if it had just found its target and all of the single spears had the look of ‘active weapons’ (Fig. 4.30). This impression of depositional immediacy contrasts with the ‘old metal’ of the hoard, which comprised an assortment of acquired or accrued objects that had mostly seen better days. Disposed of in a tumbled heap, the hoard presented a very different scene from the spear sticking in the peat (Fig. 4.32).

Taken as a whole, the impression was that the hoard contained weapons and fragments of weapons that each had an extended use-life prior to deposition and that the breaking-up and burning of some of the pieces indicated purposeful acts of destruction unlike anything seen on metalwork elsewhere in the Flag Fen Basin (cf. Coombs 1992; Pryor 2001). For instance, the hoard contained the handle and lower blade sections of three broken-up swords, all of which were bent at the point of fracture suggesting that they had been forcefully broken in-half, as opposed to being damaged in normal use. Evidence of the breaking up of objects was confined to the large weapons (i.e. swords and
large spears) and appeared to be an attribute indicative of a need to make things smaller and therefore easier to ‘hoard’. Perhaps the ‘container’ that was used to gather these pieces was also the determinant of object size, since the majority of the pieces were far too large to fit in a contemporary crucible.

**Metalwork catalogue (Graeme Appleby)**

This section presents a catalogue of 26 pieces of later Bronze Age metalwork from Bradley Fen; the single spears (SFs 55, 62, 63, 64, 66 & 69 (Fig. 4.31)) and the hoard (numbered HD 1–20 (Figs 4.35, 4.36, 4.37, 4.38 & 4.39)). The catalogue incorporates descriptions, dimensions and type-classification, as well as the results of metal analysis carried out by Peter Northover. The catalogue precedes a full report on the analysis and metallography of the Bronze Age metalwork.

**Single spears:**

SF 55 Spearhead <1232> (Fig. 4.31, no. 55)

*Description:* The spearhead has a brown-green patina with occasional white and bright green specks. The surface has minor concretions and pitting. The socket has very minor damage, with two rivet holes (one blocked). The extreme tip is missing, probably due to corrosion. One blade edge is ‘rolled,’ with the other edge slightly dented. The blades are sharp. The preservation condition is very good.

*Dimensions:* Maximum width 32mm; maximum length 114mm; weight 55g

*Classification:* This is a complete leaf-shaped pegged-socketed spearhead. Unlike the other examples described here, the cross-section is even and the blades are squared at the base, where they join the socket. It has been suggested this form is the forerunner to the Broadward Complex barbed spearheads (c. 900–700 BC (Burgess et al. 1972)) and represents an intermediate stage between these later forms and hollow-blade varieties such as HD 5>. No rivets were found in situ, despite the presence of the haft. Finishing was to a high standard with no evidence of casting seams observed on the socket. However, part of the casting process evidently failed due to the presence of a casting sprue/flash in the corner of one wing at the blade-socket junction. This example dates to the Wilburton phase (ibid.).

*Analysis:*

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SF 62 Spearhead <1226> (Fig. 4.31, no. 62)

*Description:* The spearhead has a brown-green patina with occasional white and bright green specks. The surface has major concretions and mineralized plant matter attached. The socket metal thickness is greater compared to the other spearheads from the site and possibly forms part of a need to make things smaller and therefore easier to ‘hoard’. Perhaps the ‘container’ that was used to gather these pieces was also the determinant of object size, since the majority of the pieces were far too large to fit in a contemporary crucible.

*Classification:* A complete leaf-shaped pegged-socketed spearhead with bevelled blades and circular cross-section. The blades have been finished to a high standard, but less attention has been applied to the socket. There is a slight asymmetry in plan view, but this does not appear to be the result of differential sharpening. Similar in form and date to SF 55, SF 64, HD 8 and HD 10.

*Dimensions:* Maximum width 39mm; maximum length 146mm; weight 113g

*Analysis:*

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SF 63 Spearhead <1230> (Fig. 4.31, no. 63)

*Description:* The spearhead has a brown patina with occasional copper mineralization. The surface has minor concretion on the main body, but this is more prominent on the socket. The socket is robust and of a similar thickness to SF 62. A substantial portion of an ash wood haft was preserved in situ with surviving evidence of a rivet hole. The blades are bevelled and sharpened, with small nicks and dents. There is no clear break between the mid-rib and the wings of the spearhead. The preservation condition is very good.

*Dimensions:* Maximum width 43mm; maximum length 175mm; weight 145g

*Classification:* A complete hollow-blade leaf-shaped pegged-socketed spearhead. Unlike the other examples described here, the cross-section is even and the blades are squared at the base, where they join the socket. It has been suggested this form is the forerunner to the Broadward Complex barbed spearheads (c. 900–700 BC (Burgess et al. 1972)) and represents an intermediate stage between these later forms and hollow-blade varieties such as HD 5>. No rivets were found in situ, despite the presence of the haft. Finishing was to a high standard with no evidence of casting seams observed on the socket. However, part of the casting process evidently failed due to the presence of a casting sprue/flash in the corner of one wing at the blade-socket junction. This example dates to the Wilburton phase (ibid.).

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SF 64 Spearhead and socket fragments <1227> (Fig. 4.31, no. 64)

*Description:* The spearhead and fragments have a brown-green patina with occasional white specks and some copper mineralization. There are concretions on the base of the wings and socket fragments. The spearhead is broken transversely above the socket resulting in partial loss of the base to one wing. (The socket fragmented during recovery due to its preservation state.) A rivet appears to be in situ in one of the larger socket pieces. The blades are sharp with one significant nick on one side. The preservation condition is poor to reasonable.

*Dimensions:* Maximum width 39mm; maximum length 132mm (including socket); weight 55g

*Classification:* This is a substantially complete leaf-shaped pegged-socketed spearhead similar in form and date to SF 55, SF 62, HD 8 and HD 10. The finishing appears to have been to a high standard as evident by the sharpness of the surviving parts of the blades.

SF 66 Spearhead <1226> (Fig. 4.31, no. 66)

*Description:* The spearhead has a green to brown patina with occasional green to brown concretions, as evident by the sharpness of the surviving parts of the blades. The preservation condition is poor to reasonable.

*Dimensions:* Maximum width 39mm; maximum length 146mm; weight 113g

*Analysis:*

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<tr>
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</table>

SF 67 Spearhead <1230> (Fig. 4.31, no. 67)

*Description:* The spearhead has a brown-green patina with occasional copper mineralization. The surface has minor concretion on the main body, but this is more prominent on the socket. The socket is robust and of a similar thickness to SF 62. A substantial portion of an ash wood haft was preserved in situ with surviving evidence of a rivet hole. The blades are bevelled and sharpened, with small nicks and dents. There is no clear break between the mid-rib and the wings of the spearhead. The preservation condition is very good.

*Dimensions:* Maximum width 43mm; maximum length 175mm; weight 145g

*Classification:* A complete hollow-blade leaf-shaped pegged-socketed spearhead. Unlike the other examples described here, the cross-section is even and the blades are squared at the base, where they join the socket. It has been suggested this form is the forerunner to the Broadward Complex barbed spearheads (c. 900–700 BC (Burgess et al. 1972)) and represents an intermediate stage between these later forms and hollow-blade varieties such as HD 5>. No rivets were found in situ, despite the presence of the haft. Finishing was to a high standard with no evidence of casting seams observed on the socket. However, part of the casting process evidently failed due to the presence of a casting sprue/flash in the corner of one wing at the blade-socket junction. This example dates to the Wilburton phase (ibid.).

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<td>5.81</td>
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<td>0.16</td>
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with possible rivets in situ and a substantial piece of wooden haft, protruding up to 14mm beyond the socket. The mid-rib, wings and blades are relatively undamaged with several minor nicks and one large ‘scoop’ on one edge. The blades are sharp with very little corrosion. The tip is missing, with an irregular angled transverse break and the end is distorted in profile. The overall preservation condition is very good.

**Dimensions:** Maximum width 45mm; maximum length 188mm; weight 168g

**Classification:** Similar to other hollow-blade spearheads found at Bradley Fen, this is an almost complete example of this variety. Although the socket is circular in profile, the spearhead has an overall lozenge-shape cross-section. The spearhead shows no traces of the casting process, indicative of a high standard of finishing. A similar example from the Wilburton hoard has been dated to 1260–930 cal bc (OxA-5035: 2890±45 yr) (Needham et al. 1997, 72).

**Analysis:**

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**Description:**

The spearhead has a mid-brown patina with occasional white and green specks. The surface has residual peat and mud present with concretions, creating a rough surface. The socket is undamaged with two rivet holes and one rivet in situ. A casting seam is clearly visible on one side of the socket. The mid-rib is obscured by the concretions, but the wings are relatively undamaged. The blades have several nicks and dents with some burrs. The overall preservation condition is good.

**Dimensions:** Maximum width 34mm; maximum length 101mm; weight 71g

**Classification:** This is a small complete leaf-shaped pegged-socketed spearhead. Classified as a ‘dumpy’ type, due to its ‘squat’ appearance, it is contemporaneous to the Wilburton-Ewart Park phases of the Late Bronze Age (Coombs 1975).

**Analysis:**

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**Description:**

The fragment has a pale brown-green patina with darker green patches towards the terminal. Both blade edges have very minor dents and very small nicks. The blade portion of the fragment is bent. The majority of the blade is missing with a clean transverse break 50mm below the ricasso (i.e. the unsharpened length of blade). Both the shoulder and ricasso appear undamaged with four rivets in situ. On one side, the shoulder, rivets and hilt are severely concreted with recent copper mineralization. The bottom edge of this concretion is convex and even, indicating a high possibility for preservation of an organic hilt. The hilt is flanged with a rivet slot, hilt ribs on one side and ‘fish-tail’ terminal. The preservation condition is very good.

**Dimensions:**

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**Description:**

This is a leaf-shaped peg-socketed spearhead. In cross-section the socket is circular, whilst the mid-rib is hexagonal. Both blades are bevelled and sharp where undamaged. The socket is perforated with two rivet holes. There are no apparent casting seams on the socket or at the base of the blades. This suggests the spear was completed to a high standard prior to use and final deposition. It is contemporaneous to material recovered from the Wilburton Hoard (Evans 1884).

**Dimensions:** Maximum width 48mm; maximum length 195mm; weight 227g

**Classification:** This is a leaf-shaped peg-socketed spearhead. In cross-section the socket is circular, whilst the mid-rib is hexagonal. Both blades are bevelled and sharp where undamaged. The socket is perforated with two rivet holes. There are no apparent casting seams on the socket or at the base of the blades. This suggests the spear was completed to a high standard prior to use and final deposition. It is contemporaneous to material recovered from the Wilburton Hoard (Evans 1884).

**Dimensions:**

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<td>0.49</td>
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**Description:**

This is a large hollow-blade narrow leaf-shaped spearhead with bevelled blades. The damage sustained by the blades prevents any assessment of the degree of sharpening, but there are no casting seams or flashes observed on the socket, which is indicative of finishing prior to use. Traces of the haft may be
Figure 4.35. Detailed drawings of individual hoard pieces and single spears (see also Figures 4.36, 4.37, 4.38 and 4.39).
Figure 4.36. Detailed drawings of individual hoard pieces and single spears (see also Figures 4.35, 4.37, 4.38 and 4.39).
preserved in the socket, along with the possible survival of rivets. This form is characteristic of the Wilburton phase.

Analysis:

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Description: The sword has an orange-brown patina with green and white patches. Both sides are heavily concreted with iron oxide clearly evident. Some copper mineralization has occurred, particularly on one side towards the ricasso. Both blade edges are severely notched with clear deformation of the metal away from the longitudinal axis of the blade, creating a ‘gill’ like appearance. A substantial portion of the blade is missing, with an irregular transverse break approximately 120mm below the ricasso. The blade is bowed towards the break. The hilt and shoulder appear undamaged with no traces of casting flashes or sprues. Three rivets remain in situ, two in the shoulder (one loose) and one in the hilt slot (loose); this rivet has enlarged the slot slightly. Additionally, the concretions present on either side of the hilt may preserve elements of an organic hilt. The preservation state of the fragment is reasonable.

Dimensions: Length 224mm; terminal 33mm; hilt maximum width 23mm; shoulder 58mm; ricasso 32mm; maximum blade width 39mm; weight 275g

Classification: Similar in appearance to HD 1, this sword differs notably in the number of rivets used for the attachment of an organic handle, the ricasso and angle of the shoulders. Metallurgical analysis suggests this sword falls into the Carp’s Tongue complex, or similar period (see Northover, below).

Analysis:

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Description: One side of the spearhead has a brown-green patina with some concretion and iron oxide deposits. The top fragment has a slight silvery shiny appearance on one wing. The other side has a brown to pale brown-green patina with green patches, iron oxide deposits and copper mineralization. The socket is broken, friable at the edges of the break and covered with concretions (peat remains and mud). Remains of a wooden haft were found in situ. Both blades are severely damaged and notched with numerous burrs, deformation and evident metal loss. The mid-rib is dented in several locations with a clearly defined deep circular depression on one side and transverse cut marks. The top section of the spearhead is missing. The break between these two portions is irregular and the precise mechanism of breakage is unclear. The preservation condition is good.

Dimensions: (from re-fitted fragments) Maximum width 59mm; maximum length 230mm; weight 264g

Classification: This is a hollow-blade leaf-shaped spearhead with a lozenge-shaped cross-section lacking a distinct mid-rib. There are slight channels towards the edge of the blades, creating a bevelled appearance. These are part of the original casting and not the result of finishing and sharpening. It is characteristic of the Wilburton phase. A similar example from the Wilburton Hoard has been dated to 1260–980 cal bc (OxA5036 2900±45) (Needham et al. 1997).

Analysis:

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<tr>
<td>Sword blade fragment</td>
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Description: The blade fragment has a brown patina with green tinges in places. Iron oxide deposits exist on both sides of the fragment. Both blade edges are severely damaged and notched, with evident metal loss, distortion and ‘curling’ of the metal, forming burrs. Both transverse breaks exhibit sharp breaks, revealing in cross-section a lozenge-shaped profile. A possible chisel mark is preserved at the stepped transverse break. Along the central axis there is some distortion leading to a slightly bowed appearance. There is some minor pitting along the central rib of the fragment, minor corrosion and residual concretions. The preservation condition is good.

Dimensions: Maximum width 34mm; maximum length 66mm; maximum thickness 7.3mm; weight 59g

Classification: The blade fragment is narrow in width, with no obvious taper, and lozenge-shaped in cross-section. Some evidence for bevelling or sharpening of the blade edges survives. There are no casting flashes or sprues, suggesting that the sword was finished before deposition. Unclassified fragment.

Analysis:

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Description: The ferrule has a pale brown-green patina. Towards the top, there are three small transverse indentations, one with a sharp crescent-shape appearance. The top of the ferrule appears to be missing as the surface is uneven and pitted. There are concretions on the surface with some minor pitting observable. The overall preservation condition is good.

Dimensions: Maximum width 16mm; minimum width 12mm; maximum length 121mm; weight 50g

Classification: This is a slightly tapering incomplete tubular circular ferrule. Although the top is missing the base is intact. Ferrules of this variety span the Middle Bronze Age and Late Bronze Age and are interpreted as spear-shaft attachments (Savory 1980, 57).

Analysis:

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Description: The spearhead has a brown-green patina with occasional concretions and some copper mineralization. The socket is complete
Figure 4.37. Detailed drawings of individual hoard pieces and single spears (see also Figures 4.35, 4.36, 4.38 and 4.39).
Chapter 4

with two rivet holes and possible haft in situ. The blades are bevelled and sharp, with occasional small nicks. The wings are asymmetrical. The tip is missing with a slightly irregular transverse break revealing a distinct circular mid-rib in cross-section. The preservation condition is very good.

**Dimensions**: Maximum width 38mm; maximum length 132mm; weight 155g

**Classification**: A substantially complete leaf-shaped pegged-socketed spearhead similar to SF 55, SF 62, SF 64 and HD 10. The finishing is to a high standard, evidenced by the sharpness of the surviving parts of the blades and lack of casting seams on the socket. The asymmetry of the blades may indicate differential sharpening or a flaw in the original casting process. It is generic in form, thus possibly pre-dating the Wilburton phase.

**Analysis**: 

<table>
<thead>
<tr>
<th>Element</th>
<th>Fe</th>
<th>Co</th>
<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
<th>As</th>
<th>Sb</th>
<th>Sn</th>
<th>Ag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.11</td>
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<td>0.22</td>
<td>89.71</td>
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<td>0.48</td>
<td>0.70</td>
<td>7.79</td>
<td>0.17</td>
</tr>
</tbody>
</table>

**HD 11, 12a & 12b** Long-tongue chape fragments <1216> <1217> (Fig. 4.38, nos 11–12)  

**Description**: The chape fragments have a brown patina, green patches, significant concretions and iron oxide deposits. Traces of peat and plant matter are present on the interior surfaces of the larger fragments. Several smaller fragments remain encased in this matrix. The surviving refitted pieces form a lozenge-shaped cross-section, with median ribs and flat edges. The breaks are irregular, but re-fitting the fragments enables the profile to be reconstructed. The preservation condition is good to poor.

**Dimensions**: (from re-fitted fragments) Maximum width 70mm; minimum width 30mm; maximum length 178mm; weight 83g

**Classification**: The re-fitted fragments reveal that the majority of the chape is present, although the lower portion is missing. Classified as a long-tongue chape, this type dates to the Wilburton phase of the Late Bronze Age.

**HD 13 Spearhead fragment <1218>** (Fig. 4.38, no. 13)  

**Description**: The fragment has a brown patina with green patches and concretions on both sides with occasional iron oxide deposits. Both transverse breaks exhibit regular sharp breaks, revealing in cross-section a lozenge-shaped profile. There is a possible chisel mark towards the wider end of the fragment, whereas the break at the narrower end is clean. This break may represent a brittle-zone fracture, although there is a very slight deflection seen in the transverse plane. There are minor dents in the blade edges, but no other significant damage to the fragment. The preservation condition is good.

**Dimensions**: Maximum width 46mm; minimum width 29mm; maximum length 67mm; weight 74g

**Classification**: The fragment tapers with straight parallel sides from 46mm to 29mm. In cross-section, the fragment reveals the spearhead to be hollow-cast and lozenge-shaped lacking a distinct mid-rib. The blade edges are bevelled and sharp. Classified as a leaf-shaped hollow-blade spearhead similar to HD 5, it is contemporaneous with the Wilburton phase of the Late Bronze Age.

**Analysis**: 

<table>
<thead>
<tr>
<th>Element</th>
<th>Fe</th>
<th>Co</th>
<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
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<tbody>
<tr>
<td>Value</td>
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<td>0.01</td>
<td>0.19</td>
<td>81.12</td>
<td>0.01</td>
<td>0.31</td>
<td>0.48</td>
<td>7.25</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**HD 14 Spearhead fragment <1219>** (Fig. 4.38, no. 14)  

**Description**: The spearhead has a pale brown to green patina with white patches, concretions and iron oxide deposits. One end of the tube is crushed and distorted with the metal pushed outwards with an irregular break. There is some minor copper mineralization towards this end. At the undamaged end, solidified metal droplets are present. It is unclear whether these originated from the object, but clearly demonstrate the tube was exposed to, or was near to, a high temperature heat source. One of these droplets has a silver-tin alloy core, possibly pre-dating the Wilburton phase.

**Dimensions**: Maximum width 38mm; minimum width 29mm; maximum length 121mm; weight 97g

**Classification**: This is a complete leaf-shaped pegged-socketed spearhead similar in form and date to SF 55, SF 62, SF 64 and HD 8.

**Analysis**: 

<table>
<thead>
<tr>
<th>Element</th>
<th>Fe</th>
<th>Co</th>
<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
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</tr>
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<td>0.01</td>
<td>0.31</td>
<td>0.48</td>
<td>7.25</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**HD 9 Copper alloy tube <1214>** (Fig. 4.37, no. 9)  

**Description**: The tube has an orange-brown patina, cream coloured patches, concretions and iron oxide deposits. One end of the tube is crushed and distorted with the metal pushed outwards with an irregular break. There is some minor copper mineralization of the surviving parts of the tube. At the undamaged end, solidified metal droplets are present. It is unclear whether these originated from the object, but clearly demonstrate the tube was exposed to, or was near to, a high temperature heat source. One of these droplets has a silver-tin alloy core, possibly pre-dating the Wilburton phase.

**Dimensions**: Maximum diameter 19mm; maximum length 47mm; weight 43g

**Classification**: This fragment was found in association with the hoard. It is heavy for its size and despite the damage to one end does not have an obvious taper. The function or purpose of this piece is unknown, although it may be a fragment of a ferrule or socketed gouge.

**Analysis**: 

<table>
<thead>
<tr>
<th>Element</th>
<th>Fe</th>
<th>Co</th>
<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
<th>As</th>
<th>Sb</th>
<th>Sn</th>
<th>Ag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.10</td>
<td>0.01</td>
<td>0.05</td>
<td>84.90</td>
<td>0.01</td>
<td>0.07</td>
<td>0.07</td>
<td>11.66</td>
<td>0.03</td>
</tr>
</tbody>
</table>

**Bi Pb Au Cd S Al Si Mn**

| Value   | 0.02| 3.03| 0.01| 0.00| 0.04| 0.00| 0.02| 0.00|

**HD 10 Spearhead fragment <1215>** (Fig. 4.38, no. 10)  

**Description**: The spearhead has a brown-green patina with white sandy patches and concretions creating a rough surface. The socket is complete with casting seams and two rivet holes. The socket is circular in cross-section whilst the mid-rib is hexagonal. The spearhead is bent giving it a curved appearance in profile. The blades are bevelled and sharp, with occasional nicks and dents. A narrow vertical ‘slice’ is missing on one blade, extending about 12mm from the tip. The preservation condition is good.

**Dimensions**: Maximum width 34mm; maximum length 121mm; weight 97g
Figure 4.38. Detailed drawings of individual hoard pieces and single spears (see also Figures 4.35, 4.36, 4.37 and 4.39).
on one side, possibly caused by a chisel-like implement. There is a transverse cut mark on one side of the spearhead extending from the blade edge to the mid-rib. Both blades are severely damaged with two large notches and burrs on one edge. The opposing blade is dented and rolled with a vertical ‘slice’ missing towards the top with two large notches and burrs on one edge. The opposing blade edge to the mid-rib. Both blades are severely damaged transverse cut mark on one side of the spearhead extending from one side, possibly caused by a chisel-like implement. There is a hollow-blade spearhead with added ribs enhancing the mid-rib. The blades are bevelled and sharp, but are severely nicked with curling, burrs and evident metal loss. The transverse break towards the base of the fragment is irregular and pushed in one direction with the adjacent mid-rib flattened. The transverse break at the tip is slightly distorted and irregular. The overall preservation condition is very good.

**Dimensions:** Maximum width 39mm; maximum length 130mm; weight 130g

**Classification:** This spearhead is similar in form and date to HD 5, but with a more distinct mid-rib. It has bevelled sharp edges and where there is little damage there are no observable casting seams or flashes, indicating the spearhead was originally finished to a high standard.

**Analysis:**

<table>
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<tr>
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<th>Ni</th>
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<td>0.00</td>
<td>0.10</td>
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</tr>
<tr>
<td>Pb</td>
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<td>0.17</td>
<td>0.00</td>
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</tr>
</tbody>
</table>

**HD 15 Spearhead fragment <1220>** (Fig. 4.38, no. 15)

**Description:** The fragment has brown patina with minor concretions and some copper mineralization. The surface has some residual peat and mud present and occasional iron oxide deposits. This is an incomplete spearhead fragment missing the socket and extreme tip. The mid-rib and wing bodies are largely undamaged, with occasional dents. The mid-rib is emphasized by the presence of small ribs that extend along the entire length of the fragment. The blades are bevelled and sharp, but are severely nicked with curling, burrs and evident metal loss. The transverse break towards the base of the fragment is irregular and pushed in one direction with the adjacent mid-rib flattened. The transverse break at the tip is slightly distorted and irregular. The overall preservation condition is very good.

**Dimensions:** Maximum width 36mm; maximum length 179mm; weight 235g

**Classification:** This is a substantial fragment of a large channel hollow-blade spearhead with added ribs enhancing the mid-rib. There is no evidence of pointillé decoration, such as that seen on a similar example from the Blackmoor Hoard (Burgess & Colquhoun 1988). However, three similar examples form part of the Wilburton Hoard (ibid.). Using these examples as a guide, this specimen would measure between 220–300mm. It dates to the Wilburton phase, although the form may have originated in the Penard phase of the Middle Bronze Age.

**Analysis:**

<table>
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<tr>
<th></th>
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<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
<th>As</th>
<th>Sb</th>
<th>Sn</th>
<th>Ag</th>
</tr>
</thead>
<tbody>
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<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**HD 19 Sword fragment <1223>** (Fig. 4.39, no. 18)

**Description:** The blade fragment has a mid-brown patina with concretions, largely on one side, residual mud and some copper mineralization. Both edges are nicked and dented with curling and formation of burrs. The fragment is severely distorted and bent where it tapers toward the tip. The extreme tip is missing with a regular transverse break, revealing a rounded lozenge-shaped cross-section. Evidence for bevelling and sharpening of the blade edges survive. The preservation condition is very good.

**Dimensions:** Maximum width 34mm; minimum width 14; maximum length 80mm; maximum thickness 6mm; weight 47g

**Classification:** The blade fragment tapers from a maximum width of 34mm to 14mm, with parallel straight edges. Similar to HD 6 and HD 20, the fragment is unclassified.

**Analysis:**

<table>
<thead>
<tr>
<th></th>
<th>Fe</th>
<th>Co</th>
<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
<th>As</th>
<th>Sb</th>
<th>Sn</th>
<th>Ag</th>
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</thead>
<tbody>
<tr>
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<tr>
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<td>6.74</td>
<td>0.03</td>
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<td>0.36</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**HD 19 Sword fragment <1224>** (Fig. 4.39, no. 19)

**Description:** The sword has a brown to dark brown patina with green and white patches. Both sides of the hilt and blade are heavily concreted, with residual peat and iron oxide deposits clearly evident. Some copper mineralization has occurred. There are four rivet holes in the shoulder with one retaining a rivet and one loose rivet in the hilt slot. The ricasso notch has a slight concavity. Although the blade edges are partially obscured, they are clearly bevelled, with occasional notches and dents and evident metal loss, but not to the same extent as HD 4. A substantial portion of the blade is missing, with an irregular transverse break approximately 100mm below the ricasso. The blade is severely distorted approximately 28mm above the break. The break is irregular and obscured by corrosion products, concretions and iron oxide deposits. The hilt is flanged, possesses a fish-tail terminal and appears undamaged. It shows no traces of casting flashes or sprues, although the rivet...
Figure 4.39. Detailed drawings of individual hoard pieces and single spears (see also Figures 4.35, 4.36, 4.37 and 4.38).

18

0 centimetres

19

20

197

slot retains part of the casting sprue. Towards the terminal is a cast rectangular perforation. Flashing is present on the interior surface of this perforation. The preservation state, despite the concretions, is good.

**Dimensions:** Length 225mm; terminal 35mm; hilt maximum width 23mm; shoulder 55mm; ricasso 35mm; maximum blade width 32mm; weight 268g

**Classification:** Similar to HD 1 this sword differs in the number of rivets used for the attachment of an organic handle, the ricasso length and angle of the shoulders. The angle of the shoulders and ricasso are indicative of a Wilburton variant D type sword (Burgess & Colquhoun 1988, 48).

HD 20 Sword blade fragment <1225> (Fig. 4.39, no. 20)

**Description:** The blade fragment has a green-brown patina with iron oxide and concretion on one side. Both edges are nicked and dented with partial curling and formation of burrs. The fragment is slightly bowed along the blade’s longitudinal axis. Evidence for bevelling and sharpening of the blade edges survives. The transverse breaks are irregular, revealing a lozenge-shaped cross-section similar to HD 6. Both breaks have a small stepped cut mark, possibly indicating the use of a chisel-like object to break up the sword. The preservation condition is good.

**Dimensions:** Maximum width 33.5mm; maximum length 65mm; maximum thickness 8.8mm; weight 84g

**Classification:** The blade fragment is narrow in width, with a slight taper and lozenge-shaped in cross-section, as with HD 6 and HD 18. Unclassified fragment.

**Analysis:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Fe</th>
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<th>Ni</th>
<th>Cu</th>
<th>Zn</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>0.00</td>
<td>0.01</td>
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</tr>
</tbody>
</table>

**Analysis and metallography of Bronze Age metalwork (Peter Northover)**

The metalwork recovered at Bradley Fen is primarily characteristic of the Wilburton period of the Late Bronze Age in Britain, although there are elements which are suggestive of the transition to the succeeding Ewart Phase. This dating is also supported by the radiocarbon dates. With this in mind, the characterization of the Bronze Age metalwork from Bradley Fen was undertaken:

a) to assist in the dating of the material within the Wilburton/Blackmoor sequence using the known
variations in time of Bronze compositions from
the Wilburton into the Ewart Park period
b) to look for evidence of any special treatment of
the metal associated with deposition
c) to determine whether there are any differences
in composition or treatment between the objects
in the hoard (20) and those deposited singly (6).

To do this required both compositional analysis and
metallographic examination of the metalwork and
this requirement dictated the type and location of the
samples. Not all the 28 pieces of metal, which came
from 25 objects, could be sampled owing to their
condition. Those not sampled were the ferrule HD 7,
the chape HD 11–12, the sword fragment HD 19 and
the spearhead SF 64.

All but one of the samples were cut using a
jeweller’s piercing saw with a blade with 32 teeth/cm.
Sampling locations were selected to maximize the
information about the condition of the object, e.g. close to
damage or burning, consistent with minimizing the
impact of the sampling. Where a suitable sample
could not be extracted without undue damage, it was
drilled instead; the only sample so taken was that from
the blob of fused metal attached to HD 14.

The samples were hot-mounted in a carbon-filled
thermosetting resin, ground and polished to a 1µm
finish. Analysis was by electron probe microanalysis
using wavelength dispersive spectrometry. Operating
conditions were an accelerating voltage of 20kV, a beam
current of 30nA and an X-ray take-off angle of 40º.
Counting times were 10s or 20s per element and pure
element and mineral standards were used. Seventeen
elements were analysed (Fe, Co, Ni, Cu, Zn, As, Sb, Sn,
Ag, Bi, Pb, Au, Cd, S, Al, Si, Mn); detection limits were
100–200ppm for most elements, except 300ppm for gold.

From 5 to 14 areas, each 30 × 50µm, were analysed
on each sample. Individual analyses and their means,
normalized to 100%, are given in full in the site archive
(Northover 2010, Appendix) and are summarized above
by catalogue entry and in Table 4.17 by impurity pat-
tern. All concentrations are in weight %. The writer is
indebted to Mr C.J. Salter for his great assistance with
the analyses.

After analysis, the cut samples were examined
metallographically in both the as-polished and etched
states. The etches used were an acidified aqueous
solution of ferric chloride for the copper alloys and
an ammoniacal solution of hydrogen peroxide for the
silver mount.

The alloys

Of the 22 items sampled, 2 can be described definitively
as unleaded bronze, lead being present only as a trace
element. The two are a sword (HD 4) and a spearhead
(SF 55). While there may well have been segregation of
lead in casting both spearheads and swords it would
not have been so extreme as to leave lead at trace levels
only at the edge of the object. The sword fragment is
rather unusual, having a combination of a broad, thick
mid-rib, sharply angled ricasso and V-shaped shoul-
ders, features which together seem prototypical of a
Carp’s Tongue sword and which raise the possibility
that the sword might have been imported. In contrast,
the spearhead is of a very typical Late Bronze Age
pegged form. However, both sword and spearhead
have impurity patterns which are unique for the site
and the two weapons will be discussed further under
that heading.

Three analysed samples had measured lead con-
tents below that which would significantly modify the
casting behaviour of the melt. It is, of course, possible
for this to be the result of extreme segregation between
the surface and the centre of a more heavily leaded
casting (Hughes et al. 1982) and the effects of corrosion
in removing what lead there was. In fact, the general
pattern of segregation is not normally so severe (Nor-
thover & Bridgford 2002), so that it is most probable
that the objects concerned were never heavily leaded,
while corrosion only rarely removes so much of the
lead. In other words, these samples genuinely had low
lead contents. They are all small plain spearheads (SF
62, SF 69 and HD 10), with lead contents of 0.7%, 1.3%
and 1.2% respectively and tin contents of 7.8%, 7.9%
and 10.8%. Evidence from the analysis of the Waterden
weapon assemblage in Norfolk (Northover & Bridgford
2002; Rogerson et al. forthcoming), which is closely
contemporary with the metalwork from Bradley Fen,
showed that the alloys of spearheads were nowhere
near as tightly controlled as those for swords and that
for small weapons like this any suitable scrap would
have been used without further addition of tin or lead.
To explore the question of segregation further, both
portions of a hollow-bladed spearhead (HD 5 and
HD 17) were analysed at widely separated locations
and the two compositions were found to be very close
indeed (9.6% and 10.1% tin; 12.2% and 13.6% lead).

The remaining objects can be described as having
been cast in medium tin leaded bronze. The range of
tin and lead contents is illustrated in Fig. 4.40. One
variable which cannot be ignored is the state of cor-
rison with, in particular, a strong probability of lead
being lost. To address this, every effort was made to
analyse only uncorroded parts of the samples, which
perhaps in itself biased the picture. Adding to this
is the observation that the total number of samples
is much smaller than the 146 analysed from Water-
den, so any conclusion about alloy selection must be
The lead contents could also be used to demonstrate a difference between the spearheads deposited singly, where 4 out of 5 have <5% lead, while only 6 out of 17 items analysed from the hoard have <5% lead.

very tentative. However, excepting the one unleaded bronze sword, the alloys used in the swords form a much tighter grouping than that for the spearheads, replicating the pattern from Waterden.

Table 4.17. Compositions of copper alloy metalwork (ordered by impurity pattern).

<table>
<thead>
<tr>
<th>No.</th>
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<th>Cu</th>
<th>Zn</th>
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<th>Al</th>
<th>Si</th>
<th>Mn</th>
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</thead>
<tbody>
<tr>
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<td>Sword fragment, hilt section</td>
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<td>0.00</td>
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<td>0.01</td>
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<td>Socket</td>
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<td>0.00</td>
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<td>0.07</td>
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<tr>
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<td>0.00</td>
<td>0.01</td>
<td>0.10</td>
<td>81.72</td>
<td>0.01</td>
<td>0.14</td>
<td>0.23</td>
<td>8.33</td>
<td>0.09</td>
<td>0.01</td>
<td>9.16</td>
<td>0.03</td>
<td>0.01</td>
<td>0.17</td>
<td>0.00</td>
<td>0.01</td>
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</tr>
<tr>
<td>SF 69</td>
<td>Spearhead, leaf-shaped, small</td>
<td>Socket</td>
<td>0.06</td>
<td>0.01</td>
<td>0.09</td>
<td>87.05</td>
<td>0.01</td>
<td>0.16</td>
<td>0.23</td>
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<td>1.23</td>
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<td>0.19</td>
<td>0.00</td>
<td>0.02</td>
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</tr>
<tr>
<td>HD 15</td>
<td>Spearhead, fillet-defined mid-rib, blade</td>
<td>Edge</td>
<td>0.00</td>
<td>0.01</td>
<td>0.11</td>
<td>83.11</td>
<td>0.01</td>
<td>0.18</td>
<td>0.30</td>
<td>9.93</td>
<td>0.08</td>
<td>0.03</td>
<td>6.03</td>
<td>0.02</td>
<td>0.00</td>
<td>0.12</td>
<td>0.01</td>
<td>0.05</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 8</td>
<td>Spearhead, leaf-shaped</td>
<td>Edge</td>
<td>0.01</td>
<td>0.01</td>
<td>0.11</td>
<td>75.04</td>
<td>0.00</td>
<td>0.24</td>
<td>0.45</td>
<td>12.89</td>
<td>0.13</td>
<td>0.00</td>
<td>10.90</td>
<td>0.03</td>
<td>0.00</td>
<td>0.17</td>
<td>0.00</td>
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<td>HD 17</td>
<td>Spearhead, hollow-bladed, large</td>
<td>Edge</td>
<td>0.00</td>
<td>0.02</td>
<td>0.19</td>
<td>76.75</td>
<td>0.03</td>
<td>0.35</td>
<td>0.46</td>
<td>9.61</td>
<td>0.18</td>
<td>0.02</td>
<td>12.15</td>
<td>0.02</td>
<td>0.00</td>
<td>0.20</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 14</td>
<td>Spearhead, plain, hollow-winged</td>
<td>Edge</td>
<td>0.07</td>
<td>0.06</td>
<td>0.15</td>
<td>76.69</td>
<td>0.01</td>
<td>0.32</td>
<td>0.46</td>
<td>9.67</td>
<td>0.23</td>
<td>0.00</td>
<td>11.90</td>
<td>0.03</td>
<td>0.00</td>
<td>0.31</td>
<td>0.00</td>
<td>0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 13</td>
<td>Spearhead, hollow-bladed, fragment</td>
<td>Fracture</td>
<td>0.00</td>
<td>0.01</td>
<td>0.19</td>
<td>81.12</td>
<td>0.01</td>
<td>0.31</td>
<td>0.48</td>
<td>7.25</td>
<td>0.26</td>
<td>0.01</td>
<td>10.08</td>
<td>0.03</td>
<td>0.00</td>
<td>0.24</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 20</td>
<td>Sword blade fragment, lozenges section</td>
<td>Edge</td>
<td>0.01</td>
<td>0.03</td>
<td>0.20</td>
<td>76.04</td>
<td>0.01</td>
<td>0.34</td>
<td>0.51</td>
<td>9.44</td>
<td>0.13</td>
<td>0.00</td>
<td>13.02</td>
<td>0.01</td>
<td>0.00</td>
<td>0.25</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>HD 5</td>
<td>Spearhead, hollow-bladed, large</td>
<td>Edge</td>
<td>0.01</td>
<td>0.04</td>
<td>0.18</td>
<td>74.78</td>
<td>0.02</td>
<td>0.36</td>
<td>0.51</td>
<td>10.12</td>
<td>0.14</td>
<td>0.01</td>
<td>13.63</td>
<td>0.01</td>
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<td>0.05</td>
<td>0.00</td>
<td>0.13</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 3</td>
<td>Spearhead, long, narrow, distorted</td>
<td>Edge</td>
<td>0.00</td>
<td>0.02</td>
<td>0.23</td>
<td>87.24</td>
<td>0.01</td>
<td>0.41</td>
<td>0.57</td>
<td>7.38</td>
<td>0.16</td>
<td>0.02</td>
<td>3.83</td>
<td>0.01</td>
<td>0.01</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>HD 2</td>
<td>Spearhead, leaf-shaped, distorted</td>
<td>Edge</td>
<td>0.02</td>
<td>0.03</td>
<td>0.19</td>
<td>85.68</td>
<td>0.01</td>
<td>0.42</td>
<td>0.59</td>
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<td>0.17</td>
<td>0.03</td>
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<td>0.01</td>
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<tr>
<td>SF 62</td>
<td>Spearhead, leaf-shaped</td>
<td>Edge</td>
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<td>0.04</td>
<td>0.28</td>
<td>89.09</td>
<td>0.00</td>
<td>0.50</td>
<td>0.61</td>
<td>7.90</td>
<td>0.14</td>
<td>0.01</td>
<td>1.34</td>
<td>0.01</td>
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<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>HD 1</td>
<td>Sword fragment, hilt section</td>
<td>Fracture</td>
<td>0.00</td>
<td>0.04</td>
<td>0.27</td>
<td>80.13</td>
<td>0.00</td>
<td>0.44</td>
<td>0.68</td>
<td>7.19</td>
<td>0.23</td>
<td>0.02</td>
<td>10.74</td>
<td>0.01</td>
<td>0.00</td>
<td>0.23</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 10</td>
<td>Spearhead, leaf-shaped</td>
<td>Edge</td>
<td>0.11</td>
<td>0.03</td>
<td>0.22</td>
<td>89.71</td>
<td>0.00</td>
<td>0.48</td>
<td>0.70</td>
<td>7.79</td>
<td>0.17</td>
<td>0.02</td>
<td>0.71</td>
<td>0.02</td>
<td>0.01</td>
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<tr>
<td>HD 14</td>
<td>Spearhead, plain, hollow-winged</td>
<td>Blob</td>
<td>0.08</td>
<td>0.03</td>
<td>0.15</td>
<td>81.54</td>
<td>0.01</td>
<td>0.59</td>
<td>0.73</td>
<td>13.11</td>
<td>0.18</td>
<td>0.02</td>
<td>3.39</td>
<td>0.01</td>
<td>0.00</td>
<td>0.15</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>HD 6</td>
<td>Sword blade fragment, lozenges section</td>
<td>Edge</td>
<td>0.00</td>
<td>0.05</td>
<td>0.30</td>
<td>75.03</td>
<td>0.00</td>
<td>0.57</td>
<td>0.85</td>
<td>8.84</td>
<td>0.21</td>
<td>0.01</td>
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<td>0.04</td>
<td>0.00</td>
<td>0.29</td>
<td>0.00</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>HD 18</td>
<td>Sword tip fragment, lozenges section</td>
<td>Edge</td>
<td>0.00</td>
<td>0.05</td>
<td>0.33</td>
<td>81.81</td>
<td>0.00</td>
<td>0.60</td>
<td>0.86</td>
<td>8.79</td>
<td>0.39</td>
<td>0.02</td>
<td>6.74</td>
<td>0.03</td>
<td>0.00</td>
<td>0.36</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
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<tr>
<td>SF 66</td>
<td>Spearhead, stepped blade</td>
<td>Fracture</td>
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<td>0.04</td>
<td>0.33</td>
<td>85.79</td>
<td>0.00</td>
<td>0.63</td>
<td>0.95</td>
<td>9.29</td>
<td>0.35</td>
<td>0.01</td>
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<td>0.03</td>
<td>0.00</td>
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<td>0.01</td>
</tr>
<tr>
<td>SF 63</td>
<td>Spearhead, hollow-winged</td>
<td>Edge</td>
<td>0.04</td>
<td>0.03</td>
<td>0.32</td>
<td>76.37</td>
<td>0.02</td>
<td>0.87</td>
<td>1.94</td>
<td>18.86</td>
<td>0.38</td>
<td>0.01</td>
<td>5.81</td>
<td>0.00</td>
<td>0.00</td>
<td>0.19</td>
<td>0.01</td>
<td>0.16</td>
<td>0.00</td>
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</table>

199
late in Wilburton and, with Blackmoor, transitional to Ewart Park. The comparison, set out in Table 4.18, also includes the weapon assemblage from Waterden, with its early Ewart park style swords and Wilburton radiocarbon dates, and two contemporary hoards from across the English Channel.

The decrease in the proportion of ‘S’ metal has a number of causes which worked together: changes in the concentrations of the diagnostic impurities in bronze imported with an Ni/As/Sb/Ag impurity pattern, loss of impurities on re-melting and mixing with other bronze with much lower impurity concentrations during recycling. One source of the latter class of metal is to be found in the plate scrap which is a feature of some Wilburton hoards such as Guilsfield, Isleham and Syon Reach. The bronze in the plate scrap may have originated in western, Atlantic Europe, especially in north-western and western France. This region

<table>
<thead>
<tr>
<th>Hoard</th>
<th>% ‘S’ metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andover, Hampshire</td>
<td>100</td>
</tr>
<tr>
<td>Ivinghoe Beacon, Buckinghamshire</td>
<td>100</td>
</tr>
<tr>
<td>Nettleham, Lincolnshire</td>
<td>90</td>
</tr>
<tr>
<td>Guilsfield, Powys</td>
<td>75</td>
</tr>
<tr>
<td>Wilburton, Cambridgeshire</td>
<td>68</td>
</tr>
<tr>
<td>Waterden, Norfolk</td>
<td>68</td>
</tr>
<tr>
<td>Isleham, Cambridgeshire</td>
<td>56</td>
</tr>
<tr>
<td>Bradley Fen, Cambridgeshire</td>
<td>55</td>
</tr>
<tr>
<td>Blackmoor, Hampshire</td>
<td>23</td>
</tr>
<tr>
<td>Close de la Blanche Pierre, Jersey</td>
<td>86</td>
</tr>
<tr>
<td>St Brieuc-des-Iffs, Ille-et-Vilaine</td>
<td>68</td>
</tr>
</tbody>
</table>

Given the small numbers of objects and the variability of spearhead compositions it is very difficult to regard this as significant.

**Impurity patterns**

The majority of the objects analysed have an impurity pattern defined by the presence of nickel, arsenic, antimony and silver. If pairs of these elements are plotted against each other (Fig. 4.41a–c), these elements are often strongly correlated with, overall, Sb>As and Ni>Ag. The correlation comes initially from the nature of the fahlerz ore, from which these impurities derive, and the way in which it was smelted. The range of concentrations of these impurities could then be extended to lower concentrations by mixing with metal with low impurity totals (Northover 1982; 1983).

For antimony contents of 0.5% and above, with Sb>As, the impurity pattern was labelled ‘S’ in a system of labels for impurity patterns devised for the Bronze Age in Wales (Northover 1980) but now used more widely for the British and Irish Bronze Age as a whole. An extensive programme of analysis of Wilburton period metalwork (Northover 1982) then showed that ‘S’ metal was by far the dominant group of compositions in that period. Further work showed that in the succeeding Ewart Park period the same impurities tended to persist, especially in eastern England, but usually at lower concentrations (impurity patterns TA, TB (Cowie et al. 1998)). It was suggested that one measure of change with time would be the proportion of compositions in an assemblage that fall into the ‘S’ group, starting with the Andover hoard, which has been regarded as relatively early in the century or so of the Wilburton period, and ending with the Isleham hoard, which contains items regarded as

![Figure 4.40. Bradley Fen bronze content – tin (Sn) and lead (Pb).](image)
Figure 4.41. Bradley Fen bronze content – impurity patterns. a. antimony (Sb) against arsenic (As); b. nickel (Ni) against silver (Ag); c. nickel (Ni) against antimony (Sb).
came increasingly important as a source of bronze and copper from the latter part of the Wilburton period through into Ewart Park and was especially associated with metal of the Carp’s Tongue complex. The import of this metal initially had a greater impact in southern than in eastern England, hence the low proportion of ‘S’ metal in Blackmoor. Table 4.18 would suggest that the Bradley Fen metalwork might be quite close in date to both Isleham and Waterden, but it must be remembered that, while almost all of Waterden was analysed, only 2.5% of the fragments in the Isleham hoard have been analysed.

The non-‘S’ metal compositions at Bradley Fen fall into two groups. There are first those objects which maintain the proportions of arsenic, antimony, nickel and silver, but fall below 0.5% antimony. Excluding HD 17, with 0.46% antimony, which joins to HD 5, with 0.51% antimony, there are six objects which fit this pattern (impurity pattern ‘TA’, i.e. 0.50% > Sb > As). All are spearheads and include all the types at Bradley Fen: plain, hollow-bladed and fillet-defined mid-rib.

There then remain three objects within the assemblage which fall outside this pattern and have low impurity totals, the sort of metal that would dilute ‘S’ metal. These are the sword HD 4 and spearhead SF 55, already mentioned, and the heat-distorted ferrule HD 14. The very low level of impurities in sword HD 4 can be roughly paralleled at Blackmoor, although there the impurity traces are slightly higher and the lead contents are higher, but can still be well below 1%. The very low concentration of lead and other impurities can also offer a link to the beginnings of the Carp’s Tongue sword. The recent publication of the swords of the Iberian Peninsula (Brandherm 2007) together with a metallurgical discussion (Rovira Llorens 2007) shows how. Some swords in the assemblage from Huelva, which Brandherm places in his Series 1 of Type Huelva, have lead below the detection limit of the analysis used, with iron as the only significant impurity. Brandherm sees these particular swords as contemporary with Wilburton; it is also very clear from the illustrations that some of the swords have been burned before being deposited in the Ría de Huelva. Spearhead SF 55 has an As/Ni impurity pattern. This was the dominant type in the Middle Bronze Age but is very uncommon in Wilburton contexts; among the few examples are a spearhead from Weymouth and two in the Waterden assemblage. It becomes rather more common in the Ewart Park period and may be associated both with imported Carp’s Tongue material and, possibly, with copper produced in Britain. Heat-distorted ferrule HD 14 has 0.07% arsenic and 0.07% antimony and can be paralleled in both Late Wilburton and Ewart Park bronzes.

The impurity patterns may also be used to determine whether fragments might be part of the same object. This is not a problem with the two spearhead fragments, HD 5 and HD 17, as is confirmed by Table 4.19, but with non-joining sword fragments the compositions do suggest a possible join. The compositions of HD 6 and HD 18 are sufficiently close to make it very likely they came from the same blade. It is not impossible that the hilt fragment HD 1 belongs to the same weapon: since antimony and nickel tend to segregate with the tin, the lower concentrations in the sample correlate with the lower tin content. We can also say

---

| No.  | Object                        | Fe  | Co  | Ni  | Cu  | Zn  | As  | Sb  | Sn  | Ag  | Bi  | Pb  | Au  | Cd  | S   | Al  | Si  | Mn  |
|------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| HD 5 | Spearhead, hollow-bladed      | 0.01| 0.04| 0.18| 74.78| 0.02| 0.36| 0.51| 10.12| 0.14| 0.01| 13.63| 0.01| 0.00| 0.05| 0.00| 0.13| 0.00|
| HD 17| Spearhead, hollow-bladed      | 0.00| 0.02| 0.19| 76.75| 0.03| 0.35| 0.46| 9.61 | 0.18| 0.02| 12.15| 0.02| 0.00| 0.20| 0.00| 0.01| 0.00|
| HD 4 | Sword fragment, hilt          | 0.01| 0.00| 0.00| 91.73| 0.00| 0.01| 0.00| 7.76 | 0.02| 0.00| 0.01| 0.03| 0.00| 0.40| 0.00| 0.01| 0.01|
| HD 20| Sword blade fragment, lozenge | 0.01| 0.03| 0.20| 76.04| 0.01| 0.34| 0.51| 9.44 | 0.13| 0.00| 13.02| 0.01| 0.00| 0.25| 0.00| 0.01| 0.01|
| HD 1 | Sword fragment, hilt          | 0.00| 0.04| 0.27| 80.13| 0.00| 0.44| 0.68| 7.19 | 0.23| 0.02| 10.74| 0.01| 0.00| 0.23| 0.00| 0.01| 0.00|
| HD 6 | Sword blade fragment, lozenge | 0.00| 0.05| 0.30| 75.03| 0.00| 0.57| 0.85| 8.84 | 0.21| 0.01| 13.78| 0.04| 0.00| 0.29| 0.00| 0.02| 0.00|
| HD 18| Sword tip fragment, lozenge   | 0.00| 0.05| 0.33| 81.81| 0.00| 0.60| 0.86| 8.79 | 0.39| 0.02| 6.74 | 0.03| 0.00| 0.36| 0.00| 0.01| 0.00|
that the remaining two sword fragments, HD 4 and HD 20, have no matches and are the only representatives of the weapons from which they come. Finally, the blob of metal attached to spearhead HD 14 does not match any of the analysed objects.

**Metallography**

The obvious exposure of some of the metalwork to high temperature and the very deliberate damaging of the edges of both swords and spearheads suggested that a metallographic study of the weapons analysed would increase our understanding of how they had been treated prior to deposition. The results are summarized and tabulated in Table 4.20 in a similar manner to that used for a number of other sites (e.g., Northover 1998). The quality of the data is restricted by the state of corrosion of many of the samples, with much of the lead attacked and altered and, in some cases, replaced by cuprître or redeposited copper. Also, the samples were usually oriented so that a cross-section at an angle to the edge of the blade was presented and, as a result, the full elongation of sulphide inclusions could not easily be gauged. (The elongation being a measure of the total working the cutting edge had received.)

Only one of the samples examined, from the socket of spearhead SF 69, had an as-cast structure, or rather an as-cast structure showing some modification by heat which presumably occurred during the working and annealing of the blade edges. A majority of the remainder had structures which were fully recrystallized; the five which were only partially recrystallized all came from the blade edges of spearheads and one sword fragment. The structures show that only the surface layers of the blades have been worked and it is only at the cutting-edge that the through thickness has been worked. The maximum grain size is approximately 40mm, meaning that these areas have not been exposed to more heat than that encountered in the annealing of the edges. Most of the five samples have some signs of mechanical deformation, either as slip traces or as deformation twins, and it is likely some of this deformation may have been incurred during the breaking-up of a weapon, for example with the sword HD 4 and the spearheads HD 8 and HD 15.

The swords and spearheads where the samples were fully recrystallized divide into three groups; those with grain sizes either side of 10mm, those with grain sizes in the range 30–60mm and those with grain sizes in the region of 100mm. Taking the last group first, this grain size is not the result of the normal working and annealing practices of the period but is the result of exposure to fire. Unfortunately, the state of corrosion meant that it was not possible to determine whether the metal had also become internally oxidized at the surface. There are four objects in this group, the spearheads HD 2 and HD 3, both visibly distorted, the sword fragment HD 4 and the tubular object, possibly part of a ferrule, HD 9. The tubular object and the sword fragment both display some deformation twins, possibly from the breaking-up of the objects after burning. Interestingly, the spearhead blade HD 14, which has fused metal adhering to its crushed socket, was not exposed to severe heat because the grain size is only 30–40mm and there is 15% final cold work.

The samples not modified by heat prior to deposition have a rather uniform character. Recrystallized grain sizes are typically around 30–40mm and, more often than not, have been annealed at a high enough temperature to homogenize the sample area. Final cold work is in the order of 10–15%, this might seem a very limited amount of working for the edge of a weapon, but the results from the extensive survey of the Waterden assemblage suggest that it was typical, with hardnesses in the range 160–180VPN. Putting the edge in this condition gives it sufficient hardness to cut into flesh while retaining the toughness to resist cracking and fracture and leaving sufficient ductility for moderate combat damage to be readily hammered out and the edge refurbished.

**Conclusions**

As discussed above, two radiocarbon dates are associated with the metalwork in the hoard: 1310–1040 cal bc for peat inside a spear and 1280–1010 cal bc for peat underlying the hoard. These fit well with the dates of 1260–1050 and 1160–1000 cal bc for the Wilburton, Cambridgeshire assemblage and 1050–920, 1110–910 and 990–850 cal bc for the later Blackmoor, Hampshire hoard (Needham 1996; Needham et al. 1997). To these must be added dates of 1380–1040 and 1260–800 cal bc for two spear shafts in the Waterden assemblage. These dates to a large extent validate the ordering of Wilburton and related metalwork in Table 4.18, based on the proportion of ‘S’ metal in a hoard, which placed the Bradley Fen assemblage towards the end of the Wilburton period. The types of swords and spearheads also fit comfortably into this period, especially sword HD 4 with its prototypical Carp’s Tongue features and spearhead SF 63, a predecessor of the barbed spearheads.

The metallurgical analysis has also helped illuminate the practices associated with the deposition of the bronzes. It is at once evident from them that they have been considerably damaged in a deliberate fashion and some show evidence of exposure to fire, through distortion, partial melting and contact with...
Table 4.20. Metallography. Abbreviations: R = Recrystallized, CW = Cold worked, HA = Heat affected, AC = As cast, : m = micrometre, eut = “* eutectoid, def twins = deformation twins, id = interdendritic, ig = intergranular, tg = transgranular, rdc = redeposited copper.

<table>
<thead>
<tr>
<th>No.</th>
<th>Object</th>
<th>Sample site</th>
<th>Sb</th>
<th>Sn</th>
<th>Pb</th>
<th>Structure</th>
<th>Grain size</th>
<th>Coring</th>
<th>Second phases</th>
<th>Slip traces</th>
<th>Final cold work</th>
<th>Corrosion</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD 1</td>
<td>Sword fragment, hilt section</td>
<td>Fracture</td>
<td>0.68</td>
<td>7.19</td>
<td>10.74</td>
<td>RCW</td>
<td>5–10:m</td>
<td>Slight</td>
<td>Pb, eut, Cu2S</td>
<td>Yes</td>
<td>Slight ?</td>
<td>massive, pitting, ig/tg</td>
</tr>
<tr>
<td>HD 2</td>
<td>Spearhead, leaf-shaped, distorted</td>
<td>Edge</td>
<td>0.59</td>
<td>9.33</td>
<td>3.01</td>
<td>HA/R</td>
<td>100:</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>No</td>
<td>0% ?</td>
<td>massive, ig</td>
</tr>
<tr>
<td>HD 3</td>
<td>Spearhead, long, narrow, distorted</td>
<td>Edge</td>
<td>0.57</td>
<td>7.38</td>
<td>3.83</td>
<td>HA/R</td>
<td>100–150:m</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>No</td>
<td>0% ?</td>
<td></td>
</tr>
<tr>
<td>HD 4</td>
<td>Sword fragment, hilt section</td>
<td>Edge</td>
<td>0.00</td>
<td>7.76</td>
<td>0.01</td>
<td>HA/part R</td>
<td>100–200:m</td>
<td>No</td>
<td>Cu2S</td>
<td>Some def. twins</td>
<td>? ? deep pitting, rdc</td>
<td></td>
</tr>
<tr>
<td>HD 5</td>
<td>Spearhead, hollow-bladed, large</td>
<td>Edge</td>
<td>0.51</td>
<td>10.12</td>
<td>13.63</td>
<td>R/part CW</td>
<td>30–40:m</td>
<td>No</td>
<td>Pb, eut, Cu2S</td>
<td>At surface ?</td>
<td>?</td>
<td>pitted, id, ig, tg</td>
</tr>
<tr>
<td>HD 6</td>
<td>Sword blade fragment, lozence section</td>
<td>Edge</td>
<td>0.85</td>
<td>8.84</td>
<td>13.78</td>
<td>RCW</td>
<td>10–15:m</td>
<td>Slight</td>
<td>Pb, Cu2S</td>
<td>Yes</td>
<td>15% 40–50%</td>
<td>pitted, id, ig, tg</td>
</tr>
<tr>
<td>HD 8</td>
<td>Spearhead, leaf-shaped</td>
<td>Edge</td>
<td>0.45</td>
<td>12.89</td>
<td>10.90</td>
<td>HA/part R</td>
<td>30:m</td>
<td>Yes</td>
<td>Pb, Cu2S</td>
<td>Yes</td>
<td>15% 40–50%</td>
<td>massive, id, ig</td>
</tr>
<tr>
<td>HD 9</td>
<td>Tubular fragment, heated</td>
<td>End</td>
<td>0.07</td>
<td>11.66</td>
<td>3.03</td>
<td>HA</td>
<td>50–100:m</td>
<td>No</td>
<td>Pb, eut, Cu2S</td>
<td>Some def. twins</td>
<td>? ? pitted, ig, tg</td>
<td></td>
</tr>
<tr>
<td>HD 10</td>
<td>Spearhead, leaf-shaped</td>
<td>Edge</td>
<td>0.70</td>
<td>7.79</td>
<td>0.71</td>
<td>HA/part R</td>
<td>40–60:m</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>Yes</td>
<td>10% ?</td>
<td>massive, ig</td>
</tr>
<tr>
<td>HD 13</td>
<td>Spearhead, hollow-bladed, fragment</td>
<td>Fracture</td>
<td>0.48</td>
<td>7.25</td>
<td>10.08</td>
<td>HA/R</td>
<td>40–60:m</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>No</td>
<td>0% ?</td>
<td>pitted, id, ig, tg</td>
</tr>
<tr>
<td>HD 14</td>
<td>Spearhead, plain, hollow-winged</td>
<td>Edge</td>
<td>0.46</td>
<td>9.67</td>
<td>11.90</td>
<td>RCW</td>
<td>30–40:m</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>Yes</td>
<td>15% ?</td>
<td>pitted, ig, tg</td>
</tr>
<tr>
<td>HD 14</td>
<td>Spearhead, plain, hollow-winged</td>
<td>Blob</td>
<td>0.73</td>
<td>13.11</td>
<td>3.39</td>
<td>Drillings</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>HD 15</td>
<td>Spearhead, fillet-defined mid-rib, blade</td>
<td>Edge</td>
<td>0.30</td>
<td>9.93</td>
<td>6.03</td>
<td>Part R/CW</td>
<td>?</td>
<td>Yes</td>
<td>Pb, eut, Cu2S</td>
<td>Yes + def. twins</td>
<td>10–15% 40–50%</td>
<td>pitted, id, ig, rdc</td>
</tr>
<tr>
<td>HD 16</td>
<td>Spearhead, hollow-bladed</td>
<td>Edge</td>
<td>0.23</td>
<td>8.33</td>
<td>9.16</td>
<td>HA/R</td>
<td>40–60:m</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>Some, def. twins</td>
<td>5% ?</td>
<td>massive, pitted, ig, tg</td>
</tr>
<tr>
<td>HD 17</td>
<td>Spearhead, hollow-bladed, large</td>
<td>Edge</td>
<td>0.46</td>
<td>9.61</td>
<td>12.15</td>
<td>RCW</td>
<td>5–10:m</td>
<td>Slight</td>
<td>Pb, eut, Cu2S</td>
<td>Yes</td>
<td>Slight ?</td>
<td>massive, ig</td>
</tr>
<tr>
<td>HD 18</td>
<td>Sword tip fragment, lozence section</td>
<td>Edge</td>
<td>0.86</td>
<td>8.79</td>
<td>6.74</td>
<td>Part R/CW</td>
<td>7.5–10:m</td>
<td>Yes</td>
<td>Pb, eut, Cu2S</td>
<td>Yes</td>
<td>5–10% ?</td>
<td>pitted, id, ig, rdc</td>
</tr>
<tr>
<td>HD 20</td>
<td>Sword blade fragment, lozence section</td>
<td>Edge</td>
<td>0.51</td>
<td>9.44</td>
<td>13.02</td>
<td>RCW</td>
<td>30–40:m</td>
<td>No</td>
<td>Pb, eut, Cu25, porosity</td>
<td>Yes</td>
<td>10% ?</td>
<td>massive/id, ig</td>
</tr>
<tr>
<td>SF 66</td>
<td>Spearhead, stepped blade</td>
<td>Fracture</td>
<td>0.61</td>
<td>7.90</td>
<td>1.34</td>
<td>RCW</td>
<td>10:m</td>
<td>Yes</td>
<td>Pb, eut, Cu25</td>
<td>Yes</td>
<td>10–15% ?</td>
<td>id/massive</td>
</tr>
<tr>
<td>SF 63</td>
<td>Spearhead, hollow-winged</td>
<td>Edge</td>
<td>0.95</td>
<td>9.29</td>
<td>2.50</td>
<td>RCW</td>
<td>20–25:m</td>
<td>Yes</td>
<td>Pb, Cu2S</td>
<td>Yes</td>
<td>15–20% 40–50%</td>
<td>pitting</td>
</tr>
<tr>
<td>SF 69</td>
<td>Spearhead, leaf-shaped, small</td>
<td>Socket</td>
<td>0.23</td>
<td>10.84</td>
<td>1.23</td>
<td>HA or AC</td>
<td>?</td>
<td>Some</td>
<td>Pb, eut, Cu25</td>
<td>No</td>
<td>10% ?</td>
<td>id/massive</td>
</tr>
<tr>
<td>SF 55</td>
<td>Spearhead, leaf-shaped, small</td>
<td>Socket</td>
<td>0.03</td>
<td>10.02</td>
<td>0.05</td>
<td>HA/R</td>
<td>40–60:m</td>
<td>No</td>
<td>Pb, Cu2S</td>
<td>Some, def. twins</td>
<td>5% ?</td>
<td>pitted, ig, tg</td>
</tr>
</tbody>
</table>
fieldsystem, settlement and metalwork

heat, either externally as distortion or partial melting or internally through secondary grain growth and internal oxidation. It is also often the case that the fragmented weapons are incomplete with only some sections deposited, the remainder presumably being taken for scrap, practicality combining with ceremony.

At Bradley Fen, we see many instances of deliberate damage but only four objects that have certainly been in the fire. The damage is summarized in Table 4.21 and this leads us to look at the differences between the hoard deposit and the single finds. All the major damage is confined to objects in the hoard which also includes the higher status weapons, the swords and the more elaborate spearheads such as those with hollow or long blades or fillet-defined mid-ribs. Within this group, swords and spearheads, as well as a possible ferrule have been burned. The objects deposited singly are the simpler spearheads, which are usually undamaged.

fused metal. The burning of bronze has been identified both visually and by metallography and this result adds Bradley Fen to a growing number of sites where weapons have been burned. All the instances which have so far been characterized fall into a narrow time period straddling the end of the Wilburton period and are located in Scotland (Duddingston Loch, Midlothian (Coles 1960) and Peelhill, Strathaven, Lanarkshire (Coles & Scott 1962–63)), in East Anglia (Wilburton, Cambridgeshire and Waterden, Norfolk (Northover & Bridgford 2002)), and in a collection of metalwork from the Seine at Paris in the Ashmolean Museum, Oxford (Northover 1982). The distinguishing features are that the weapons are either complete or in such large fragments that they would not fit in a contemporary crucible, they show frequent edge damage which may be the result of combat or, more often in the case of spearheads, deliberately inflicted and they frequently demonstrate signs of exposure to

Table 4.21. Metalwork damage assessment.

<table>
<thead>
<tr>
<th>No.</th>
<th>Object Description</th>
<th>Section</th>
<th>Description</th>
<th>Burned</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD 1</td>
<td>Sword</td>
<td>Hilt/upper blade</td>
<td>Deliberately broken, slight edge damage</td>
<td>-</td>
</tr>
<tr>
<td>HD 2</td>
<td>Spearhead, leaf-shaped</td>
<td>Tip missing</td>
<td>Tip deliberately broken, edge chopped</td>
<td>Burned</td>
</tr>
<tr>
<td>HD 3</td>
<td>Spearhead, fillet-defined</td>
<td>Tip missing</td>
<td>Tip deliberately broken, edge chopped, distorted</td>
<td>Burned</td>
</tr>
<tr>
<td>HD 4</td>
<td>Sword</td>
<td>Hilt/upper blade</td>
<td>Deliberately broken, edge chopped</td>
<td>Burned</td>
</tr>
<tr>
<td>HD 5</td>
<td>Spearhead, hollow blade</td>
<td>Tip missing, broken</td>
<td>Deliberately broken, edge chopped</td>
<td>-</td>
</tr>
<tr>
<td>HD 6</td>
<td>Sword</td>
<td>Blade fragment</td>
<td>Deliberately broken, some edge damage</td>
<td>-</td>
</tr>
<tr>
<td>HD 7</td>
<td>Tubular ferrule</td>
<td>Lower section</td>
<td>Deliberately broken?</td>
<td>-</td>
</tr>
<tr>
<td>HD 8</td>
<td>Spearhead, leaf-shaped</td>
<td>Tip missing</td>
<td>Deliberately broken?</td>
<td>-</td>
</tr>
<tr>
<td>HD 9</td>
<td>Tubular fragment</td>
<td>Ferrule section?</td>
<td>Deliberately broken?</td>
<td>Burned</td>
</tr>
<tr>
<td>HD 10</td>
<td>Spearhead, leaf-shaped</td>
<td>Intact</td>
<td>Bent, some edge damage at tip</td>
<td>-</td>
</tr>
<tr>
<td>HD 11</td>
<td>Long tongue chape</td>
<td>Fragments</td>
<td>Deliberately broken, parts missing</td>
<td>-</td>
</tr>
<tr>
<td>HD 12</td>
<td>Spearhead, hollow blade</td>
<td>Fragments</td>
<td>Deliberately broken, flattened</td>
<td>-</td>
</tr>
<tr>
<td>HD 13</td>
<td>Spearhead, leaf-shaped</td>
<td>Tip missing, fused metal adheres</td>
<td>Deliberately broken, edge chopped, socket crushed</td>
<td>-</td>
</tr>
<tr>
<td>HD 14</td>
<td>Spearhead, fillet-defined mid-rib</td>
<td>Tip/blade section</td>
<td>Deliberately broken, edge chopped, flattened</td>
<td>-</td>
</tr>
<tr>
<td>HD 15</td>
<td>Spearhead, hollow blade</td>
<td>Intact</td>
<td>edges chopped</td>
<td>-</td>
</tr>
<tr>
<td>HD 16</td>
<td>Spearhead, hollow blade</td>
<td>Tip fragment</td>
<td>Deliberately broken, bent</td>
<td>-</td>
</tr>
<tr>
<td>HD 17</td>
<td>Spearhead, stepped blade</td>
<td>Tip missing</td>
<td>Deliberately broken?, some edge damage</td>
<td>-</td>
</tr>
<tr>
<td>HD 18</td>
<td>Spearhead, leaf-shaped</td>
<td>Blade fragment</td>
<td>Deliberately broken, edges chopped</td>
<td>-</td>
</tr>
<tr>
<td>SF 66</td>
<td>Spearhead, stepped blade</td>
<td>Tip missing</td>
<td>Deliberately broken?, some edge damage</td>
<td>-</td>
</tr>
<tr>
<td>SF 64</td>
<td>Spearhead, leaf-shaped</td>
<td>Socket broken</td>
<td>Uncertain</td>
<td>-</td>
</tr>
<tr>
<td>SF 62</td>
<td>Spearhead, leaf-shaped</td>
<td>Intact</td>
<td>No significant damage</td>
<td>-</td>
</tr>
<tr>
<td>SF 63</td>
<td>Spearhead, leaf-shaped</td>
<td>Intact</td>
<td>No significant damage</td>
<td>-</td>
</tr>
<tr>
<td>SF 69</td>
<td>Spearhead, leaf-shaped</td>
<td>Intact</td>
<td>Slight edge damage</td>
<td>-</td>
</tr>
<tr>
<td>SF 55</td>
<td>Spearhead, leaf-shaped</td>
<td>Intact</td>
<td>No significant damage</td>
<td>-</td>
</tr>
</tbody>
</table>

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Discussion – fieldsystem, settlement and metalwork

The chronology of this discussion can be broken down into two separate 200-year periods: 1500–1300 and 1300–1100 cal BC. The first period covers the instigation of the fieldsystem and the second, the deposition of metalwork. The nature of contemporary settlement evidence across both periods is also reviewed, especially in relation to the absence of recognizable structures. The comparatively rapid changes in environmental conditions that occurred during these times are paramount to the discussion and, given the scale of inundation, it would be apposite to describe the successive 200-year periods as wet and wetter.

The time/space-transgressive dynamic of peat development brought about a loss of land that overlapped firstly with the building of lasting land divisions and secondly with the deposition of metalwork. However tempting it is to see these things as straightforward responses to the advancing wetness, it has to be remembered that, as features, Middle Bronze Age fieldsystems and later Bronze Age metalwork were by no means unique to this environment and occurred throughout southern England. If anything, it would appear these activities occurred irrespective of the increasing saturation, especially in relation to the construction of the fieldsystem, which at its deepest end appeared to represent an outwardly terrestrial response to what was swiftly becoming an increasingly aquatic situation – as fast as the boundaries were built they were subsumed. Conversely, the subsequent deposition of bronze weapons seems to have been a much more fitting response to the ensuing conditions and one that conformed to the established Bronze Age practice of leaving such objects in perpetually wet places. In this sense, the contrast between fieldsystems and metalwork was striking, so much so that a fracture beyond mere chronology is implied. In practice, the metalwork heralded a decisive switch in perspective, a conscious counteraction, which corresponded precisely with the deposition of metalwork to the fieldsystem and its settlement and, at the same time, the rapidly changing landscape conditions. In both parts, it is essential that we address the apparent emptiness of the fields. All of these concerns have significant implications for the rest of the Flag Fen Basin and especially the opposing Fensgate shoreline. As before, the ever changing landscape conditions can be employed to articulate fieldsystems, settlement and metalwork.

Building boundaries

The coaxial, non-aggregative layout of the fieldsystem strongly indicates that it was built or, at the very least, coordinated ‘as one’ and that its prevailing arrangement was married to a previously established landscape pattern or operational grain. In practice, the linear ditches and banks served to outline or enunciate something already present rather than mark out something entirely new. This was made especially evident by the interrelationship of the fieldsystem with the existing configurations of barrows and burnt mounds. The geometry of the fieldsystem was such that it was able to incorporate or accommodate the alignments of both sets of features whilst, at the same time, systematically segregate the intervening block of ground into a series of regular parallel strips (Fig. 4.42). In its organization the fieldsystem reconciled what had seemed at first sight to be spatially dislocated and functionally divergent constructions; its configuration assimilated contrasting topographies and in doing so conjoined the elevated (monuments) and the marginal (burnt mounds).

The marrying of boundaries to features already in the landscape was such that the spacing or intervals between ditches dovetailed with the spacing of the earlier builds. In effect, its lines articulated connections between spaces that were not otherwise obvious and at the same time made clear the position of individual plots of land. In its making, the operational grain of the landscape was, quite literally, being entrenched. Through entrenchment its form or fabric was brought to light (both to us the archaeologists, but also in a way to them, the Middle Bronze Age inhabitants). Everything about the implementation of the ditched fieldsystem suggests its making was a concerted act of grand maintenance. Like any act of maintenance this was an intrinsically backward-looking undertaking and not an act of radical innovation.

The original intention behind the newly constructed boundary-works might have been retrospective in its outlook but the imposition of endless horizontal and vertical barriers was to have an impact far beyond its primary intent. If previously tenure was something to be negotiated via pathways, burial grounds, access to water, individual cultivation plots and tracts of pasture, it was now something to be negotiated via a series of linear obstructions. At this time, solid architecture was being employed to delineate the prevailing tenurial claims and, whereas in the past the
Figure 4.42. Interrelationship of the fieldsystem with the existing configurations of barrows and burnt mounds.
limits of tenure could be somewhat equivocal, they were now incontrovertible.

It can be argued that the incontrovertibility of these newly constructed boundary-works rested first and foremost in the act or practice of ‘inscription’ rather than necessarily in the ability of these features to impede movement. The primary intention of a fieldsystem was to delineate rather than obstruct and, as such, the boundaries stood as palpable lines of guidance. Any role they had as physical barriers was in many ways supplementary. It was only much later on, once the immediate tenurial jurisdiction of these lines of guidance started to diminish that their role as physical barriers really came to the fore; as upstanding earthworks the boundaries endured as linear obstacles long after they ceased to enforce their original claims of tenure.

In addressing the Bronze Age coaxial fieldsystems of Dartmoor, Johnston suggested ‘that land division was only possible because the forms of tenure and perceptions of landscape were already in place’ (Johnston 2005, 1). Most importantly for him, the implementation of coaxial boundaries represented a deliberate formalization of land tenure that had previously been ‘open to negotiation’ (ibid., 16). As with the earthwork divisions at Bradley Fen, the building of reaves on Dartmoor were never part of a grand plan of landscape reorganization but part of a reflexive course of action; an architecture which projected backwards as much as forwards. The construction of tangible boundaries gave tenure a definitive structure or shape.

There is nothing new in recognizing relationships between the implementation of fieldsystems and pre-existing landscape features such as round barrows, ring-ditches or burnt mounds (Bradley et al. 1994, 141; Yates 1999; Evans & Knight 2001, 85; Bradley 2002, 81; Cooper & Edmonds 2007, 133). Generally, however, these particular relationships have been understood as straightforward expressions of past communities attempting to legitimate claims to specific stretches of land through lineage (either real or imagined). By consciously interconnecting the new architecture of land division with the old architecture of past inhabitants a bona fide entitlement to ownership is invoked. Yet this type of land claim validation still implies a fractured relationship or disjuncture between one form of landscape occupancy and another. Under these circumstances, the living (the builders of the fieldsystem) are able to utilize the dead (the builders of the monuments) wherever and whenever they choose and irrespective of the relationship between the two communities. As a consequence, the gap between the past (monuments) and the present (fieldsystems) allows authors to write about ‘a new sense of order on the land’ (Yates 2007, 134) in spite of some compelling evidence to the contrary.

In these understandings, monuments represented an antique way of asserting territorial claims, whereas fieldsystems represented something entirely fresh. In the same vein, novelty is equated with innovation and as a consequence the desired rift between the past (monuments) and present (fieldsystems) is magnified. Underlying everything is the conviction that fieldsystems represented a profound agricultural breakthrough which was about to radically increase levels of production and, in turn, generate unparalleled levels of wealth (ibid., 120). The new boundary features are afforded almost machine-like qualities. In these accounts, all the emphasis is placed on the management or organization of land in terms of agricultural production, rather than issues of tenure or the conditions under which land was held or occupied.

Then again, and in agreement with Johnson’s perspective on prehistoric land division, there is little evidence to suggest that the world changed fundamentally for people who lived before and during the development of these earthen barriers, beyond the fact that movement became (perhaps inadvertently) a little more obstructed or regulated. Plainly, the visibly deep-seated interrelationship between this new form of land division and standing monuments suggests an act of traced-entrenchment (i.e. the lines already prevailed). In our opinion, the link made between the boundaries and barrows was reflective not nostalgic – we know this because this architectural relationship foreshadowed renewed activity at and around the monuments in the form of Deverel-Rimbury cremation cemeteries (Evans & Knight 2000, 99–100; Robinson 2007; Evans et al. 2013, 126–28).

We would suggest that the focus of Pryor’s, and subsequently Evans’s, interpretation of the Fengate fieldsystem was, fundamentally, the management or organization of land and that the subject of tenure was similarly sidestepped (Pryor 1996; Evans 2009c, 243–52). Pryor’s main concern was always the mechanics or practicalities of land division and to some extent Evans revisited similar themes (Fig. 4.43). If sheep, communal stockyards, inter-communal droveways and drafting-races commanded Pryor’s more recent understandings, Evans’s presented a sort of inverted perspective as it swapped sheep for cattle, returned the stockyards to settlement and interpreted the majority of Fengate’s various droveways and drafting-races as compelling evidence for the presence of embanked hedges. Regardless of their differences, between the two models we are presented with a boundary system that facilitated the improved management of livestock at a time when land was being lost beneath the fen (see
Figure 4.43. ‘Livestock dynamics’. (1) Pryor 1980, cover; (2) Pryor 1996, fig. 3; (3) Yates 2007, 26, pl. 4.
Both of these interpretations may well be right but there was more to land division than livestock management or hedge building. The precise chronology of the implementation of the ditched boundaries remains, it seems, open to debate, with Pryor still favouring a slightly earlier origin than Evans, but with both erring towards the beginning of the Bronze Age. In light of Evans and Pollard’s recalibration of the Storey’s Bar Road system and its post-Neolithic attribution (Evans & Pollard 2001, 25–26), it is perhaps telling that both Pryor and Evans make special reference to the siting of principal boundaries in relation to Beaker-associated features. The uncertainty relating to the inception of the system is further complicated by large elements of the system being thought to be laid-out at different times. Crucially, both agree that the system expired sometime towards the very end of the Bronze Age. Depending on whom you choose to believe, formal land division at Fengate represented a relatively short-term ‘five to ten century-long experiment’ (Evans 2009c, 256; his emphasis) or alternatively, a significant project that extended well beyond one thousand years (Bayliss & Pryor 2001, 397).

Issues of tenure were almost touched upon by Evans in his vexed pursuit of a suitable cultural genesis for the Fengate fieldsystem. Seemingly unable to countenance a mid second millennium BC inception date, on the basis of an absence of suitable quantities of contemporary pottery and/or burials, he chose instead to locate the origins of the fieldsystem, via its proximity to the recently discovered Late Neolithic/Early Bronze Age barrow cemeteries situated deep within the Flag Fen Basin (Evans 2009c, 260). Right at the beginning of the Fengate investigations, Pryor expressed similar vexations over the origins of the ditched enclosures, especially in relation to the very obvious absence of contemporary occupation. Only for him it was an absence of sufficient later Neolithic settlement that required explanation (Pryor 1980, 178–80). It would seem that, whichever period is examined, there will always be a shortfall between the scale of undertaking involved in the making of the fieldsystem and the intensity of contemporary occupation. Evans makes this explicit in his quantifications of later prehistoric flint and pottery from Fengate (Evans 2009c, 240–41). If quantity of associated material is the principal criteria of attribution, it is very easy to understand how such irresolution might ensue and also why, ultimately, Pryor originally favoured a Grooved Ware genesis and Evans favoured Beaker.

What is made clear at Bradley Fen, however, is that large-scale formal land division was not borne out of a sudden intensification of occupation or even a change in material culture but its inception stemmed from something already in place. Its scale was equivalent to the scale of tenure and the fact that its extent stretched far beyond the limits of our investigations was entirely consistent with the extensity of occupancy (Fig. 4.44). Just as Johnston proposed for the coaxial systems of Dartmoor, the newly constructed linear boundaries did not constitute a ‘wholesale reorganization’ of the landscape (Johnston 2005, 16), instead they made manifest an ongoing negotiation of the circumstances under which the ground surface was held or occupied. Critically, and as will be demonstrated in the next chapter, at the very point when the scale or level of occupation altered from being extensive to intensive, the final vestiges of the first attempts at formal land division had all but disappeared.

Prior to the construction of ditch and bank-built boundaries at Bradley Fen, the operational grain of the landscape, its occupancy, appeared to play out a pattern of low-ground pasture and high-ground arable cultivation. Hoofprints, waterholes and metalled surfaces peppered the lower contours. The higher areas contained settlement and contemporary burial features which included an assortment of plant remains indicative of patterns of past clearance and ongoing arable cultivation occurring on free-draining, nutrient-rich soils. French’s analysis of the old land surface located down in the low-ground showed large expanses of uncultivated former woodland soils, whilst Scaife’s analysis of pollen samples taken from the same places suggested grassland succeeding woodland.

The increasing saturation along the low contours eventually led to full-on waterlogging and, inevitably, peat growth ensued. Before it was only the Bradley Fen Embayment that experienced such conditions, now the bottom of the Flag Fen Basin was subject to the same processes. All-importantly, the ongoing transformation of the environmental circumstances did not appear to have an immediate impact of the existing patterns of land-use as cattle hoofprints disturbed the first peat growth just as they had the earlier land surface. The erection of an ad hoc fence-line or dead-hedge coincided with the changes in ground conditions and its alignment helped segregate the sodden bottom of the Flag Fen Basin from the now flooded Bradley Fen Embayment enabling the continued use of the greater part of the lower contours for pasture (Fig. 4.44). The later substitution of the dead-hedge for a continuous bank and ditch consolidated the division and, in doing so, showed how the instigation of lasting boundaries represented ostensibly reflexive measures.

The strands of interpretation presented here encompass the conditions under which land was occupied (landscape tenure) and used (landscape texture).
Figure 4.44. Distribution of ditched fieldsystems in the Flag Fen Basin with total weights of Early and Middle Bronze Age pottery assemblages indicated (Collared Urn in black; Deverel-Rimbury in red).
In trying to make sense of the former we endeavoured to realize the latter, tenure and texture being understood as integral. Due to issues of preservation or depth of cover, different parts of the investigations were better at elucidating details of these processes than others; in the case of the fieldsystem tenure was sometimes far more obvious than texture. The comparatively heavily truncated character of the elevated contours precluded the same heightened preservation of patterns of land-use observed on the lower contours. As a result, it is not currently possible to tell whether the instigation of coaxial boundaries across the higher, free-draining contours represented an equivalent maintenance of ongoing agricultural practices. It is, nevertheless, tempting to suggest that the elongated parallel strips marked-out by the newly emplaced boundaries represented a reiteration of the edges of established cultivation plots or winter grazing tracts.

The loss of the lower system, however, clearly initiated a displacement of land-use and with it an unavoidable transposition of agricultural practice. The increasing disappearance of low or marginal pasture led to higher ground being utilized for grazing more frequently; as things got wetter, pastoral supplanted arable. Features, such as waterholes and metallised surfaces, that had once typified the low ground now characterized the middle ground and, fittingly, the environmental detail accompanying this shift in location describes a transformation to scrubland.

In spite of its all-encompassing reach and outward rigidity, the fieldsystem represented a transitory course of action in the developing occupation of this unstable landscape. Its manifestation brought to light existing patterns of tenure and texture and, through its enhanced tangibility, established a new set of conditions by which people, animals and plants used and occupied land. Nevertheless, before long large sections of the system were subsumed beneath the peat and another sort of boundary began to take hold on the orientation and organization of this space. The currency of formalized land division was comparatively fleeting but not only as a result of shifting environmental circumstances. The occupation which preceded and succeeded its inscription shared identical characteristics to occupation found elsewhere, in far more stable conditions. The demise of the fieldsystem was not brought about by a change in environment, but its expiration was made all the more explicit by the sediments which accompanied the transformation.

Scale of occupation
The instigation of tangible land divisions around the edge of the embayment would appear to have occurred sometime around 1500 cal BC. The intervention, or temporal mediation, of the peat horizon between the establishment of the ditch and bank field-boundaries and the concerted deposition of items of metalwork demonstrates a definite chronological break separating the two events. All the dating evidence suggests a gap of at least 200 years, enough time for the lower field ditches to fill-up with silt, be re-dug (in places) and fill-up with silt again, before the first development of peat. From the deposit sequence, it would seem that the escalating wet conditions prompted the construction of the final form of the main terminal boundary and that its configuration helped delineate the edge of the embayment at, or about, 1300 cal BC. By the end of the second millennium BC, the practice of putting bronze weapons into the saturated margins of the embayment looks to have reached its zenith. If we were to draw a curve to describe the trajectory of settlement altogether a curve to describe the trajectory of metalwork deposition the two lines would certainly overlap, but they would also exhibit markedly different peaks; the former peaking some 300 years prior to the latter.

Absent from the above account is settlement and its relationship to the establishment of permanent boundaries and also to the widespread deposition of metalwork. In terms of the bigger Bronze Age picture, we can think of permanent boundaries and metalwork deposition as relatively late innovations but settlement as intrinsically pervasive; the boundaries did not build themselves and the metalwork did not throw itself away. We need to ask, how did the character of settlement differ from before the building of the fieldsystem and what was its connection to the disposal of bronzes? And if, as before, we were to draw a curve to describe the trajectory of settlement for the duration of the Bronze Age what shape would it take? By answering these questions we might start to understand the scale of things.

In the previous chapter, traces of settlement were comparatively easy to recognize. Small diameter postholes alongside small groups of pits complete with fragments of household debris provided clear structural evidence of habitation. These buildings occurred at extended but nevertheless approximately uniform intervals and appeared to show that the scale of investigation was proportionate to the scale of earlier Bronze Age occupation. An absence of equivalent earth-fast structures contemporary with the field boundaries could suggest a different pattern of settlement altogether.

At Bradley Fen and King’s Dyke the evidence for occupation comprised a sporadic distribution of diminutive wells or shafts which produced a moderately-sized assemblage of Deverel-Rimbury pottery (Table 4.22) and some discrete dumps of butchered
cattle bone. The combined chronology of these features was as long as the currency of the pottery (c. 1500–1100 cal bc) and, on balance, there appeared to be far too few features to ‘populate’ the fields. In practice, the fieldsystem seemed empty. The ditch fills made evident a similar lack of activity with the majority of the finds being residual.

Yet this pattern matches that found throughout the rest of the Flag Fen Basin. A trawl through the different sites produces a list of comparably empty fields. Fengate’s six undated ‘roundhouses’ represent, at best, a motley selection of structures, of which the most persuasive, Newark Road Structure 1 (Evans & Beadsmoore 2009, 84), has an almost identical ground plan to two of the Early Iron Age houses at King’s Dyke. Pickstone & Mortimer (2011, 30) identified a small group of postholes associated with a large assemblage of Deverel-Rimbury pottery at Briggs Farm but otherwise the fields of the lower Nene Valley and Flag Fen basin seem to have been ‘untenanted’.

The absence of earth-fast settlement contemporary with the fields at Bradley Fen stands in stark contrast to the earlier and later periods. The site revealed unambiguous structural foundations belonging to the start (3) and end (1) of the Bronze Age but absolutely nothing for the middle. During the start the ‘surface available for settlement’ was much greater and as a result the Bradley Fen window had a commensurably better chance of locating individual dwellings. The increasingly dynamic relationship between the accretion of peat and the establishment of fields meant that the surface available for settlement during the Middle Bronze Age was always decreasing and with it our likelihood of finding contemporary dryland structures. On top of this, towards the second half of the Middle Bronze Age (c. 1300–1100 cal bc) the correlation between settlement and the ever-expanding wetland took a radically different turn, as construction relocated into the wet. Direct evidence for built architecture might have been ‘missing’ from terrestrial contexts at this time but they were quickly becoming obvious above the peat. Prodigious timber structures first extended across the Flag Fen Basin in the course of the first half of the thirteenth century bc (Neve 2001, 245; Pryor 2001, 398; Gibson et al. 2010, 24). The earliest constructions took the form of continuous rows of massive wooden piles driven deeply into the underlying deposits and, in sharp contrast to the surrounding land, there was nothing at all ambiguous about this architecture (Pryor et al. 1986; Pryor 2001; Gibson & Knight 2009; Gibson et al. 2010). Whilst we struggle to pinpoint mid-late second millennium dwellings within the terrestrial domain great edifices span the embayment and somewhat perversely, we seem to find it easier to countenance desolate fieldsystems as places of concerted occupation than raised architecture (pace Pryor 2001, 426).

Could the same large-wood architecture which helped expedite the flow of later Bronze Age metalwork from land to fen also have provided a whole new context for settlement? As will be shown in the following chapter, there is compelling evidence that this is exactly what happened at the end of the Bronze Age.

**Metalwork deposition**

At the beginning of the chapter, it was suggested that the metalwork, or to be more precise, its deposition, signposted a marked turnaround in perspective or what we might call a conscious counteraction, namely, the first real colonization of the wet. The submergence of the low-lying plains of the Flag Fen Basin was accompanied by the emergence of a whole new set of environmental conditions and with it a very different kind of landscape. If previously the trajectory of occupation at Bradley Fen was about staying ahead of the deluge and keeping to the dry, it was now about finding novel ways of responding to the new surroundings and, in particular, coming up with the means to venture out onto this altered terrain. In simple terms, as the peat covered one way of being in the world, it established a fresh backdrop for another.

Most significantly, the deposition of metalwork at Bradley Fen coincided with the construction of a series of great timber causeways and platforms above and across the inundated Flag Fen Basin (Fig. 4.45). The relationship of elevated movement and inhabitation to the deposition of large quantities of metalwork was exemplified at the westernmost end of the Flag Fen timber alignment. The Power Station excavations recovered just under 300 metal objects from the peat, all close to the point where the causeway adjoined the Fengate shoreline and where it superimposed the edge of the Fengate fieldsystem (Pryor 2005, 138). Pins, rings and ornaments made up the bulk of the assemblage

**Table 4.22. Collared Urn and Deverel-Rimbury assemblages from Flag Fen Basin sites.**

<table>
<thead>
<tr>
<th>Site</th>
<th>Collared Urn (wt g)</th>
<th>Deverel-Rimbury (wt g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bradley Fen</td>
<td>3633</td>
<td>2525</td>
</tr>
<tr>
<td>Briggs Farm</td>
<td>1685</td>
<td>4234</td>
</tr>
<tr>
<td>Edgerley Drain Road</td>
<td>3008</td>
<td>0</td>
</tr>
<tr>
<td>King’s Dyke</td>
<td>9691</td>
<td>147</td>
</tr>
<tr>
<td>Pode Hole</td>
<td>571</td>
<td>3192</td>
</tr>
<tr>
<td>Tan Holt Farm</td>
<td>6082</td>
<td>5265</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22088</strong></td>
<td><strong>15363</strong></td>
</tr>
</tbody>
</table>

Fieldsystem, settlement and metalwork
and, even though a lot of the metalwork was Iron Age in date, the collection also contained a considerable number of later Bronze Age weapons which included rapiers, swords, spears, chapes and ferrules (ibid.). The distribution of these particular objects roughly emulated the linear distribution of timbers, although, intriguingly, most were located slightly to the south of the alignment and much closer to the arrangement of Fengate’s partially submerged field boundaries. Just as at Bradley Fen, the peat interceded between the fields and the bronzes and the resemblance was striking, only here, the presence of the timber causeway appears to have represented an additional attraction when it came to the disposal of metalwork (both spatially and temporarily). The published patterns of metalwork distribution suggest that the prominence of the timber causeway increased over time as the adjacent field boundaries became more and more obscured by the build-up of peat. Eventually, and somewhat inevitably, the causeway became the principal focus of deposition (Coombs 2001, 295–99). The extended duration of metalwork deposition identified at the Power Station corresponded to the extended duration of the causeway (in all of its manifestations) and the absence of a similar ‘late-focus’ at Bradley Fen would help to explain its comparatively abridged metalwork chronology.
If nothing else, the raised quality of the Flag Fen timber causeway demonstrates elevated levels of waterlogging at the time of its construction and use. Its very preservation was determined by the fact that it was built within a progressively more saturated environment. As an edifice the Flag Fen causeway integrated function, circumstance and context, as its very construction served to reconcile a drowning landscape precisely at a time when consigning bronze objects to perpetually wet places was a commonplace.

In several aspects, the original context of the Flag Fen timber causeway was the same as the context of Bradley Fen metalwork. Likewise, a fair proportion of the types of metalwork found at the two sites were interchangeable. It could also be argued that, despite the fact that the two sites were situated on opposite sides of the Flag Fen Basin, the respective collections of metalwork were, in actual practice, being immersed in the same body of water. This becomes the key relationship in terms of context and, especially, in terms of intent. In the next section we explore the intentions behind the consignment of later Bronze Age weaponry to watery places and the possible differences between individual items and a hoard.

Deposition reversed
Spatially and temporally, the hoard was buried at the very edge of the Flag Fen Basin. To be precise, it was placed on a slight rise on the wet side of the Bradley Fen fieldsystem’s main terminal division, next to a marked kink in its alignment and directly opposite a major field junction (Fig. 4.33). Quite obviously there was nothing ambiguous about its burial location and everything to suggest that the hoard was deposited with an increased level of care. If so required, those involved in its deposition would have little problem in returning to its place in the landscape.

The individual spears were disposed of much further out and therefore much deeper into the basin, consistently at least 25m away from the main dry–wet divide (Fig. 4.29). The majority were deposited along the northern sides of partially submerged field boundaries and all shared the same saturated environment. One of the spears was found point-first in the peat as if it had been thrown rather than placed and it seems most likely that its shaft would have remained proud of the rising waters (Fig. 4.30). Another spear retained the butt of a deliberately snapped shaft although it was found lying on its side (Fig. 4.46). In contrast to the hoard, deposition was slightly more haphazard and as a consequence a little less specific it its location. Those involved in the disposal of the spears would no doubt have been capable of retracing their actions but they might have struggled to return to the exact point of deposition. Given the different heights it would also be safe to suggest that the spears were deposited in a wetter location than the hoard and that this contrast in conditions would only have increased over time. The differences were subtle but nevertheless significant in that they show that even though the hoard and the spears were deposited in ostensibly the same wetland context their specific circumstances were rather different.

In their study of later Bronze Age metalwork deposition in the Fens, Yates & Bradley suggested different types of deposition could be related to different kinds of water (2010, 405–13). Although preliminary, their research proposed a spectrum of wet places or ‘waterscapes’ into which bronze could ultimately be consigned. These ranged from deep water contexts such as active rivers through to recently flooded or once dry edge-lands. The study established a series of patterns including a strong connection between deep water and intact single items, as well as between dryland situations and individual fragments. The same research located hoards towards the dry-end of the waterscape continuum and, in particular, at a distance from Fenland’s main water courses. Part of Yates & Bradley’s concern was to establish an unambiguous relationship between metal and bodies of water as a way of demonstrating motive. For these authors, watery places made retrieval progressively more difficult and as a consequence confirmed such deposits as votive offerings; Fenland’s peculiar but comparatively delicate environmental detail was utilized to exemplify this contextual detail.

Needham, in an earlier piece of research, focused on the circulation of metal and metalwork and, in particular, on the potential for retrieval once pieces had been deposited (2001). For him ‘the option to retrieve could have become a strategic device’ (ibid., 287; his emphasis). Ultimately, rather than define metalwork deposition on the basis of environment (wet versus dry) and/or purpose (ritual versus utility), he proposes that it might actually be more constructive to think in terms of permanent and temporary modes of deposition. Such a perspective, he suggests, introduces a flexibility or open-endedness to metalwork deposition and one that is entirely appropriate for a material capable of being brought back into circulation post-deposition. Most importantly, recoverability does not preclude deposition from being motivated by ideological/political goals.

By bringing Yates & Bradley’s waterscape continuum together with Needham’s permanency of deposition, we can begin to construct a context for the Bradley Fen metalwork which steers clear of clichéd explanations. For a start, later Bronze Age metalwork deposition was by no means unique to the Fens and, if anything, its
Chapter 4

it is possible to think of the Bradley Fen hoard as a recoverable deposit which in itself included pieces retrieved or recycled from earlier or previous acts of deposition. Its burial represented another stage in the potential flow of metalwork. As well as being collected together, all of the pieces in the hoard had been deliberately damaged and/or broken and several items had also been burnt (Fig. 4.47). The level of destruction was particularly excessive and unlike anything seen on metalwork excavated elsewhere in the Flag Fen Basin. By comparison the Flag Fen causeway material was intact and much more like the single spears from Bradley Fen in its overall appearance and condition. Again following Needham’s lead, perhaps the overt destruction of recovered/recycled items was part of a prescribed practice that ‘circumscribed the kind of reuse’ (ibid., 289).

Permanent deposition deferred
In the Fens, permanent places of deposition included the deep water of its active rivers and their tributaries.

Figure 4.46. Single spears and wooden hafts.
The pronounced expansion of wetland conditions at this time, however, had a major impact on the relationship between navigable waterways and land. Whereas previously rivers and watercourses were fairly accessible they now had to be reached via ever-expanding bog. The development of wetland conditions increasingly dislocated settlement from rivers and, in doing so, later Bronze Age communities became ever more detached from these all-important networks of communication and exchange. At the exact time when the lower reaches of major rivers such as the Thames and the Trent were becoming the principal focus for large scale metalwork deposition and, accordingly, key avenues of control (Bradley 1990, 146; Thomas 1999, 121), the equivalent stretches of Fenland’s main river channels were in the process of becoming increasingly cut-off from conventional land-fast settlement. In the context of the Fens, weapon deposition and active rivers and waterways had to be reconciled by other means. The great timber causeways of Flag Fen, Must Farm and Horsey Hill represented one approach, whilst an intricate system of major roddons (Fenland’s natural causeways) represented another (Fig. 4.45).

In the latter case, investigations of the Must Farm palaeochannel/roddon continue to uncover individual Middle and Late Bronze Age weapons (rapiers, swords, daggers and spears), including swords with pommels still attached, a spear complete with its shaft and circumstantial evidence of weapons being deposited still within their scabbards (Robinson et al. 2015). Here, it seems comparatively pristine metalwork was being consigned in the confident knowledge that this deep water context would remove it from circulation permanently.

The purposeful colonization of the wet incorporated many elaborate ways of maintaining access and control over the principal networks of communication and exchange. The rivers were not lost to the fens, if anything, the perseverance of these particular features is what perpetuated movement and occupation beyond the fields and deep into the expanding wetland. Contrary to Thomas (1999, 121), Fenland’s changing environmental circumstances did not curtail later Bronze Age metalwork deposition, it merely deferred it.

Figure 4.47. Damage to hoard spears.
Spatial-temporal configuration 2 – fieldsystem, settlement & metalwork

With the introduction of lasting land divisions, a different temporal-spatial configuration transpired, although crucially, one which helped to (re)articulate an earlier pattern (Fig. 4.48). The pre-fieldsystem configuration described a space made up of contrasting ‘ends’, a place of elevated monuments and marginal burnt mounds, whilst single dwellings occurred sporadically across the middle ground, oscillating between the two. Now, for the first time, the middle ground was visibly outlined, its fields formally entrenched. Even the marginal was delineated. Simultaneously, and perhaps surprisingly, at the time of entrenchment all indications of tangible dwellings receded from view. Space that had previously contained discrete structures now seemed vacant beyond a series of small waterholes or shafts and occasional dumps of butchered cattle bone. At the very point when land was being made immutable settlement was being made obscure. Metalwork deposition happened only after the submersion of the lower fields and when key elements of the established landscape grain had either vanished (burnt mounds) or fallen out of custom (monuments). Metalwork was divorced from these particular spaces and, somewhat fittingly, in our latest configuration the hoard and spears are depicted floating above the fields. In this historical-geographical arrangement, a major switch in orientation was signalled by the deposition of bronze weapons. As land division disappeared below the peat, metalwork was set out above it. The exact same circumstances which made fields unviable made metalwork deposition possible.

Figure 4.48. Spatial-temporal configuration 2 – fieldsystem, settlement & metalwork.
Conclusion
Chapter 4 described the divergent histories of Bronze Age land division and metalwork deposition. It suggested the former constituted a consciously reflexive measure, an act of grand maintenance, whilst in contrast, the latter signposted something forward-looking, namely the concerted colonization of a newly developing terrain. Peat growth, and its innate capability as sediment to intercede between things, helped articulate this particular relationship. At Bradley Fen, the terrestrial practice of parcelling-up large tracts of land was supplanted by the progressively aquatic activity of depositing metalwork. Throughout this process, settlement remained elusive, although it was suggested that its elusiveness was at least partially down to a general reluctance (amongst archaeologists) to relocate occupation away from dry land and out onto the wet. Structures sufficient to accommodate settlement exist although it seems their heightened preservation comes with a heightened expectation of what it is that qualifies as occupation.

In many ways, the first part of the next chapter describes an equivalent situation as it also presents a place where settlement was difficult to find and where fields continued to disappear beneath ever more saturated surroundings. At the beginning of the Bronze Age occupation was defined by its relationship to the river. The people who made the monuments and the burnt mounds were inhabitants of the Nene Valley, as were the people who built the banks and ditches around the fields. The relatively rapid onset of fen conditions across the flat plain at the bottom of the Flag Fen Basin interrupted this association. It dislocated the river from the land and simultaneously precipitated a ‘no man’s land’ – a space which was neither terrestrial nor aquatic – too wet to traverse by foot and too dry to navigate by boat. A small fen-em-bayment, otherwise known as the Flag Fen Basin, was now a fully established historical-geographical feature whose boundaries were having an ever-increasing bearing on the situation and configuration of settlement.
Chapter 5

Settlement in the post-fieldsystem landscape

If the structure of this book had been dictated by a strict typological framework, then this chapter, which takes as its focus the period of the Late Bronze Age and Early Iron Age, might have begun with a description of the hoard and spear deposits at Bradley Fen. A very rigid division of things by period, however, can have its drawbacks when shaping narrative to address more specific issues, in this case the detailing of a major transformation in the visibility, permanence and patterning of settlement. That being said, the Bradley Fen metalwork has always fallen betwixt and between things, not least in terms its deposition on the wet margins of the basin. As the previous chapter has detailed, its spatial relationship to the drowned sections of the Middle Bronze Age fieldsystem are not quite as simple as they first appear. But nor is its temporal relationship to the first tangible traces of Late Bronze Age settlement on the dryland terraces. Whereas these date towards the close of the period in the ninth century BC at Bradley Fen, on chronological and typological grounds, the metalwork falls at the beginning of the Late Bronze Age. This disjuncture means we cannot directly link the visible structures associated with settlement with the deposition of the metalwork, in the same way that we cannot directly link the fieldsystems with the metalwork either. In the framework of the site narrative then, the metalwork seems to fall between the floruit of the fieldsystem and perceptible settlement horizons.

Of course, metalwork still has its place within the discussions which follow, but given the importance of the Bradley Fen finds and the detailing they required, it was thought that their inclusion here would have taken the narrative in a different direction. This is the blessing and curse of spectacular discoveries. Whilst they draw our attention and provide fertile ground for interpretation, they can simultaneously overshadow the importance of other less conspicuous trends in the material record, such as the changing character and intensity of settlement, both at the site itself and within the context of the basin at large. This provides the focus of Chapter 5, in a setting where we begin to lose sight of the earlier landscape grain once framed by monuments and ditched boundaries.

Topographies and Environments c. 1100–350 BC

By the turn of the first millennium BC, the Flag Fen Basin was developing into a more extensive wetland embayment, whose shoreline over the next five centuries continued to migrate up the dryland terrace between 1.0 and 1.5m OD. Compared to the hydrological transformations described in the previous chapter, the consequence of this increasing saturation and pooling in the basin interior seem superficially less dramatic on the landscape window (Fig. 5.1), at least in terms of the gross area of land subsumed by the developing peat. However, the cumulative effects of this loss were still significant and potentially impacted upon established patterns of land allotment and land-use on the terrace edges.

More importantly, the threshold in the overall balance between wetland and dryland spaces in the basin window was now breached, tipping in favour of the former for the first time. As such, some of the most marked shifts in the texture of this landscape may have actually occurred within the wetland environments themselves. For a start, it was during the earlier part of this period that the construction and concerted maintenance of the Flag Fen post-alignment and other great timber edifices built within the basin finally came to a close. At Flag Fen, for example, the latest timbers were felled and erected around the mid tenth century BC (Neve 2001, 248). Whilst metalwork continued to be deposited along the avenue of increasingly drowned posts throughout the Iron Age, any role this structure served in providing a bridge or permanently traversable causeway across the neck of the basin was in all probability finished. Established
routeways and architectures which linked communities across the wetlands were gradually being lost to the rising waters. These shifts in the wetland geography would have no doubt had other impacts on the wider ecology of the basin interior, perhaps also affecting the location and procurement of familiar resources.

Arguably the most dramatic demonstration of these changes comes from the on-going investigation of the palaeochannel at Must Farm. Here, at the southern end of the Flag Fen Basin, a freshwater side-channel of the Nene had cut a course through the meandering marine silts or roddon of its forebear. Up until the beginning of the first millennium BC, this roddon was permanently perched above the adjacent, but progressively encroaching fen, providing a narrow, raised causeway into, and across, this increasingly wet landscape. Excavation of the freshwater river silts have revealed a series of fish weirs, eel traps and boats, attesting to the intensity of activity along this watercourse and its importance as a communication route.

Most spectacular, however, is the Must Farm platform site: a Late Bronze Age raised settlement located further downstream, just off the south-western shores of Whittlesey Island. The details of the site will be presented in a later volume in this series. Here, the important point to note is that the discovery of the platform hints that there are further durable structures suitable for habitation in the wetland. Just how extensive and/or intensive such ‘settlements’ were within the basin wetlands remains to be seen. These finds do, however, begin to call into question the prevailing assumption that settlement progressively shifted to higher ground as the fen encroached upon the dryland terraces at the end of the second millennium BC. As opposed to inland retreat, what we may be witnessing is a more favourable response to developing conditions in the basin interior, with settlement moving out into the wet and communities investing further resources in the construction of platforms and other timber edifices.

The implication of these possible changes will be considered at the end of the chapter, but it seems likely that some revision of our conventional occupation models will be required in future. What we can say with more confidence at this stage is that these structures, and the routeways into and across these spaces, were gradually inundated over the course of first millennium BC. At first, access by foot or hoof along the roddons may have become seasonally restricted as the surrounding water-table rose. This window would have continued to narrow over time and, by the latter half of the Iron Age, access to parts of the roddon would have been completely curtailed.

\[\text{Figure 5.1. Flood map for the earlier first millennium BC (c. 1000 to 500 cal BC). The white line marks the edge of the wetland at the beginning of the Late Bronze Age (1.0m OD) and gives an indication of the area of land lost over the next five centuries. The most profound changes were along the gentler contours around the Northey peninsular and Thorney.}\]
Clearly, the transformations within these wetland spaces may have had a more profound impact on the character and rhythm of activities in the Flag Fen Basin, than those directly caused by the contemporary loss of land though peat growth along the fen-edge. Certainly, the changes along the Bradley Fen terraces at this time appear somewhat muted when set against broader developments within the basin interior. In both instances, a more textured image of this landscape and its changing ecotones is provided by the pollen record and buried soils, now sampled at various points around the basin and at Bradley Fen itself (see Scaife and French this volume). Combined, the evidence attests to groundwater base levels rising significantly in this period, leading to increasing fresh water ponding in the centre of the basin and the further expansion of a fen-mire habitat (Scaife 2001). Beyond the interior pools of permanent standing water and towards the shallower basin margins, rich fen conditions would have prevailed. These were characterized by reed-swamp, dominated by semi-aquatic and marginal aquatic plant taxa, which opened onto a fluctuating fringe of alder and willow carr. This, however, was progressively inundated by shallow, muddy-water fen conditions over the course of the period, with saturation encroaching up the shoreline contours to a height of c. 1.0m OD by the end of the Early Iron Age. At a site-level resolution, only a few details of this later prehistoric fen-edge skirtland and the higher, dryland contours can be provided. Sampled from a damp-ground waterhole (F.1064, described below), the pollen sequence for this period shows an absence of major changes in the local vegetation, suggesting a consistency of stewardship over time (following a shift upwards of pasture post-1500 bc). According to Boreham (see below), these indicate a post-clearance landscape of damp meadows and grassland, characterized by riparian and tall-herb plant communities. In addition, there are disturbance indicators and evidence for some arable activity within this predominantly pastoral setting. Alder carr, although present, appears to form a minor component of the landscape, with the further suggestion of a progressive decline in the tall-herb meadow communities, concomitant with rising water-tables.

From the wider perspective, it seems clear that the area around Bradley Fen was under agricultural management throughout the period (Fig. 5.2). This reconstruction is corroborated by the plant macro-fossils analysed by de Vareilles towards the end of this chapter. Of note is the range of cultivated cereals and arable weed species recovered from Early Iron Age contexts at King’s Dyke. These suggest that the sandy, relatively well-drained soils of the site’s higher contours were probably used for cultivation, as in earlier periods. By now, these may have been somewhat depleted in nutrients. It is, perhaps, significant then that small legumes were also recovered from the processed samples, since these are nitrogen-fixing plants which prosper on soils of low fertility and, as such, serve to demonstrate the prolonged, intensive and knowledgeable use of arable soils in this area.

The plant remains also indicate that there was some cultivation of the site’s lower, damper contours at Bradley Fen. On a micro-scale, further details of this area are provided by the waterlogged remains recovered from the same waterhole as that sampled for pollen. Apart from the evidence for aquatic species, which probably grew within the feature itself, the botanical remains suggest that the surrounding area was characterized by damp but not completely waterlogged soils, sparsely vegetated and probably disturbed by trampling. This is to be expected in zones frequented by humans and livestock, adding to the wider picture – gleaned from the pollen record – of a water-meadow skirtland exploited for its rich pastures.

Summary of landscape structure, settlement evidence and themes addressed in the chapter

At the risk of simplification, it is helpful to conceive of the lower contours at Bradley Fen as being characterized by seasonally variable floodwater meadows and grassland. This can be contrasted to the image of the higher terraces, including parts of the area encompassed by the King’s Dyke excavations, which were seemingly exploited for arable cultivation. Importantly, this basic division in the qualities/use of the different contours appears to go hand-in-hand with a sense of zoning in the distribution, character and even content of the periods cut features. This is aptly illustrated by the phase plan (Fig. 5.3), which shows that the area around the damp-ground fringes between c. 1.0–2.0m OD was the setting for a dispersed linear scatter of waterholes and large pits. Above this contour, the architectural signature shifts. Here, we find the traces of roundhouses, four-post structures and swathes of smaller pits and postholes. On the Bradley Fen side of the excavation transect, these features were thinly scattered and were mainly dated to the Late Bronze Age. At King’s Dyke, however, the feature density was significantly greater, with signs that a more agglomerated focus of Early Iron Age occupation developed immediately below the crown of the terrace.

Given that known settlement remains of the Late Bronze Age and Early Iron Age are patchy along the
Figure 5.2. Landscape reconstruction for the earlier first millennium BC.
Figure 5.3. Plan of Late Bronze Age and Early Iron Age features at Bradley Fen and King's Dyke.
opposing shoreline at Fengate, the discovery of both dispersed and aggregated occupation foci in this context is important. Not only does this significantly enhance the broader picture of the post-fieldsystem landscape in the Flag Fen Basin, it also affords the opportunity to reflect upon the nature of changes to the settlement record over the course of the late second and earlier first millennium BC. Undoubtedly, one of the most striking discoveries is the Early Iron Age settlement at King’s Dyke, where the footprints of 10 individual roundhouses were revealed. These, it should be stressed, are the first unequivocal Early Iron Age buildings to be identified, dated and published from the Flag Fen basin. This is another small landmark for Fenland archaeology: one that is all the more significant since Early Iron Age roundhouses have proved remarkably elusive in most parts of Eastern England.

But with this settlement approaching village-like proportions, questions must be raised about the contemporaneity of all these structures. Similarly, a perspective is needed on the relationship between this reiterative or nucleated mode of occupation in the Early Iron Age and that represented by the more dispersed traces of terrace settlement in the Late Bronze Age. Such a difference may be significant in understanding the way in which groups/communities related to the land and one another – in other words, how tenure was understood and negotiated – particularly in a landscape where the demarcation of land allotment was no longer being defined by the digging of ditches. Furthermore, there is the need to comprehend the relationships between these settlement foci, the activities taking place along the wet edge, and the changing environs within the fen basin itself. In short, patterns in the site’s settlement sequence must be set against a broader understanding of the physical and social landscape of the Flag Fen Basin.

In light of these themes/objectives, it is necessary to give a detailed account of the archaeology uncovered. Given the character of the landscape texture already sketched, coupled with the clear patterning of features across the site, it seems appropriate to consider the archaeology in terms of two contrasting zones: features occupying the wetland fringes between 1.0–2.0m OD and the settlement and structural remains above these contours. In each instance, the attributes of these varying feature suites can be read as a reflection of the way these different spaces were attended. The following descriptions are therefore structured with respect to the basic landscape division, beginning with archaeology of the lower damp margins. Breaking with the conventions of the previous chapters, the ‘specialist’ sections are subsequently handled more thematically here (and in Chapter 6), in an attempt to open up the discursive framework. These then pave the way for a wider discussion, which touches upon the issues raised above and other themes central to this volume.

Waterholes and scattered pits – the archaeology of the damp-ground contours

Located at the threshold between seasonably damp-ground and the permanently waterlogged fringes of the basin-edge, were a series of 22 pits and dispersed waterholes (Fig. 5.4). These features varied in their magnitude and morphology. They ranged from small, individual sub-circular cuttings with single fills, through to large, irregular groups of intercutting pits or single waterholes displaying complex depositional sequences (dimension range: 0.41–5.80m in diameter; 0.14–1.48m in depth). Spatially, these features/feature clusters were strung out at regular intervals along the wet-edge, with gaps between c. 50 and 70m separating each discernible group (labelled A–E). Warranting more detailed treatment are the wells/waterholes and some of the larger intercutting pit complexes, each of which yielded standout artefact assemblages or other deposits of significance.

Key features – pit complexes and waterholes in Groups A and D

The key components of Group A were an intercutting waterhole complex, comprising six hollow-like features (F.486, F.501–02, F.504, F.509 and F.528) and a discrete well/waterhole F.480. The exact sequence of pitting in the former was hard to establish, partly because of the shallow nature of most features (five measuring just 0.40–0.70m in diameter; 0.14–0.18m in depth) and the fact that later pits cut the complex. In this group, however, by far and away the largest waterhole was F.528, located at the southern tip of the cluster. Roughly circular in plan, with a diameter of 2.20m and a depth of 0.78m, the pit displayed relatively steep sides and an irregular base, partially undercut by water erosion. Unlike the other pits in the cluster, which all contained single, homogenous deposits of grey-brown silt, F.528 displayed a varied fill sequence, with multiple bands of silty-clay, separated by edge-weathering slumps of sandy gravels. The basal fills of the pit were waterlogged and immediately above the primary silts lay a substantial dump of partially articulated animal bone, dominated by the butchered remains of a minimum of six cows (Fig. 5.5).

The bone dump has obvious parallels with deposits from a series of Middle Bronze Age waterholes.
detailed in the previous chapter (F.34, F.391, F.544 and F.991). Indeed, similar dumps of animal bone were recovered in Middle Iron Age pits along this same damp fringe (albeit at a slightly higher elevation) and, as such, constitute a recurrent but quite distinctive signature of this wet-edge zone at Bradley Fen. However, tempting though it is to view this patterning as evidence for a persistent depositional tradition, it would take special pleading to argue that the logic behind these actions were consistent over such a long period of time. In this context at least, it is possible that such an intentional deposit may have taken on some special significance, perhaps as part of rites bound up with the formal decommissioning of the waterhole. Of course, there may be alternative pragmatic reasons for the treatment of these remains, but since we find evidence for other objects – namely pots – being selectively interred in identical contexts, these kinds of argument seem to hold less weight.

A prime example is the adjacent waterhole F.480, located 7.5m northeast of F.528. Although slightly smaller in plan (1.27m in diameter; 1.03m in depth), this sub-circular feature was more well-like in profile with steep sides, slightly undercut towards the base. The primary fills were again silt-rich and waterlogged, yielding small twigs, flecks of charcoal and the base
In this instance, the broken pot, a small decorated coarseware jar, was interred at the base of the pit. This was 1.04m deep, waterlogged and filled with dark silts preserving fragments of roundwood: one of which produced an Early Iron Age radiocarbon date of 740–390 cal bc (Beta-262623: 2400±40 BP). Small branches and other pieces of wood were scattered throughout the rest of the lower profile of the waterhole complex, which in plan measured 5.85m in length and 4.06m in width (max.). The excavated sections revealed five irregularly profiled intercutting sherds of a pot. Immediately above, and possibly deposited at the foot of a re-cut, were large refitting fragments of a substantially intact tripartite bowl (Fig. 5.6). This fine ware vessel and other sherds from F.480 (38 sherds, 371g) date to the Early Iron Age and were recovered along with fragments of animal bone (57 pieces, 857g) and a single piece of slag (237g).

The comparatively ‘fresh’ condition of the tripartite bowl from F.480 mirrored that of a contemporary vessel recovered from pit F.945: the largest and latest cutting in the Group D waterhole complex (Fig. 5.7). Animal bone dump in waterhole F.528 (Vida Rajkovača) This included a total of 150 assessable fragments from a minimum of six cows, including one piece of worked bone. The worked piece represents a proximal cow metatarsus which has been split axially and polished to create a gouge-type tool. The working end of the tool is missing.

Figure 5.5. Plan and section of waterhole F.528 with animal bone dump and detailed illustration of worked bone.
Settlement in the post-fieldsystem landscape

Bradley Fen: an oval-shaped hollow, 5.80m long, 5.00m wide and cut to a depth of 1.48m. The upper profile displayed an exaggerated weathering cone, the sides of which were irregularly pocked by small delves (‘pits’ F.1026, F.1116 and F.1118), probably resulting from a combination of trampling and slumping. These gave way to a central sub-rectangular shaft (2.44m long and 1.80m wide) with steep but not vertical sides. This also had a slightly weathered appearance, particularly around the long edges of the cutting. The wooden tank was set within the shaft. Most of the preserved uprights remained flush against the side of the base block, forming a lining, behind which gravels had been packed. One post, however, was set slightly further back and is perhaps indicative of a repair. In total, six split timber uprights survived, though sockets for at least nine others were identified.

Tank components, construction sequence and function (Maisie Taylor)

As outlined above, the surviving wooden components of the tank were as follows: a rectangular base block, fashioned from a large section of a dug-out boat; a central roundwood post, driven though an existing square hole cut in the bottom of the craft; and six split timbers set vertically around the sides. Those features...
The base block consisted of a section, 2900mm in length and 750mm in width, taken from the bottom of a dug-out boat. The thickness of the wood varied between 95mm in the centre and 150–160mm towards the outside, of which this is most probably an example, are later in date than the more elaborate ‘sun-flower’ type and have been dated to the earlier Iron Age. Three comparable examples were recovered during the Flag Fen excavations (Coombs 2001, 275, fig. 10.9, nos. 200–02).

The Group D waterhole complex: pin description (Grahame Appleby)

The head of the pin partially survives, albeit broken, with an estimated diameter of c. 19.5mm. The surface possesses a dark to pale green powdery patina. As reported by Cunliffe (2005, 458), this type of pin is found throughout Britain, but with a distinct southern bias. Typologically, plainer pins, of which this is most probably an example, are later in date than the more elaborate ‘sun-flower’ type and have been dated to the earlier Iron Age. Three comparable examples were recovered during the Flag Fen excavations (Coombs 2001, 275, fig. 10.9, nos. 200–02).

Figure 5.7. The Group D waterhole complex. Left: plan and section of waterholes F.943–47; right: photograph of the Early Iron Age coarseware jar from F.945 and illustration of the fragments of a ring-headed swan’s-neck pin recovered from the capping silts of the complex.
the sides; the underside being virtually flat, the upper surface concave. A crucial feature with regards the tank was the square hole (140mm by 130mm) cut at the centre of the base block, through which a stake had been inserted. This stake was high quality roundwood, 62mm in diameter, with a surviving length of 690mm. The straightness of the grain, together with the lack of knots suggests that it was probably a coppiced pole. It

Figure 5.8. Plan and section of waterhole F.1064 showing the remains of the wooden tank and the base block fashioned from a dug-out boat section.
had been hammered through the square hole, into the underlying gravels. The bottom end of the post was trimmed from all directions. The tip was damaged, probably when it was driven in.

In its original configuration, there would have been horseshoe shaped setting of vertical timbers at each end of the base block. Except for one timber which was more outlying, all of the uprights at the southeast end had been removed before the pit silted-up, but the shape and size of the postholes suggests that they were of similar dimensions to those surviving at the northwest end.

The six surviving verticals were radially split oak (*Quercus* sp.) timbers, with their bark removed (dimensions ranging from 480 to 1445mm in length, 90 to 200mm in width and 30 to 75mm in thickness). Although the wood was in very poor condition when excavated, it was originally good quality, very slow grown and with a straight grain. All but two had been further modified by light hewing, making them slightly more square in section. This squaring was not done in the same way on every timber. Three were hewn parallel to the grain: one extensively to make a more parallel-sided plank; two being only partially trimmed up. A fourth timber had the thinner pith edge removed to make it squarer, whilst the two remaining uprights were unmodified. Furthermore, the bottom ends of four of the timbers (two could not be retrieved) were
were set fairly deep, which would have made them timbers, including those which have been removed, several observations can be made. Firstly, the verticals were trimmed from two or four directions to make them more pointed, presumably to aid insertion into the ground. These blunt points had subsequently been slightly damaged when driven in. Two of the timbers had surviving toolmarks, one 46mm wide and 5mm deep (46:5) and a partial one, 45mm wide and 2mm deep (45:2). These two toolmarks fall well within the range of widths and curvature for bronze socketed axes (Taylor 2001, 197, table 7.28). One of the timbers preserved at a high level has evidence for woodworm with vertical exit holes, suggesting that it remained above water, but damp and soft, long enough to attract the insects.

In terms of the building sequence, the construction of the tank probably started with the positioning and levelling of the base block. The central post was then hammered far enough into the underlying gravel to make it secure. This passed through the square hole in the base block with room to spare (a hole which was part of the original boat and not a component of the tank). However, the post was relatively slender, which makes it unlikely that it was used for locating the base block or pegging it into place. Indeed, if the base block was waterlogged when it was set in the pit, it would not have floated. Pegging was only needed if the base was dry or not completely waterlogged. Interestingly, when it was first uncovered, the boat section already showed signs of cracking along the grain. This is a classic sign of drying out and could date from any time in the life of the wood, including the period before it was placed in the pit. Whatever the circumstances, it is likely that the top of the post was never flush with the base of the tank. In its original state it was probably much taller and may have acted as a guide or support for anyone using the tank when full of water.

Judging from the damage to their terminal ends, the vertical timbers were hammered into the ground and not set into pre-dug holes. As they respected the slightly curved ends of the base block, it seems likely that the verticals were added (and removed) after the positioning of the base, avoiding the need to lift the block over them. However, these vertical timbers do not make a continuous wall. Nor were they all modified in the same way. This suggests the structure was fairly ad hoc, as does the reuse of the boat section, and adds to the emerging picture that domestic and functional structures were often made of material derived from the wood pile, including the reuse of earlier timbers where suitable (Allen 2009, 146; Taylor 2009b, 120–21).

With regards to the excavated plan of the tank, several observations can be made. Firstly, the vertical timbers, including those which have been removed, were set fairly deep, which would have made them strong enough to act as a revetment. However, the structure only had vertical timbers/sockets at the two shorter ends of the base block and, whilst these partially extended round the corners and down the longer sides, it still left a substantial gap with no evidence for further settings. Of course, this need not imply that the tank was not originally framed with wood on all four sides. As the timbers at one end have been removed, it is possible that the sides were removed too. Indeed, if they were set horizontally, for example, it is unlikely that they would have left any archaeological trace.

The second observation is that there were no signs of any further lining to the tank. Although there is minimal evidence to suggest that some tanks were lined to make them watertight in this period (Taylor 2009a, 86), this is unlikely here, given the hole in the base block. At one time there may have been some kind of skirt to stop loose material falling into the water, but this would not have contributed to making the structure watertight. Perhaps more tellingly, the higher preservation on sections of wood further down the profile of the verticals, suggest the bottom of the tank was rarely or never dry. This implies that it was fed by groundwater, which was free to move in and out of the structure.

On the question of function, it seems likely that the tank was designed for access to cold groundwater, making it different to those constructed for the purpose of indirect water heating. Certainly, water in a tank fed from the ground such as this would have been very difficult to heat. More to the point, given the absence of contemporary burnt stone mounds, it is hard to imagine how this might have been done. Still, its architecture does seem overly elaborate if the purpose was simply to supply cold water; a ‘standard’ waterhole with revetted sides and a step in the bottom would have surely sufficed. Clearly there was considerable investment in this construction, particularly with the fashioning of the base block, which must have been deemed important to the ‘correct’ functioning of the tank, whatever that may have been.

*Deposits and finds from the waterhole*  
The fill sequence of the waterhole was relatively simple, with no traces of re-cuts or other obvious eventful episodes of deposition. It comprised a basal layer (0.45m thick) of very dark grey clayey-silt above which similar but less organically rich deposits formed alongside occasional slumps of gravels on the sides. Artefacts were rare considering the size of the feature and its potential as a catch for surrounding settlement debris. Objects from the lower profile included fragments of animal bone, three plain body sherds of pottery (71g), a piece of fired clay (260g) and a single piece of slag (174g). Unlike some of the finds associated with
the other waterholes/pit complexes, these occurred as inclusions within the general matrix of the fills, as opposed to forming discrete deposits. The pot sherds were found in silts immediately above the boat section. Although fairly indistinguishable, the character of their fabrics was in keeping with that of the ceramics more securely dated to the Early Iron Age.

By contrast, the finds from the upper profile of the waterhole were of clear Middle Iron Age origin, including sherds of Scored Ware (discussed in the following chapter). These were recovered just below the capping deposits, which comprised a band of desiccated peat topped by an alluvium plug. On the surface, the fills appeared as concentric rings and had formed in a shallow depression caused by the collapse or compaction of the underlying organic sediments. The waterhole was therefore a persistent feature of the first millennium bc landscape at Bradley Fen. Although it probably had its origins around the Bronze Age–Iron Age transition, it would still have been visible as a large, shallow saturated hollow over four to five hundred years later, when Middle Iron Age material began to be discarded within it. Crucially, because of this long history and the gradual accumulation of organic silts, it was possible to recover important pollen sequence for the period, detailed below.

Pollen analysis (Steve Boreham)

Three 30cm monolith tins were taken from the section of the waterhole, covering an 83cm part of the sequence spanning four different clayey-silt contexts (I–IV, see Fig. 5.8). From these, six samples of sediment were prepared using the standard hydrofluoric acid technique and counted for pollen at ×400 magnification using a high-power stereo microscope. The data are presented in the pollen diagram in Figure 5.10.

The pollen concentrations encountered ranged between 31,094 and 56,266 grains per ml. Pollen counting was somewhat hampered by the presence of finely divided organic debris, but preservation of the fossil pollen grains (palynomorphs) was in general quite good for most samples. Assessment pollen counts were made from a single slide for each sample. The pollen sums achieved ranged between 68 and 191. Although these counts do not exceed the statistically desirable total of 300 pollen grains main sum, four exceed a count of 100 grains. As a consequence caution must be employed during the interpretation of these results.

Context I (Late Bronze Age–Early Iron Age): The basal pollen sample from monolith 3 was dominated by grass (Poaceae) pollen (39.1%), with a wide range of herbs including the pink family (Caryophyllaceae) (14.1%), the daisy family (Asteraceae) (together 10.9%), the disturbance indicator ribwort plantain (Plantago lanceolata) (3.3%) and importantly cereal pollen (3.3%). Lower plants included the polypody fern (Polypodium) (1.1%) and other undifferentiated spores together accounted for 13.1%. Arboreal taxa included alder (Alnus) (3.3%), hazel (Corylus) and pine (Pinus) (both 1.1%). Aquatic plants are represented by the emergents bur-reed (Sparganium) (3.3%) and reedmace (Typha latifolia) (1.1%). The large proportion of heavily built Caryophyllaceae and Asteraceae pollen grains in this sample suggests that it may have been modified by oxidative soil processes, leading to an increase in resistant types. However, the low proportion of resilient pteropsid spores may mean that these resistant pollen types represent a genuinely important part of a rich meadow tall-herb community. This grassland and meadow environment also has riparian (bank-side) elements in addition to disturbance indicators and evidence for some arable activity. Wet woodland would have been a minor part of the vegetation in this landscape.

Context II (probably Early Iron Age): Three samples fall within context II. The upper pollen sample from monolith 3 was the lowest in the context and was dominated by grass (Poaceae) pollen (41.2%), with a wide range of herbs including the daisy family (Asteraceae) (together 17.6%), the pink family (Caryophyllaceae) (8.8%), the disturbance indicator ribwort plantain (Plantago lanceolata) (2.9%) and notably cereal pollen (1.5%). Undifferentiated fern spores together accounted for 14.7%. Arboreal taxa included alder (Alnus) (2.9%), hazel (Corylus) and willow (Salix) (both 1.5%). Aquatic plants are represented by bur-reed (Sparganium) (5.9%) and reedmace (Typha latifolia) (1.5%). The large proportion of Asteraceae and Caryophyllaceae in this sample hints that it may have been post-depositionally modified by microbial activity. However, the relatively small amount of resistant pteropsid spores suggests that Asteraceae and Caryophyllaceae were present in a diverse tall-herb grassland community, with riparian and disturbance indicators. There is also a little evidence for arable activity. Alder carr (wet woodland), although present, appears to have been only a small element in this landscape.

The lower pollen sample from monolith 2 was located in the middle of this context. The pollen assemblage was dominated by grass (Poaceae) pollen (35.5%) and pteropsid spores (together 21.5%), with a wide range of herbs including the daisy family (Asteraceae) (together 7.5%), sedges (Cyperaceae) (5.6%), the pine family (Pinaceae) (2.8%), ribwort plantain (Plantago lanceolata) (1.9%) and notably cereal pollen (2.8%). Arboreal taxa included alder (Alnus) (4.7%), willow (Salix), juniper (Juniperus) (both 1.9%) and birch (Betula), pine (Pinus), oak (Quercus), maple (Acer) and hazel (Corylus) (all 0.9%). Aquatic plants are represented by the water milfoil (Myriophyllum alterniflorum) (0.9%), bur-reed (Sparganium) (6.5%) and reedmace (Typha latifolia) (1.9%). The large proportion of pteropsid fern spores in this sample hints that it may have been post-depositionally modified by microbial activity. Since the proportion of Asteraceae and Caryophyllaceae, which have resilient pollen grains, does not seem to be particularly large, these fern spores could represent damp and shady conditions, perhaps within nearby wet alder woodland (carr). The principal reconstruction from this assemblage is one of damp meadow and grassland with riparian and tall-herb communities. The combination of disturbed ground indicators and cereal pollen indicates a little arable activity within a mainly pastoral setting.

The upper pollen sample from monolith 2 was the highest in the context and was dominated by grass (Poaceae) pollen (55.9%), with a range of herbs including the daisy family (Asteraceae) (2.9%), the pink family (Caryophyllaceae) (2.9%), the fat hen family (Chenopodiaceae) (2.9%), sedges (Cyperaceae) (2%) and cereal pollen (1.5%). Undifferentiated fern spores together accounted for 15.6%. Arboreal taxa included alder (Alnus) (2.9%), hazel (Corylus) and willow (Salix) (both 2%), pine (Pinus) and oak (Quercus) (both 1%). Aquatic plants are represented by bur-reed (Sparganium) (6.9%) and reedmace (Typha latifolia) (2.9%). This sample was arguably the best-preserved of the sequence, showing little or no evidence for post-depositional
Figure 5.10. Pollen diagram from waterhole F.1064. Monolith 3 at the base of the sequence was sampled at 3cm (context I) and 10cm (context II) for pollen. These samples were at 80cm and 73cm below the 1.5m OD datum at the top of the sequence. Monolith 2 was sampled for pollen at 6cm and 21cm. Both of these samples were within context 2, which equates to 49cm and 34cm below the datum. Monolith 1 was sampled for pollen at 7cm (context III) and 26cm (context IV). These samples were at 23cm and 4cm below the datum.
changes to the pollen spectrum. The pollen assemblage indicates a meadow and grassland environment with riparian elements. There is some evidence for arable activity. Wet woodland appears to be only a minor part of the vegetation represented.

Context III (Middle Iron Age): The lower pollen sample from monolith 1 was dominated by grass (Poaceae) pollen (34.6%) and pteropsid spores (together 39.3%) with a range of herbs including the daisy family (Asteraceae) (together 8.3%), sedges (Cyperaceae) (3.1%), members of the cabbage family (Brassicaceae) (2.6%) and cereal pollen (3.1%). Arboreal taxa included alder (Alnus) (3.1%), oak (Quercus) (2.1%), juniper (Juniperus) (2.1%), birch (Betula), pine, (Pinus), elm (Ulmus), ash (Fraxinus) and hazel (Corylus) (all <1.6%). There was a large proportion (21.5%, expressed outside the main sum) of bur-reed (Sparganium) pollen in this sample suggesting close proximity to a fringe of emergent vegetation, such as a fen or reed-bed. The large proportion of resistant pteropsid spores in this sample suggests that this assemblage may have been modified by post-depositional oxidation. However, the relatively small amount of Asteraceae and Caryophyllaceae hint that these fern spores could represent damp and shady conditions, perhaps within nearby alder carr (wet woodland), which although present, appears to have been only a small element in this landscape. There is also little evidence for arable activity, although it is clear that the landscape was dominated by meadow and grassland communities, with riparian and disturbance indicators.

Context IV (probably Middle-Late Iron Age): The upper pollen sample from monolith 1 at 26cm (4cm below datum) was dominated by pteropsid spores (together 39.7%) and grass (Poaceae) pollen (33.5%), with a wide range of herbs including sedges (Cyperaceae) (5%), members of the cabbage family (Brassicaceae) (1.9%), members of the cow parsley family (Apiaceae) (1.9%) and also notably cereal pollen (1.2%). Arboreal taxa included alder (Alnus) (3.1%) and birch (Betula), oak (Quercus), juniper (Juniperus) and hazel (Corylus) (all <1.2%). Obligate aquatic plants are represented by the fringing emergents bur-reed (Sparganium) (5.6%) and reedmace (Typha latifolia) (1.2%). The large proportion of pteropsid spores in this sample suggests that this assemblage may have been post-depositionally modified by oxidative soil processes, leading to an increase in resistant types. However, the proportion of Asteraceae and Caryophyllaceae is not particularly enhanced, so these fern spores may indicate damp and shady conditions, perhaps within nearby wet alder woodland (carr). The main signal from this assemblage is one of grassland and damp meadow, with tall-herb communities and riparian environments indicated. Despite the presence of cereal pollen, there are few disturbed ground indicators, suggesting a largely pastoral landscape.

In summary, the pollen assemblages from this sequence are all rather similar, indicating a post-clearance pastoral landscape of meadows and grassland with some arable activity and a little wet woodland. The presence of high proportions of pteropsid spores and resistant pollen types in most samples hints that these assemblages may have been distorted by post-depositional oxidation of the sediment. However, the degree to which this is true is hard to determine from the data. It seems clear that the area around Bradley Fen was under agricultural management from the Later Bronze Age through to the Middle Iron Age. However, the lack of major changes in the vegetation shows a consistency of stewardship throughout that time. If the trends in the pollen diagram (Fig. 5.10) are to be believed, then over time there was a progressive decline in tall-herb meadow communities and rising water-tables indicated by bur-reed and fern spores. The pollen assemblages appear to be entirely consistent with the Iron Age dating of the deposits and the position of the Bradley Fen site on a gravel terrace adjacent to the River Nene.

Discussion – land-use, land allotment and the nature of activities along the damp-ground contours

The lower terraces at Bradley Fen (1.0–2.0m OD) were home to a dispersed linear scatter of pits dotting the damp-ground contours. In one way or another, most of the features in this zone were constructed as a means of gaining access to the groundwater. As detailed above, some were discrete waterholes, or possibly wells of various sizes, whilst others resemble more irregularly shaped hollows, with evidence of reworking. What is clear is that the water-table was perched very high in this area during the Late Bronze Age and Early Iron Age, meaning that any cutting deeper than c. 0.50m would have filled with groundwater. In these circumstances, where minimal effort was required to gain access, there was little point in investing in revetment structures or wattle linings for these features – traces of which would have survived in the waterlogged conditions. Indeed, even the more substantial pits were rarely deeper than 1.00m and would have been relatively straightforward to maintain without these additions. As a consequence, instead or of one or two large long-lived waterholes in this landscape, what we find are a greater number of smaller features reworked over time – a practice which gave rise to lobed and somewhat irregularly profiled, pit/waterhole complexes.

The obvious exception to this pattern is waterhole F.1064. On first impressions, this appears to be a ‘classic’ well or waterhole feature of the period. However, considering the high groundwater-table in this context, the size and depth of the pit seems excessive. This sense of over-investment for a mere waterhole is echoed in the construction of the wooden tank at its base. Since a stake and wattle revetment would probably have been sufficient for the sides, the solid tank structure seems overly elaborate, if indeed it was designed to serve this simple purpose. Not only did its construction involve the reworking of a dug-out boat section, whose seasoned-oak heartwood could only have been cut with iron axes (even if already waterlogged (see Taylor below), but required the erection of multiple split-oak timber uprights – wood that was clearly valued enough to salvage at a later date. On balance, it is likely that this feature had a specific function, at least at the beginning of its history. What this was exactly is harder to say, though the base board presumably played a crucial role.
No doubt in later life, F.1064 served as a more conventional waterhole and, like the other pits in this zone, its purpose may have fluctuated over time: some features starting as wells for human use, subsequently becoming reworked into waterholes for livestock. Interestingly, at the point at which several of these pits stopped being maintained, we find artefact deposits which seem to mark their shift in status. These included the placement of single, semi-complete pots and dumps of butchered animal bone. In fact, beyond these deposits, there were very few artefacts from this whole area, demonstrating its distance from the main settlement zone/core further upslope. As such, it is difficult to argue that the majority of these objects arrived in the ground though pathways of routine refuse maintenance. Of course, this may account for some of the objects, including the fragments of slag indicative of metalworking in the vicinity, but not the set-piece practices of deposition responsible for the semi-complete pots or bone dumps.

One of the most significant finds assemblages from this zone was the animal bone dump from F.528, the quantity and condition of which suggest that a minimum of six cows were butchered in a single event. This could be interpreted in several ways. However, it is tempting to view the deposits as the remains of a feast, coinciding with, or perhaps even marking the decommissioning of the redundant waterhole and, potentially, the opening of a new adjacent feature. Indeed, closing and renewing waterholes in the context of community gatherings was possibly one means by which local groups reiterated their rights over surrounding plots of pasture as well as the waterholes themselves. In a landscape where the expression of tenure or ownership was no longer marked by the construction of ditched field boundaries, this may have emerged as a new mechanism for laying claims over land.

This argument seems more credible when we take into account the distribution of the waterholes and their sympathetic relationship to the former Middle Bronze Age field ditches (Fig. 5.11). These boundaries were already silted by the end of the second millennium bc, though parts of the grid may still have been marked by denuded banks or hedges. Of importance is the fact that the spacing of the waterholes echoed the spacing of the silted ditches at Bradley Fen, suggesting that the land partitions, once farmed by these boundaries, had a lingering currency. In other words, the demise of ditched field boundaries did not necessarily signal an abrupt end to fieldsystems per se. Rather it marked a change in the way that communities physically inscribed/affirmed their connections to different blocks of land, the ‘separateness’ of which was collectively
acknowledged in the centuries both before and after the field boundary 'horizon' of the Middle Bronze Age. In archaeological terms at least, the redigging of waterholes in these locations was as a less obvious or indirect mechanism for expressing these tenurial relationships, but ones that still served to maintain vestiges of an earlier grain in the cultural landscape. However, this began to change over the course of the Late Bronze Age and Early Iron Age, as claims over land were increasingly articulated though an investment in the architectures of settlement.

Late Bronze Age settlement and structural remains – the archaeology of the dry terraces at Bradley Fen

With the possible exception of one post-built roundhouse at King’s Dyke (Roundhouse 12, described below), the evidence for Late Bronze Age settlement on the dry, free-draining gravels was confined to the Bradley Fen terraces. Here, above the 2.0m contour, was a light scatter of widely dispersed features including a roundhouse, two four-post structures and a handful of pits and postholes. All the features bar the four-post structures yielded small scraps of Late Bronze Age Plainware Post-Deverel Rimbury (PDR) pottery, or other artefacts diagnostic of this period.

Structures
Roundhouse 4 was located towards the crown of the terrace at Bradley Fen, between 3.4 and 3.6m OD. It comprised a central ring of nine small, evenly spaced postholes (0.17–0.28m in diameter; 0.08m–0.18m in depth; 1.25–1.70m spacing between posts), filled with mottled brownish-grey clayey-silt, occasionally flecked with charcoal (Fig. 5.12). The only artefact recovered was from F.443, which yielded a large fired clay spindlet whorl. Overall, the post-ring had a diameter of just 4.95m, but was surrounded by three satellite post settings (0.18–0.30m in diameter; 0.09–0.18m in depth), equidistantly positioned around the circuit. These displayed identical fills and presumably marked the external wall-line of the building. The overall footprint was therefore 6.90m in diameter and whilst symmetrical in layout, displayed no obvious entrance setting. The Late Bronze Age ancestry of the roundhouse was a confirmed by single radiocarbon determination derived from a charred seed in F.433 (see below). This returned a date of 900–800 cal bc (Beta-205538: 2680±60 yr).

Immediately adjacent to the roundhouse, and seemingly abutting the external wall-line, was pit F.433, accompanied by a further outlying posthole F.491: both of which may have been directly associated with the structure. The pit was a shallow rectangular cutting (1.50m long; 0.53m wide; 0.19m deep), filled with a single deposit of mid-grey silty-sand. Mixed within this soil matrix were two worked flints and 55 plain sherds (279g) of Late Bronze Age-type pottery, the varied fabrics of which suggest a minimum of eight vessels were represented. However, no further contemporary features were located within the vicinity of the roundhouse, with the nearest (posthole F.710) laying some c. 50m to the southwest of the building.

Even further afield were the two four-post structures: the only other buildings identified (Fig. 5.13). These were located along the northern edge of the excavation, on a slightly flatter area of the terrace between the 2.0 and 2.2m contours. Positioned adjacent to one another and sharing the same northeast–southwest axis, these two sub-square structures were very similar in plan: the average dimensions being 3.00m by 2.90m for Four-post Structure 1 (posthole range: 0.33–0.47m in diameter; 0.16–0.30m in depth) and 2.80m by 2.75m for Four-post Structure 2 (posthole range: 0.23–0.40m in diameter; 0.12–0.24m in depth). The post settings were mainly filled with mid-grey silty-clay, though postholes F.35 and F.384 in Structure 2 had charcoal-rich bands in their upper profile. F.384 yielded two fragments of burnt animal bone (11g), with a further piece (7g) deriving from F.383 in the building. Another scrap of calcined bone (1g) was also recovered from F.379 in Four-post Structure 1, whilst a piece of fired clay (31g) was found in F.381 (alongside eight residual sherds of Neolithic pottery (48g)).

Given that none of these finds are of definite Late Bronze Age attribution, the dating of these structures is far from secure. That said, on the basis of form alone, the buildings are clearly of later prehistoric origin and in light of the fact that no Early Iron Age features were encountered above the 2.0m OD contour at Bradley Fen, a Late Bronze Age date seems the more likely. Of course, a Middle Bronze Age origin cannot be completely ruled out, but since posthole F.382 abutted the tertiary fills of an adjacent waterhole of this period, the structure can almost certainly be regarded as later (given some level of truncation, the posthole may have originally cut these upper silts). Details aside, it is striking how the alignment of these structures were sympathetic to the wider axis of the former Middle Bronze Age field ditches, just as the contemporary waterholes were along the lower contours. The same is also true of Roundhouse 4, which was neatly located in the southern corner of a once ditched paddock (Figs 5.11 & 5.12). This again serves to illustrate how an earlier grain in the landscape was still important in conditioning the layout of some settlement features well into the late second and earlier first millennium bc at Bradley Fen: a pattern which was not carried forward into the Middle Iron Age (see Chapter 6).
Settlement in the post-fieldsystem landscape

Other features

Only six other features above the 2.0m contour were assigned to the Late Bronze Age: four isolated post-holes (F.280, F.335, F.710 and F.712) and three pits (F.690, F.691 and F.698). Of these, three warrant further description.

The first is F.280, a circular posthole-type feature with a U-shaped profile measuring 0.40m in diameter, 0.40m in depth and filled with a mid-brown silty-clay. The cut was lined with burnt stones and 23 plain body sherds of Late Bronze Age pottery (177g), derived from a single shell-tempered vessel. Above, two very different but complete loomweights had been stacked in the centre of the posthole: one, rectangular in shape, with a single perforated hole; the other more bun-shaped, with two perforations perpendicular to one another (Fig. 5.14). Whilst the finds from the base could constitute post-packing, the loomweights should be considered a further example of a placed deposit, similar to the semi-complete vessels from the waterholes. In this instance, these were interred after the post had been removed. However, understanding what these acts related to, or how this isolated post functioned, is nigh on impossible. Indeed, all that can be said is that these finds attest to weaving taking place at the site, complementing the evidence for textile production hinted at by the spindle whorl recovered from Roundhouse 4.

Figure 5.12 (left). Roundhouse 4 and adjacent features.

Figure 5.13 (above). Four-Post Structures 1 and 2.
The second and third features of note were two intercutting pits, F.691 and F.698, located at the centre of the site. F.691 was a relatively large, steep-sided pit with a concave base (1.85m long; 1.25m wide; 0.79m deep), not unlike some of features on the damp-ground contours. The fill sequence, however, reflected its dryland setting on the terrace and was characterized by bands of gravel-rich sandy-silts. More importantly, this feature had truncated an earlier pit, F.698, which contained a crouched inhumation at its base. Very little of the original pit survived on southwest side of F.691, though here the lower legs and feet of the body remained in situ.

The date of this burial is uncertain, making it difficult to judge the duration between the interment of the body and the cutting of F.691 – the burial potentially being of earlier Bronze Age origin. Nonetheless, it was evident that this grave was recognized during the original digging of F.691, since some of the disturbed bones were regrouped and stacked on the base of the cut (Fig. 5.15). Accompanying these was an unusual miniature pottery vessel, whose general form and fabric affinities would suggest a Late Bronze Age date. The question remains whether this was contemporary with the cutting of pit F.691, perhaps being placed alongside the reassembled bone in some act of appeasement, or whether it was originally a grave good.

Discussion – the character of the Late Bronze Age settlement remains

The imprint of Late Bronze Age settlement at Bradley Fen is very slight and scarcely more visible than that of the preceding period. Even allowing for the fact that Roman quarrying may have destroyed further features on the crown of the terrace, the overall impression is one of widely dispersed structures scattered throughout a landscape still partitioned along lines previously inscribed by ditches in the mid second millennium BC. In terms of the suite of features represented, there is nothing especially unusual about these settlement remains, except for their degree of dispersal. Elsewhere in Cambridgeshire, Late Bronze Age open settlement
Settlement in the post-fieldsystem landscape

F.691 and F.698: the human remains (Natasha Dodwell)

The skeleton (adult; ?male; height: c. 1.72m (5′8 ″)) was severely truncated. Only the lower legs and feet survived in situ in F.698, the right lying directly on top of the left. This suggests that the body would have been placed in a crouched position on its left side, orientated either east–west or southeast–northwest depending on how flexed the body was. At the base of pit F.691, which cut the skeleton, was found a large quantity of human bone (rib fragments, 15 vertebrae, a left humerus and clavicle, left ischium, right ulna and four right metacarpals) which although not articulated, had been deliberately grouped/stacked. There were recent and old post-mortem breaks amongst the remains and concretions of iron panning. A well-healed transverse fracture, marked by a smooth callus was recorded on the mid shaft of the left ulna. Schmorl’s nodes were recorded on the surviving lumbar and lower thoracic vertebrae and eburnation and osteophytes were observed on the articulating facets of the cervical vertebrae. Human bone, more carelessly deposited, was recovered through the basal gravel fill of F.691 which covered the stacked remains. The elements retrieved included fragments of rib, right scapula, a very small fragment of left mandible, a fragment of parietal and the left maxilla with all eight teeth lost post-mortem. An external draining abscess, measuring 10mm, was recorded above the second premolar.

is typically more focused and speaks of both longevity in occupation and an intensity of activity at particular locales. This is distinctly lacking from the signature at Bradley Fen and suggests we are not looking at a settlement ‘core’ per se, but rather structures and the traces of occupations which were more intermittent or less intensive.

Given the light footings of Roundhouse 4 and the scarcity of surrounding features, it could be the case that this building was subsidiary to an external settlement ‘hub’: a structure to be used whilst livestock grazed the terraces and rich pastures of the damp-ground contours. Buildings such as this may only have been occupied for a few weeks or months of each year, perhaps by a handful of individuals charged with overseeing the seasonal movement and grazing of animals. Shelters or other light buildings (possibly four-post structures for storage?) would certainly have been required and worth investing in for this task, especially if these forays formed part of a yearly roll call of duties in the agricultural cycle. The impermanence of residency would also help explain the paucity of

Figure 5.15. Reconstruction of the pitting sequence (from left to right) and the disturbance of the burial in F.691 and F.698.
finds directly or indirectly associated with the building, or indeed the use of other contemporary features at Bradley Fen. In other words, in circumstances where only a few artefacts may have been brought onto the site and used by a small sub-set of the community, we should anticipate things being broken and deposited much more infrequently.

**Early Iron Age settlement and structural remains – the archaeology of the dry terraces at King’s Dyke**

Compared to the extensive but low density scatter of features at Bradley Fen, the linear swathe of Early Iron Age pits and structural remains at King’s Dyke present a more complete, if somewhat crowded image of later prehistoric open settlement (Fig. 5.16). Whilst this impression is partly shaped by the corridor-like excavation footprint, which cuts a relatively narrow transect across the site, there can be no denying the aggregated nature of the settlement with a total of 10 roundhouses uncovered. The picture is therefore far from complete, but since the site straddles the same range of contours to those occupied by the Late Bronze Age features at Bradley Fen, it offers an opportunity to compare the changing signature of settlement in this landscape zone.

**Roundhouses**

From even a cursory examination of the site plan, it is immediately apparent that there are marked contrasts in the architectural footprint of roundhouses at King’s Dyke. These 10 circular buildings were variously defined by post-rings, wall-trenches and/or heavy-set doorway structures. All were truncated to differing degrees, with no traces of floors surviving. Some still presented entire ‘pristine’ ground plans whilst one or two were represented by no more than an arc of postholes or a short line of wall-trench. Others comprised a more chaotic arrangement of postholes, attesting to repairs, internal partitions/interior fixtures or even phases of activity unconnected to the buildings. Equally, there were differences in the size and orientation of the roundhouses, with at least one being small enough to be appropriately labelled an ancillary structure (Table 5.1).

Despite this variability, these buildings can be usefully divided into three principal groupings, based on the architecture of their wall-lines and entrance settings. Importantly, these categories are not just devised with convenience in mind. As will be teased out below, there are crucial details shared by some buildings in these groups, which allow us to identify hallmarks in roundhouse construction techniques. This not only enables a discussion of architectural traditions in this context, but helps to established connections between buildings, facilitating efforts later on in this chapter to model the development of the settlement.

**Buildings defined by a wall-trench – Roundhouses 5, 6 and 10**

Roundhouses 5, 6 and 10 were defined by narrow pen-annular wall-trenches (Fig. 5.17). The best preserved were Roundhouses 5 and 10, particularly the former, which displayed a pristine and visually spectacular ground plan, comprising a wall-slot and external ring of evenly spaced postholes. At the other end of the preservation spectrum was the adjacent structure Roundhouse 6, the footprint of which was heavily truncated, surviving as a short arc of wall-trench and a scatter of shallow postholes. Each of these buildings is described in order of their preservation (from truncated to pristine) below.

<table>
<thead>
<tr>
<th>Roundhouse</th>
<th>Date</th>
<th>Site</th>
<th>Diameter</th>
<th>Pottery</th>
<th>Bone</th>
<th>Fired clay</th>
<th>Flint</th>
<th>Worked stone</th>
<th>Burnt stone</th>
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<tbody>
<tr>
<td>4</td>
<td>LBA</td>
<td>BF</td>
<td>6.90m</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>5</td>
<td>EIA</td>
<td>KD</td>
<td>8.45m</td>
<td>244 (1829g)</td>
<td>208 (1040g)</td>
<td>50 (1159g)</td>
<td>8</td>
<td>7 (760g)</td>
<td>c. 0.8kg</td>
</tr>
<tr>
<td>6</td>
<td>EIA</td>
<td>KD</td>
<td>c. 7.50m</td>
<td>1 (2g)</td>
<td>9 (7g)</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>EIA</td>
<td>KD</td>
<td>8.50m</td>
<td>4 (7g)</td>
<td>5 (11g)</td>
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<td>KD</td>
<td>8.50m</td>
<td>12 (57g)</td>
<td>14 (41g)</td>
<td>1 (18g)</td>
<td>1</td>
<td>-</td>
<td>c. 2.2kg</td>
</tr>
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<td>9</td>
<td>EIA</td>
<td>KD</td>
<td>8.30m</td>
<td>7 (52g)</td>
<td>92 (583g)</td>
<td>1 (1g)</td>
<td>13</td>
<td>-</td>
<td>-</td>
</tr>
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<td>KD</td>
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<td>16 (36g)</td>
<td>7 (9g)</td>
<td>3 (4g)</td>
<td>1</td>
<td>1 (1406g)</td>
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<td>-</td>
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<td>401 (2033g)</td>
<td>2 (9g)</td>
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</tbody>
</table>

Table 5.1. Roundhouse characteristics and finds totals. BF = Bradley Fen; KD = King’s Dyke.
Figure 5.16. Plan of the King's Dyke Early Iron Age settlement. The only features which may be of Late Bronze Age origin are Roundhouse 12 and pit F.84.
Chapter 5

Roundhouse 6

The truncated remains of roundhouse 6 lay just above the 3.2m contour, at the western end of the settlement swathe. The perimeter of the building was marked by a 3.7m long stretch of surviving wall-trench (F.352; max. width 0.44m; depth 0.33m), the projected circuit of which had an internal diameter of 7.50m. The entrance appears to have been on the eastern side of the building, as defined by the northern terminal of F.352 and posthole F.309: the doorway width being 1.20m. The existence of a porch structure is also implied by the position of posthole F.340, set opposite F.309.

The only surviving interior features in the structure were three small postholes, F.354, F.362–63 (diameter range, 0.12–0.67m; depth range, 0.05–0.18m), located close to the southern arc of the projected wall-line. Towards the rear of the building was pit F.360; a shallow and somewhat irregular feature (0.80m in diameter; 0.20m deep) with a charcoal-flecked fill. This was located on the path of the projected wall-line and may therefore pre- or post-date the structure. Alternatively, both this feature and F.361 – a similarly irregular pit lying on the fringes of the structure (0.51m in diameter; 0.15m deep) – may be interpreted as hollows forming along the exterior wall-line. In terms of artefacts recovered, the structure and its associated features yielded very few finds. Small fragments of animal bone were recovered from F.309 and F.340 (9 fragments, 7g), whilst the latter also yielded a single sherd of pottery (2g). The only other finds were two worked flints from F.361 and F.363.

Roundhouse 10

Roundhouse 10 was situated in the centre of the settlement swathe, 115m west of Roundhouse 6. Unlike the other buildings, which were only revealed once the buried soil had been stripped from the surface, the outline ‘ghost’ of Roundhouse 10 was identified during the removal of this horizon. Consequently, it was possible to conduct a controlled excavation of the lower profile of the buried soil within the interior of the structure. This was achieved by hand digging eight alternate 2.5m squares of the deposit across a 10m × 10m chequerboard style-grid.

No traces of a laid floor or other sub-soil features were encountered in these investigations. Perhaps more surprisingly, the recovered finds totals were remarkably low; just eight artefacts: three small sherds of pottery (7g), three fragments of calcined bone (6g), a single worked flint and one piece of burnt stone (Fig. 5.18). This equates to just one artefact per grid square excavated or 0.4 finds per metre. In addition, the floated samples from the squares produced only a background of wild seed species and a single rachis fragment.

Figure 5.17. Plan of roundhouses defined by a wall-trench.
Settlement in the post-fieldsystem landscape

Nine internal features were identified within this roundhouse, comprising three pits (F.94, F.99 and F.101) and six postholes. Like all features associated with the building, these fixtures were filled with grey silty-sand, mottled to varying degrees by patches of pale clay and gravel. Of note is the central diamond-shaped arrangement of postholes, formed by F.97–98, F.100 and F.103. This is thought to be a key architectural component of the structure and, more significantly, is mirrored in the ground plan of Roundhouse 5 (see below). The imprint of these two buildings is further connected by the presence of single ‘cooking’ pits, located just inside the doorway of the structures, directly opposite the northern entrance posts. In Roundhouse 10, this feature comprised a small, shallow clay-lined pit, F.94 (0.57m in diameter; 0.13m deep), which yielded 8kg of burnt stone including a broken fragment of a saddle quern. Beyond this, there were no other concentrations of artefacts in the features. Most did yield finds, but these often comprised single scraps of pottery (13 sherds, 29g in total from the structure), animal bone (4 fragments, 3g), fired clay (2 fragments, 4g) or single burnt stones (391g in total).

Charcoal, by contrast, was reasonably abundant, being found throughout the interior. Given the overall finds frequencies and the lack of any obvious patterning in their distribution, it is hard to make meaningful observations. All that can be concluded is that the interior of the building appears to have been kept free of material refuse, both prior to and after its abandonment.

The ground plan of Roundhouse 10 was defined by a shallow penannular wall-trench with an east-facing entrance marked by four fairly robust postholes (doorway width 2.0m). The circuit of the wall-trench, F.95 (width range, 0.14–0.24m; depth range, 0.04–0.15m), was largely intact, with an internal diameter of 8.3m. At the rear of the structure, its line was cut by posthole F.104 and further flanked by two close-set stake holes, F.105 and F.106, settings which may represent a repair to the wall. More direct evidence for the replacement of structural components was found at the entrance. This was initially defined by postholes F.75 and F.78 (0.19–0.21m in depth), later recut by F.76 and F.77. These secondary pit-like post settings were more deeply footed than their predecessors (0.53–0.59m in max. diameter; 0.31–0.40m in depth), though none retained traces of post-pipes.

Figure 5.18. Finds distribution from buried soil squares within Roundhouse 10.
Roundhouse 5

Roundhouse 5 was the most elaborate building in its class (Fig. 5.19), located at the western edge of the settlement swathe, immediately behind Roundhouse 6. The structure was defined by a wall-trench (F.441, internal diameter 8.45m), surrounded by a concentric post-ring with 19 surviving postholes (F.458–73). The interior wall-line slot consisted of a narrow, vertically sided trench (0.20–0.30m in diameter; 0.15–0.30m in depth) with two breaks along the circuit: one marking the building’s main east-facing doorway, measuring 1.70m in width and flanked by two deeply footed entrance posts (F.474 and F.475, 0.40m in diameter and 0.40m deep); the other being to the southeast and forming a second entrance measuring 1.25m wide. Filled with yellowish grey-brown sandy-silt, the trench revealed the occasional discrete post impressions at its base (0.15–0.25m in diameter), suggesting the cut acted as a footing for closely spaced or abutting uprights. The character of this feature altered towards the eastern entrance, ‘flattening’ in plan and becoming notably shallower. This attribute served to accentuate the building’s main entrance, creating a flat facade. Of note is the depression in F.441 just south of entrance post-F.475, which may represent repair to the doorway.

Elements of the external post-ring also added to the enhancement of the eastern entranceway. The post circuit measured 9.75m in diameter north–south and 9.00m east–west. Seventeen circular postholes surrounded the perimeter (F.456–72; diameter range, 0.25–0.30m; depth range, 0.15–0.35m), spaced on average 1.20m apart, with two elongated oval-shaped footings set opposite the entrance (F.455 and F.473; 0.40–0.50m in length; 0.25m in width and 0.15–0.25 in depth). The alignment of the latter accentuated the building’s façade, creating quite an elaborate externally splayed doorway structure.

Internal fixtures and finds

Twenty features were identified within the interior, including 13 postholes (F.442–54; diameter range, 0.18–0.38m; depth range, 0.11–0.31m) and seven pits (F.488, F.495–96, F.501, F.523, F.525 and F.529). The postholes formed part of four interior fixtures: a small four-post structure (F.451–54); a two-post structure (F.449 and F.550); an arching partition (F.442–45); and a central diamond-shaped setting of structural supports (F.446–48), which either utilized posthole F.445, or another cutting opposite the entrance, removed by the Roman boundary ditch. This feature would have created an identical setting to that in Roundhouse 10, with posts set between 3.20 and 3.40m apart.

The four-post and two-post structures were situated either side of rectangular pit F.495, the former positioned in respect the second ‘minor’ entrance through the perimeter wall-line. The postholes of this structure were set between 0.50 and 0.75m apart, whilst those of the two-post fixture were spaced at 1.00m. Both shared fills of grey-brown sandy-silts, flecked with charcoal and smudges of burnt clay. Similar types of fill were observed in pit F.495. Box-like in form, this rectangular pit (1.30m in length, 0.90m in width and 0.59m in depth) had near vertical, unweathered sides and a flat base (Fig. 5.20). It had been backfilled with a sequence of alternate bands of relatively clean clays, interleaved with layers of ‘dirty’ charcoal-rich silt: a seed from the penultimate charcoal-rich lens yielding a radiocarbon date of 520–380 cal bc (Beta-205544: 2370±40 BP).

The pit yielded the structure’s largest artefact assemblage, comprising 167 sherds of pottery (1344g), 42 pieces of burnt clay (1059g), 19 fragments of animal bone (40g), various burnt stones (182g) and two heat-cracked fragments of a saddle quern (490g). Most of the pottery was recovered from middle fills of the pit, including numerous refitting burnt or over-fired sherds from three coarsewares jars. Below these and lying immediately above the basal fills, were several lumps of burnt clay. Most of this belonged to a broken and roughly moulded sub-rectangular loomweight or ‘clay brick’, the surface of which had been repeatedly stabbed by an edged tool. At the western end of the pit, the principal artefact bearing layers had been cut by a circular posthole-sized feature, F.540, measuring 0.18m in diameter and 0.17m in depth. This was filled by another dark charcoal-rich deposit, which had a discrete concentration of pottery and animal bone at its base, together with a further fragment of the quernstone from F.495. The quern (96g) and animal bone (14 fragments, 27g) may have been redeposited, but the pottery was a fresh interment, comprising 35 sherds (225g) from a single large fineware jar, not represented in the earlier feature.

Towards the end of the infilling sequence of F.495, another pit was cut through the fills. F.496 was sub-circular in plan with a U-shaped profile (0.48m in length, 0.38m in width and 0.54m in depth) filled with a charcoal-rich sandy-silt similar to that in F.540. This pit also contained a mix of redeposited finds from F.495, including further pieces of quernstone.

Figure 5.19 (opposite). Roundhouse 5. The ditch cutting the structure was of Roman date.
Settlement in the post-fieldsystem landscape
Figure 5.20. Pit F.495. Top left: plan and section of the pit showing banded deposits and recuts (F.496 and F.540). Top right: selection of semi-complete vessels recovered from F.495 and F.496. Bottom: photograph of the banded deposits.
(190g), animal bones (102 fragments, 98g), fired clay (4 pieces, 78g) and pottery (10 sherds, 62g), some of which refitted to material from the context cut below. However, like F.540, there was also a newly placed deposit at the base of the pit, this time comprising a group of partially articulated lamb bones accompanied by a semi-complete cup.

In total, the sequence of deposits and recuts connected to F.495 yielded a substantial artefact assemblage. On the one hand, this can be seen as a reflection of the likely range of activities occurring within the roundhouse, with a particular emphasis on food preparation and consumption. On the other, there are indications in the way these things were treated, that careful consideration was given to their selection and ordering in the ground. In terms of material choice, the inclusion of semi-complete pots and dumps of animal bone certainly resonate with patterns of formal deposition in the waterholes at Bradley Fen. Here though, the reiterative character of these acts seems to have been particularly important, with one specific spot in the roundhouse serving as a focus for these deposits. Whilst it is hard to pinpoint the motivation for such acts, given there is a sequence of deposits, it is tempting to view each interment as marking a particular moment within the history of the structure, or the lives of the inhabitants. Perhaps more importantly these practices are echoed elsewhere at King’s Dyke in Roundhouse 14, where there are hints that lamb bones were interred during both the foundation and abandonment of the structure (discussed below).

In comparison to the artefact-rich deposits from F.495, F.496 and F.540 the remaining pits in Roundhouse 5 were comparatively ‘quiet’ in terms of finds: just 12 sherds of pottery (64g), 22 scraps of animal bones (8g), 4 worked flints and a few pieces of burnt stone (394g) recovered between them, with no finds from F.488 or F.529 (Fig. 5.21). F.501 was a small, heat-reddened ‘cooking pit’ (0.53m in diameter, 0.15m deep) located opposite the entrance, in an identical position to that in Roundhouse 10 – another fixture connecting these structures. The remaining internal pits were oval-shaped storage features (length range, 1.05–1.50m; width range, 0.73–1.15m; depth range, 0.34–0.64m), each with one or two deposits of orange-brown to mid-grey sandy-silts. Although not all of the pits may have been open at the same time, contemporaneity with the roundhouse is implied by their distribution towards the perimeter of the interior and also by the survival of their overhanging profiles. This characteristic in particular indicates that the pits were dug, used and backfilled in a sheltered environment, since similar features outside the structure consistently show weathered bowl-shaped profiles.

Their shape also implies that the interior of the pits were lined or supported in some way, as it is hard to otherwise account for why the sides had not collapsed from footfall above. It certainly seems likely that they would have been lidded, given the hazard of having open features of this magnitude in the structure, not to mention the fact that F.529 would have blocked the second southern entrance.

Details aside, the number of pits from Roundhouse 5 and in particular, the recuts, deposits and artefacts within F.495, speak of a history of inhabitation with some degree of time-depth. Interestingly, this is not otherwise immediately apparent from the pristine architectural footprint of the building, which shows only one possible repair to the entrance. Indeed, without these internal fixtures and finds it would be easy to interpret this roundhouse as a relatively short-lived structure. Still, even if the task of further detailing how this building was actually used/maintained during its life remains a challenge too far with evidence at hand, some insight is provided by a phosphate survey (conducted by Paul Middleton) and distributional analysis of charred macro-fossils and other heavy-residue finds from the processed samples.

The phosphate plot demonstrates some subtle variations in the values achieved for the roundhouse interior (Fig. 5.21). Whilst there are few obvious patterns in this distribution, in relative terms, there is a swathe of slightly higher values associated with the rear of the structure and the area immediately inside the two eastern doorway posts. These seem to relate in part to the location of the structure’s four main storage pits, although it is notable that the central zone, home to hearth/cooking pit F.501, was characterized by low values. These trends are difficult to read. However, they could imply that small scraps of refuse or other phosphate-rich waste sometimes gathered in these marginal zones, or became trampled into the floor here. By contrast, the central area, which presumably served as the focus for activity (benefiting from light directed from the hearth and doorway), was probably swept free of detritus on a regular basis, hence the lower values.

This interpretation finds some support from the distribution of charred macro-fossils and other small heavy-residue finds (Fig. 5.21). Here, behind the obvious bias towards the pits, finds from the wall-trench at the back to the structure are reasonably prolific, with concentrations also in the entrance postholes. These patterns mirror those from the phosphate survey, again implying that scraps of refuse and other small pieces of debris accumulated in the darker spaces behind the doorway and along the rear wall-line: spaces where small things could enter the ground via gaps between the walls/posts and their footings.
Figure 5.21. Finds distributions in and phosphate plot for Roundhouse 5. Phosphate samples were taken at metre interval along a 10×12m grid, with the results expressed as mg of phosphorous per 100g of soil.
Settlement in the post-fieldsystem landscape

Buildings defined by post-rings – Roundhouses 11, 12, 13 and 14

Located at the lower end of the excavated terrace between 2.6 and 2.8m OD, the four easternmost roundhouses at King’s Dyke were all defined by post-rings (Fig. 5.22). The buildings varied in size and construction technique, with the two largest roundhouses (13 and 14) possessing double post-ring circuits. These were only partially exposed in the excavation area, whereas Roundhouses 11 and 12 were uncovered in their entirety; Roundhouse 11 being a small ancillary-type structure.

Roundhouse 11

Roundhouse 11 was a small ancillary structure (4.40m in diameter), defined by a semi-circular arrangement of five postholes (diameter range, 0.20–0.40m; depth, 0.25m). F.107 and F.111 were the largest settings and potentially marked the terminals of the structure’s circumference, suggesting the building was more akin to an open-sided building than a roundhouse per se.

Two other postholes were associated with the structure comprising the recut mid-point posthole F.112, lying equidistant between F.107 and F.111; and F.113, positioned forward from, but axial to, the mid-post and F.109. Symmetrically arranged, this seven post plan appears to have been orientated north-eastwards, although the position of an entrance is far from clear. The fills of the postholes were identical, with each containing dark charcoal-rich silts. Finds from the building were recovered from F.108 and F.110 and comprised four sherds of Early Iron Age pottery (21g), including a fingertip decorated shoulder sherd, as well as a single burnt stone (5g).

Roundhouse 12

The only complete, pristine post-ring-type building uncovered was Roundhouse 12, located 10m east of Roundhouse 11. The post circle was defined by 12 regularly spaced postholes (diameter range, 0.15–0.25m) set, on average, 1.85m apart. This gave the structure a diameter of 7.8m, with an east-facing entrance marked...
transitional Bronze Age–Iron Age assemblages, was also present. Combined then, this is certainly a candidate for the earliest pottery group from the settlement at King’s Dyke and goes some way to supporting the claim that Roundhouse 12 was the earliest building erected in the structure sequence.

Roundhouse 13
Just over 8m to the northeast of Roundhouse 12 was the southern edge of a third post-ring structure, only partially exposed. The visible section of the building, Roundhouse 13, was defined by an arc of five evenly spaced perimeter postholes, with a projected diameter of 9.60m and two further interior posts, thought to form part of an inner ring (posthole diameters, 0.20m; depths 0.14m). This reconstruction is largely based on the symmetry of the posthole arrangement and the morphological parallels with Roundhouse 14 (described below). Being the largest setting in the outer circuit (0.47m in diameter), posthole F.74 probably marked the southern side of the entrance, suggesting the building faced southeast – an orientation also shared by Roundhouse 14. The only find recovered was a single shell-tempered sherd (2g) from F.68.

Roundhouse 14
With its elaborate southeast-facing porch projection and a double circuit measuring 11.5m in diameter, Roundhouse 14 was the largest and most complex post-built structure revealed at King’s Dyke. The structure lay on its own at the far end of the excavation area, just over 50m east of Roundhouse 13. Despite not being fully exposed, and suffering from truncation on its northwest side (explaining the southern bias in the

by the two largest postholes in the circuit, F.136 and F.137. Two further postholes lay within the interior: the first located near the centre of the building (F.140), the second towards the rear (F.128). Other features possibly connected to the post-hole included three further satellite postholes, F.125, F.130 and F.147. These were positioned in a triangular setting around the post-ring, similar to the arrangement in Roundhouse 4 at Bradley Fen. However, their alignment was less symmetrical and the spacing more varied. Whilst F.125 and F.130 were both set at an equal distance of 1.60m away from the post-ring, F.147 lay slightly further afield. Alternatively, it is possible that F.147 formed part of a porch structure, since it lay directly opposite entrance post F.136 (Fig. 5.23).

Given such ambiguities it is debatable whether all or any of these additional postholes were associated with the structure. That said, the closest parallel for the building still lies with Roundhouse 4 at Bradley Fen, suggesting this could be another example of an isolated Late Bronze Age structure. Unfortunately, a single undiagnostic sherd (1g) from posthole F.132 was the only artefact recovered, making it hard to determine the date. Finds were however retrieved from pit F.84 lying immediately north of the post-ring. This may well have been contemporary with the building, or possibly internal to it, depending on the favoured reconstruction. The pit yielded the crumbled remains of a rectangular loomweight (859g) and 27 sherds (81g) of plain pottery, much of which was burnt. The fabrics were not especially diagnostic, comprising shell and shell-and-flint tempered wares typical of both the Late Bronze Age and Early Iron Age around Peterborough, although the partial profile of a finely burnished cup, best paralleled in Late Bronze Age or

Figure 5.23. Three alternative reconstructions for the plan of Roundhouse 12. Left: single post-ring; Middle: inner post-ring with external post-marked wall-line (similar to Roundhouse 4); Right: single post-ring with porch setting.
Settlement in the post-fieldsystem landscape

distribution of internal features), the basic structural components of the building can be identified (Fig. 5.24). The uncovered section of the outer ring comprised 14 perimeter postholes (11.50m in diameter), encircling an inner circuit (9.60m in diameter) of at least six surviving structural postholes. The most substantial were the four settings that framed the 2.20m wide entranceway, F.54–57 (diameter range, 0.39–0.47m; depth range, 0.40–0.53m). The outer two of these formed part of the rectangular porch structure (dimensions: 3.75m by 2.85m), whose external footing was marked by a pair of wide but shallow postholes, F.1 and F.6, both under 0.20m in depth. Indeed, similarly shallow cuts characterized the remaining structural postholes in the roundhouse (diameter range: 0.23–0.45m; depth range, 0.08–0.28m).

Internal fixtures and finds
A further 32 features were located inside the roundhouse (Fig. 5.22), including four pits (F.30, F.39, F.46, F.61) and 28 other postholes or the bases of truncated posthole-like pits. Some of these features, such as F.180, perhaps represent repairs to the wall-line, whereas others, including the three postholes located within the porch structure (F.59 and F.168–69), may be unconnected to the building. Most, however, displayed similar dimensions to those in the double post-ring, with comparable fills of grey silty-clay flecked with charcoal (diameter range, 0.10–0.45m).

Despite the rash of postholes, there were no obvious fixtures akin to the four-post setting or the screen-like partition identified in Roundhouse 5. Nevertheless, there was a cluster of features towards the middle of the building, central to which was F.61 (0.98m in diameter and 0.32m in depth), thought initially to be a hearth rake-out pit. The pit had steep unburnt sides and an undulating base. It was recut

**Figure 5.24.** Model of Roundhouse 14 as ‘complete’ and plot of artefact distributions. Based on the uniform spacing of the postholes on the western side of the perimeter (each set around 1.15–1.20m apart) it is predicted that the outer circuit originally comprised 21 uprights. Posts in the inner circuit also appear to have been evenly spaced, set between 3.00–3.45m apart. The complete inner ring would therefore have included around nine uprights, creating a narrow c. 1.00m wide ‘aisle’ between the perimeter wall and the structure’s open interior.
Figure 5.25. Pit F.61. Top: section and photograph of F.61 and adjacent features, showing the location of soil block removed for micromorphology. Bottom: Detail of soil block with micromorphology sample locations and thin sections (1 and 2). Note missing layer B in sample 2 (lost during sampling), missing layer F in sample 1 (lost during sampling, represented by F in sample 2) and the overlapping of layer E between samples 1 and 2.
on its eastern side by a smaller, irregular profiled feature, 0.45m in diameter and 0.24m deep, which was only recognized in section (Fig. 5.25). Both had identical fill sequences, reminiscent of pit F.495 in Roundhouse 5. The upper profiles contained finely laminated, horizontally bedded bands of reddened sandy-clays interspersed with lenses of what appeared to be ash. These rested upon unburnt basal deposits of charcoal-rich sandy-silts. Micromorphological analysis of the laminated upper fills suggests the reddening was a product of iron impregnation resulting from heat-induced evapotranspiration, probably caused by adjacent hearths (see Arroyo-Kalin below). The occasional fragments of calcined bone, burnt flint and carbonized plant remains were also caught within these reddened deposits: a seed from the recut yielding a radiocarbon determination of 770–410 cal bc (Beta-262624: 2460±40 bc).

Lying at the base of the banded fills in F.61, just above the primary deposits (at the point where F.61 was recut), were the crushed but refitting fragments of a substantially intact Fengate-Cromer style Early Iron Age bowl. The condition of the vessel and the of a substantially intact Fengate-Cromer style Early Iron Age bowl. The condition of the vessel and the subsequent placement of sherds on top of this vessel, which would have stood out against the myriads of predominantly plain coarsewares jars in the assemblage. It is therefore tempting to connect the treatment afforded to this particular vessel as being in some way a reflection of its status or role within the contemporary ceramic repertoire.

Significantly, other non-refitting sherds from the pot were also recovered from the primary fills of F.61. These were mixed amongst a dump of butchered lamb bones (59 pieces, 345g), lamb representing a minimum of three individuals (slaughter between late summer/early autumn). In light of the ceramic connections, it seems likely that that the breakage of the decorated bowl, the dumping of lamb bones in the primary fill and the subsequent placement of sherds on top of this deposit were all related acts. Indeed, we may envisage these materials as the residues of a single episode of formal consumption, which, given the number of lambs butchered, probably involved several households. Further still, since the remains were interred on the unweathered base of the pit, located at the centre of the roundhouse, they could be argued to constitute a foundation deposit. In light of the few stratigraphic associations that exist between internal features, there are certainly grounds for thinking that this pit was cut and partially backfilled at an early stage within the life-history of the structure, perhaps immediately after the building was erected.

Ultimately this deposit may have served to both mark and make a combination of material statements about the ‘birth’ of the house and/or the symbolic significance of the centre of the structure. Judging by the subsequent clustering of postholes/truncated pits around F.61, this zone was clearly an important focus in the building. Its significance was further emphasized by other deposits of disarticulated sheep bone, which packed the shallow cuts of F.27, F.40, F.43 and F.44 (Table 5.2).

A sixth dump of bone was recovered from pit F.1, this time located in the porch interior. Situated on the left-hand side of the threshold (as viewed from the outside) and encroaching upon the porch post, this consisted of a wide shallow cut crammed with 72 lamb bones (456g). The relationship between the pit and porch post suggests the roundhouse was in a state of decay or ruin when the deposit was made and perhaps marked the abandonment of the structure, just as that in F.61 potentially commemorated its foundation. Whatever the incentive for these acts, it is clear that burying dumps of juvenile sheep bones within the roundhouse interior was an important practice, repeated at various points throughout the life of the structure (Fig. 5.24).

**Micromorphology of deposits in pit F.61 (Manuel Arroyo-Kalin)**

Under laboratory conditions, two sediment thin-section samples (1 and 2) were taken from a block removed from the profile of F.61 (Fig. 5.25). Combined, the samples covered a c. 25cm section of the stratified deposits. Layers were named from top to bottom and the same designations used for both thin-section samples. These were prepared from resin impregnated sediment blocks mounted on glass plates, cut and polished down to 30μm. The sections were subsequently described following the criteria outlined in Bullock et al. (1985), Kemp (1985) and Fitzpatrick (1993).

**Table 5.2. Principal lamb/sheep bone deposits in Roundhouse 14.**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Dimensions (diam. × depth (m))</th>
<th>Sheep/lamb bones (no./wt g)</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.1</td>
<td>0.61 × 0.17</td>
<td>72/456</td>
<td>4</td>
</tr>
<tr>
<td>F.27</td>
<td>0.36 × 0.29</td>
<td>166/764</td>
<td>6</td>
</tr>
<tr>
<td>F.40</td>
<td>0.20 × 0.08</td>
<td>16/60</td>
<td>1</td>
</tr>
<tr>
<td>F.43</td>
<td>0.20 × 0.08</td>
<td>43/283</td>
<td>3</td>
</tr>
<tr>
<td>F.44</td>
<td>0.38 × 0.09</td>
<td>17/63</td>
<td>2</td>
</tr>
<tr>
<td>F.61</td>
<td>0.98 × 0.32</td>
<td>59/345</td>
<td>2</td>
</tr>
</tbody>
</table>
The macroscopically visible sediments were initially described as five distinct types:

Type I. Red, massive, homogeneous, uncompacted silty-clays, 10 R/4/6.
Type II. White, massive, homogeneous, uncompacted silty-clays, 5 YR/8/1.
Type III. Dark brown, heterogeneous, compacted silty-loam, 10 YR/4/3.
Type IV. Red-pink, homogenous, uncompacted silty-clay, 10 R/6/6.
Type V. Light brown heterogeneous, compacted silty-loam, 10 YR/6/4 - 10 YR/7/6.

No remains of artefacts or blackened mineral clasts indicative of fire action were recorded in any of the layers. A general top to bottom gradation from red to brown was observed in the stratigraphy, comprising sediment types I, III, IV and V. In particular, sediment type IV gradually graded in colour from a deep red to a whitish pink without appreciable changes in granulometry, other than the inclusion of subrectangular to subrounded mineral clasts (layer E, Fig. 5.25). Sediment type III seems to be locally intrusive, or maybe more generally indicative of a hiatus in deposition.

Compared to the macroscopic observations, the micromorphological analysis of the two thin sections evidenced additional layers of sediment type II. Combined, the samples present evidence for two layers, one (layer H) not apparent during excavation and another (layer B) lost during sampling (owing to its very uncompacted structure). Conversely, the clear-cut macroscopic differentiation of sediment types I and III in layer C (Fig. 5.25) was not evident in thin section. It is likely that this indicates a sampling discrepancy, further highlighting the local character of sediment type III. Table 5.3 shows the correspondence between micromorphically observed sediment types and microscopic layers.

Layers A, C, E, G and I may be characterized as generally poorly sorted, apedal to moderately developed angular blocky spongy microstructure, iron impregnated silty to sandy clays. Some variation is observed in the size of the stone fraction (layers E, G, H), while layer A shows a wide vertical channel, probably a worm passage related to that shown in Fig. 5.25. Sediment type III seems to be locally intrusive, or maybe more generally indicative of a hiatus in deposition.

With regards to the question of whether F.61 served as a hearth or ash-pit, the observations from the macroscopic and micromorphological analyses suggest that the sediments were not exclusively the result of raking-up hearth-related debris. The sparse organic component present and the general lack of charcoal, burnt sediment and cracking on the very abundant sand- to silt-sized quartz particles together suggest that layers A, C, E and G have not been exposed to direct fire and are not directly derived from combustion features. The widespread variation in sesquioxide impregnation throughout A, C, E, G and I, coupled with the presence of well-defined iron nodules and the formation of goethite, do however suggest various hypothetically time-transgressive phases of mobilization/formation of secondary iron, possibly associated with nearby heat and the resulting ‘forced’ evapotranspiration of the iron-rich groundwater. Given that the degree of iron impregnation of the sediments contrasts markedly with those in the excavated deposit (e.g. layer J), but still seem to follow a relative gradation from top to bottom, it is suggested that these layers may have become impregnated during various heating events occurring in a hearth features above (and presumably truncated). This, in turn, suggests that the pinkish gradation expressed as sediment type IV is partially the result of a gradation of iron impregnation, possibly a function of a higher to lower temperature gradient.

An important observation is that all layers have been extensively reworked, as indicated by the poorly intermixed clay component, specifically the lack of generalized striation or microlamination and a poor development of textural pedofeatures such as clay coatings and infillings. This reworking explains a mostly apedal microstructure and suggests that the microparticulate lenses (layers B (absent in thin-section), D, F and H, pedofeatures in J) formed through the rising of calcite-rich water and oxidation at either a surface or textural boundary throughout the profile. The position in the profile of these lenses may be punctuated by variations in pore space affecting the advance of the retreating wetting front (cf. Miller & Gardner 1962, figs 5a–b). This suggests that a similar agent – groundwater – is partially responsible for both the reddening of layers and the deposition and formation of microparticulate lenses; yet, at the same time, it may have affected the profile with different intensities as a function of the presence of overlying heat and variations in pore space. Hints of microparticulate lenses analogous to B, D, F and H, present in layer J, may also be explained as a function of differential pore spacing affecting the wetting front, later truncated by worm-related bioturbation.

By relating a variety of microscopic and macroscopic signatures from a fills sequence of F.61, it has proved possible to assess whether sediments contained therein were part of a hearth feature. From the general structure of the sediments observed in thin-sections, the lack of surface cracking on quartz particles, the general scarcity of charcoal and other burnt organic material, it may be argued that both their reddening and the intercalated calcitic lenses is explained by iron/calcium carbonate rich groundwater fluctuations, partially associated with local evapotranspiration produced by increased temperature. A gradient of temperature may possibly be invoked to explain different, hypothetically time-transgressive events of iron impregnation, possibly caused by combustion events in a nearby but not directly associated hearth.

<table>
<thead>
<tr>
<th>Sediment type</th>
<th>Layer in thin section</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A, C, E</td>
</tr>
<tr>
<td>II</td>
<td>B, D, F, H</td>
</tr>
<tr>
<td>III</td>
<td>Not observed in thin section</td>
</tr>
<tr>
<td>IV</td>
<td>G, I</td>
</tr>
<tr>
<td>V</td>
<td>J</td>
</tr>
</tbody>
</table>
Settlement in the post-fieldsystem landscape

**Buildings identified by four-post entranceways – Roundhouses 7, 8 and 9**

Lacking wall-trenches or clearly demarcated post-rings, the defining feature of the last three roundhouses at King’s Dyke was the presence of heavy-set four-post doorway structures (Fig. 5.26). The buildings were located in a row at the centre of the site, situated between the 2.7 and 3.0m contours. Roundhouses 7 and 8 were fully exposed, whereas the northeast half of Roundhouse 9 lay beyond the excavation transect.

**Roundhouse 7**

The westernmost structure in the group was Roundhouse 7, which displayed a southeast-facing entrance (1.30m wide) marked by postholes F.236–39. In common with the other buildings, the structure’s inner entrance posts were slightly larger and more deeply footed than the exterior pair, measuring up to 0.60m in diameter and 0.44m in depth. These were filled with greyish-brown sandy-silts, as were all the features associated with the roundhouse. Whilst gauging the original size of the building is obviously problematic, based on the assumption that postholes F.230, F.243, F.245 marked the perimeter of the structure, the roundhouse is estimated to have had a diameter of c. 8.5m.

A total of seven postholes and a single pit (F.228) were enveloped by the hypothetical wall-line (posthole diameter range, 0.25–0.60; depth range, 0.05–0.22m). At the centre were paired postholes F.235 and F.266, which probably provided the main structural supports for the roof. This fixture was aligned upon the entrance, creating symmetry through the footprint. The same arrangement was also evident in Roundhouse 8 and represents a key architectural feature uniting these buildings. Eight features associated with the structure yielded finds (F.228, F.230, F.234–35 and F.236–39). Combined, these comprised just four sherds of pottery (7g), five scraps of bone (11g), one worked flint, four bunt flints (15g) and one burnt stone (29g).

**Roundhouse 8**

With the exception of its east-facing doorway (width, 1.60m), the architectural imprint of Roundhouse 8 was remarkably similar to that of Roundhouse 7. The entrance was again defined by a distinctive four-post setting, marked by F.201–04 (diameter range; 0.30–0.70m; depth range, 0.07–0.35m). The largest of these postholes, F.204, retained traces of a tapered post pipe, 0.16m in diameter and 0.35m deep, suggesting the upright had been left to rot *in situ*. Like Roundhouse 7, the perimeter is estimated to have had a diameter of 8.5m, with the wall-line potentially marked by the position of posthole F.210 and paired posts F.213 and F.218, the latter perhaps being a repair.

The internal features included seven postholes (diameter range, 0.22–0.35m; depth range, 0.10–0.18m) and a single pit (F.200). At the centre of the building

Figure 5.26. Plan of roundhouses defined by four-post entranceways.
were paired postholes F.207 and F.216. Set opposite the entrance, and mirroring the arrangement in Roundhouse 7, these were probably the main internal supports for the structure. The pit was a shallow cut feature (0.68m in length, 0.53m in width and 0.20m in depth), located in a similar position to the ‘cooking pits’ observed in Roundhouses 5 and 10. This feature contained three bands of grey charcoal-rich silts capped by a layer of orangey-grey clay. Caught within the matrix of these fills were three fragments of pottery (28g), nine scraps of animal bone (22g), a single piece of fired clay (18g) and three burnt stones (14g): the building’s largest artefact assemblage. Other finds were recovered from six of the structure’s postholes (F.202, F.204, F.210, F.216–18), but amounted to just nine sherds of pottery (29g), five pieces of animal bone (19g), a single worked flint and two burnt stones (210g).

Roundhouse 9
Roundhouse 9 was only partially revealed in the excavation area. It displayed a southeast-facing entrance, defined by F.316, F.337, F.341 and F.349 (width, 2.1m) and is estimated to have had a similar diameter to the other two buildings in the group (8.30m). The largest posthole in the doorway setting was F.316. This was an oval feature (1.10m in length, 0.60m in width and 0.38m in depth) with an irregularly profiled base and mixed fill sequence which suggested that the post had either been replaced during occupation, or was dug-out and backfilled on abandonment. The fill of deepest area of the cut contained two large refitting shoulder sherds of a decorated Fengate-Cromer-style bowl (45g), together with 12 fragments of animal bone (14g) and a single scrap of burnt clay (1g). In light of the treatment shown to a similar vessel in Roundhouse 14 – the only other Fengate-Cromer bowl recovered from King’s Dyke – it is tempting to see this as another formal deposit, this time associated with the abandonment/decommissioning of the building.

The original wall-line of Roundhouse 9 was probably marked by the short arc of closely set posts on the west side of the building, all measuring <0.25m in diameter and 0.16m in depth (F.319–20 and F.324–25). These were flanked by two further postholes on their exterior (F.310 and F.407), which may have been repair posts. Lying within the interior of the building were a further 17 postholes (diameter range, 0.19–0.60m; depth range, 0.06–0.23m) and a single pit (F.375). At the centre was posthole F.326 (0.35m in diameter and 0.10m deep), which contained another dump of lamb bones (74 fragments, 448g) similar to those from Roundhouse 14.

Despite their frequency, no regular fixtures could be discerned from the posthole scatter in the interior, though not all need have been contemporary with the building. Notable is F.334, which owing to its central position, may have once formed part of a two-post setting opposite the entrance, similar to those in Roundhouses 7 and 8. There are parallels too in the siting of the structure’s only pit, F.375, which occupied a comparable location in the interior, close to the northern pair of doorway posts. This measured 1.20m in diameter and 0.40m in depth and, like all the postholes in Roundhouse 9, was filled with a homogenous deposit of pale grey sandy-silts. In total, 10 of the features associated with the Roundhouse 9 yielded finds (F.311, F.316, F.326, F.328, F.331, F.340–41, F.364, F.366 and F.375). Other than the material already mentioned, the assemblage included a further 4 sherds of pottery (7g), fragments of animal bone (583g), 12 worked flints and single piece of burnt flint (32g).

Four-post structures
Four four-post structures were revealed at King’s Dyke (Fig. 5.27). Two were set closely together towards the centre of the site between Roundhouses 10 and 11 (four-post structures 4 and 5), with the others located at either end of the settlement swathe: Four-post Structure 3 lying 10m north of Roundhouses 5 and 6, with Four-post Structure 6 set 25m from either Roundhouses 13 or 14. The buildings were sub-rectangular and sub-square in form with postholes averaging 0.26m in diameter and 0.33m in depth (Table 5.4). These were all filled with mid to dark grey sandy-silts, with no traces of

<table>
<thead>
<tr>
<th>Four-post structure</th>
<th>Site</th>
<th>Date</th>
<th>Structure dimensions (m)</th>
<th>Posthole dimensions (diam. × depth (m))</th>
<th>Finds (no./wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BF</td>
<td>?LBA</td>
<td>2.9 × 3.0</td>
<td>0.33–0.47 × 0.16–0.30</td>
<td>Bone (1/1g); fired clay (1/31g)</td>
</tr>
<tr>
<td>2</td>
<td>BF</td>
<td>?LBA</td>
<td>2.75 × 2.80</td>
<td>0.23–0.40 × 0.12–0.24</td>
<td>Bone (3/18g)</td>
</tr>
<tr>
<td>3</td>
<td>KD</td>
<td>EIA</td>
<td>2.75 × 2.75</td>
<td>0.44–0.78 × 0.36–0.43</td>
<td>Pot (1/5g)</td>
</tr>
<tr>
<td>4</td>
<td>KD</td>
<td>EIA</td>
<td>1.85 × 2.40</td>
<td>0.20–0.25 × 0.15</td>
<td>Pot (3/5g)</td>
</tr>
<tr>
<td>5</td>
<td>KD</td>
<td>EIA</td>
<td>2.0 × 2.05</td>
<td>0.25–0.4 × 0.15–0.3</td>
<td>Pot (2/8g)</td>
</tr>
<tr>
<td>6</td>
<td>KD</td>
<td>EIA</td>
<td>1.70 × 1.90</td>
<td>0.20 × 0.20</td>
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post-pipes. Finds were limited to a single sherd (2g) from Four-post Structure 3, three scraps of pottery (5g) from Four-post Structure 4 and a further two sherds (8g) from Four-post Structure 5. Given the scarcity of pits large enough to be deemed ‘grain silos’ on the site, the buildings are best interpreted as raised granaries.

Other pits and postholes in the settlement swathe
Of the 72 pits assigned to this phase at King’s Dyke, 21 were internal to the roundhouses or have otherwise already been discussed in relation to these structures (i.e. pits F.84, F.307, F.360–61). However, of the 51 remaining pits, it should stressed that only 24 (47%) yielded sherds of Early Iron Age-type pottery, meaning 27 have no definite basis for period attribution (19 of which yielded no finds whatsoever). There exists then a question mark over the phasing of some pits and also the vast majority of non-structure related postholes in the settlement swathe: 79 in total (diameter range, 0.14–0.46m; depth range, 0.04–0.57m), with only 11 yielding pottery (14%) and 62 without finds. That being said, in the absence of any later Iron Age activity on the site (coupled with a scarcity of definite Late Bronze Age remains), it is reasonable to assume that most of these features are contemporary with the Early Iron Age roundhouses.

In general, most of the pits on the site were relatively small, shallow features (<1m in diameter and 0.50m in depth), with only one or two fills of grey sandy-silts and/or weathered gravels. Based on Reynolds’s suggestion that pits used for grain storage needed to be at least 1m deep (see Lambrick & Allen 2004, 117), only one feature – F.421 – could possibly have served this purpose at King’s Dyke, even allowing for c. 0.40m of truncation. This measured 2.70m in diameter, 1.33m in depth, and was more in keeping with the size of the waterholes below the 2m contour at Bradley Fen, than other pits at King’s Dyke (Fig. 5.28). Even here, however, there were few clues as to the exact function of this pit, which yielded just two sherds (3g) of Early Iron Age pottery. In fact, most of the features with finds beyond the roundhouses contained only small scraps of pottery and animal bone: material that could have easily entered features incidentally during backfilling. Lacking are any hints that major rubbish heaps/middens were located within the area of the excavation transect. In truth, there are surprisingly few finds from outside the structures overall (Fig. 5.30). The only feature assemblage warranting special mention was from pit F.66, which contained a placed deposit of two crushed but partially complete vessels (120 sherds in total, 678g), two adjoining fragments of a saddle quern (2754g) and 35 pieces of animal bone (232g).

Discussion – the character and development of the Early Iron Age settlement at King’s Dyke
When set against the character of Late Bronze Age remains at Bradley Fen, the swathe of Early Iron Age features on the King’s Dyke terraces present a very different picture of settlement. Whereas the isolated structures and dispersed pits at the former reflect intermittent activities and perhaps seasonal patterns of residency, the aggregated feature-scatters at King’s Dyke and, most impressively, the 10 roundhouses and 4 four-post structures, speak of more persistent, intensive forms of occupation emerging over the course of the earlier first millennium BC. Though similar forms of open and agglomerated Early Iron Age settlement have been earmarked on the higher ground around Fengate, sites such as Tower Works (Brudenell et al. 2009) and Vicarage Farm (Pryor 1974b) have seen limited excavation...
Age and Early Iron Age in the Flag Fen Basin, it still has its merits and, as a reflection of general long-term landscape processes, continues to hold its ground. In fact, the immediate contrasts between the remains at Bradley Fen and King’s Dyke could be cited to further underline this distinction. However, there are subtleties in the nature of the evidence which suggest that such shifts in the character of settlement were not quite as simple or immediate.

**Building sequences**

Attractive though it is to see King’s Dyke as a pristine agglomerated settlement, heralding the inception of nucleated occupation, it is more likely that only a few of the site’s roundhouses were contemporary with one another. This is hard to prove, given the lack of stratigraphic associations, the relative imprecision of ceramic chronologies and just two radiocarbon dates. Nevertheless, falling back on more basic observations concerning the distinctive but shared architectural features of some roundhouses, it is possible to identify structures which are likely to have been contemporary and, therefore, outline a model for the development of the settlement (Fig. 5.29).

This model must be viewed as provisional, but all caveats aside, it seems likely that the structure sequence began with the erection Roundhouse 12 at...
The second major phase of building was marked by the construction of Roundhouses 13 and 14. Both structures were defined by double post-rings, with the Early Iron Age origin of Roundhouse 14 confirmed by the radiocarbon date of 770–410 cal bc. Moreover, given the size of this building and its morphological affinities to the ‘great’ double-ring roundhouses of southern Britain (e.g. Cow Down, Wiltshire (Hawkes 2007); Pimperne Down, Dorset (Harding et al. 1993); Old Down Farm, Hampshire (Davies 1981)), a date range within the Earliest Iron Age c. 800–600/550 bc would be implied, fitting comfortably with the radiocarbon evidence. Following on from this, the third phase is arguably heralded by the construction of Roundhouses 5 and 10, which shared wall-trenches, a diamond-shaped fixture of internal postholes and...
‘cooking’ pits set opposite the northern entrance posts. The external post-ring of Roundhouse 5 aside, the basic architectural footprint of these buildings was remarkably consistent (Fig. 5.30). As with Roundhouse 14, an Early Iron Age radiocarbon date was achieved for Roundhouse 5, but the calibrated range was slightly later at 520–380 BC. Whilst acknowledging the danger of relying on single determinations, the differences in the radiocarbon age and calibration of these two dates does lend weight to the proposed sequence.

Leaving aside Roundhouses 6 and 11, which are hard to place within the scheme (owing to their size and truncated condition), the fourth and final phase is argued to be marked by the construction of Roundhouses 7–9. All three of these buildings shared robust four-post entrance settings, with the symmetry of Roundhouses 7 and 8 further underlined by their central pair of postholes (Fig. 5.30). In terms of material connections, the recovery of Fengate-Cromer style sherds from Roundhouse 9 could be cited as evidence that the structures belonged to an earlier phase in the proposed sequence, since the only other wares of this type derived from Roundhouse 14. However, as first noted by Pryor (1984, 153) this style of pottery had a long currency, remaining in vogue throughout the Early Iron Age (c. 800–400/350 BC) around Peterborough and much of the western fen-edge in Cambridgeshire (see Brudenell below). This being the case, the order of the sequence presented here continues to rely more upon the morphological relationship between different groups of structures. In this instance, by far and away the closest parallels are with the Middle Iron Age roundhouses at Bradley Fen, detailed in the following chapter. On the grounds of these affinities then, it seems logical to assert that Roundhouses 7–9 were constructed late within the Early Iron Age sequence/structure succession at King’s Dyke.

**Implications**

Whilst it would be possible to formulate alternative models of site development at King’s Dyke, the various strands of evidence point to this not being a single phase settlement of village-like proportions, but a succession of structures and other features imprinted over time. Given the suggestion of a terminal Bronze Age/transitional date for Roundhouse 12 and a likely origin at the close of the Early Iron Age for Roundhouses 7–9, what we have may be the result of more than four to five centuries of activity and rebuilding. Whether or not this activity was continuous or intermittent is harder to gauge. On the one hand, the total quantity of finds from the site seems too low to support claims for an unbroken sequence of occupation (see below). On the other, given that several structures showed traces of repair, it would only require each building to be completely replaced every 65 years (perhaps two generations) for a succession of single roundhouses to span the upper estimate for the settlement timeframe (this calculation excluding Roundhouses 6 and 11).

In reality, patterns of residency probably fell somewhere between these extremes, especially given the narrow confines of the excavation window. Still, the broader inference to be drawn is that the architectures of settlement and their rhythms of renewal were becoming increasingly focused on certain places in the Early Iron Age. Though patterns of occupation remained instilled with a measure of fluidity, resulting in the gradual process of settlement drift, the spatial distance between the abandonment of one set of fixtures and the construction of another was shortening, even if things rarely overlapped (hence the lack of stratigraphic associations). At the same time, the temporal duration of architectures such as roundhouses seems to have increased through the investments in repairs and the replacement of internal fixtures. In plan, these interior spaces are sometimes cluttered with features. And where these cluster or recut, we encounter evidence for the formal deposition of materials: acts commonly incorporating groups of lamb bones. Importantly, these practices were shared across a number of roundhouses of different type, suggesting they were rooted in a long-lived depositional tradition intimately linked to the occupation of the structures.

Whilst the form of these deposits was clearly different in character to those associated with the waterholes at Bradley Fen, they carry a common theme in that they constitute explicit event-marking or place-marking practices. In short, these acts drew attention to points of importance, whether these were specific moments in the history of roundhouses (e.g. foundation and abandonment) or the recutting of waterholes crucial for livestock. They can likewise be viewed as a reflection of the increasing commitment to particular locales and architectures, as well as a concern with physically marking this sense of attachment or belonging. This process was also carried forward in the way that features and structures were renewed close by, but rarely on top of, previously abandoned architectures (heightening the visibility of settlement in the archaeological record). With such reiterative forms of occupation coming to the fore in the early first millennium BC, the expression of settlement continuity may have begun to be important for framing new ideas of descent, inheritance and other tenurial relationships.

On this theme, it is surely no coincidence that ditch-defined fieldsystems in the Flag Fen Basin (and elsewhere in Cambridgeshire) ceased to be maintained
Figure 5.30. Shared architectural traditions. Top: The wall-lines, diamond-shaped internal post settings and ‘cooking pits’ located in Roundhouses 5 and 10. Bottom: The two-post internal supports opposite the doorways in Roundhouses 7 and 8.
at the same time that more palpable and persistent forms of settlement come into focus. Whilst the grain of earlier land divisions may have held a lingering significance in this landscape, as previously discussed, people’s relationships to these land parcels and one another was no longer (re)defined though the cutting of field boundaries. Instead, rites of access or ownership even, may have been underpinned by dwelling amongst the plots that groups laid claim over. Continuity in settlement would therefore have provided the historical link to the land which legitimized those claims. It is perhaps for this reason that structures and other features were rarely rebuilt on top of one another. If the longevity or ancestry of settlement became important to concepts of tenure, then visible demonstration of that history of occupation was potentially important too. By gradual shifting architectures, groups created a trail of redundant pits, ruinous structures and scatters of refuse ingrained in former floors, yard surfaces and midden piles: a tangible legacy of long-term occupation. Quite simply, groups were residing amongst the fragments of broken, abandoned and accumulated things.

In these conditions, substances such as refuse may have taken on new meanings. As several authors have highlighted (e.g. Parker Pearson 1996, 125–27; Needham & Spence 1997, 85; Brück 2001, 154), fixtures such as middens could have developed connotations of fertility, regeneration or even affluence in some contexts, whilst in others they potentially served as a visible symbol of a community’s link with a place. Similarly, as surface refuse-scatters incorporated the mixed residues of previous actions and activities, they may have been perceived as providing a connection to a group’s immediate past. Whilst it seems a little farfetched to argue that these qualities were always acknowledged in each and every act of deposition, there were no doubt moments where these were understood as being effective substances in commemorative rites or other attempts to make outwardly explicit material statements. Admittedly these can be hard to distinguish from more mundane practices of refuse disposal at King’s Dyke. Still, regardless of the circumstances in which these things actually entered the ground, the mixed and fragmented condition of most assemblages bears testimony to the duration of settlement and the degree to which artefacts and architectures were reworked in this context. In short, they are telling of the material conditions of settlement and, more broadly, the ways that the residents attended to the fabric of these spaces over time.

Pulling these various strands together, it seems fair to suggest that settlement drift at King’s Dyke was not just a reflection pattern of household relocation, or an inevitable consequence of more persistent forms of occupation. Rather it was a historically contingent process linked in part to the gradual restructuring of tenurial rights, which saw groups refining their relationship to land and one another. This did not occur overnight, but unfolded during the course of the earlier first millennium bc. That being said, the seeds of these changes may have been sown long before, in the Middle Bronze Age, when patterns of land allotment were first demarcated though large-scale programmes of ditching. With the landscape gridded and pathways to some extent fixed, the fieldsystem served to constrain movement and potentially tether patterns of settlement. The long-term consequences of these changes could not have been anticipated, nor could the transformations in other social and material traditions which followed in the first millennium bc. Nevertheless, the effect can be traced in the archaeological record, particularly when we examine some of these changes thematically.

**Foodways**

Following Schulting (2008, 90), the term ‘foodways’ is used to denote the range of culturally embedded practices surrounding the production, preparation, consumption and disposal of foodstuffs. The concept provides the starting point for exploring how plants, animals and different types of artefacts (e.g. pottery and querns) were employed by communities in the quest for sustenance and the fulfilment of other social needs. This goes beyond a mere interest in calorific intake or nutritional provision and includes the examination of a range of productive technologies, the utensils employed and the social contexts in which foodstuffs and beverages were consumed. It can also encompass a consideration of cuisine, dining etiquettes, commercial politics and the treatment given to the residues of mealtime and food preparation activities. As such, the concept offers the possibility of finding common ground between a range of specialist contributions traditionally bracketed into artefact and economic studies. These can often feel detached and sometimes fail to chime with the wider themes of books or monographs. The aim here is to try and integrate these more successfully, by touching on various facets of the foodways theme from different material standpoints.

**Foodways in context – the character and potential of the material record**

With the ditches of the Middle Bronze Age fieldsystems no longer maintained nor apparently augmented after c. 1200 bc in the Flag Fen Basin, our ability to trace the organization of the agricultural landscape in the
Settlement in the post-fieldsystem landscape

earlier first millennium BC is considerably restricted. Not only do we begin to lose sight of the more tangible patterns of land allotment, but we also lose touch with high-profile debates concerning issues of economic intensification, agricultural productivity, questions of arable versus pastoral regimes and stock management strategies, to name but a few. These themes are all well rehearsed in relation to fieldsystems and are often considered as factors crucial to their instigation. By contrast, discussion is much more muted when it comes to the post-fieldsystem landscape in the Flag Fen Basin, or the question of what the demise of field boundary construction meant for ‘intensification’ and other social relations of agricultural production. Instead, more environmentally determined arguments have tended to come to the fore in discussion, with focus shifting to the economic importance of the fen-edge in later prehistory. This switch may be warranted, but it glosses over a major interpretative conundrum: if fieldsystems are a reflection of agricultural intensification, why is the ‘economic’ evidence so much richer in the post-fieldsystem landscape?

In general, it is certainly true that the material basis for making claims about the agrarian economy is much more robust in the archaeological record of the Late Bronze Age and Early Iron Age than it is for the Middle Bronze Age in this region. The residues of food processing and consumption practices and the utensils employed in these activities, come into sharper relief at the same time as the emergence of more tangible and persistent forms of occupation. Furthermore, not only is the material from this period more plentiful, but as Rajkovača notes, it derives from a greater range of contexts. There are more animal bones, more charred seeds and more fixtures for agricultural produce (pits and four-post granary structures) on which to hang debates about animal husbandry, cultivation and other activities in the agricultural calendar. Whether or not these trends can be read as evidence for further intensification is something of a moot point. We have hints from the kinds of crops being grown on the terraces in the Early Iron Age that soils may have begun to be depleted in nutrients (see de Vareilles below), perhaps suggesting more intensive cultivation. Conversely, there is no marked increase in cereal pollen percentages (figures of 3–5% being typical for all later prehistoric samples from the Basin, see French and Scaife this volume for an overview), with Boreham’s analysis (above) suggesting a consistency in landscape stewardship. By all accounts, pasture still dominated the lower terraces, much as it did in the Middle Bronze Age. The only difference being a slight shift, or displacement upwards, of these grasslands.

The contextual variability noted above is important, particularly when examining the differences in material representation at Bradley Fen and King’s Dyke (Figs 5.31 & 5.32). In the faunal record for instance, sheep dominated at King’s Dyke, whereas cattle were the more prolific species at Bradley Fen. Similarly, charred cereals, crop-processing waste and quernstones were exclusive to contexts at King’s Dyke. A different picture of ‘economy’ can therefore be formed by looking at these two sub-assemblages/sites independently, though each potentially reflects the way different parts of the terrace were utilized: the lower damp-ground slopes for cattle grazing, the higher terraces for cereal cultivation and sheep herding.

With this variability in mind, the paucity of fen/river-derived fauna at Bradley Fen and King’s Dyke – there being just one small group of fish bones recovered – should not be overemphasized. Fish weirs, traps and other remains from the Must Farm palaeochannel and platform site demonstrate that fish were important in the diet during this period (Gibson et al. 2010; Robinson et al. 2015). Again, the landscape patterning in species’ representation is intriguing, for it implies that trends in the faunal record are inextricably linked to the environs examined in this period. In other words, just as cattle bones dominate assemblages from the low-lying pastures and sheep on the dryland terraces, fish remains are largely the preserve of deep water locations. One obvious explanation for this patterning would be that animals and fish were butchered and deposited near the places where they were caught/conventionally herded. For this reason, cattle bone may be underrepresented at King’s Dyke because carcasses were predominantly processed elsewhere and cuts of beef were brought to the settlement for consumption. The same may be said of fish. Though for this to hold true, deep water sites would have to be envisaged as both catching and filleting stations.

Given that the size of faunal assembles in question, not to mention the range of taphonomic and other sampling biases which may have skewed these trends, it is perhaps prudent to reserve judgment on some of these wider issues, at least until the time when the Must Farm material has been fully analysed. That being said, if we are to gain a broader perspective on the relative importance of different species in this period, it is clear that assemblages are required from sites in different zones of the landscape. Attention to context is therefore crucial and this is no less important when considering the remains at hand from Bradley Fen and King’s Dyke. On the topic of foodways, it is noteworthy that most of the major faunal assemblages, pottery groups and pieces of quernstone derived from formal dumps of material in waterholes or pits within
Figure 5.31. Later Bronze Age and Early Iron material distribution at Bradley Fen.
Figure 5.32. Early Iron Age material distribution at King’s Dyke.
roundhouses. Indeed, these standout deposits account for the vast majority of all finds. This is a sobering reminder that our picture of ‘economy’ is based largely on remains generated and deposited in a very particular set of social circumstances. For example, the high percentage of sheep bones at King’s Dyke is without doubt a consequence of the formal treatment of lamb remains in the roundhouses: this being a long-lived tradition, perhaps associated with the foundation and/or abandonment of structures. The same can be argued for the faunal signature at Bradley Fen, though here cattle and pigs were the favoured species.

If anything, the general character of the economy is harder to grasp from such deposits. Instead, they are telling of the social contexts in which episodes of consumption occurred. Their character suggests they constitute the residues of formal dining events or feasting episodes: some incorporating fineware decorated bowls and other vessels whose use may have been reserved for these occasions. In terms of the faunal signature, counts of the minimum number of individuals in these deposits imply that both the scale of consumption and the scale of participation in these events were pitched at different orders of magnitude. Though all these events potentially involved groups larger than a single household, those associated with the lamb bone deposits at King’s Dyke may have been intimate affairs between neighbours or kin, whereas the size of at least one of the deposits of cattle bone at Bradley Fen (F.528) suggests wider community involvement and probably large-scale feasting.

Although all these deposits were single set-piece events, there are some smaller details which connect certain episodes, such as the distinctive butchering techniques that saw some sheep and cattle carcasses split down the sagittal plane (see Rajkovača below). Atypical for this period, these novel forms of butchery may tell of a concern with the presentation and display of carcasses, or other etiquettes surrounding the way meat was portioned and shared with these contexts. The conventions of dining could certainly have been different from everyday mealtimes and is likely to have involved a different repertoire of vessels, i.e. finewares and highly decorated ceramics (see Brudenell below). Fleshing out the details is more difficult. Still, the fact that very similar deposits of lamb bones link structures at King’s Dyke – which may have been erected several hundred years apart – suggests that the conduct of these practices was heavily conventionalized and widely acknowledged.

In summary, it is fair to conclude that the character of material from Bradley Fen and King’s Dyke speaks more directly to set-piece acts of food preparation and consumption than it does to a general picture of the economy in this period. In short, the assemblages are probably too small to make a substantive statement on this topic, especially since we await a fuller picture from the excavations at Must Farm. But even with these results in tow, considering the pivotal role of context, there may be more to be gained from focusing on the way that animal products, plants and other artefacts were deployed in different social settings, as opposed to striving for an accurate reconstruction of ‘economy’. This certainly chimes with the heart of the foodways theme, which all the authors below have attempted to address: a theme which places practice and context centre stage.

**The faunal remains (Vida Rajkovača)**

By the beginning of the first millennium BC, the network of ditched Bronze Age field boundaries which flanked the Flag Fen Basin had fallen into disrepair. Just as the initial layout of these features heralded new forms of land tenure and other transformations to the agrarian economy, so too their demise was marked by changing patterns of animal husbandry and the emergence of new social contexts for the consumption and deposition of animal products.

Conventionally viewed as a period of agrarian intensification (Serjeantson 2007, 80), the economy of the earlier first millennium BC was focused almost exclusively on domestic species, with a particular emphasis on cattle and sheep (Albarella & Pirnie 2008; Hambleton 2009), the latter tending to become more dominant during the period (Cunliffe 2005, 415). Though it would be helpful to trace how these broad transformations were materialized in the context of the Bradley Fen/King’s Dyke excavations, the lack of faunal remains from the Late Bronze Age means that the discussion must focus exclusively on the Early Iron Age.

At first glance, the Early Iron Age saw apparent radical changes. From a small number of substantial cattle-dominated bone dumps marking the lower ground during the Middle Bronze Age (22 contexts, 729 specimens), to a much wider array of contexts generating smaller quantities of mainly sheep bone in the Early Iron Age (70 contexts, 840 specimens), the shift was visible both in the choice of animals and the manner of deposition. The majority of these small deposits (c. 60%) constituted comparatively small assemblages which focused on the interment of immature and juvenile ovicaprids – faunal deposits particularly associated with the roundhouses and surrounding features at King’s Dyke (Fig. 5.32). These sheep-defined contexts yielded 538 assessable fragments, making up c. 65% of the entire Early Iron Age faunal record (Table 5.5).
Table 5.5 Number of Specimens Identified to Species (NISP) and the Minimum Number of Individuals (MNI) for Early Iron Age features. The abbreviation n.f.i. denotes that the specimen could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>NISP %</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>112</td>
<td>16.3</td>
<td>10</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>466</td>
<td>68</td>
<td>22</td>
</tr>
<tr>
<td>Sheep</td>
<td>6</td>
<td>0.9</td>
<td>3</td>
</tr>
<tr>
<td>Goat</td>
<td>1</td>
<td>0.2</td>
<td>1</td>
</tr>
<tr>
<td>Pig</td>
<td>86</td>
<td>12.5</td>
<td>5</td>
</tr>
<tr>
<td>Horse</td>
<td>5</td>
<td>0.7</td>
<td>1</td>
</tr>
<tr>
<td>Dog</td>
<td>5</td>
<td>0.7</td>
<td>1</td>
</tr>
<tr>
<td>Red deer</td>
<td>5</td>
<td>0.7</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>686</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>45</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>82</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fish n.f.i.</td>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>840</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Ovicaprids
A remarkable 69% of the identified bones were those of sheep/goat. These bones made up the largest proportion of the Early Iron Age assemblage with 473 specimens, representing a minimum of 26 animals. Although a distinction between sheep and goat was not possible for all ovicaprid elements, the examination of clearly diagnostic bones demonstrated the presence of both species in the assemblage, with sheep being the more prolific.

Closer inspection of body part distribution revealed that all parts of mutton carcasses were present on site, with particularly high numbers of radii and tibiae – joints not of the highest meat value, but a good value nonetheless. The presence of non-meat bearing elements in the assemblage are indicative of on-site slaughter which, when added to their neonate/juvenile age, leaves no doubt that lambs were raised in the vicinity of the site, if not on the site itself. In fact, the completeness of the remains of individuals from the King’s Dyke roundhouses facilitated assessment of tooth eruption and wear, allowing the lambs’ age at slaughter to be determined. This showed that whilst those buried in Roundhouse 14 (F.27 and F.43) had different age ranges, pointing to autumn slaughter and deposition, lambs from Roundhouse 5 (F.496) were aged between three and six months old, placing their interment around summertime/early autumn. Indeed, within the assemblage as a whole, it is clear that the majority of sheep did not survive past their first or second year: epiphysial fusion data presented in Table 5.6 indicating 34% were <16 months at age of death; 37% were +16 months–<28 months; 27% were +28 months–<3.5 years and 2% were +3.5 years (O’Connor 1988).

Table 5.6 Number and percentage of fused epiphyses for Early Iron Age ovicaprids (O’Connor 1988).

<table>
<thead>
<tr>
<th>Fusion category</th>
<th>No. fused/fusing epiphyses</th>
<th>No. unfused diaphyses</th>
<th>% fused/fusing epiphyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>7</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>Middle</td>
<td>7</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Late</td>
<td>1</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>82</td>
<td>15</td>
</tr>
</tbody>
</table>

Butchery was only recorded on eight ovicaprid remains, all from Roundhouse 14. Apart from fine cut and skinning marks (indicative of disarticulation and carcass preparation with a knife), one ovicaprid vertebra centrum from F.61 had been split down the sagittal plane. This is an interesting butchery technique, associated with separating the carcass into left and right portions.

In terms of overall distribution, it is clear that there is a close relationship between the roundhouses and remains of juvenile sheep at King’s Dyke, with at least three of the structures yielding pits and/or postholes crammed with sheep bones (Roundhouse 5, 9 and 14). In actual fact, the faunal remains from these roundhouses make up around two-thirds of the whole assemblage, with Roundhouse 14 yielding close to 50% alone (Table 5.7). This distribution is very striking, but calls for caution, since it is difficult to make wider claims about the nature of economic practices based on a single type of sheep bone deposit, primarily associated with a single structure (Roundhouse 14). Be this as it may, the remains from Roundhouse 14 warrant further attention because of the number and distribution of these distinctive sheep bone deposits.

This structure contained at least six major lamb deposits (F.1, F.27, F.40, F.43–44 and F.61 (Table 5.2)) and combined, yielded only 10 specimens identified to species other than sheep/goat (<1% of the identified count). Not all of these deposits were identical (either in Roundhouse 14 or other structures); some skeletons were partial whilst others were complete and some were only made up of a small number of chosen body parts. However, these were all variations on the same ‘theme’ involving juvenile sheep remains. Many of these deposits may be termed formal, their ‘formality’ being visible in their spatial patterning and the fact the remains often ‘fill’ the features within which they were interred. Examining the plan of Roundhouse 14, it is evident that the majority of bone (by weight and count) derived from features within the centre of the roundhouse (F.27, F.43–44 and F.61). Another interesting aspect of this structure is the interment of lamb remains in postholes forming the elaborate ‘porch’, as well as on either side of the entrance (Fig. 5.24).

Naturally, it would be extremely difficult, if not impossible, to identify the exact meaning behind these unusual deposits. They could represent the remains of meals which took place during the construction of the roundhouse, or sacrifices being made to ensure the wellbeing of those inhabiting the building – young lambs potentially symbolizing ‘new life’ being brought into a new space. Age data suggest the lambs were killed in autumn, perhaps strategically before the winter, as not all new-borns survive their first winter. However, the meat yields from lambs would not have been substantial, so it is likely that these meals were consumed by fairly small groups.

Table 5.7 Number of Specimens Identified to Species (NISP) and the Minimum Number of Individuals (MNI) from Roundhouse 14. The abbreviation n.f.i. denotes that the specimen could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>NISP %</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>361</td>
<td>99.1</td>
<td>12</td>
</tr>
<tr>
<td>Pig</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Horse</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>364</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>11</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fish n.f.i.</td>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>401</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Whatever the exact circumstances, the spatial patterning of the feature with lamb remains in Roundhouse 14 point to some sort of organized depositional practice. Perhaps we should not go so far as to characterize these as ‘ritual’, but the repetitiveness noted in deposition of remains from one species only, carried out by individuals going back to the same space(s), certainly points to practices which were consciously repeated, time after time.

**Cattle**

Cattle accounted for just over 16% of the bone identified to species, with a minimum of 10 animals from the site. The great majority of the cattle cohort (c. 80%) came from pit F.528 (Table 5.8). This stands out from the rest of the Early Iron Age assemblage, but resembles some of the earlier and later deposits from the Middle Bronze Age (F.34, F.544 and F.991) and Middle Iron Age (F.802 and F.1018) – in which cattle account for over 70% of the identified species. This suggests a continuation in depositional practice over a long period of time.

In the instance of F.528, cattle elements were large and regularly chopped midshaft (humeri and tibiae), possibly for marrow. Whatever the exact circumstances, the spatial patterning of the feature with lamb remains in Roundhouse 14 point to some sort of organized depositional practice. Perhaps we should not go so far as to characterize these as ‘ritual’, but the repetitiveness noted in deposition of remains from one species only, carried out by individuals going back to the same space(s), certainly points to practices which were consciously repeated, time after time.

**Sheep**

Sheep accounted for just over 16% of the bone identified to species. The majority of sheep bone (over 90%) came from pit F.528 (Table 5.8). This stands out from the rest of the Early Iron Age assemblage, but resembles some of the earlier and later deposits from the Middle Bronze Age (F.34, F.544 and F.991) and Middle Iron Age (F.802 and F.1018) – in which sheep account for over 70% of the identified species. This suggests a continuation in depositional practice over a long period of time.

**Pigs**

Pigs with a few exceptions, pigs, like cattle, were found in waterholes at Bradley Fen. Pit F.945 generated 52 specimens (just over 60% of the cohort) with F.528 yielding a further 22. Combined, these two features accounted for almost 90% of the pig component of the assemblage.

A skeletal element count showed all the parts of a pork carcass were present, yet only two elements showed signs of being butchered. A complete tibia gave a shoulder height of 71cm, in the middle of the height range defined by Von den Driesch & Boessneck (1974, 329). No less than three cases of partial anodontia were recorded on mandibles, a trait potentially genetic in origin and probably pointing to the restricted gene pools of local stock. There was no evidence that pigs were used in a more complex way than just for meat and they were likely to have been slaughtered even before they reached maturity, as evidenced by a few juvenile mandibles from F.528 and F.945.

**Sub-total to species**

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>NISP %</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>89</td>
<td>75.4</td>
<td>4</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>3</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>Sheep</td>
<td>1</td>
<td>0.9</td>
<td>1</td>
</tr>
<tr>
<td>Pig</td>
<td>22</td>
<td>18.7</td>
<td>3</td>
</tr>
<tr>
<td>Red deer</td>
<td>3</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sub-total to species</strong></td>
<td><strong>118</strong></td>
<td><strong>100</strong></td>
<td><strong>-</strong></td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>28</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
</tr>
</tbody>
</table>

**Discussion**

It was a challenge throughout this study to offer interpretations of the site’s husbandry regimes based on the small number of remains recovered, as well as the species’ appearance in a limited number of contexts/deposit types. To make this task even more difficult, Early Iron Age sites are not well represented in the Basin, making any assessment of how these patterns correspond with the picture of the local Iron Age economy problematic. These caveats aside, a few observations can be made. A brief look at the chart in Figure 5.33 shows that all contemporary sites from the Fenland region have different proportions of species relative to those recorded at Bradley Fen/ King’s Dyke, with cattle being far more prolific. Although there is little consistency in the ratios from one site to another, cattle appear to be underrepresented in the King’s Dyke/Bradley Fen assemblage. This may be because of the high visibility of sheep bone-deposits in structures from the site and the fact that the excavation transect at King’s Dyke fell across a part of the (high/dry ground) settlement with numerous buildings. Certainly at both King’s Dyke and Tanholt Farm, for instance, sheep remains were very clearly associated with structure-related features, whilst cattle remains were recovered from peripheral fixtures. However, at Pode Hole the relative ratio of cattle, sheep and pig proved to be similar irrespective of feature-type. It is therefore hard to draw any firm conclusions, other than to say that a range of factors – cultural, environmental and taphonomic – may influence these varying trends and the resulting discrepancies observed in Figure 5.33.
Settlement in the post-fieldsystem landscape

Assemblage from King’s Dyke/Bradley Fen is fairly small by contemporary standards (916 sherds, 6692g), it provides some important insights into the nature of culinary practice, particularly with regard to the role that certain ceramics played in formal dining in the Early Iron Age and the treatment these pots received in deposition.

Assemblage characteristics

The pottery

Pottery took on a new social importance at the end of the second millennium BC. The limited repertoire of bucket-shaped jars which characterized the region’s Middle Bronze Age potting tradition was superseded by a new and far more diverse range of vessel forms. These included an array of subtly differently shaped shouldered jars, bowls and cups, further sub-divided into coarsewares and finewares based on the character of their fabrics and methods of surface treatment (Barrett 1980). Although a few elements evolved from Deverel Rimbury roots, the emergence of these visual, tactile and functional distinctions between vessel categories was a genuine innovation of the Post-Deverel Rimbury ceramic tradition in this region, flourishing across the Late Bronze Age and Early Iron Age, c. 1100–350 BC (Brudenell 2012).

These transformations reflect significant shifts in the way ceramic containers were deployed for cooking and consumption practices in settlement contexts – settings where occupation was becoming increasingly persistent. Put succinctly, these were repertoires tailored to new forms of dining in new kinds of social settings. Indeed, the changes in the settlement and ceramic record were closely related, with both becoming far more visible, archaeologically speaking, from the Late Bronze Age onwards. This not only reflects the more prominent role of pottery in culinary activities in this period, but also a pronounced shift in the way the residues of these practices were managed within settlement contexts. Although the combined pottery assemblage from King’s Dyke/Bradley Fen is fairly small by contemporary standards (916 sherds, 6692g), it provides some important insights into the nature of culinary practice, particularly with regard to the role that certain ceramics played in formal dining in the Early Iron Age and the treatment these pots received in deposition.

Figure 5.33 Relative importance of species by NISP for the sites used in comparison (Evans 1998; Moreno-Garcia 2009, 195; Rackham 2009; Rajkovača 2009).

5.33. It is clear, however, that context is crucial in understanding these patterns and that different kinds of features in this landscape can give different faunal ‘signatures’.

The pottery (Matt Brudenell)

Pottery took on a new social importance at the end of the second millennium BC. The limited repertoire of bucket-shaped jars which characterized the region’s Middle Bronze Age potting tradition was superseded by a new and far more diverse range of vessel forms. These included an array of subtly differently shaped shouldered jars, bowls and cups, further sub-divided into coarsewares and finewares based on the character of their fabrics and methods of surface treatment (Barrett 1980). Although a few elements evolved from Deverel Rimbury roots, the emergence of these visual, tactile and functional distinctions between vessel categories was a genuine innovation of the Post-Deverel Rimbury ceramic tradition in this region, flourishing across the Late Bronze Age and Early Iron Age, c. 1100–350 BC (Brudenell 2012).

These transformations reflect significant shifts in the way ceramic containers were deployed for cooking and consumption practices in settlement contexts – settings where occupation was becoming increasingly persistent. Put succinctly, these were repertoires tailored to new forms of dining in new kinds of social settings. Indeed, the changes in the settlement and ceramic record were closely related, with both becoming far more visible, archaeologically speaking, from the Late Bronze Age onwards. This not only reflects the more prominent role of pottery in culinary activities in this period, but also a pronounced shift in the way the residues of these practices were managed within settlement contexts. Although the combined pottery assemblage from King’s Dyke/Bradley Fen is fairly small by contemporary standards (916 sherds, 6692g), it provides some important insights into the nature of culinary practice, particularly with regard to the role that certain ceramics played in formal dining in the Early Iron Age and the treatment these pots received in deposition.

Assemblage characteristics

The pottery was recovered from a wide range of features, with the vast majority deriving from roundhouse-related contexts at King’s Dyke and waterholes at Bradley Fen (Figs 5.31 & 5.32). In total, 22 fabrics types were distinguished in the assemblage, belonging to 11 major fabric groups (Table 5.9 & 5.10). Shelly wares dominated, as they did in the Middle Bronze Age (Fig. 5.34A), but a more diverse range of fabric recipes were now deployed – the ingredients for all of which were potentially available in the local landscape (particularly shell-rich Jurassic clays). The way these were prepared and mixed was partly conditioned by the type of vessels being produced and, ultimately, the role which they were intended to serve.

The Bradley Fen/King’s Dyke later prehistoric pottery fabric series

Shell fabrics

S1: Moderate to common coarse and very coarse shell/voids (mainly 2–4mm in size). Fabric can have a slightly silky texture.
S2: Sparse to common medium shell/voids (mainly 1–2mm in size). Fabric can have a slightly silky texture and possibly contains fine grog/clay pellets. Rare examples also have sparse linear voids from burnt out vegetable matter.
S3: Sparse to moderate fine and medium shell/voids (mainly 1–1.5mm) and sparse to common sand.

Shell and sand fabrics

SQ1: Moderate to common coarse and very coarse shell/voids (mainly 2–4mm in size) with moderate sand.
SQ2: Common medium shell/voids (mainly 1–2mm in size) with moderate sand.
SQ3: Sparse to moderate fine and medium shell/voids (mainly 1–1.5mm) and sparse to common sand.

Shell and flint fabrics

SF1: Moderate fine and medium shell (<1.5mm in size) and sparse fine and medium flint (<1.5mm in size).

Shell and sand fabrics

SQ1: Moderate to common coarse and very coarse shell/voids (mainly 2–4mm in size) with moderate sand.
SQ2: Common medium shell/voids (mainly 1–2mm in size) with moderate sand.
SQ3: Sparse to moderate fine and medium shell/voids (mainly 1–1.5mm) and sparse to common sand.
Table 5.9. Late Bronze Age pottery: fabric frequency, and its relationship to burnishing and vessel counts. MNV = minimum number of vessels, calculated as the total number of different rims and bases.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>Fabric group</th>
<th>No./wt (g) sherds</th>
<th>% fabric (by wt)</th>
<th>No./wt (g) burnished</th>
<th>% fabric burnished (by wt)</th>
<th>MNV</th>
<th>MNV burnished</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Flint</td>
<td>3/13</td>
<td>1.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FQ1</td>
<td>Flint &amp; sand</td>
<td>6/54</td>
<td>5.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q1</td>
<td>Sand</td>
<td>3/13</td>
<td>1.2</td>
<td>1/7</td>
<td>53.8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q2</td>
<td>Sand</td>
<td>3/18</td>
<td>1.7</td>
<td>1/4</td>
<td>22.2</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Q1I</td>
<td>Quartz &amp; sand</td>
<td>5/44</td>
<td>4.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S1</td>
<td>Shell</td>
<td>85/619</td>
<td>59.4</td>
<td>2/18</td>
<td>2.9</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>S2</td>
<td>Shell</td>
<td>37/119</td>
<td>11.4</td>
<td>4/22</td>
<td>18.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S3</td>
<td>Shell</td>
<td>3/21</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>SF1</td>
<td>Shell &amp; flint</td>
<td>2/4</td>
<td>0.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SG1</td>
<td>Shell &amp; grog</td>
<td>2/63</td>
<td>6.0</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SG2</td>
<td>Shell &amp; grog</td>
<td>1/30</td>
<td>2.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SQ1</td>
<td>Shell &amp; sand</td>
<td>6/39</td>
<td>3.7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SQ3</td>
<td>Shell &amp; sand</td>
<td>1/5</td>
<td>0.5</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>157/1042</td>
<td>99.8</td>
<td>8/51</td>
<td>4.9</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5.10. Early Iron Age pottery: fabric frequency, and its relationship to burnishing and vessel counts. MNV = minimum number of vessels, calculated as the total number of different rims and bases.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>Fabric group</th>
<th>No./wt (g) sherds</th>
<th>% fabric (by wt)</th>
<th>No./wt (g) burnished</th>
<th>% fabric burnished (by wt)</th>
<th>MNV</th>
<th>MNV burnished</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Flint</td>
<td>3/41</td>
<td>0.7</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>F2</td>
<td>Flint</td>
<td>2/6</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FQ1</td>
<td>Flint &amp; sand</td>
<td>1/24</td>
<td>0.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FQ2</td>
<td>Flint &amp; sand</td>
<td>3/24</td>
<td>0.4</td>
<td>1/9</td>
<td>37.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>FQ3</td>
<td>Flint &amp; sand</td>
<td>5/46</td>
<td>0.8</td>
<td>2/36</td>
<td>78.3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>G1</td>
<td>Grog</td>
<td>56/285</td>
<td>5.0</td>
<td>35/227</td>
<td>79.6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Q1</td>
<td>Sand</td>
<td>7/33</td>
<td>0.6</td>
<td>3/17</td>
<td>51.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q2</td>
<td>Sand</td>
<td>16/122</td>
<td>2.2</td>
<td>2/4</td>
<td>3.3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>QG1</td>
<td>Sand &amp; grog</td>
<td>5/53</td>
<td>0.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q1I</td>
<td>Quartz &amp; sand</td>
<td>1/1</td>
<td>&lt;0.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q1I2</td>
<td>Quartz &amp; sand</td>
<td>2/59</td>
<td>1.0</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QSG1</td>
<td>Sand, shell &amp; grog</td>
<td>8/55</td>
<td>1.0</td>
<td>2/33</td>
<td>60.0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>S1</td>
<td>Shell</td>
<td>258/1386</td>
<td>24.5</td>
<td>34/114</td>
<td>8.2</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>S2</td>
<td>Shell</td>
<td>203/1670</td>
<td>29.6</td>
<td>2/18</td>
<td>1.1</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>S3</td>
<td>Shell</td>
<td>128/1138</td>
<td>20.1</td>
<td>34/259</td>
<td>22.8</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>SG3</td>
<td>Shell &amp; grog</td>
<td>7/26</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>SQ1</td>
<td>Shell &amp; sand</td>
<td>1/10</td>
<td>0.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SQ2</td>
<td>Shell &amp; sand</td>
<td>7/72</td>
<td>1.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SQ3</td>
<td>Shell &amp; sand</td>
<td>44/597</td>
<td>10.6</td>
<td>14/329</td>
<td>55.1</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>?</td>
<td>Unassigned</td>
<td>2/2</td>
<td>&lt;0.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>759/5650</td>
<td>99.9</td>
<td>129/1046</td>
<td>18.5</td>
<td>46</td>
<td>13</td>
</tr>
</tbody>
</table>
Settlement in the post-fieldsystem landscape

Q3: Moderate sand with rare fine to medium unburnt flint and quartz (<1.5mm in size).

Sand and grog fabrics
QG1: Moderate sand with sparse or moderate fine or medium grog (mainly <1.5mm in size).

Sand, shell and grog fabrics
QSG1: Hard fabric with sparse to moderate sand, sparse to moderate fine shell/voids (<1.5mm in size) and sparse fine to medium grog (<1.5mm in size).

Shell and grog fabrics
SG1: Moderate coarse and very coarse shell (mainly 2–4mm in size) and moderate coarse grog (mainly 2–3mm in size).

SG2: Moderate to common medium and coarse shell (mainly 1–3mm in size) and moderate medium to coarse grog (mainly 1–3mm in size).

SG3: Silky textured fabric with moderate fine shell/voids (mainly <1mm) and moderate medium grog (mainly 1–2mm in size).

Sand fabrics
Q1: Moderate to common sand; abrasive to touch.

Q2: Sparse to moderate sand; some with rare to sparse mica.

Figure 5.34. Fabrics, vessel classes and rim diameters. A. Fabric preference through time: comparison of Middle Bronze Age to Early Iron Age fabrics group frequencies (for groups accounting for more than 1% of period assemblages by weight). All are dominated by shelly wares (>70%), though the Late Bronze Age and Early Iron Age assemblages display a greater range of ‘minor’ fabric groups;

B. Vessel Class quantification (series after Barrett 1980). I = coarseware jars; II = burnished fineware jars; III = coarseware bowls; IV = burnished fineware bowls; V = cups; C. Diameter of all measurable vessel rims (17 by vessel count).
Grog fabrics
G1: Soapy fabrics with fine and medium grog (mainly <1.5mm in size).

Flint fabrics
F1: Moderate to common medium and coarse flint (mainly 1–3mm in size).
F2: Sparse fine and medium flint (mainly 1–1.5mm in size).
F3: Sparse medium flint (mainly 1–2mm in size) and sparse fine voids (<1mm in size).

Flint and sand fabrics
FQ1: Moderate to common coarse and very coarse flint (mainly 2–4mm in size) and moderate to common sand.
FQ2: Sparse to moderate medium flint (mainly 1–2mm in size) and moderate sand.
FQ3: Moderate finely crushed flint (mainly <1.5mm in size) with moderate sand.

Quartz and sand fabrics
QI1: Moderate medium and coarse quartz (mainly 1–3mm in size) and moderate sand.
QI2: Rare to sparse medium and coarse quartz (mainly 1–3mm in size) and moderate sand.
QI3: Rare to sparse medium and coarse quartz (mainly <1.5mm in size) and moderate sand.

The coarsewares, for instance, were mostly made with clays containing coarse, poorly sorted shell, sometimes combined with other ingredients: coarse flint, grog, quartz and/or sand. As well as functioning as an opening agent in the clay, allowing water to escape during drying and firing, these coarse inclusions brought stability when constructing larger vessels. They also provided the pots with a very different tactile aesthetic (rough, abrasive surfaces) to those of the burnished finewares (smooth, glossy). The clays used to fashion finewares generally contained well-sorted, often uniformly ground inclusions, such as a fine flint, grog, shell, or sand. These aided the production of thin-walled vessels and a range of delicately moulded features: everted and/or tapered rims, sharply angled shoulders, dimples and omphalos bases. It also facilitated burnishing, which not only made the pots visually distinct from their coarseware counterparts, but enabled them to hold liquids/beverages. In total there were 137 (1097g) burnished fineware sherds in the assemblage. By period, 129 (1046g) of these dated to the Early Iron Age, accounting for 17.0% of this sub-assemblage by sherd count, or 18.5% by weight. This compared to figures of just 5.1% by count/4.9% by weight for the Late Bronze Age (based on eight sherds, 51g). Although this discrepancy seems quite marked, both sets of figures are entirely consistent with regional averages calculated for Eastern England (see Brudenell 2012, 262, 270, tables 7.1–7.2).

Based on the total number of different rims and bases identified, the assemblage is estimated to include a minimum of 56 different vessels (36 different rims; 13 different bases; seven complete profiles). Of these, 46 were dated to the Early Iron Age (c. 800–350 bc), with the Late Bronze Age component (c. 1100–800 bc) comprising just eight different rims, one base and one complete profile. With regard to forms, the repertoire of vessels was fairly typical of this period: shouldered jars, open and/or angular profiled bowls and cups (Barrett 1980). In total, 16 vessels were sufficiently intact to allow ascription to form and Class (Table 5.11, Figs 5.34B & 5.35). This included 230 sherds (2307g), representing around a quarter to a third of the assemblage by sherd count (25%), weight (34%) or vessel count (29%).

Further discussion of form frequencies is unwarranted given the number of vessels involved. As far as can be discerned, however, most of the coarseware sherds in the assemblage belonged to jars (rim diameter range 14–32cm; Fig. 5.34), whereas the majority of burnished fineware sherds were from cups and bowls (rim diameter range 4–20cm). Jars probably served a variety of roles in cooking and storage, with soot marks and carbonized food crusts recorded on four form-assigned jars (rim diameter 14–24cm, forms G, H and I) and a total of 21 coarseware sherds (427g). By contrast only one burnished sherd (29g) retained traces of sooting, supporting the notion that coarsewares and finewares had different functional roles in culinary practice: the former being cooking and storage vessels, the latter tablewares for serving.

The finewares in this context were predominantly plain; exclusively so in the Late Bronze Age sub-assemblage. Present in the Early Iron Age assemblage, however, were fragments of three decorated 'Fenstanton-Cromer' style fine ware bowls (17 sherds, 202g, Fig. 5.35 nos. 6 and 13–14), each adorned with elaborate curvilinear or geometric motifs below the shoulder (Cunliffe 2005, 94–96). These vessels – each having been carefully fired to produce a consistent

Figure 5.35 (opposite). Late Bronze Age and Early Iron Age pottery. 1–4. Late Bronze Age, Bradley Fen; 5. Late Bronze Age, King’s Dyke; 6–12. Early Iron Age, Bradley Fen; 13–24. Early Iron Age, King’s Dyke.
1. F.335 [264], Form I, Class III, Fabric S3
2. F.691 [652], Form X, Class V, Fabric SG1
3. F.433 [383], Fabric SQ3
4. F.433 [383], Fabric Q2
5. F.84 [84], Form T, Class V, burnished, Fabric Q1
6. F.778 [781], Fabric S3, burnished, incised geometric motif on the belly
7. F.945 [1004], Form H, Class I, Fabric S3, fingertip impression rim-exterior and slashed shoulder
8. F.947 [1006], Form I, Class II, Fabric FQ3
9. F.1121 [1218], Fabric S3, burnished
10. F.1121 [1218], Fabric SQ3, incised horizontal lines on the neck
11. F.480 [433], Form B, Class IV, Fabric SQ3
12. F.480 [433], Fabric S3
13. F.61 [61], Form N, Class IV, Fabric S3, bands of grooved diagonal and curvilinear lines separated by dimples
14. F.316 [326], Fabric S3, burnished, incised horizontal and curvilinear lines and dimples
15. F.208 [208], Form E, Class I, Fabric SQ3, fingertip impressions on the shoulder
16. F.730 [856], Form F, Class I, Fabric F1, fingertip impressions on rim-interior and shoulder
17. F.66 [66], Form F, Class II, Fabric S1
18. F.66 [66], Form H, Class I, Fabric S1, fingernail impressions on rim-exterior
19. F.66 [66], Form K, Class III, Fabric S2, burnt
20. F.495 [540], Form G, Class I, Fabric S2, fingertip impressions on the shoulder, burnt
21. F.495 [540], Fabric S1, fingertip impressions on the shoulder
22. F.495 & F.495 [540 & 541], Form I, Class I, Fabric S2, burnt
23. F.496 [541], Form U, Class V, Fabric SQ3, burnt
24. F.540 [590], Form F, Class II, Fabric G, burnt
Settlement in the post-fieldsystem landscape
Table 5.11. Quantification of vessel forms (series after Brudenell 2012, 120–22, fig. 4.1). * Late Bronze Age vessels.

<table>
<thead>
<tr>
<th>Form</th>
<th>Brief description</th>
<th>No./wt. (g) sherd(s)</th>
<th>No. vessels</th>
<th>No. burnished</th>
<th>Rim diam. (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Jar, bipartite</td>
<td>2/32</td>
<td>1</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>F</td>
<td>Jar, high rounded shoulder</td>
<td>69/357</td>
<td>3</td>
<td>2</td>
<td>26–32</td>
</tr>
<tr>
<td>G</td>
<td>Jar, weakly shouldered, upright neck</td>
<td>32/411</td>
<td>1</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>H</td>
<td>Jar, marked shoulder, hollowed neck</td>
<td>60/773</td>
<td>2</td>
<td>-</td>
<td>14–26</td>
</tr>
<tr>
<td>I</td>
<td>Tripartite jar, marked or angular shoulder</td>
<td>20/229</td>
<td>2</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>J*</td>
<td>Bowl, open, broadly hemispherical</td>
<td>1/17</td>
<td>1</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>K</td>
<td>Bowl, round-bodied</td>
<td>17/117</td>
<td>1</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>N</td>
<td>Bowl, tripartite, angular shoulder</td>
<td>24/290</td>
<td>2</td>
<td>2</td>
<td>16–20</td>
</tr>
<tr>
<td>T*</td>
<td>Cup, round body, everted rim</td>
<td>1/7</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>U</td>
<td>Cup, bipartite</td>
<td>3/19</td>
<td>1</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>X</td>
<td>Cup, shouldered</td>
<td>1/55</td>
<td>1</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>230/2307</td>
<td>16</td>
<td>6</td>
<td>4–32</td>
</tr>
</tbody>
</table>

dark grey finish – stood out within the assemblage, even against the other burnished finewares. The most complete bowl derived from the foundation-type deposit in pit F.61 (Roundhouse 14) where it was found immediately above a dump of lamb bones (Fig. 5.35, no. 13). Fragments of the second vessel were recovered from the entrance of Roundhouse 9 (F.316, Fig. 5.35, no. 14) and may also have constituted a formal deposit. This is harder to argue for the third vessel from pit/waterhole F.778 at Bradley Fen, though interestingly, the base of this decorated bowl had been trimmed flat, almost as if to create a platter (Fig. 5.35, no. 6). There is certainly the suggestion that these distinctive pots were singled out for particular forms of treatment, potentially because of the values attached to them and the roles they played in dining: ideas explored further below.

Aside from these Fengate-Cromer-style bowls, there were also three leached sherd(s) from different pots displaying grooved horizontal lines (15g; two on the shoulder, one on the neck). These may originally have belonged to finewares, though their surfaces had been completely abraded making them hard to classify (e.g. Fig. 5.35, no. 10). Decoration on the ‘true’ category of coarsewares seems to have been restricted to jars. Moreover, with the exception of two plain Late Bronze Age cordonned sherds (27g), all the decorated pieces were of Early Iron Age origin (26 sherds, 658g). In this sub-assemblage, decorative techniques included slashing and various forms of finger treatment (finger-tipping, nail impressions and pinching); these being applied to the neck, rim and/ or shoulder of the coarsewares.

Generally speaking decorative frequencies were relatively low in this context, with only three of the 34 different Early Iron Age vessels’ rims adorned. This amounts to a figure of just 9% or, if adjusted to include only coarsewares rims, 13% (3 out of 23 different rims). Such frequencies are far lower than those calculated for contemporary assemblages from Tower Works, Vicarage Farm or pottery from the Pre-War Gravel Pits at Fengate (Brudenell with Hill 2009, 189). These differences may reflect the fact that the Bradley Fen/King’s Dyke material spans the whole of the Early Iron Age, c. 800–550 bc (a range supported by the two radiocarbon dates obtained), whereas that from Tower Works, and most pottery from the Pre-War Gravel Pits, probably dates to just the Earliest Iron Age, c. 800–600/550 bc: a period where rim decoration frequencies in Eastern England normally exceed the 20% mark (Brudenell 2012, 191, table 5.13).

That being said, chronology is not the only factor influencing the occurrence or incidence of decoration in any given pottery group. Here it should be noted that out of the maximum of 14 different decorated coarseware vessels in the Bradley Fen/King’s Dyke Early Iron Age assemblage, six (roughly half) derived from just three features. Moreover, in each instance these deposits contained one or more semi-complete pots, which appear to have been singled out for formal deposition. The basic implication is that decorated vessels, including both coarsewares jars and fineware bowls, were more often the recipients of formal treatment in these acts than other kinds of vessel. There are certainly a disproportionate number of them in such contexts at Bradley Fen/King’s Dyke and even in the instances where the substantially complete pots were plain, these were often found alongside small fragments of decorated wares. The argument developed here is that these decorated pots were often caught up in formal deposits of one kind or another, because of the roles they played and, more significantly, the contexts of formal dining in which they featured.

Deposition and formal dining: feasts, finewares and decorated pots

In many respects, it is hard to make any substantive statements about the roles of pots in everyday culinary activities at Bradley Fen/King’s Dyke. Although we can take it as axiomatic that pots were used to prepare and serve meals on a day-to-day basis, our understanding of how these practices were organized in this particular context is far from clear. In truth, the assemblage is small and rather fragmentary, providing few insights into these dynamics. In fact, out of the 110 features yielding non-residual pottery, 82 had fewer than 5 sherds. The vast majority of small assemblages (Table 5.12, weighing <250g) comprise a mixed handful of sherds from different vessels in different states of fragmentation. This is fairly typical of most deposits of PDR pottery (Brudenell & Cooper 2008), whose attributes speak more directly to issues surrounding everyday refuse maintenance, than they do those concerning dining. Of course, it is possible to make observations about culinary practice based on the material from such mixed deposits. This, however, normally requires there to be more pottery overall to enable discussions of vessel composition, or patterning.
They represent only select elements of those vessels used/broken (perhaps deliberately) in these events. As already noted above, there appears to have been some bias in favour of fineware vessels and decorated pots in these contexts. This might suggest an emphasis on visual display, or the provision of vessels suitable for holding and serving beverages, perhaps alcohol. It may even be the case that some kinds of pots, such as the decorated Fengate-Cromer style finewares, were reserved for use in these formal occasions. As ceramics which stood-out, their deployment would have served to create a different kind of dining aesthetic, helping to set these meals apart. Certainly, if these pots did have a more prescribed role in formal dining, recognised amongst the wider community, it would go some way to explaining why we can identify geographical ‘style-zones’ from these vessels, but not other types of contemporary pot.

Although debates about the nature and meaning of style-zones are beyond the scope of this report, it is important to consider how these patterns compare with deposits on other sites in the Flag Fen Basin. In this context, it is the pottery group from pit F.495/6 in Roundhouse 5 which finds ready comparison with several other deposits on sites in the local landscape. This assemblage comprised fragments of seven freshly broken vessels, including three semi-complete pots: a

<table>
<thead>
<tr>
<th>Feature no./site</th>
<th>Context</th>
<th>No./wt (g) sherd(s)</th>
<th>MNV</th>
<th>Assemblage characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.61/KD</td>
<td>Pit, RH14</td>
<td>21/103</td>
<td>1</td>
<td>Semi-complete Fengate-Cromer style decorated fineware bowl (Figure 5.35, no. 13)</td>
</tr>
<tr>
<td>F.66/KD</td>
<td>Pit</td>
<td>120/678</td>
<td>6</td>
<td>Vessel set, including a partially intact fineware jar, a partially intact decorated coarseware jar and a semi-complete but burnt/re-fired coarseware bowl (Figure 5.35, nos 17–19)</td>
</tr>
<tr>
<td>495/6/KD</td>
<td>Pit, RH 5</td>
<td>177/1413</td>
<td>7</td>
<td>Vessel set, including two semi-complete coarseware jars (one decorated) and a cup, all partially burnt/re-fired (Figure 5.35, nos 21–23)</td>
</tr>
<tr>
<td>F.480/BF</td>
<td>Waterhole</td>
<td>38/371</td>
<td>2</td>
<td>Semi-complete fineware bowl, and the base of a jar (Figure 5.35, nos 11–12)</td>
</tr>
<tr>
<td>F.945/BF</td>
<td>Waterhole</td>
<td>9/533</td>
<td>1</td>
<td>Semi-complete decorated coarseware jar (Figure 5.35, no. 7)</td>
</tr>
</tbody>
</table>
cup, a small plain tripartite jar and a large fingertip decorated jar. The repertoire has much in common with Middle and Late Bronze Age ‘feasting sets’ discussed by Ann Woodward (1999, 6–8). These were identified as comprising one or more large ceramic containers, suitable for cooking or serving a communal meal, and various smaller jars, bowls and cups for individual consumption.

The character of the assemblage from F.495/6 certainly invites a similar interpretation and, more importantly, has parallels with other Early Iron Age vessel sets found in the Flag Fen Basin. These sets are particularly well represented in the Pre-War Gravel Pit assemblage from Fengate, collected by Wyman Abbott at the beginning of the twentieth century (Hawkes & Fell 1945, especially Pits C, K, R, S, U and Y). Notable amongst the various pit groups is the elaborately decorated set of Fengate-Cromer style pots from Pit R, which included a series of substantially intact finewares bowls, cups and large jars. As in some of the formal pottery deposits at Bradley Fen, this and other vessel sets from the site were interred in large pits, the dimensions of which suggest that they were probably also waterholes (Brudenell et al. 2009, 235).

Another detail linking these formal pottery deposits is the presence of burnt sherd. Several of the pots in the Pit R group and others from this area show signs of intensive burning after breakage; an attribute shared by the material from F.495/6. This could be a coincidence. Alternatively, it may be that the breakage and burning of vessels in these settings formed part of the performances at the close of formal dining events. This interpretation certainly has its attractions, all the more so since similar vessel sets at Tower Works and Tanholt Farm have also been found to have been burnt (Fig. 5.36). In fact, in terms of size, the pottery group from pit F.20 at Tower Works is very similar to that from F.945/6 at King’s Dyke: both contained seven vessels including large burnt decorated jars (Brudenell with Hill 2009, 191).

Whether or not this implies that two events were pitched at similar social scales is more difficult to gauge. The important point is that these practices were not unique to the Bradley Fen/King’s Dyke context and can be paralleled around the Basin. In fact, there are similar examples from further afield in southern Britain, which hint that these practices were more widely acknowledged (e.g. pots in the waterhole complex 136194 at Perry Oaks, Middlesex (Lewis et al. 2006, 148)). Individually, the size and composition of each vessel set is slightly different, as is the precise manner of the treatment afforded to the remains in deposition. Nonetheless, there is regularity in the practices, suggesting they were guided by broadly similar concerns and understandings. There is also a sense of pattern to the kind of vessel deployed in these circumstances, with services normally weighted in favour of finewares, profusely decorated coarsewares and/or large to very large-sized jars: the ceramic paraphernalia of feasting.

The carbonized plant remains (Anne de Vareilles) From the 48 samples analysed from 33 features across Bradley Fen and King’s Dyke, a very limited array of archaeobotanical evidence was uncovered. Low concentrations of carbonized plant remains are not unusual in prehistoric settlements where food and its waste, for reasons which must remain speculative, were not charred and buried as frequently as in later periods. Nevertheless, the cereals and wild plant seeds offer an exclusive insight into a forgotten agricultural landscape and the crops that helped shape and sustain an economy.

The samples covered Roundhouses 4, 5 and 14, as well as pits F.433 near Roundhouse 4 and F.66 west of Roundhouse 14 (Table 5.14 & 5.15). The plant remains were concentrated within the dwellings where charred grain and associated seeds were mostly found in the interior pits rather than the ring-gullies and postholes. These were richest in Roundhouse 5 and 14 where there may be evidence for the cleaning/preparation and consumption of cereals, fruits and tubers. That being said, the total numbers of plant remains are low (44 cereal grains, 55 glume bases and rachis internodes and 65 possible arable weed seeds), and one wonders if the waste generated by such activities (mainly cereal chaff and weeds) was not usually saved as animal fodder.

Barley (Hordeum sp.), spelt (Triticum spelta) and emmer wheat (T. dicoccum) were the main cereal crops. An oat grain (Avena sp.) was found within Early Iron Age Roundhouse 14 but, without its chaff, could not be ascribed to either the cultivated or a wild variety. Even if oats were not cultivated they were probably an encouraged weed, being a favourable addition to the final crop product. Emmer and barley are common early prehistoric British crops, whilst spelt became more popular during the Iron Age (Greig 1991; Jones 1981; 1996). The use of spelt is evident from the Bronze Age in Fenland archaeology and its rapid preference over emmer is unsurprising (cf. Evans & Knight 2000; Stevens 2009). Spelt requires the same processing techniques as emmer but can grow on heavier soils and is a hardier plant, less prone to the detrimental effects of cold, wind, diseases and pests (Jones 1981). Despite the low numbers of grains it seems unreasonable to conclude ‘that cereals were of minor importance’, as was suggested for Cat’s Water (Wilson 1984, 242). There is evidence for the storage of crops (six four-post structures in total) and small legumes found in Early Iron Age Roundhouse 14 could be signs of the

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Figure 5.36. Vessel sets from the Flag Fen Basin containing burnt sherds.
Chapter 5

Seeds of blinks (Montia fontana ssp. minor), lesser spearwort (Ranunculus flammula), lady’s mantle (Alchemilla vulgaris), common marsh-bedstraw (Galium palustre), sedges (Carex sp.), spike-rushes (Eleocharis sp.) and rushes (Juncus sp.) suggest that damp soils were also cultivated. These were not heavy, clay-rich soils but damp fields, areas probably closest to streams, where the water-table must have risen to ground level in the spring. Although the surface rhizomes of sedges are sensitive to ploughing, Bronze Age and Early Iron Age tools and techniques are likely to have been less intrusive and more precise. The frequent occurrence of sedge nutlets within prehistoric arable assemblages has led to the conclusion that these were probably arable weeds of damp soils (cf. Jones 1984; Stevens 2007). The occurrence of meadow and forage grasses (Poa sp. and Phleum sp.) ‘indicate relatively poor tillage by ard, and/or perhaps by hand,’ and might also suggest that the fields were previously undergrazed grassland (Stevens 2007, 62).

Table 5.14. Late Bronze Age charred soil samples from Bradley Fen. ‘-’ 1 or 2; ‘+’ <10; ‘++’ 10–50; ‘+++’ >50 items. P = present. 100% of each flat fraction was examined.

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<td>Cereal grains &amp; chaff</td>
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<td>Hordeum</td>
<td>Wheat/</td>
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<td>(2–4mm)</td>
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<td>-</td>
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<td>(&lt;2mm)</td>
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<td>++</td>
<td>+</td>
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<td>Burnt bone frags.</td>
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<tr>
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<td></td>
<td>Modern contamination</td>
<td>(roots, seeds etc.)</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
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<td>P</td>
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prolonged and intensive use of arable soils. Legumes are nitrogen-fixing plants and prosper on soils of low fertility. The continuity between the Bronze Age and the Early Iron Age arable weeds indicates that the same sandy, relatively well-drained soils were in continuous use and may therefore have become depleted in many minerals. Cleavers (Galium aparine) found with vetches and/or wild peas (Vicia/ Lathyrus) may suggest that crops were sown in the autumn (Stevens 1996), although some spring sowing was perhaps also undertaken. Given the growing threat of flooding, drier soils suitable for autumn sowing must have been increasingly difficult to find. Indeed the reorganization of the surrounding fields system in the Iron Age may have been influenced by the need for renewed soil fertility and drier, more efficiently drained fields. Nitrogenous plants were not found in Middle Iron Age samples (see Chapter 6), perhaps relating to the appropriation of new arable fields, or, with the gradual loss of land to the ever encroaching fen, a shift in soil management to include a more intensive system of manuring and crop rotation.

Seeds of blinks (Montia fontana ssp. minor), lesser spearwort (Ranunculus flammula), lady’s mantle (Alchemilla vulgaris), common marsh-bedstraw (Galium palustre), sedges (Carex sp.), spike-rushes (Eleocharis sp.) and rushes (Juncus sp.) suggest that damp soils were also cultivated. These were not heavy, clay-rich soils but damp fields, areas probably closest to streams, where the water-table must have risen to ground level in the spring. Although the surface rhizomes of sedges are sensitive to ploughing, Bronze Age and Early Iron Age tools and techniques are likely to have been less intrusive and more precise. The frequent occurrence of sedge nutlets within prehistoric arable assemblages has led to the conclusion that these were probably arable weeds of damp soils (cf. Jones 1984; Stevens 2007). The occurrence of meadow and forage grasses (Poa sp. and Phleum sp.) ‘indicate relatively poor tillage by ard, and/or perhaps by hand,’ and might also suggest that the fields were previously undergrazed grassland (Stevens 2007, 62).

Remnants from the consumption of edible plants were found in the form of fruit and tuber parenchyma
Table 5.15. Early Iron Age charred soil samples from King’s Dyke. ‘-’ 1 or 2; ‘+’ <10; ‘++’ 10–50; ‘+++’ >50 items. P = present. 100% of each flot fraction was examined.

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<td>1</td>
<td>2.5</td>
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### Hordeum sp.
- Barley grain
  - Sample volume: 5

### Triticum cf. spelta
- Spelt wheat grain
  - Sample volume: 10

### Triticum cf. dicoccum
- Emmer wheat grain
  - Sample volume: 6

### Triticum spelta / dicoccum
- Spelt or emmer wheat
  - Sample volume: 8

### Triticum sp.
- Wheat type indet.
  - Sample volume: 1

### Avena sp.
- Wild or domesticated oat
  - Sample volume: 1

### Cereal grain indet.
- Sample volume: 1

### Triticum spelta glume base
- Spelt chaff
  - Sample volume: 1

### Triticum cf. dicoccum glume base
- Emmer chaff
  - Sample volume: 1

### Triticum sp. glume base
- Glume wheat chaff
  - Sample volume: 1

### Triticum sp. spikelet fork
- Glume wheat chaff
  - Sample volume: 1

### 6-row Hordeum sp. rachis internode

### Hordeum sp. rachis internode

### Chenopodium album L.
- White campion
  - Sample volume: 1

### Chenopodium sp.
- Goosefoots
  - Sample volume: 1

### Ilex aquifolium L.
- Holly
  - Sample volume: 1

### Atriplex patula/prostrata
- Oraches
  - Sample volume: 1

### Mentha fontana ssp. minor Hayw.
- Blinks
  - Sample volume: 1

### Stellaria sp.
- Chickweed
  - Sample volume: 1

### small Caryophyllaceae indet.
- Seeds of Pink family
  - Sample volume: 1

### Crataegus monogyna Jacq.
- Hawthorn
  - Sample volume: 1

### Vicia / Lathyrus sp.
- Vetches / Wild Pea
  - Sample volume: 1

### Galium aparine L.
- Cleavers
  - Sample volume: 1

### Eleocharis sp.
- Spike rushes
  - Sample volume: 1

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Table 5.15 (cont.).

<table>
<thead>
<tr>
<th>Context no.</th>
<th>27</th>
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<th>61o-v</th>
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</table>

| Non cereal seeds | Arhenatherum elatius (L.) P.Beauv.ex J.S. & C.Presl | False oat-grass seed | | | | | | | | | | | | | | | |
| | Lenticular Carex sp. | Fat Sedge seed | | | | | | | | | | | | | | | |
| | Poaceae culm node | Grass stem node | | | | | | | | | | | | | | | |
| | Pteridium aquilinum (L.) Kuhn | Bracken | 1 | | | | | | | | | | | | | | | |
| | Ranunculus flammula L. | Lesser spearwort | 2 | | | | | | | | | | | | | | | |
| | Rumex acetosa L. | Common sorrel | 1 | | | | | | | | | | | | | | | |
| | Trifolium sp. | Small seeded Clover | 4 | | | | | | | | | | | | | | | |
| | Lamium cf. album L. | White dead nettle | 1 | | | | | | | | | | | | | | | |
| | Odontites vernus (Bellardi) Dumort. | Red Bartsia | 2 | | | | | | | | | | | | | | | |
| | Galium palustre L. | Common marsh-bedstraw | 1 | | | | | | | | | | | | | | | |
| | J. conglomeratus/ compressus | Soft rush seed capsule | 1 | | | | | | | | | | | | | | | |
| | E.quinqueflora (Hartmann) O.Schwarz | Few-flowered spike rush | 1 | | | | | | | | | | | | | | | |
| | Cyperaceae | Sedge family | 1 | | | | | | | | | | | | | | | |
| | Poa sp. | Meadow grass | 1 | | | | | | | | | | | | | | | |
| | Indet. wild plant seeds | 6 | | | | | | | | | | | | | | | |
| | small seed indet. | | | | | | | | | | | | | | | |
| | small legume pod | | | | | | | | | | | | | | | |
| | nutlet indet. | | | | | | | | | | | | | | | |
| | Blob indet. | | | | | | | | | | | | | | | |
| | parenchyma | Fruit (tuber) | + | (+) | - | | | | | | | | | | | | | |

| Other residues | Unsorted charcoal | +++ | +++ | +++ | +++ | | | | | | | | | | | | | |
| | Large charcoal (>4mm) | - | | | | + | - | + | | | | | | | | | | |
| | Med. charcoal (2–4mm) | - | + | - | - | - | + | ++ | - | + | ++ | | | | | | | |
| | Small charcoal (<2mm) | + | + | + | + | + | + | + | ++ | +++ | + | ++ | +++ | | | | | |
The longevity or resilience of these artefacts may have lent them an extra level of significance at King’s Dyke, beyond that implicit in their practical role. Given arguments about how a tangible legacy of long-term settlement was important to concepts of tenure in the period (see above), it is possible that long-lived objects such as querns were imbued with a specific significance: their wear being another physical measure of the group’s immediate history and their connection with a place. This broadly chimes with Brück’s (1999a; 2001) discussion of the symbolic and metaphorical relationships potentially drawn between the life-cycles of people, their settlements and the materials such as querns used in these settings. How these concerns were articulated and understood no doubt varied from one context to next. Still, it is notable that querns were often the recipients of formal treatment in deposition (Buckley & Ingle 2001, 326–27). This is undoubtedly the case with two examples from King’s Dyke: the quern from F.66 having been placed in the base of the pit alongside two semi-complete pots; and burnt fragments of a second quern being scattered between intercutting features F.495–96 and F.540 in Roundhouse 5 – each associated with a series of lamb bone deposits and/or dumps of pottery.

Saddle querns
The grinding of foodstuffs with saddle querns and rubbers would have been a daily task in most later prehistoric settlements. Though their use for processing cereals into flour was probably their primary function, it is likely that a range of foods including nuts, seeds, fruits, vegetables and herbs were also ground on these stones. The heavy wear on some saddle querns, including two of the three examples recovered from King’s Dyke (see catalogue below), suggests these artefacts were used over long periods. The quern from ‘cooking’ pit F.94 (Roundhouse 10), for example, was utilized for grinding on both sides: the use of the reverse may have been prompted by the degree of wear (concavity) on the upper surface. Of course, gauging the exact timeframe of use is virtually impossible. But given that most small ‘cooking’ pots and other daily domestic utensils probably shared fairly short functional life-spans (perhaps no more than four years, based on ethnographic breakage rate averages (see Hill 1995, 129–31)), it seems likely that querns would have been some of the most long-lived pieces of material culture in these contexts.

The longevity or resilience of these artefacts may have lent them an extra level of significance at King’s Dyke, beyond that implicit in their practical role. Given arguments about how a tangible legacy of long-term settlement was important to concepts of tenure in the period (see above), it is possible that long-lived objects such as querns were imbued with a specific significance: their wear being another physical measure of the group’s immediate history and their connection with a place. This broadly chimes with Brück’s (1999a; 2001) discussion of the symbolic and metaphorical relationships potentially drawn between the life-cycles of people, their settlements and the materials such as querns used in these settings. How these concerns were articulated and understood no doubt varied from one context to next. Still, it is notable that querns were often the recipients of formal treatment in deposition (Buckley & Ingle 2001, 326–27). This is undoubtedly the case with two examples from King’s Dyke: the quern from F.66 having been placed in the base of the pit alongside two semi-complete pots; and burnt fragments of a second quern being scattered between intercutting features F.495–96 and F.540 in Roundhouse 5 – each associated with a series of lamb bone deposits and/or dumps of pottery.

*Saddle quern catalogue (Simon Timberlake with stone identification and sourcing by Kevin Hayward)*

*Saddle quern 1 (Fig. 5.37, no. 1): F.66 [66], 2754g (total weight), two adjoining fragments: 195mm × 150mm × 50–60mm and 75mm × 80mm × 20–55mm (total length 240mm). Used as a saddle quern*
reverse side may well have been prompted by the degree of wear (concavity) of the upper surface. The quern surfaces have taken on a fairly high degree of polish, but no evidence of striation (grinding direction) is visible.

Lithological description: Greensand (Lower Cretaceous). Variable fine light green (glauconitic) and micaceous calcareous sandstone. Closest outcrop 40km to southeast at Ely

Other material traditions and technologies

The second material theme covers the evidence for a range of other technological traditions. These encompass flint working, metalworking, boat building and textile production. Although the pottery evidence and worked stone could also have been included in this section, since these have been detailed above, only some passing comments and general observations are made on these materials here.

In general, the evidence for all these material traditions is relatively thin from the site. The metalworking, for instance, is limited to a single piece of bronze slag from F.480 (237g) and the recovery of a ring-headed Early Iron Age pin from F.945 – both waterholes at Bradley Fen. Equally, direct evidence for textile production is confined to a single spindle whorl and seven loomweights. Yet despite the limitations of the material record, it is still possible to sketch out a sense of the character of these activities and this enables some discussion of the social and geographic scales at which these productive technologies and traditions were organized.

Material traditions in context

For the most part, the basics of these traditions were probably structured and reproduced at a fairly local level. Technologies such as flint working, weaving and pottery production were likely to have been organized

Figure 5.37. Early Iron Age saddle querns from King’s Dyke. 1. Saddle quern 1, F.66; 2. Saddle quern 3, F.94.
within households, or between neighbouring groups. As Billington discusses below, flint working was a relatively infrequent activity from the Late Bronze Age onwards, perhaps occurring in response to specific tasks, or contexts, where metal tools were simply not to hand. Distinct tool-types began to disappear from the lithic repertoire at the beginning of the first millennium BC and the ad hoc character of the material recovered implies that minimal tutelage was now involved in the sourcing, working and utilization of lithic resources.

By contrast, longer material apprenticeships were still required for ceramic production and other ‘home crafts’. The persistence of these traditions would have been rooted in the context of learning, with skills and technical competence no doubt inculcated during childhood though a combination of formal tutelage, mimicry and general participation in clay procurement, processing and firing activities (Gosselein 1998, 94). Different levels of accomplishment would have been required from the production of different ceramics. Compared to the pots, for instance, the site’s loomweights and spindle whorls were often crudely fashioned, poorly fired and were made with a different set of fabric recipes. The variety and sorting of their inclusions indicate that the clays were not as thoroughly screened or prepared, with the general impression that flint grits, charcoal, chopped vegetable material or other detritus at hand, was employed as a tempering agent.

The protocols surrounding pottery production were more consistent and conventionalized, reflecting their greater significance as social as well as functional utensils. Yet even in pottery production, different levels of proficiency were required to make different vessels in the PDR repertoire. In terms of skill and labour investment, the production of finewares was probably the most demanding: pots distinguished by their fine pastes, thin burnished walls, delicately moulded features and overall symmetry of form. In fact, it is on the basis of these vessels that archaeologists have recognized distinctive decorative traditions, isolating intra-regional groupings, including that of the Fengate-Cromer style (e.g. Cunliffe 1991, 76–77). As reported on above, sherds of this pottery were recovered from two of the roundhouses at King’s Dyke, which not only serves to date the structures, but establishes points of connection with other groups of material from the Flag Fen Basin. Whilst there is no evidence to suggest that these finewares were the product of specialist artisans whose work was organized differently in contextual terms, the knowledge and proficiency needed to both mould and fire these intricate vessels may have only been obtained by a few skilled potters. These accomplished individuals would have no doubt resided in most communities. Their skills, however, may have given them some local renown and, as Brudenell has discussed above, the pots themselves may have been reserved for particular dining events.

Although many of the technical and aesthetic tendencies which structured these practices were resolved at the level of the local, when we broaden our perspective, it becomes clear that they constitute aspects of material traditions which were shared more widely. In the case of pottery, there is no denying that most contemporary vessel forms appear broadly similar from one part of eastern England to the next. Much as we can pinpoint differences in the distribution of certain distinctive pots, such as the Fengate-Cromer style decorated bowls, there is, nonetheless, a ‘sameness’ to the material repertoire from the region. This implies that there existed a widespread acknowledgment of what was appropriate with regards to material practice: a collective sense that there were right ways of doing things. This not only extended to how pots and other materials were formed and fashioned, but also to how they were used and, in some instances, how they were deposited.

On the one hand, these activities can be understood as attending to the needs, relationships and solidarities that existed within groups at a fairly close scale of social resolution. But on the other, we can see how they were conducted with a repertoire of materials which were made and used in ways that were much more widely understood. At a tacit level, this was an expression of common connections and cultural similarities; practices that would have been recognized and replicated across farmsteads and other contexts throughout the Flag Fen Basin and beyond. Set against these, we can identify material traditional and technologies which were probably more specialized or restricted in terms of who was responsible for them, or where these activities were conducted. In this context, these include metalworking, quernstone production and boat building.

As noted above, the evidence for the former is very slight. However, in light of the location of the slag at Bradley Fen, it is tempting to suggest that bronze metalworking activities were conducted away from the main focus of settlement at King’s Dyke. More extraordinary are the details of boat building revealed by Taylor’s analysis of the boat section from F.1064 (see below). Given the recent discovery of further intact craft from the Must Farm palaeochannel (Robinson et al. 2015), this report forges a broader, comparative discussion of later prehistoric logboats (reserved for a later volume in this series) and instead concentrates
on detailing the production and life history of the Bradley Fen vessel. Crucially, it provides insight into the techniques, tools and personnel involved in fashioning the craft, as well as some important clues as to how and when it was dismantled and the state that the boat was in when this occurred. The suggestion is that the craft may not have been made in Flag Fen Basin itself, reminding us that some things in this context came from further afield, either as a result of direct procurement from an external raw material source – in this instance a forest with mature oaks – or participation in various exchange networks. Both are hard to trace, but a sense of the geographic reach of either activity is indicated by the lithology of the quernstones which indicates sources in outcrops as far afield as Ely, Cambridgeshire and the Charnwood Forest district of Leicestershire (see Timberlake and Haywood above).

Waterborne transport was likely the means by which some of these things arrived at sites like King’s Dyke and Bradley Fen. As such, the boat gives us a very real point of connection with the local waterways, which are otherwise scarcely registered by the rest of the material residues from the site. Indeed, these crafts probably served to maintain links between communities across the Flag Fen Basin and along the River Nene: contacts ultimately fundamental to the reproduction of many material traditions at broader social and geographic scales.

The boat section and boat building (Maisie Taylor)

The base of the wooden tank in F.1064 was formed from a section of the hull of an oak logboat, cut at the point where the bottom began to rise toward the bow (Fig. 5.38). The width of the surviving section measured 750mm, but could have been as wide 1.5m when originally intact. The underside was virtually flat externally, but was larger and slightly crooked internally. The amount of wood torn around it. The hole was aligned on the grain on the interior, on the underside it was rather ragged, with a certain amount of wood torn around it. The hole was aligned on the grain internally. The profile of an axe blade survived in the hole and, though difficult to accurately measure because of its position, it was approximately 40mm wide and 6mm deep (40:6), well within the range of Later Bronze Age axes (Taylor 2001, 200, table 7.28).

Hull tear: This is of the kind left on the surface when wood is split too fast, or when a split runs out of control.

Parallel-sided slot: The slot was carefully cut. It measured around 50mm in width and extended almost halfway across the hull, becoming gradually shallower and petering out after approximately 520mm (Fig. 5.38, A4). The tool marks that survive were not complete, but appear to have been made by a blade up to 75mm in width. This would be very wide for a bronze axe of any type, which perhaps points to the use of an iron blade. Unfortunately there is no convenient corpus of width and curvature of iron axes for comparison. That being said, three typical Iron Age axes from Fiskerton, when measured from the drawings, produced broadly comparable dimensions, with width:depth ratios of 69.8, 78.12 and 75.9 (Fell 2003, 68, fig. 4.14). If, then, the marks were made with an iron axe, it would suggest that the slot may not relate to the original construction of the boat, but its subsequently cutting up.

Figure 5.38 (opposite). Details of the boat section from F.1064, showing axe cut mark profiles. A. Plan and section of the boat: A1–3. Round holes (depth gauges) and dowels; A4. Parallel-sided slot. B. Section relative to the hull of the Clifton 1 Bronze Age boat (after McGrail 1978, fig.12).
Settlement in the post-fieldsystem landscape
The construction of the boat – timber selection, fashioning techniques and the role of the Master Builder

The tree used for the construction of the Bradley Fen craft had a straight grain with an estimated truck diameter of more than a metre. As with most other British logboats, oak was the chosen species, this being durable and resistant to fungal decay. It furthermore benefited from being relatively easy to work when green (i.e. freshly felled, unseasoned) and strong enough to withstand damage. However, given that oak heartwood is not known for its lightness, portability was evidently surrendered in order to gain from these other inherent properties of the timber. This may seem like a small sacrifice, but it probably meant that the tree was felled away from easy access to a watercourse, increasing the labour input required for transporting, manoeuvring and launching the craft. Indeed, as the boat required a large straight-grained trunk, with a length of around 10m (based on the dimensions of boats of similar design (Table 5.16)), it can be reasoned that the oak used was growing in a forest, or at least in dense woodland (Rackham 1976).

Bog oaks from the Fens show that trees of this size and quality were dying and collapsing into the peat as the Flag Fen Basin grew wetter throughout later prehistory. The quality of oak from waterlogged excavations certainly decreases through time and the big trees must have gradually become rarer (Taylor 2010). As oak regenerates from its roots when cut down, there could still have been plenty of oak trees growing on the dryland fringes of the Basin. But these would not necessarily have been large and, given the picture of environment emerging from the pollen record, are unlikely to have grown in pockets of woodland dense enough to produce the kind of timbers required for boat building. In short, it is possible that the tree used in the construction of the boat was felled outside of this immediate landscape.

These points aside, the large knot in the bottom of the boat shows that the tree selected was less than perfect. It is apparent that, even by the Bronze Age, it was not always possible to find the trees ideally suited for boat construction, even beyond the Flag Fen Basin. In this instance, the presence of a knot would have presented problems for the builders. For one, it would have made it harder to keep the split straight when the trunk was being ‘roughed-out’ in the early stages of building (although the straightness of the grain is the more important factor). Other problems can arise later on, because the wood in knots is prone to rot. Although quite large, the knot on the Bradley Fen craft was still fairly solid and showed no sign of rotting and therefore did not require the sort of bung repair seen on some other logboats of a similar date (e.g. Pierrepoint 2 (McGrail 1978, 208)) and Fiskerton (Taylor in prep.).

The tear previously mentioned on the underside of the boat is evidence that the craft was roughed-out using tangential splits, such as those used in the first stage of ‘boxing’ the heartwood (Taylor 2010, 90–91). In fact, it is likely that the tree was initially reduced to a square section in this way so as to remove sapwood and other unwanted timber, thus reducing the amount of hewing needed to achieve the correct exterior profile. McGrail was of the opinion that a number of techniques could be used for shaping a hull: charring and scraping or adzing, but where tools alone were used, grooves were axed out and wood split out between them (McGrail 1978, 32; see also Edlin 1973, 12; Pedersen et al. 1997, 287).

The labour required to fashion the craft was probably met by a team of builders, perhaps under the direction of a single Master Builder. Some insight on how this labour was organized and executed is obtained from the analysis of tool marks on one of the boats excavated at Fiskerton, Lincolnshire in 2001 (Taylor in prep.). As metal tools would have been ubiquitous in later prehistory, it cannot always be assumed that different axe marks on wood represent different workers in every context (unlike in the Early Bronze Age (see Brennand & Taylor 2003, 29)). However, in instances where similar axes were being used for similar tasks in the fashioning of the hull of logboat, it does seem reasonable to suggest that they represent different members of the construction team. On the Fiskerton boat, tool marks were recorded on 16 different parts of the craft and were likely made by 10 different axes, potentially equating to a team of 10 builders. Interestingly, only one axe was used in two different places, suggesting individuals fashioned separate areas of the boats. The most complete set of tool marks was in the interior, occurring in discrete areas, suggesting that


<table>
<thead>
<tr>
<th>Boat</th>
<th>Whole logboat</th>
<th>Diameter</th>
<th>Thickness of bottom</th>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bradley Fen</td>
<td>+</td>
<td>1000–1500mm</td>
<td>95mm</td>
<td>?</td>
<td>750mm</td>
</tr>
<tr>
<td>Clifton 1</td>
<td>+</td>
<td>900–1040mm</td>
<td>100mm</td>
<td>8.5m</td>
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<tr>
<td>Clifton 2</td>
<td>+</td>
<td>980–1040mm</td>
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<td>9.25m</td>
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<tr>
<td>Peterborough</td>
<td>+</td>
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groups of workers did not move along hull, but were responsible for their own sections within it.

This way of working would have required careful coordination from a skilled craftsman – the Master Builder – particularly when marrying-up the various sections. The only way that this could be achieved was by setting various guides and gauges to indicate the thickness to be hewn by the different workers. Evidence of these gauges survived on the Bradley Fen boat section: the three cylindrical holes cut through the hull, each slightly tapering towards the interior and plugged with dowels. These holes served as depth gauges which would have been cut to a depth equal to the required thickness of the hull. With these in place, the boat builders would know to stop hewing the hull once the bottom of the holes had been reached. The thin flap of wood overlying the central dowel bears this out, showing that the exterior of the boat was shaped first, the hole cut, and then the interior hewn until the hole was partially exposed. Once the gauges were no longer needed, small dowel rods, which would swell once wet, were inserted. These were further held in place by the pressure of the water from outside of the boat.

The purpose of the square cut hole in the centre of the base is more difficult to judge, though broadly similar features have been noted by McGrail (1978) on the Clifton 1 and Clifton 2 logboats (Phillips 1941), on three boats from Pierrepoint (although the holes here are smaller) and on one example from Peterborough. Although McGrail (1978, 85) suggests that these features could have served as thickness gauges or as settings for a mast, he is sceptical of either interpretation. One plausible alternative is that they played a role in drainage. To stop the wood shrinking and splitting through drying out, logboats needed be left both lying in, and full of, water when not in use. When needed, the easiest way to remove the excess internal water would be to drain it through a reasonably sized hole. The only major problem would be to drain these larger holes water-tight again. This was less of an issue with the round tapered thickness gauge holes, which were plugged with dowels. The square holes, however, were not tapered, but many appear to have been quite worn, including the Bradley Fen example. This would imply that any bung or stopper used on the hole was probably removed and replaced a number of times during the life history of the craft.

The dismantling of the boat

Oak splits easily along certain planes, which is one of a number of reasons why it has been so widely used for timber, both now and in the past. The wood splits most readily along the medullary rays, i.e. radially, and this tendency was exploited in the Bradley Fen boat, where the sides were broken-off cleanly along the line of the medullary rays. There is no sign that the broken edges were trimmed up with an axe. When fresh oak is split, the two halves are held together by linking strands of torn fibres which have to be chopped through before they can be separated. The surfaces here, however, seem to have broken with no rough fibres and no indication that an axe was used to clean them up. This kind of break only occurs when oak is totally waterlogged and degraded. It indicates that the boat was dismantled some time after it had gone out of use: time enough for the boat to become waterlogged and begin to lose its woody structure.

However, there are traces on the ends of the boat section to indicate that it was cut square with a sharp tool, which left clean, flat facets, characteristic of an iron axe. The only bronze tools which leave similar marks are early flat or flanged axes, but they would not have been capable of cutting seasoned oak heartwood even if waterlogged. Experiments using bronze tools indicate that although green oak can easily be worked with bronze blades, the cutting edge is not hard enough to be effective once the oak has begun to season (Francis Pryor pers. comm.). The use of iron axes is further evidenced by the size of the tool marks on the parallel-sided slot on the underside of the boat, which presumably represents a failed attempt to cut the craft in two at this point.

In combination, there is clear evidence that the boat sides were snapped off after the wood became waterlogged and that iron axes were employed to cut up the hull suggesting that the section found in F.1064 could not have been cut from the boat until long after it had been abandoned. The craft seems to have been fashioned and used in the later Bronze Age, but its destruction and incorporation into the tank in F.1064 evidently occurred during the earlier Iron Age.

Flint working (Lawrence Billington)

The middle centuries of the second millennium BC mark a significant fault line in the character of production and use of flint tools across southern Britain. Traditionally these changes have been associated with the functional replacement of flint with metal tools and with a decline in the social importance of lithic technologies, manifested in the use of poor quality material, an extremely expedient approach to core reduction and the disappearance of many formal tool types, as well as a marked reduction in the size of assemblages (see Ford et al. 1984; Herne 1991; Edmonds 1995; Young and Humphrey 1999).

These characteristics make the identification of later prehistoric flintwork particularly difficult in a multi-period assemblage such as this, where a small
component of later material can effectively vanish, masked by the ubiquitous background presence of earlier flintwork. This is certainly true of the Bradley Fen and King’s Dyke assemblages and is thrown into sharper relief by the presence of a large Early Bronze Age component to the lithic assemblage, much of which exhibits technological traits indistinguishable from later (Middle Bronze Age to Iron Age) pieces.

The Early Bronze Age is the last period associated with relatively large assemblages of worked flint on the sites. Very few flints are associated with the fieldsystem or with features associated with Deverel Rimbury pottery, although it is unclear whether this reflects the way flint was deposited or a dramatic reduction in the manufacture and use of flint tools. This pattern extends into the Late Bronze Age and Iron Age where, despite an abundance of settlement features including structures, the use of flint appears to have been extremely restricted.

A total of 163 worked flints were recovered from 85 features dated to the Late Bronze Age to Middle Iron Age. It is immediately apparent that the vast majority of this material is residual. Diagnostic types of Mesolithic, Neolithic and Early Bronze Age date are well represented and the technological traits of the debitage are indicative of either structured blade based Mesolithic/earlier Neolithic technologies or flake based industries of later Neolithic/early Bronze Age date. Amongst the mass of earlier material, a number of pieces can tentatively be suggested to be broadly contemporary with the features from which they were recovered, listed in Table 5.17. Retouched forms include a piercer from F.89 and a reused patinated flake with crude abrupt retouch from the wall-trench of Roundhouse 5 F.441. A proportion of the flake-based debitage from the assemblage exhibits traits consistent with a later prehistoric date; made of poor quality gravel flint and exhibiting a lack of control of core reduction evidenced by awkward flaking angles, platform crushing and misplaced hammer blows. This material is not strictly diagnostic and most of it could well represent the less refined component of later Neolithic and, especially, Early Bronze Age technologies. Small groups of such material, including flakes, shattered chunks and cores were recovered from Early Iron Age pit F.778 and Middle Iron Age pit F.784. Material with similar characteristics was also recovered from several Roman features; notably F.550 and F.551 which contained chunks, flakes and cores reflecting the expedient use of small poor quality gravel nodules.

The small and undistinguished assemblage of flint relating to later prehistoric activity on the sites appears to have little to contribute to our understanding of the character of settlement activities or depositional practices. It seems that the use of flint was only ever on a small scale and was perhaps a relatively infrequent occurrence in response to specific tasks and activities. It is interesting to consider the social conditions under which this limited and expedient working and use of flint took place. Recent studies have begun to place increased emphasis on the way in which flint working was taught and learnt in prehistoric societies (see Bamforth & Finlay 2008). To date most of these have been concerned with complex and sophisticated working techniques such as specialized blade production (e.g. Fischer 1989; Pigeot 1990) or exceptional classes of artefact such as flint daggers or axes (e.g. Apel 2001; Högberg 1999). This work has invariably suggested the operation of relatively formal ‘apprenticeships’, with skilled practitioners directly overseeing the training of others. Little work has been done on informal, expedient technologies and it seems unlikely that these models are relevant to the material considered here. We can perhaps envisage a much less formal transmission of knowledge, with tacit imitation and minimal tutelage characterizing the way in which people learnt to collect, work and use lithic resources. Edmonds (1995, 188) has noted that by the later Bronze Age ‘the learning of complex knapping techniques may itself have ceased to be an important feature in the lives of many people’. As a technology that was rarely explicitly articulated or considered, later prehistoric flintwork

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<tr>
<th>Site</th>
<th>Bradley Fen</th>
<th>King’s Dyke</th>
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<tr>
<td>Feature</td>
<td>433 480 691 759 763 766 768 778 784 1013 1018 361 441 89 525</td>
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<td>Date</td>
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<td>Scraper</td>
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<tr>
<td>Retouched flake</td>
<td>- - - - - - - - - - - - 1 1</td>
<td></td>
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<td>Total</td>
<td>1 1 1 1 1 2 1 3 3 1 2 1 1 1 1 1</td>
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<tr>
<th>Site</th>
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<tr>
<td>Feature</td>
<td>433 480 691 759 763 766 768 778 784 1013 1018 361 441 89 525</td>
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<td>Total</td>
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perhaps became increasingly peripheral to wider social discourse.

If the social importance of flint-use was marginalized during later prehistory, it is appropriate to consider if this attitude extended to the earlier lithic material that must have routinely been encountered by the inhabitants of the later Bronze Age and Iron Age landscape. The large numbers of residual flints implies that such pieces must have been a familiar presence whenever activities such as digging features or cultivation took place. Although for the most part these pieces may have been passed over without consideration, their presence must surely have, in some way, contributed to the inhabitants’ understanding of antecedents and history.

**Textile production (Matt Brudenell)**
The only evidence for textile production derived from the small fired clay assemblage, in the form of loomweights and a single spindle whorl. Out of the 144 pieces of fired clay (4548g) recovered from Late Bronze Age and Early Iron Age features, 105 (4176g) were identified as pieces of loomweights, or other sub-rectangular fired clay blocks of loomweight-like form (Table 5.18). In total, this amounted to fragments of a maximum of seven weights, derived from four different features (see catalogue below). Six were made in sandy clays of Fabric 1, although individually, the recipes for each weight were subtly different, particularly with regard to whether or not pieces of flint, gravel, or burnt-out vegetable matter were caught in the clay matrix. The impression is that clays were not carefully prepared and that any temper employed was added in an ad hoc manner.

The seventh weight was in a sand and shelly fabric (Fabric 8), shared by some of the pottery vessels. In fact, this unusual and slightly irregular ovoid weight may have been formed from left over potting clay. This is certainly plausible, given the pragmatism and expediency displayed in loomweight manufacture. The ovoid weight, for instance, had a failed perforated hole on one side. The stick or other such instrument pushed through the clay had clearly hit a stone or some other obstacle. No attempt, however, was made to remove this inclusion or smooth over the perforation; instead a new hole was simply fashioned. Similarly, the rectangular clay ‘brick’ from pit F.495, which may have been a loomweight (given its similarity to the more complete example from F.280, Fig. 5.14), had irregular stab/slash marks on the exterior, suggesting it was used as a cutting surface prior to being fired.

Comment must also be made on the rectangular ‘style’ of loomweights at Bradley Fen and King’s Dyke. Certainly, from the Early Iron Age onwards, the commonest form of loomweight in Britain is the triangular type, found widely throughout eastern England. These rectangular versions are therefore quite unusual (especially in Early Iron Age contexts), but can perhaps be considered a variation of the pyramidal forms with a tapering square profile, best paralleled at a regional scale by the Late Bronze Age/Earliest Iron Age assemblages from Mucking North Ring (Bond 1988, 37–39, fig. 26). As Champion notes (2011, 219), these are a common type in Iron Age Europe, with finds demonstrating their function in warp-weighted looms.

### Table 5.18. Fired clay quantification by fabric. The 39 sherds not belonging to loomweights or spindle whorls were undiagnostic, but are thought to represent pieces of daub and/or over lining.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>No. fragments</th>
<th>Weight (g)</th>
<th>% by weight</th>
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<tbody>
<tr>
<td>1</td>
<td>117</td>
<td>3530</td>
<td>77.6</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>144</td>
<td>3.2</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>31</td>
<td>0.7</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>10</td>
<td>0.2</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>102</td>
<td>2.2</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>723</td>
<td>15.9</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>8</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-</td>
<td>-</td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
with both Late Bronze Age and Early Iron Age wares allied to the broader PDR ceramic tradition (Barrett 1980). Yet beneath these surface similarities, which often appear to dictate the decision to conflate the remains of these periods, there are some fundamental differences in the nature of social and material traditions on either side of the Bronze Age–Iron Age transition. Somewhat strangely, these have tended to get lost or downplayed in settlement studies, even though it has long been recognized that contemporary changes in metalwork, metalworking and metal deposition signpost profound transformations in society at this point.

Discussion

For the last decade or more, there has been a tendency in studies of later prehistoric settlement to emphasize continuity between the Late Bronze Age and Early Iron Age, or deal with these remains as a single undifferentiated entity. On first inspection this seems justified, as the archaeological imprint of settlement is broadly similar in both periods, especially in eastern England where most sites dating to the late second and earlier first millennium BC are characterized by unenclosed swathes of pits, postholes and structural remains. This is certainly the case at Bradley Fen/King’s Dyke, where there are even similarities in the distributional patterning of features, with structural remains occupying the dry slopes above the 2m OD contour and wells and waterholes on the damp-ground terraces below (Fig. 5.40). There are also points of continuity here and elsewhere in material technologies (see above), particularly the pottery, whilst the loomweight attest to onsite weaving, the only evidence for spinning was a single spindle whorl recovered from Roundhouse 4 (Fig. 5.39).

Loomweight and spindle whorl catalogue

1. Fabric 1, rectangular with hole perforated off centre (17mm in diameter). Late Bronze Age. F.280 [208], intact, 1242g, dimensions: 168mm × 99mm × 60mm (Fig. 5.14, top)
2. Fabric 1, part of a rectangular loomweight or ‘clay block’ with stab marks on the surface. Early Iron Age. F.495 [454Q], seven fragments, 812g, surviving dimensions: 156mm × 103mm × 87mm (not illustrated).
3. Fabric 1, pieces of fired clay with flat surfaces, probably from a rectangular loomweight or ‘clay block’. Early Iron Age. F.495 [454Q], 32 fragments, 172g (not illustrated).
4. Fabric 1, part of a rectangular loomweight or ‘clay block’. Early Iron Age. F.315 [338], one fragment, 320g (not illustrated).
5. Fabric 1, part of a rectangular loomweight or ‘clay block’. Late Bronze Age? F.84 [84], four fragments, 141g, surviving dimensions: 94mm × 84mm × 9mm (not illustrated).
6. Fabric 1, fragments of fired clay with flat surfaces and rounded corners, probably from a rectangular loomweight or ‘clay block’. Late Bronze Age? F.84 [84], 59 fragments, 718g (not illustrated).
7. Fabric 8, irregular ovoid loomweight with two perforated holes (one partial) at right angles to one another (both 17mm in diameter). Late Bronze Age. F.280 [208], intact, 671g, dimensions 116mm × 87 × 69mm (Fig. 5.14, bottom).
8. Fabric 8, spindle whorl (hole diameter, 9mm). Late Bronze Age. F.433 [394], intact, 47g, dimensions: diameter, 44mm; height, 32mm (Fig. 5.39).
Settlement in the post-fieldsystem landscape

Whereas these contradictions seem to have passed largely unnoticed for a number of years (or were at least glossed over because of difficulties in reconciling the two contrasting perspectives), more recently efforts have been made to reassert what the broader differences are between these periods (Needham 2007). Following suit, this chapter has attempted to tease apart the different components of the Late Bronze Age and Early Iron Age settlement at Bradley Fen/King’s Dyke, with the aim of discussing how these fit within markedly different patterns of occupation in the wider (social) landscape of the Flag Fen Basin. Maintaining a distinction between the two periods – where possible – has been made all the more

Spatial-temporal configuration 3 – settlement pattern (distributed and convergent)

The Late Bronze Age and Early Iron Age settlement features occupied different contours as well as different contexts. The architecture of the former was constructed in relation to enduring elements of the Middle Bronze Age fieldsystem, whereas the latter had its own emphasis detached from the earlier grid. Moreover, the intensity of occupation changed: Late Bronze Age being seemingly single-phased and distributed; Early Iron Age being multi-phased and focussed. The in-field situation of Late Bronze Age settlement was in many ways equivalent to the context of the metalwork, in that both referenced the continued dominion of land divisions (even if on different sides of the encroaching wet-dry divide). Early Iron Age settlement was removed from the increasing saturation. This dynamic changed in the Middle Iron Age when settlement and its architecture converged emphatically at the fen edge.

Figure 5.40. Spatial-Temporal Configuration 3 – Settlement pattern (distributed and convergent). BF = Bradley Fen; KD = King’s Dyke.
important in this context, as it was first believed that all the settlement remains at King’s Dyke were of later Bronze Age origin (Knight 1999; Gibson & Knight 2002). Indeed, this initial interpretation has since found its way into print in several summaries and broader discussions of the period (e.g. Yates 2007, 91; Evans 2009b, 40). As such, there has been something of a need to ‘set the record straight’ on phasing and clearly outline what is Late Bronze Age and what is Early Iron Age in this setting.

This is quite an unusual situation, but partly stems from the fact that understandings of dating in this period have shifted considerably since the excavation of King’s Dyke in the late 1990s. Crucially, the development of a fresh chronological framework for the British Late Bronze Age (Needham et al. 1997) has provided a new perspective on the currency of, and temporal relationship between, different material traditions (Needham 2007). Perhaps most importantly, at least in terms of phasing sites like King’s Dyke and Bradley Fen, it has offered some clarity on the periodization of Plain and Decorated ware PDR pottery, strengthening confidence in the efficacy of ceramics in dating contexts to either the Late Bronze Age (c. 1100–800 BC) or the Early Iron Age (c. 800–350 BC). This was previously a grey area in dating, especially in Cambridgeshire, and one which was arguably responsible for much of the soft-handed phasing of settlements in the last decade or more. It certainly encouraged the liberal use of broad chronological terms such as Late Bronze Age–Early Iron Age for sites: phasing brackets which have in turn helped to foster the impression of long-term continuity in the character and patterning of settlements across the transition.

The effects of the changes to these chronological schemes have been slow to filter through in ceramic studies, but are now having an impact. As well as rephasing the settlement remains at Bradley Fen and King’s Dyke, they have previously led to the redating of deposits at Tower Works, Fengate (Lucas 1997; Evans & Pryor 2001; Brudenell et al. 2009) and, more recently, to the recognition of further evidence of Early Iron Age occupation at Tanholt Farm (Patten 2009). This has prompted concern that other settlement deposits in the Flag Fen Basin once dated on ceramic grounds to the Late Bronze Age will need to be reviewed. The rephasing has resulted in a switch in the balance of our evidence from either side of the Bronze Age–Iron Age transition, which is starting to shape a very different picture of occupation histories. This discussion reflects on these newly emerging patterns and aims to show how the deposits from Bradley Fen/King’s Dyke both add to, and help understand, the broader nature of settlement in the Flag Fen Basin.

The Late Bronze Age

With no more than two isolated roundhouses (Roundhouse 4 and, possibly, Roundhouse 12), the odd granary structure (Four-post Structures 1 and 2) and a handful of pits and waterholes, the Late Bronze Age settlement remains at the site can hardly be described as anything but highly dispersed. The lightness of this footprint was matched by the paucity of the material culture yielded, with fewer than 200 sherds recovered, along with two loomweights, a single spindle whorl and a very small assemblage of animal bone. Given the kinds of artefact frequencies and feature densities now known from published Late Bronze Age sites in Cambridgeshire, including others located along the Lower Ouse and Cam Valleys (e.g. The Hutchinson Site, Addenbrooke’s (Evans et al. 2008), Striplands Farm, Longstanton (Evans & Patten 2011) and Over (Evans 2013)), it scarcely seems appropriate to label this a settlement. The problem, however, is deciding what these diffuse feature-scatters represent in social terms.

On the one hand, it could be argued that the imprint is broadly similar to that of the Middle Bronze Age, inviting an interpretation which emphasizes continuity in settlement pattern. This has its attractions, not least because the features seem to be nested within, and aligned in respect to, the grain of the fieldsystem. There are also striking similarities in the nature of the animal-bone-rich waterholes, particular between F.528 and F.34, F.391, F.544 and F.991. On the other hand, there is also an important distinction to be made, in that no obvious structures have been identified for the Middle Bronze Age phase at Bradley Fen. In fact, roundhouses of this date have proved remarkably elusive throughout the region and only come back into focus again during the Late Bronze Age, at precisely the same time that ditch-bound fieldsystems start to slip from view. This is an important but much glossed-over trend in the wider landscape sequence. The direct comparison between the Middle and Late Bronze Age settlement signature may not therefore get us very far. As such, perhaps the simplest explanation (and the one presented above) is that the Late Bronze Age feature-scatter reflects patterns of short-term residency or seasonal activities on the terraces: activities conducted away from the main hubs of settlement.

This interpretation arguably fits best with the evidence at hand and would go some way to explaining why the settlement imprint differs to that normally associated with this period in other parts of the region. That being said, it does beg the question of where these hypothesized settlement hubs were in the Flag Fen Basin at this time. Given the scale of excavation along the terraces at Fengate, and further north around Eye and Thorney, it is surprising that no actual ‘hub’ has been
identified. Instead the remains that have been revealed are remarkably similar to those at Bradley Fen: isolated and predominately finds-free roundhouses, dispersed pits and the occasional waterhole, with very few substantial or closely datable artefact assemblages (Fig. 5.41). Extensive feature-scatters of ‘post-fieldsystem’ or later Bronze Age attribution have been identified at sites such as Edgerley Drain Road and the Elliott Site (Evans et al. 2009), but in truth, few of these are phased with any degree of certainty because of the paucity of finds or stratigraphic associations. (In this instance, fewer than 130 sherds of PDR pottery were recovered in total from both sites). Yet, the default approach is still to assume that these belong to this period (as opposed to the Middle Bronze Age or even the Early Iron Age).

There is, of course, one context where Late Bronze Age remains have been found in abundance in the Flag Fen Basin – the wetland itself. Although the interior of the basin has received only limited investigation, excavations at Must Farm and those along the path of the Flag Fen post-alignment have revealed more substantive traces of Late Bronze Age occupation, which could be considered evidence of sustained settlement. The most spectacular example of this is the material associated with the Must Farm platform, with a range of intact pots, items of metalwork, textiles and glass beads (Knight 2009a; Gibson et al. 2010). These objects stand out, but it is important to stress that there were also other more mundane or common-place artefacts amongst them: charred cereals, pieces of butchered animal bone, small isolated fragments of pottery and other detritus more familiar to contemporary dryland sites. It is not inconceivable that this was a permanently-occupied pile-built settlement, as opposed to some specialized trading platform or fishing station.

The same could be argued for the Flag Fen platform, given some of the artefact evidence the site produced (particularly the pottery). Pryor has long since abandoned his interpretation of the site as a lake village, in favour of a unique ritual centre where a range of rites associated with the dead and the deposition of objects was conducted (Pryor 2001, 426–29). This is a compelling argument, but it requires us to see ritual as a distinct sphere of activity divorced both conceptually and spatially from other kinds of contemporary practice. This runs counter to most recent thinking on the nature of ritual behaviour in later prehistoric societies, which stresses how ritual was interwoven within daily routines, drawing on and reproducing the same generative principles and categories of material culture as other social practices (Hill 1995, 99). In other words, just because we see symbolic intent in the way artefacts were deposited off the Flag Fen platform, this does not necessarily mean that those actions were conducted outside of a settlement-related context. Put succinctly, arguments do not need to be polarized around the issue of whether the platform was a settlement or ritual centre. Indeed, there is time enough in the platform sequence for the structure to have served a number of potential roles, sustained settlement being one of those.

What we can be more certain of now is that this was not the only timber edifice standing in the Flag Fen Basin in the Later Bronze Age (Fig. 5.41). Rather, given the recent discoveries at Must Farm and Horsey Hill (Gibson & Knight 2009; Gibson et al. 2010), today it seems more likely that raised causeways and settlements were regular fixtures of this saturated landscape (particularly along the roddons). Strictly speaking, Flag Fen may still be the largest and most extraordinary example of one of these structures, but as with the Must Farm platform, it is unlikely to be an unparalleled site-type. The problem is we simply have not been afforded the same opportunities to prospect for similar sites in this setting.

Peat cover and depth obviously militate against orthodox forms of survey in the basin interior. However, so too have our assumptions that settlement must have been displaced from this environment by the rising water-table in the later Bronze Age. Simplified, the conventional (but often implicit) model has it that settlement gradually contracted upslope as the peat grew in that period (e.g. Evans 2002, 36). But this is not supported by the evidence on the dry ground. Structures and light feature-scatters undoubtedly come into sharper focus in the Late Bronze Age, but as discussed above, these do not equate to settlement cores or hubs of any real sustained activity. In fact, the opposite could well be true. Contrary to received wisdom (e.g. Evans 1997a, 224–25), settlement purposefully colonized the wetland in this period, rather than retracting from it. What we observe on the dryland terraces like Bradley Fen are in fact traces of ‘off-site’ activities: structures perhaps seasonally occupied by sub-sets of the community herding livestock and/or tending crops. The main centres of occupation, by contrast, were in the wetland interior, explaining why they have evaded our now extensive investigations along the basin shoreline.

The implication is that later Bronze Age communities responded much more favourably to the changing conditions in the Flag Fen Basin than we have previously given credit. Some fields, plots of summer pasture and/or winter flood-free meadows, were certainly lost to water at this time and this was no doubt a cause of inter-community tension. Yet simultaneously, a different kind of landscape emerged, which offered other opportunities for these groups.
As such, the wet was to become as much a draw for settlement as it was an obstacle. Given how limited our investigation of these settings has been to date, everything so far discovered in this context points to changes in the environment being met by increased levels of investment in water-fast timber architectures, as opposed to any real sense of retreat. This speaks of a desire to be in this waterscape during the Late Bronze Age and, perhaps more importantly, to maintain links with the channels of the River Nene, which still pushed their way around the fen basin. The excavation of the Must Farm palaeochannel certainly shows the extent to which these watercourses were exploited at this time, with the adjacent roddon serving as a causeway into the waterscape.

The Early Iron Age
Changes to the chronology of the later Bronze Age and the recent realignment of the PDR pottery sequence to this new scheme, have had a major impact on the identification of Early Iron Age sites in recent years. This is especially so in the Flag Fen Basin, where a number of sites once thought to be Late Bronze Age in origin, including the settlement at King’s Dyke, have now been reassigned to the Early Iron Age and confirmed to be of this date by radiocarbon determinations (Table 1.1). The picture of Early Iron Age occupation in this setting has therefore changed dramatically and the evidence from King’s Dyke proves particularly significant, providing the first comprehensive view of a settlement ‘core’ featuring no fewer than nine roundhouses (10 if Roundhouse 12 is included), four four-post structures and a wide scatter of other pits and postholes.

Earlier discussion of the building sequence served to demonstrate that few of these structures were likely to be contemporary. Combining several strands of evidence, it was suggested that there were at least four recognizable phases to the development of the settlement, with only two or three buildings standing together at any one time. With no stratigraphic associations to lead off, these observations were largely based on the comparison of roundhouse footprints and the identification of distinctive hallmarks in architectural technique/tradition. This was not, then, a nucleated or agglomerated settlement in the strictest sense, but a swathe of remains created over a fairly long period of time, perhaps spanning the whole of the Early Iron Age, c. 800–350 BC.

In reality, the definition of set phases in this context is probably somewhat misleading, as the settlement is likely to have evolved in an organic fashion. Different zones of the site would have probably come in and out of focus, with features being constructed, abandoned, reworked or renewed at timescales beyond our dating resolution, or our ability to untangle them in a completely satisfactory way. The problem is further compounded by the fact that we view the King’s Dyke settlement through the letterbox of a fairly narrow excavation window, centred on an area where roundhouses seem particularly prevalent, but artefact-rich pits or other features that may lend a sense of ordered zoning are absent.

These points aside, in each ‘phase’, or at any one moment, we are probably dealing with what amounts to a fairly typical ‘farmstead’ of the period: a persistent focus for a small series of structures and a home for a constellation of people (most likely a kin group of some form) who probably lived together most of the time and shared many of the basic tasks needed to sustain themselves as a group. The character of the finds and scale of the debris from the sites would suggest that activities were organized at a fairly local level. The broken pots, pieces of saddle quern, loomweights and fragments of bone certainly speak of ‘normal’ domestic duties and the usual range of productive ‘home craft’ technologies we have to come to expect from these kinds of contexts – food preparation and cooking, spinning, weaving, butchery etc. Even where we see moments of activity outside of these daily routines, such as during episodes of formal dining in the roundhouses, the scale of the remains interred, both in terms of the lamb carcasses consumed and the pots used and broken, are evidence of only small-scale events involving members of the household, kin or possibly neighbours.

Pinpointing how the details of life at King’s Dyke spoke more directly to the wider social landscape is far more difficult. Beyond commonalities in architecture and other material traditions around the Flag Fen Basin, there are no artefacts but the saddle querns (derived from sources at least 40–75 km away) that hint at participation in exchanges, or connections with
more distant communities. Scarce too are other small finds like pieces of worked bone (gouges, pins, points, combs). With the exception of the bronze ring headed pin from waterhole F.945 at Bradley Fen, there are no artefacts of personal adornment in the assemblage. Of course, the absence or inclusion of some finds in the archaeological record is dependent on their past social value and/or the cultural logics that conditioned attitudes toward them at the point of deposition. Items of metalwork, for instance, are renowned for their rarity within Early Iron Age settlement contexts. Within the wider landscape, however, we know that the Flag Fen post-alignment continued to serve as a focus for the deposition bronze pins, rings and other dress accessories throughout this period (Coombs 2001).

Context can then dictate visibility when it comes to discussions of exchange or other social themes, as indeed can the nature of the materials themselves. For example, it seems likely that some pot would have been exchanged between local communities; particularly the decorated Fengate-Cromer style vessels. Given the level of accomplishment needed to produce these fineware vessels, coupled with the roles they seem to have played in formal dining in this context, these pots were potentially an attractive medium for gift exchange. The problem is tracking these networks, as vessels from around the basin were largely made with similar tempers and ingredients.

Overall, the practices that connected groups within this landscape and helped constitute a wider sense of community have left few tangible traces in the archaeological record. There are no enclosures, field ditches, pile dwellings or other large-scale constructions from this period that we can point to as evidence of inter-group endeavours. Instead, connections were probably recognized though a combination of kinship relations, casual encounters during daily tasks and more formal cooperative labour arrangements needed to meet the demands of the agricultural cycle. These would certainly have become more sharply focused during specific points in the year, when tasks such as harvesting or herding required a work force greater than any single household. In terms of tending livestock, wider connections between groups would have become familiar in the to-and-fro of animals around the basin, the constitution of flocks and herds and their reworking through selective breeding and culling (Cooper & Edmonds 2007, 185).

Some of these moments required group participation, but also provided the context for feasting and celebration. The one insight we have on these large congregations comes from activities at Bradley Fen and is evidenced by the bone deposit at the base of waterhole F.528. Here were found the remains of at least six butchered cows that had been slaughtered simultaneously. This would have been major event, a spectacle even, and probably involved cattle from herds owned/tended by several groups (the sacrifice potentially being too great for any one household/ herd alone). The quantity of beef yielded would have been enormous and, whilst some cuts may have been shared, consumed and the bones deposited in one go, as part of a feast, others were perhaps preserved for the future by drying, smoking and/or salting.

Again, our ability to detail the manner of these practices is extremely limited. What can be seen at the level of the wider landscape, however, is that the way that different parts of the terraces were utilized at King’s Dyke/Bradley Fen, mirror those on the opposite side of the Flag Fen Basin, suggesting there was a common consensus on how the land was worked, settled and appropriated in this period. If we take the known location of settlements, for instance, we find that sites including King’s Dyke, Tower Works, Vicarage Farm and the three settlement swathes at Tanholt Farm, all occupied terraces above the 2.5m contour, well away from the contemporary fen-edge (located around c. 1.0m OD). In fact, King’s Dyke was the closest, lying within 0.3km of the wetland (Fig. 5.42; Table 5.19).

At present this context provides our most complete picture of Early Iron Age settlement in the basin, though it is set to be eclipsed by the remains from Tanholt Farm, once these are fully (re)phased and published. Tanholt Farm has fewer roundhouses, but the excavation area is larger, capturing more of the occupation scatters and the spaces in-between. Here, the three main ‘cores’ of earlier first millennium bc settlement are within 300–600m of one another, implying that site densities may be high on the basin fringes (Fig. 5.43). This is, to some extent, supported by finds above Fengate, where Wyman Abbott’s discoveries in the Pre-War Gravel Pits effectively bridge the c. 600m long swathe of ground between the excavated sites at Tower Works and Vicarage Farm, suggesting a series of settlements dotted across this zone (Fig. 5.42).

![Table 5.19. Early Iron Age settlement, contour range, and distance from the fen-edge.](image)

<table>
<thead>
<tr>
<th>Site</th>
<th>Contour range (m OD)</th>
<th>Distance from Early Iron Age fen-edge (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>King’s Dyke</td>
<td>2.5–3.3</td>
<td>c. 0.3</td>
</tr>
<tr>
<td>Vicarage Farm</td>
<td>4.8–5.2</td>
<td>c. 1.0</td>
</tr>
<tr>
<td>Tower Works</td>
<td>4.0–4.4</td>
<td>c. 0.5</td>
</tr>
<tr>
<td>Tanholt Farm (1)</td>
<td>3.5–4.0</td>
<td>c. 0.9</td>
</tr>
<tr>
<td>Tanholt Farm (2)</td>
<td>3.6–3.9</td>
<td>c. 1.2</td>
</tr>
<tr>
<td>Tanholt Farm (3)</td>
<td>3.5–4.3</td>
<td>c. 1.3</td>
</tr>
</tbody>
</table>
Figure 5.42. Early Iron Age settlement swatches and other contemporary features in the Flag Fen Basin.
This may be a product of sampling procedures, since fish and small bird bones are rarely recovered from unsieved or unfloated contexts. However, it is equally possible that the move of settlement away from the wetland at the start of the Early Iron Age coincided with a decline in the importance of fen-derived resources. At present, it is very difficult to judge what the changes in subsistence economy were across the Bronze Age–Iron Age transition in this landscape. Both periods saw mixed agricultural regimes. The evidence from King’s Dyke suggests a range of cereals were stored, processed and consumed at the site and were probably grown on the surrounding dryland terraces. But whether or not cereal cultivation became more intensive in this period is impossible to say.

In contrast to the following period (see Chapter 6), the lower terraces below 2m OD, were not a focus for settlement per se in the Early Iron Age. Nor, as far as we can tell, was the wetland itself, at least not on the scale postulated for the Late Bronze Age (above). In fact, with the exception of seven fish bones from one posthole in Roundhouse 14, there are no other direct indicators of wetland exploitation from the site. This may be a product of sampling procedures, since fish and small bird bones are rarely recovered from unsieved or unfloated contexts. However, it is equally possible that the move of settlement away from the wetland at the start of the Early Iron Age coincided with a decline in the importance of fen-derived resources. At present, it is very difficult to judge what the changes in subsistence economy were across the Bronze Age–Iron Age transition in this landscape. Both periods saw mixed agricultural regimes. The evidence from King’s Dyke suggests a range of cereals were stored, processed and consumed at the site and were probably grown on the surrounding dryland terraces. But whether or not cereal cultivation became more intensive in this period is impossible to say.

Figure 5.43. The King’s Dyke (above) and Tanholt Farm (below, with insets) Early Iron Age site plans.
The pollen and plant macro-fossil signatures from Bradley Fen certainly imply that the lower damp-ground terraces remained grassland throughout both periods. Boreham’s observation that there was consistency in stewardship in this part of the landscape matches the archaeological evidence, with only waterholes and wells being constructed along this zone. These pastures and water-features were the preserve of livestock, whose butchered remains dominate the faunal remains at Bradley Fen, much as they did in the Middle Bronze Age. The faunal record from King’s Dyke, however, offers a very different picture, with sheep being the primary species. In reality, both signatures are the consequence of specific depositional practices which skew our sense of their relative importance to the subsistence economy. That said, on the basis of a more general survey of Early Iron Age sites in the Flag Fen Basin and the western fen-edge, cattle seem slightly more dominant, though it is evident that patterns were less sharply defined than those from the later Bronze Age.

Returning to the basin itself, we can once again see that the character and location of features along the lower damp-ground contours at Bradley Fen mirror those on the Fengate shoreline. This is most visible at Cat’s Water and the Elliott Site, where the only fixtures of Early Iron Age date were wells and waterholes (Fig. 5.42). Admittedly, these features are not exclusive to the lower contours in the basin (as waterholes at Vicarage Farm, Broadlands and Tanholt Farm show), but at present, they are the only kinds of occupation-related fixtures evidenced in this zone. Of special mention is well F.1551 at Cat’s Water which contained a placed semi-complete Early Iron Age fine ware vessel at its base (Pryor 1984, 115, fig. 89). The character of the pot, the manner of its interment and the context of deposition directly parallel some of the practices at Bradley Fen, providing another glimpse into how certain traditions were shared more broadly amongst the basin’s communities. The reasons for each deposit may have varied and at Bradley Fen it was suggested that some things were interred as part of acts involving the construction and decommissioning of waterholes. Given that these features seem to be spaced in relation to the formal Middle Bronze Age field boundaries, it is tempting to view these practices as being in some way bound up with the way in which claims on the land were reworked and redefined in the post-fieldsystem world. On this final point, it seems that any lingering influence that this older landscape grain held was finally eroded over the course of the Early Iron Age and, as demonstrated in the following chapter, had no bearing on settlement in the Middle Iron Age.
In many respects the previous three chapters have served to document the undercurrent of a persistent operational grain in the landscape at Bradley Fen, first formalized in a system of field boundaries in the Middle Bronze Age, but traceable in the arrangement of features that both pre-existed and post-dated their construction. By the beginning of the Middle Iron Age, the authority of this earlier grain had ceased to be relevant and, instead, the fen-edge came to the fore as the principal organizational axis on the lowland terrace. This shift in orientation was marked by the arrival of settlement at the fen-edge, which heralded new forms of engagement with the fen-margin and the Basin as a landscape feature.

This penultimate chapter takes as its focus the settlement which developed on the damp-ground contours of Bradley Fen at the beginning of the Middle Iron Age. Unlike its predecessors, it showed no signs of being structured with respect to the alignments of the Bronze Age. Fixtures no longer abutted the line of relict banks or their hedgerows and structures were no longer erected in the corner of denuded paddocks. Rather, for the first time there was a lateral superimposition of settlement features across this axis, with the occupation scatter now skirting the fen-margins. This reorientation was accompanied by other changes in the material record, including a return in the visibility of the dead and, in this specific context, a rare insight into metalworking activities. However, in amongst these changes were threads of continuity with the Early Iron Age, particularly with regards to depositional practice and architectural tradition. These connections and contrasts are explored throughout the course of this chapter, which not only strives to create a detailed picture of this final phase of prehistoric occupation at Bradley Fen, but sets out to examine its relationship to other contemporary settlements in the Flag Fen Basin (such as the Cat’s Water settlement site (Pryor 1984)).

**Topographies and Environments c. 350–100 BC**

The water-table continued to rise in the Flag Fen Basin during the Middle Iron Age, fuelling the further development of an already extensive wetland embayment (Fig. 6.1). The pollen record suggests the presence of an increasingly diverse range of semi-aquatic and marginal aquatic plant species, testimony to standing pools of water between areas of floodplain peat (see Scaife & French, Chapter 2). By the fourth century BC, the deepening and widening of this fen reed swamp had largely subsumed the now ancient timbers of the relict later Bronze Age post-alignments and other wooden architecture of the Basin interior. In some instances, it was probably only the rotten tops of the drowned posts that stood proud of the waterline, but in the case of the Flag Fen alignment, these continued to provide a context for the deposition of later Iron Age metalwork (Coombs 2001). To the south, the expansion of the mere was simultaneously inundating the last vestiges of the Must Farm roddon, whose freshwater channel also saw the deposition of items of later Iron Age metalwork prior to its complete inundation (Robinson et al. 2015). By the first century BC, the channel was fully choked and capped by peat growth, to the extent that it was indistinguishable from the rest of the embayment interior.

In terms of the greater landscape narrative, this was the wettest point in the Basin’s prehistoric sequence and was set to become wetter still by the end of the first millennium BC. Whereas the landscape window described in Chapter 3 was largely a terrestrial space, by the Middle Iron Age, the frame falls on what is predominately an aquatic landscape, where well over half the ground surface lay underwater, or was permanently saturated. Here, the advancing peat continued to subsume the dryland terraces, particularly on the gentler contours at Fengate, Thorney and Whittlesey, whose shorelines were increasingly distanced from one another. Although Whittlesey had effectively been an island
since the mid second millennium BC, direct links with both the mainland and the river Nene had been possible via timber causeways and the roddon. However, these physical connections were completely severed by the Middle Iron Age and, with the rising water-table, gone too was the possibility of reinstating them or erecting new pile dwellings similar to the Must Farm platform. Conditions were simply too wet in the interior to enable such projects, with boats now the only means by which the Basin could be crossed, in any direction.

Yet despite what we might perceive as worsening conditions – with direct occupation of the wetland no longer possible, or perhaps desirable – there was a very distinct draw of settlement to the fen-edge in the Middle Iron Age. Unlike in previous periods, where the lower terrace pastures and damp-ground contours were exclusively the domain of wells and waterholes, in the Middle Iron Age this zone was much more extensively settled. On the wetland side, the pollen record indicates that these terrace margins remained fringed by alder and willow carr, although this was diminishing as a consequence of inundation during the course of the Iron Age sequence. In its place, there developed a shallow, muddy water fen, with the saturated ground at Bradley Fen encroaching up to the 1.4m OD contour by the fourth century BC and, judging by the peat capping of Middle Iron Age features, rising to at least 2.0m OD by the first century BC (by which time settlement had ceased in this zone).

Within the lifespan of the settlement itself, the extent of waterlogged ground probably fluctuated between the 1.0 and 2.0m OD contours, with the land lying below 1.4m OD providing a seasonally available flood-water meadow – a rich grazing resource. It is clear nonetheless, that settlement per se did not extend below this line, as the stripped surface of the lowest-lying dateable feature with Middle Iron Age-type pottery rested on this contour. This then can be taken to mark the lower limits of ground able to sustain terrestrial settlement in the period. However, it is important to stress that this is a metre below the height conventionally regarded as marking the fen-edge of the later Iron Age at Fengate and beyond (c. 2.5m OD) (Evans 2003, 136). As such, Bradley Fen constitutes a surprisingly low-lying settlement swathe, literally a stone’s throw away from ground that must have been wet under foot most of the year – ground previously thought to have been completely inundated by this period.

The environmental texture of this terrace margin is hard to detail with any precision. However, pollen from the upper profile of waterhole F.1064 (see Boreham, Chapter 5) suggests the lower contours of the
site continued to be characterized by damp meadows and tall-herb plant communities (Fig. 6.2). How far these pastures extended upslope is difficult to predict, though the settlement was clearly sited within open grasslands, probably with further areas of winter pasture and arable plots on the dry free-draining soils above the 2.5m OD contour. This zone was ideal for cultivation and, as in earlier periods, the scarcity of features across the higher terraces at Bradley Fen implies that they remained under crop throughout much of the later prehistoric sequence. Such a reconstruction is broadly corroborated by de Vareilles’s analysis of the charred plant remains (this chapter), which reveals that the cereals grown and harvested within the vicinity of the site were comparable to those recorded for the Early Iron Age. The general agricultural land-use model for Bradley Fen is therefore similar to that of the late second and earlier first millennia bc (see Chapter 5), with the only major differences being that the boundary between the zones of pasture and arable land would have shifted upslope in this period, whilst the gross area of land available for farming was reduced by the encroaching fen.

**Settlement overview and chapter structure**

In plan, the Middle Iron Age settlement at Bradley Fen is revealed as a fairly dense swathe of pits, postholes and structures, clustering along a narrow corridor-like strip of lowland ground between 1.4–2.5m OD (Fig. 6.3). With no contemporary remains at King’s Dyke and only a handful of isolated features on the terraces above the 2.5m OD contour, this represents the first proper fen-edge settlement in the site’s prehistoric sequence. Its foundation marks a major transformation in the geography of occupation when compared with the Early Iron Age, when the higher ground at King’s Dyke and similar terrace-crown locations around the Basin were generally favoured (see Chapter 5). Indeed, this shift stands out all the more because the basic texture of the landscape changes relatively little across the Early to Middle Iron Age transition (see above), begging the question of why communities chose to settle the fen-edge at the start of this period.

This chapter attempts to grapple with this and other issues concerning the evolving character of settlement in the second half of the first millennium bc. It highlights the transformation in patterns of occupation, but also traces points of continuity from the preceding period. Yet these observations only take us so far, as they do not explain why settlement was drawn down to the fen-edge in the later first millennium bc: why now? Similarly, they do not help us to understand why the structural imprint of the Middle Iron Age occupation in this context resembles that of the Early Iron Age. Of course, unenclosed settlements are not uncommon in this period, but roundhouses not defined by eaves gullies are rare and so too are settlements dominated by small pits and postholes, which scarcely register in most of the region’s Middle
Figure 6.3. Plan of the Middle Iron Age settlement at Bradley Fen.
Iron Age settlements. In this regard, the Bradley Fen settlement signature is rather atypical for the period. When added to the fact that the site occupied a very low-lying position, conventionally assumed to be too wet for settlement by this time, it is not that surprising that the remains were initially thought to be earlier (Gibson & Knight 2006).

Taken together, these features raise some important questions concerning site chronology, sequence and function: does date have a bearing on why the site is so much lower than those on the opposite shoreline at Fensgate and why there are no enclosures, ditch systems, or eaves-defined roundhouses? Are there indications of specialization in fenland resources, or does the material record suggest there may be other reasons why groups chose to reside at the wet/dry interface?

In order to address these questions, the detail of the settlement, its imprint and organization, must be examined more closely. This requires a careful analysis of the different components and material residues and, in light of the observations above, a consideration of how their character compares with the deposits and practices documented for the Early Iron Age.

Despite the noted parallels in the vertical zoning of features, the compression of Middle Iron Age features into a narrow strip along the fen-edge makes it hard to maintain the contour-orientated approach used to structure the previous chapter. For this reason, the descriptions of settlement architecture which follow are arranged in a more conventional feature-type format. That being said, the narrative path remains sensitive to the terrace edge, with analysis moving from the structures, through to the surrounding pits and postholes, and, finally, to the finds from the peat itself. In effect, this takes discussion down the contour from the dry to the wet, allowing an appreciation of how material signatures change in relation to altitude.

**Settlement architecture**

Although features phased to the Middle Iron Age at Bradley Fen actually span the contours between 1.3 and 3.6m OD, the main focus of the settlement swathe was restricted to the narrow linear band of ground between 1.4 and 2.5m OD (Fig. 6.4). This fairly dense feature scatter comprised three roundhouses, six...
four-post structures and a further 212 external pits and postholes. In terms of area, its core covered at least 1.4ha, with the scatter thinning out quite abruptly beyond the centre of the site, although it probably did extend further north, past the limit of excavation.

Roundhouses

Three Middle Iron Age roundhouses were revealed between the 2.0 and 2.4m contours. The buildings were defined by a combination of wall-trenches, postholes and short lengths of gullies, with projected floor diameters of 7.5–8m (Table 6.1). Although the architectural details of each building varied, they all shared east-facing entrances marked by larger postholes and, in two instances, heavy-set four-post doorway structures. As with the Early Iron Age roundhouses at King’s Dyke, there were no surviving floors, although interior fixtures including small pits and postholes were prolific in each structure. Unless otherwise specified, these are all thought to be structural components or features directly related to the use of the buildings.

Roundhouse 15

Roundhouse 15 was located at the northern end of the site and had a projected diameter of 8.0m (Fig. 6.5). The building was demarcated by a robust east-facing four-post doorway structure, the truncated remains of an external penannular drip gully and a scatter of small pits and postholes. Only the terminals of the drip gully (F.540 and F.541) survived around the entrance and consisted of two shallow trough-shaped arcs measuring less than 0.50m in width and 0.10m in depth. This gully was probably set back from the original wall-line by about a metre and, as with nearly all the features associated with the roundhouse, was filled with pale grey silty-sand flecked with occasional fragments of charcoal.

By contrast, the east-facing doorway was well preserved, four deep-set postholes framing a 1.65m wide entrance (F.9, F.10, F.521 and F.536; diameter range, 0.30–0.60m; depth range, 0.25–0.48m). In its character and form, this setting resembles the doorway structures of Roundhouses 7–9 at King’s Dyke (Chapter 5). Further mirroring the imprint of these Early Iron Age entranceways, the inner two postholes were similarly the more robust: F.10 and F.536 being twice as deep as their external counterparts. Both inner postholes also retained traces of post-pipes (0.22m and 0.40m in diameter), while F.10 contained the decayed remains of the post at its base, leaving little doubt that the uprights were left to rot in situ.

On or within the projected wall-line of the building were a total of 21 postholes and/or small pits (F.12–14, F.28–31, F.515–519, F.524, F.530–535, F.537 and F.542), with four further features located between the wall-line and the drip gully (F.510–514). Some of these may be classed as structural supports, whilst others probably represent internal fixtures or repair posts on the exterior. In general, these were all small, shallow features (diameter range, 0.13–0.55m; depth range, 0.02–0.26m), of which only 10 survived to a depth greater than 0.10m. Amongst them was the base of a clay-lined pit (F.542), located at the foot of a row of posthole-sized cuts flanking the southern interior wall-line. A second cluster of features was sited near the centre of the structure, opposite the door. Of note in this group was posthole F.31, which contained a deposit of fragmented, disarticulated sheep bones from a single animal aged 0–13 months (12 fragments, 87g). A second, smaller collection of sheep bones was recovered from the adjacent posthole F.12 (14 fragments, 9g), with the likelihood being that this was derived from the same animal. The location of these deposits is remarkably similar to those at the centre of Roundhouse 14 at King’s Dyke and invites the same interpretation, i.e. that they were formally interred as part of foundation or abandonment related practices.

Only five other features from the structure yielded finds, including the drip gullies, entrance post F.9, pit/posthole F.535 and pit F.514. These contained a total of 7 sherds of pottery (59g), a further 15 fragments of animal bone (410g) and a single lump of slag (693g). The latter derived from pit F.514, which displayed a shallow bowl-shaped cut measuring 0.55m in diameter and 0.16m in depth. This seems to have truncated the roundhouse drip-gully and may therefore post-date the abandonment of the structure.

<table>
<thead>
<tr>
<th>Artefact type</th>
<th>Roundhouse 15</th>
<th>Roundhouse 16</th>
<th>Roundhouse 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pottery (no./wt)</td>
<td>7/59g</td>
<td>62/540g</td>
<td>108/763g</td>
</tr>
<tr>
<td>Animal bone (no./wt)</td>
<td>41/516g</td>
<td>60/495g</td>
<td>97/325g</td>
</tr>
<tr>
<td>Fired clay (no./wt)</td>
<td>-/-</td>
<td>9/1482g</td>
<td>13/34</td>
</tr>
<tr>
<td>Metalworking debris (no./wt)</td>
<td>1/693g</td>
<td>1/14g</td>
<td>2/320g</td>
</tr>
<tr>
<td>Burnt stone (wt)</td>
<td>0.1kg</td>
<td>8.7kg</td>
<td>1.3kg</td>
</tr>
<tr>
<td>Total finds</td>
<td>49/1268g</td>
<td>132/2531g</td>
<td>220/1442g</td>
</tr>
</tbody>
</table>
The arrival of fen-edge settlement

Figure 6.5. Plan of Roundhouses 15 and 16.
Roundhouse 16

Roundhouse 16 lay towards to centre of the main settlement swathe, around 75m south of Roundhouse 15 (Fig. 6.5). The ground plan of the building was marked by a partially surviving penannular wall-trench, 7.50m in diameter (F.758), an east-facing entrance defined by a pair of postholes (F.755–56, 1.55m wide) and an external, crescent-shaped gully which flanked the structure’s western side (F.579). The building was perhaps the best preserved of the three roundhouses, though it had suffered some truncation on it eastern, upslope side, where the wall-trench petered out. The surviving section of this feature had a maximum width of 0.18m and a depth of 0.08m. A small posthole (F.761) adjacent to the northern side of the trench may have been set as a repair to the wall-line. The entrance postholes were partially truncated, but with depths of 0.32–0.34m, these were still the most robust postholes associated with the structure (overall posthole range 0.25–0.34m in diameter, 0.05–0.34m in depth).

Eleven features were located inside the roundhouse, including eight small pits (F.750–51, F.789, F.1094 and F.1096–99; diameter range, 0.28–0.85m; depth range, 0.07–0.28m) and three postholes (F.752–54). Five of the pits (F.1094 and F.1096–99) were arranged in an arc along the southern interior wall-line, matching the feature pattern in Roundhouse 15. These small shallow pits had bowl-shaped profiles filled with deposits of mid-grey sandy-silt with occasional flecks of charcoal. Pit F.1096 had a clay lining, as did pits F.750 and F.751. The latter was located on its own, towards the rear of the structure, whereas pit F.750 formed part of a second cluster of features near the centre of the building, again mirroring the arrangement of features in Roundhouse 15. These three clay-lined ‘cooking pits’ were essentially shallow tanks constructed to hold and heat water and were backfilled with varying quantities of burnt stone. In F.751, this was accompanied by five adjoining pieces of a fire-cracked quern and a large associated rubbing stone, plus five refitting fragments of a single triangular loomweight (372g). These items were packed neatly into the small pit, indicating that care was taken in their selection and deposition.

Clay-lined pit F.1096 and the adjacent pit F.1094 were also associated with what might be termed formal deposits, as was the small pit F.789, located towards the centre of the roundhouse. All contained bundles of sheep bones seemingly derived from single animals of slightly differing ages. Pit F.789 yielded bones of a juvenile sheep (12 pieces, 52g), whilst those from F.1094 derived from a young adult (29 pieces, 198g) – these being found with refitting shoulder and body sherds from a single burnished jar (28 sherds, 153g). The oldest animal was from clay-lined pit F.1096, where the bones of a 6–8-year-old sheep were recovered (9 pieces, 286g) alongside a second partially intact triangular loomweight (1052g) and 11 sherds of pottery (188g). Of course, not all of the materials included in these deposits need to have been interred with same degree of care or intentionality. Some, particularly the small sherds from F.1096, may have simply been caught in the matrix of soil used to back-fill the feature. That being said, it is hard to argue that the relationship between groups of sheep bones from single animals and small pits in this context is a ‘random’ product of routine refuse maintenance practices, especially given the connection to deposits in Roundhouse 15 and the numerous comparable examples in the Early Iron Age structures at King’s Dyke. In fact, in this earlier context, groups of sheep bone were occasionally deposited with burned pots and loomweight fragments, just as they were here in the Middle Iron Age.

With the exception of F.1097, all the interior pits from the roundhouse yielded finds, as did entrance post F.576. Aside from those already detailed, this included a further 16 sherds of pottery (141g), one fragment of animal bone (3g), a single piece of fired clay (6g) and a small copper alloy ring found from the general interior area during machine stripping. Further artefacts were recovered from the external crescent-shaped gully F.759 and oval pit F.790 – both yielding pottery (7 sherds, 58g), bone (18 fragments, 153g), fired clay (2 fragments, 52g), burnt stone (2.8kg) and slag (3 fragments, 56g). The gully was positioned downslope from the roundhouse and, although it obviously respected the perimeter of the building, its southern tail appears to have been cut to avoid pit F.759, taking its line away from the curve of the structure. This implies the two external features were contemporary, which is further suggested by their analogous fills and the composition of their artefact assemblages (notably the inclusion of slag). The gully itself possessed a steep U-shaped profile, measuring up to 0.88m in width and 0.45m in depth. Its size, shape, orientation and the fact that it was set back at least 1.6m from the roundhouse wall-line suggest that it was not a conventional eaves-drip gully. Instead, it may have been dug as a sump for the structure, in an effort to lower groundwater levels at the back of the building.

Roundhouse 17

Roundhouse 17 lay toward the southern end of the main settlement swathe, 18m south of Roundhouse 16 (Fig. 6.6). Lacking traces of a surviving wall-trench or any encircling eaves-drip gully, the presence of the
The arrival of fen-edge settlement

building was indicated by the distinctive arrangement of postholes forming an entrance structure, similar to that of Roundhouse 15 and reminiscent of the doorways of Roundhouses 7–9 at King’s Dyke. Following suit, the interior pair of postholes in this setting, F.990 and F.999, were the most robust (0.51–0.55m in diameter, 0.30–0.49m in depth), with F.990 retaining traces of a post pipe. Framing the 1.6m wide entranceway, these were fronted by an exterior pair of slighter construction (F.989 and F.1002), both measuring <0.30m in diameter and <0.20m in depth.

The interior uprights of the doorway had clearly been replaced at least once during the life of the structure, as indicated by the addition of postholes F.986 and F.1004. Further repairs or structural supports are also suggested by the presence of postholes F.985, F.998 and F.1019 to the left of the entrance, although it is harder to account for the location of F.1003, which may possibly have been inserted after the abandonment of the building (total posthole dimension range, 0.24–0.55m in diameter, 0.06–0.49m in depth). Overall, the structure’s postholes were confined to the entrance zone and yielded a surprising number of artefacts: 58 sherds of pottery (266g), 143 pieces of animal bone (205g), 2 fragments of fired clay (4g), 9 burnt stones (0.4kg) and 2 pieces of slag (232g). These mixed, finds-rich midden-type fills were particularly associated with the interior pairs of postholes in the doorways setting, with F.990 containing 43 sherds of pottery alone (203g).

Collectively, the identified animal bone was dominated by sheep remains. Although the quantities from most deposits were too low to suggest anything but bone mixed within a generalized artefact-rich refuse, a sheep vertebra from F.986 had been split down the sagittal plane, mirroring the distinctive butchery techniques recorded in Early Iron Age contexts from Roundhouse 14 and waterhole F.945.

In a more familiar vein, the sheep bone deposit from posthole/pit F.1019 contained lamb bones probably derived from a single individual aged 10–12 months, suggesting the animal was killed in early spring (107 bone fragments, 135g). Its presence underlines the clear relationship between formal sheep bone deposits and Early and Middle Iron Age roundhouses on the site.

The seven remaining internal features in Roundhouse 17 were small shallow pits with bowl-shaped profiles, four of which were clay-lined (F.984, F.988, F.992 and F.996). The pits were filled with charcoal-flecked grey-brown sandy-clay silts, with cuts measuring 0.30–0.75m in diameter and 0.06–0.17m in depth. Their arrangement was broadly similar to that in Roundhouse 15 and 16, with an arc of pits lying around the southern interior close to the entrance (F.992–93 and F.997), two pits clustered near the centre (F.984 and F.988) and two located towards the back of the interior (F.996 and F.980). With the exception of pit F.980, all yielded mixed assemblages comprising...
slightly different quantities and combinations of pottery (51 sherds, 503g), animal bone (102 fragments, 120g), burnt clay (11 fragments, 30g) and burnt stone (8 pieces, 0.9kg) – groups of material whose composition and condition suggest they were drawn from a midden pile (see Brudenell & Cooper 2008). Though it seems doubtful that all these feature were open simultaneously, the arc of pits in the southern half of the structure may have been backfilled together (and/or with material derived from a common source), since fragments of the same burnished jar were recovered from F.992–93 and F.997 and two non-adjoining pieces of the same bone point were found in F.992 and F.997.

In the absence of a wall-line, the overall size of Roundhouse 17 can only be gauged by the arrangement of its internal features. Judging by comparisons with Roundhouse 16, the pit arc in the south probably lay very close to the perimeter and, assuming pit F.980 occupied a similar position on the opposite side of the structure, we can project a wall-line c. 7.5–8.0m in diameter, directly comparable to that of Roundhouses 15 and 16.

Four-post structures
Five definite four-post structures were identified within the northern half of the settlement swathe (Fig. 6.7), located between Roundhouse 15 and 16. The structures were arranged in a north–south line that followed the dominant axis of the settlement. They form two groups between the 2.1 and 2.3m OD contours: two abutting structures aligned on the same axis to the north (Four-post Structures 7 and 8) and a palimpsest of three overlapping building plans to the south (Four-post Structures 9–11). All the structures were sub-square in plan with postholes averaging 0.47m in diameter and 0.31m in depth (Table 6.2). These were typically U-shaped features filled with mid to dark grey-brown silty-clays with occasion flecks of charcoal. A total of three postholes in Four-post Structures 7 and 9 retained traces of a post-pipes (F.626, 0.16m in diameter; F.621, 0.25m in diameter; F.623, 0.29m in diameter), suggesting that the uprights were generally not left to rot in situ, but were removed upon abandonment. Fragments of desiccated wood were also recovered from posthole F.578 in Four-post Structure 8, but no post-pipe was observed.

<table>
<thead>
<tr>
<th>Four-post Structure</th>
<th>Structure dimensions</th>
<th>Posthole dimensions (diam. × depth)</th>
<th>Finds (no./wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>2.65 × 2.50</td>
<td>0.52–0.69 × 0.20–0.34</td>
<td>Pot (2/5g)</td>
</tr>
<tr>
<td>8</td>
<td>2.40 × 2.35</td>
<td>0.24–0.46 × 0.24–0.46</td>
<td>Fired clay (13/129g), including loomweight fragment</td>
</tr>
<tr>
<td>9</td>
<td>2.35 × 2.25</td>
<td>0.28–0.40 × 0.16–0.50</td>
<td>Slag (6/871g)</td>
</tr>
<tr>
<td>10</td>
<td>2.65 × 2.60</td>
<td>0.39–0.70 × 0.30–0.44</td>
<td>Slag (6/82g) and human burial</td>
</tr>
<tr>
<td>11</td>
<td>2.80 × 2.75</td>
<td>0.55–0.70 × 0.34–0.44</td>
<td>Animal bone (5/46g)</td>
</tr>
<tr>
<td>12</td>
<td>2.65 × 2.77</td>
<td>0.28–0.49 × 0.20–0.31</td>
<td>-</td>
</tr>
</tbody>
</table>
Another possible structure lay between the two main groups of four-post buildings, defined by a sub-square arrangement of features, F.558–60 and F.595 (Four-post Structure 12). Although the building is quite convincing in plan, being of a similar size and alignment to the other structures, three of the features were pit-like in form, displaying slightly asymmetrical bowl-shaped cuts. Their spatial patterning may therefore be coincidental; though it is possible these profiles resulted from the digging out of the postholes on abandonment. Regardless of the status of this group of features, there were no finds with which to date them and, in fact, there were few from the other definite four-post structures (Table 6.2). Some of the larger items were no doubt used as post-packing or post-pads, such as the slag in F.630 (Four-post Structure 9) or the possible loomweight fragment from F.578 (Four-post Structure 8). Other scraps of refuse may have become incorporated incidentally during construction or abandonment. Although the only directly datable finds, the potsherds, were restricted to posthole F.571 in Four-post Structure 7, the slag from Four-post Structures 9 and 10 (posthole F.613 and F.630) almost certainly derived from the metalworking activities conducted further south, which have been securely dated to the period (see below).

Whilst it is reasonable to conclude that all these building are of Middle Iron Age attribution, Four-post Structures 9, 10 and 11 could not have stood at the same time (Fig. 6.8). Their overlapping ground plans indicate a sequence of complete structural replacement, with each new building being partially constructed within the footprint of the last, in a manner which avoided re-using/re-cutting any of the earlier postholes (though note should be made of F.628 and F.631 which were possibly replacement posts for Four-post Structure 11). Consequently, these subtle shifts in location have not left any stratigraphic relationships, making the order of the sequence impossible to untangle. However, this area of the site was clearly a focus for the erection and use of these structures and, if the label ‘raised granary’ is appropriate, would suggest that it constituted a persistent, functionally defined storage zone within the settlement swathe. Certainly, in the absence of pits large enough to be deemed ‘grain silos’ on the site’s dryland contours (above 2.0m OD), these structures were probably the main repositories for cereals and other agricultural produce.

Although there is nothing to contradict this interpretation, the burial of a body within posthole F.613 (Four-post Structure 10 (Fig. 6.8)), suggests that other rites and practices were sometimes connected with these buildings. As reported below by Dodwell, the body had been carefully crammed into the cut following the removal of the post and, one assumes, the dismantling of the entire structure. The posthole may have been widened slightly for this purpose, but was still only 0.70m in diameter and 0.40m deep. The position of the body suggests that it was most likely bound and probably in a state of decay when interred. This raises the interesting possibility that it was carefully stored prior to burial in a protected scavenger-free environment for number of weeks, perhaps even on, or in, one of the four-post structures.

The notion that these buildings may have been excarnation platforms has been considered by several authors (e.g. Ellison & Drewett 1971; Carr & Knüsel 1997), though here there were no further human remains in any of the four-post structures or surrounding pits and postholes. Isolated fragments of human bone were found on the site, but these were confined to features on low-lying wetland fringes and in the peat itself (described below). This being said, there is certainly no reason why the four-post structures could not have performed several functions during their lifetime including, potentially, the storage of bodies.

The posthole burial, Four-post Structure 10 (Natasha Dodwell)
The body of a mature adult male had been interred in the upper fill of posthole F.613 (Fig. 6.8), which formed the northeast corner of Four-post Structure 10.

Posthole burial [573] – mature adult male, ht. 1.72m (5'8") The skeleton was on its back, tightly crouched, with the spine following the curve of the cut. The legs were tightly flexed, right over left, with the knees resting by the shoulders. The left arm was flexed over the stomach with the hand ‘clutching’ the femur and the right arm was flexed so that the hand lay beside the mouth. None of the long bones were complete, most of the articulating surfaces/joints were damaged or missing and the cortical bone was very abraded. The nasal area and maxilla were missing, the vertebrae survived as scraps with most of the bodies missing. Changes characteristic of osteoarthritis were recorded in the right shoulder, wrist and upper spine. An increase in porosity and eburnation were recorded on the right clavicle at the acromioclavicular joint and porosity and marginal osteophytes were recorded on the right trapezium where it articulates with the trapezoid and scaphoid. The surviving cervical vertebrae exhibited marginal osteophytes and porosity on the bodies and there were similar changes, including patches of eburnation, on the articulating facets of the upper thoracic vertebrae. Striated new bone, characteristic of a non-specific infection was recorded on the distal left fibula at the insertion for the interosseous ligament. Three wormian \ sutural bones were observed along the left lamboid suture.

A loose maxillary second premolar was recovered. All of the surviving teeth were heavily worn.

The skeleton gives the impression of having been forcibly squashed into the posthole. The position of the body and the size of the cut imply that the man
was probably bound first. Moreover, the extreme hyper-flexion at the hip joint and missing maxilla and distal phalanges suggests that a degree of decomposition may have occurred between death and final burial, allowing the body to be manipulated and forced into this unnatural position. How long this period was would have been dependent on numerous interrelated factors (Janaway 1996), such as condition of the body at time of death, the season/temperature, whether the body was clothed, naked or ‘stored’ above or below ground. Bodies left in the open air decay far faster than those immersed in water or buried and different areas decompose at different rates.

In general, the articulations that give way first are the unstable ones involving small bones such as the distal feet and hands. Many of the metacarpals and middle and distal phalanges of the hands and feet of this skeleton were missing, although given the overall levels of preservation it could be argued that this was due to local soil conditions. More convincing as evidence for partial decomposition prior to burial is the position of the hip joints. Duday & Guillon (2006, 127–28) argue

Figure 6.8. Plan of Four-post Structures 9, 10 and 11 with detail of posthole F.613 and inserted burial.
that the hip joint is an unstable articulation, since the ligaments at this point are very thin and powerful muscle groups in this area decompose relatively rapidly. Because of the snug fit of the ball and socket joint, these remain in articulation as connecting tissue begins to breakdown, enabling the joint to be manipulated, or hyperflexed, well beyond ‘normal’ reach. That the body appears to be articulated suggests that the interval between death and burial was probably not very long, perhaps a matter of weeks, or potentially even days if conditions were favourable for rapid decomposition.

The evidence for a brief interlude between death and burial raises interesting questions: why was it not buried straight away, where and how was the body kept? Equally curious is why the body had been squeezed into this abandoned four-post structure. Although there are no direct parallels for this context of interment, a recurring Iron Age mortuary rite in Southern Britain and the near continent involved the burial of complete or partial bodies in abandoned ‘silo-type’ grain storage pits. These contexts of burial and the practices of deposition associated with them, have been widely discussed in the last two decades, with interpretation often highlighting the conceptual/metaphorical connections with fecundity, regeneration and the various symbolic links between the human and agricultural cycles (e.g. Hill 1995; Williams 2003). Examples of this ‘pit burial tradition’ can be found across southern Cambridgeshire (e.g. Wandlebury (Dodwell 2004b), Harston Mill (O’Brien 2006), Trumpington (Evans et al. 2006; Evans et al. forthcoming) and Clay Farm (Philips & Mortimer 2012)), but tend not to extend into the Fenland region, where large silo-type pits are scarce, even on the inland terraces. Instead, cereal storage here is thought to have been provided by four-post granary structures or, alternatively, the rafters of roundhouses. However, the fact that one such abandoned building became a context for burial at Bradley Fen suggests that there may be parallels with mortuary traditions further south and that a similar suite of ideas associated with fertility and regeneration were being expressed.

Pits, postholes and peat

Excluding features associated with the structures discussed above, a further 128 pits were attributed to the Middle Iron Age, along with 83 postholes and a single grave (Fig. 6.9). The phasing of these features was primarily led by the ceramics (from 36 pits and 1 posthole), though it soon became apparent that a correlation existed between finds of Middle Iron Age pottery and peat-filled features between 1.4 and 2.1m OD. All pits and postholes containing peat deposits in this contour range were therefore assigned to the Middle Iron Age, phasing many features that yielded no finds whatsoever (a further 19 pits and 6 postholes), particularly in the northern half of the settlement swathe. A correlation was also noted between Middle Iron Age pottery and contexts yielding metalworking debris, meaning the presence of slag served as another proxy for dating features without ceramics, especially the four-post structures. Given these relationships, it was decided that other discrete, undated features between the 1.4 and 2.5m contours would also be detailed as part of this settlement, though there is no definite basis for period attribution. This includes a total of 72 pits (56%) and 76 postholes (92%), only 28 of which yielded artefacts (mainly pieces of animal bone). Some of these features may have had an earlier origin, but given their distribution and character, as a working model, it seems fair to assume that most are Iron Age in date.

The vast majority of pits dug within the settlement swathe were shallow features less than 0.50m deep, with none in excess of 1m (diameter range, 0.38–5.80m; depth range, 0.06–1.00m; Fig. 6.10). Four basic pit categories were distinguished:

1. Wells/waterholes (diameter range, 0.80–5.80m; depth range, 0.70–0.100m): The deepest pits in the settlement, including the weathering cone of F.1064 (see Chapter 5), which would have been an open hollow in the Middle Iron Age. Mainly confined to contours below 1.8m OD.
2. Regular profiled pits (diameter range, 0.40–3.05m; depth range, 0.07–0.62m): Pits oval or circular in plan and near-symmetrical in profile. Occurred across the settlement swathe.
3. Irregular profiled pits (diameter range, 0.60–3.40m; depth range, 0.06–0.50m): Pits which were irregular in plan and/or displayed asymmetrical profiles. Generally wide and shallow, sometimes hollow-like in form. Occurred across the settlement swathe and included most intercutting pits.
4. Clay-lined pits (diameter range, 0.38–0.99m; depth range, 0.06–0.35m): Effectively a sub-category of regular profiled pits, but distinguished by their clay lining and described in detail below. Occurred across the settlement swathe with isolated examples above 2.5m OD.

Most of the pits contained one or two deposits of grey silt, with the waterholes displaying more complex fill sequences. These had peat in their upper profiles, with peat also filling many of the smaller features on lower-lying contours. With a few exceptions, there were no clues as to the original function of pits or the scatter of individual postholes (diameter range, 0.12–0.70m;
depth range, 0.03–0.37m). Even where finds were encountered, in most instances these failed to shed any light on the purpose of the cuttings themselves. In general, the majority of artefact assemblages were small and scrappy, comprising occasional fragments of animal bone, pottery and/or burnt stone. The character and composition of these materials probably reflect conditions on the settlement, with low levels of refuse strewn across the site, some of which became caught in features during construction and/or backfilling.

Against this background, and judging by pits which have yielded more substantial dumps of mixed,
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artefact-rich refuse, there was also likely to have been a number of established midden piles between the roundhouses – refuse heaps drawn on to back-fill redundant features. Although it was rare for these deposits to include just one category of find, as will be shown below, pattern is discernible in the density and distribution of certain materials around the settlement, which hint at the organization of activities and practices. Pattern can also be observed in the arrangement of different types of feature across the gradient of the site, as one moves downslope towards the wet-edge. Described below then are the key features in these various zones from dry ground to wet.

**Key features on the dry ground contours**

*Furnace and features yielding metalworking debris*

One of the smallest but most significant features found within the settlement swathe was the base of a metalworking furnace, F.611 (Figs 6.11 & 6.12). This circular posthole-sized feature, which measured just 0.48m in diameter and 0.23m in depth, was located 12m north of Roundhouse 16 on the 2.3m contour. The sides of the clay-lined furnace were scorched red, whilst the fill comprised black charcoal-rich silts packed with pieces of slag and clay refractory material (2566g in total). Surrounding the furnace was a scatter of small pits and postholes (F.589–90, F.604–06 and F.642), presumably belonging to a light structure of some kind. F.642, located immediately adjacent to the furnace, was a rake-out pit filled with bands of charcoal and ash (0.53m in diameter and 0.20m deep). Further to the east were two clay-lined pits, F.602 and F.607, which both yielded pieces of slag and may have been used for quenching. Archaeomagnetic dating of the furnace lining suggests that the last firing took place between 310 and 80 BC (see Noel below).

Debris from F.611 and its associated metalworking activities were widely scattered across the site, with the core of the distribution centred upon features located between Roundhouse 17 and Four-post Structures 9–11 (Fig. 6.4). These included material from iron smelting, smithing and copper alloy casting activities, with the finds often mixed amongst pieces of animal bone, pottery and/or burnt stones. They comprised nodules of slag, crucible fragments, smithing hearth bottoms, unprocessed ore and hammerscale, which are detailed in full by Timberlake, Doonan & Hommel later in this chapter. By far the largest assemblage derived from pit F.597, which contained a dump of just under 46kg of slag and other metalworking debris. The pit was located 19m to the northwest of furnace F.611 (Fig. 6.11). It was shallow and oval in plan (2.28m long, 1.70m wide, 0.37m deep), with an undulating base cut into an earlier tree-throw (F.706). The dark mottled fill was almost entirely made of ash, charcoal and metalworking debris, capped by a thin layer of peat.

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**Figure 6.10. Middle Iron Age pits and postholes – depth/dimension diagram.**
Chapter 6

The architecture and functioning of furnace F.611 (Simon Timberlake)
Structures associated with iron smelting are rarely found intact within the archaeological record and this single example (F.611) of a furnace from Bradley Fen is no exception. The absence of any fired and slagged (vitrified) clay lining and also the presence of a reduced and blackened interior, suggests the feature could have been the slag pit underlying a clay-walled shaft furnace constructed above ground level (see Tylecote 1986). This pit would have lain below the level of the tuyere entry, therefore well below the hottest part of the furnace and the area of formation of the iron bloom (a level to which the walls of the furnace would have been reduced at the end of each smelt in order to facilitate the removal of the iron).

Despite this, the depth of the firing (semi-vitrification) and heat penetration (i.e. colour zones black > brown > orange > pink, some 50mm into the natural) on the sides of the pit suggest some sort of long-term heating effect resulting from the accumulation of slag. This is an indication, perhaps, of the repeated filling and emptying of the pit, as well as the rebuilding of the furnace superstructure above it. Nothing of the latter survives, in part due to subsequent soil truncation. However, the presence of a rake-out pit (F.642) on the south-western side implies that this must have been the furnace front and perhaps therefore the point of entry of the tuyeres. It has been suggested that slag pits were packed with wood or straw which gradually burnt out as the iron slag slowly descended and then filled them (Starley 1999; Paynter 2007). This ensured that all the furnace charge remained within the hot zone of the furnace during smelting whilst at the same time facilitating the much easier removal of the congealed yet non-accreted slag cake afterwards. Fragments of
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this burnt wood alongside charcoal, ash and possibly some of the original broken up slag (consisting of furnace conglomerate, slag nodules and slag runs) were recovered from the silt that had been washed back into this emptied slag pit (F.611) following its last use.

The suggested reconstruction of the furnace (based on Dungworth 2011, fig. 9.2) is shown in Fig. 6.12. The internal diameter, based upon the dimensions of the everted lip of the slag pit, was probably c. 0.5 m, whilst the clay walls (based upon the debris recovered from F.597 and other similar examples) were probably between 50 and 100mm thick at the base and 30 and 50mm at the top, suggesting a structure around 1m high. The potential furnace capacity would thus have been around 200 litres, which, when accommodating a charge of c. 27 litres (perhaps 35kg) of ore and 173 litres of charcoal, would, following smelting, have yielded somewhere in the region of 3–10kg of iron metal and 15–30kg of slag. This furnace may well have been re-used 6–10 times, thereby satisfying the entire iron production phase recorded at the Bradley Fen settlement.

Archaeomagnetic dating of the last firing event of F.611 (Mark Noel)

Samples taken from the clay lining of furnace F.611 were found to contain an intense archaeomagnetism which had clearly been orientated by the Earth’s magnetic field. Demagnetization tests indicated a moderate stability of the remnant magnetism. Hence, the data indicate that F.611 was heated above the magnetic ‘blocking temperature’ of magnetite during use (namely 580°C) and has survived largely undisturbed. Archaeomagnetic vectors in the feature were averaged and compared to the UK Master Curve for the period 1000 BC to AD 600. The results suggest that

Figure 6.12. Photograph, section and reconstruction of furnace F.611.
the last firing took place between 310 and 80 BC, with a date centred upon 190 BC, corresponding to the Middle Iron Age.

The deposit of archaeological interest comprised an 80mm wide zone of burnt clay lining the in situ furnace bowl. Following excavation to expose the optimum unweathered material (using non-magnetic tools), 17 oriented samples were recovered using the button method (Clark et al. 1988). This technique employs a 25mm, flanged plastic disc to act as a field orientation reference, sample label and specimen holder inside the laboratory magnetometer. Buttons were glued in position using a fast-setting epoxy resin with their surfaces set horizontal. Finally, orientation arrows were marked using a sun compass.

After drying, consolidation and cutting in the laboratory, the natural remanent magnetization (NRM) of 13 samples of sufficient volume were measured with a Molspin fluxgate spinner magnetometer (Molyneux 1971) with a minimum sensitivity of around 5×10⁻⁹ Am². Remanence direction were corrected for the solar orientation using a computer program which takes account of the site’s coordinates and time GMT: these results are listed in Table 6.3 and plotted on a stereogram in Fig. 6.13.

Generally, the NRM will comprise a primary magnetization (in this case presumed to be of thermal origin), together with secondary component acquired in later geomagnetic fields due to

Figure 6.13. Archaeomagnetic dating stereograms.
diagenesis or reheating. Usually, a weak viscous magnetization is also present, reflecting a tendency for the remanence to adjust to the recent field. If the secondary components are of relatively low stability, then removal by partial demagnetization will leave the primary remanance of archaeological interest. A pilot specimen with typical NRM and lithological characteristic (WHI 10) was demagnetized incrementally, up to a peak alternating field of 40mT and the changes in remanence recorded in order to identify the components of archaeomagnetism and their stability (Fig. 6.13). From a study of the pilot sample behaviours, an alternating field of 2.5mT was chosen which would provide for the optimum removal of secondary component of magnetization in the remaining samples. After partial demagnetization in this field, sample remanences were re-measured and the results are shown in stereogram of Figure 6.13. Overall, the samples were found to contain an intense natural remanent magnetization, consistent with the burnt clay containing a substantial proportion of ferrimagnetic iron oxides, such as titanomagnetite (Table 6.3). In Figure 6.13 it can be seen that the samples have yielded NRM vectors which have clearly been orientated by the Earth’s magnetic field and with inclination typical for the sampling latitude. Figure 6.13 shows the result of the stepwise demagnetization test performed on sample WHI 10. It is evident that the intensity of remanence decays very rapidly with rising field strength, although the orientation is moderately stable to a peak of 20mT. These results suggest that the NRM resides in large multidomain grains of titanomagnetite whose intrinsic magnetic stability is low. Hence, the scatter in vectors seen in Figure 6.13 is thought to be due to partial instability of magnetization, combined with post-firing movement of the furnace lining and micro-movement of the particles within the fired clay. A nominal ‘cleaning’ field of 2.5mT was applied to the remaining samples, sufficient to remove any viscous magnetization acquired in the recent historic Earth’s field during transport to the laboratory. Partial demagnetization (‘magnetic cleaning’) of the sample set induced only minor changes in the grouping of the archaeomagnetic vectors (Fig. 6.13). The mean archaeomagnetic vector has been computed in Table 6.3 and corrected to Meriden, the reference location for the UK Master Curve. In Figure 6.13, the adjusted vector is compared to the UK Master Curve for the period 1000 bc to AD 600. The closest approach to the Curve occurs during the second century bc, consistent with a last-firing date centred on 190 bc. The intersection of the vector error envelope with the prehistoric section of the Curve yields an actual date range for the last firing event of 310–80 bc.

The metallurgical debris from slag pit F.597 (Simon Timberlake)
The study of the slag assemblage within pit F.597 provides us with a microcosm of the metallurgical activity taking place in this Middle Iron Age fen-edge settlement. The 46kg of iron slag recovered from this dump contained a minimum of 30kg of iron smelting/primary bloom smithing slag in the form of fragments of up to nine slag cakes defining the average diameters of these furnace bottoms (which ranged from 230 to 320mm), numerous fragments of broken-up but dense furnace conglomerate containing voids formed from the impressions of the wood or charcoal filling the slag pit(s), dense slag nodules and slag runs (slag runnel)
broken off the exteriors of iron blooms/ slag masses during the primary smithing, and finally, large quantities of the porous charcoal and iron oxide-rich low density slag nodules (slag lumps), most of which would have come from the upper fills of these furnaces. Within this same assemblage we find evidence for secondary iron smithing (i.e. both forging (platy hammerscale) and welding (spheroidal and platy hammerscale)) in the form of six or seven smithing hearth bases (SHB), each of around 100–120mm diameter (total 3.76kg), plus 17g of hammerscale identified amongst the magnetic residues recovered from four bulk samples.

However, by far the largest category of ironworking debris was the slagged and fired refractories (FR and SR); these consisted of the linings of hearth and furnace walls which have reacted or become fused with iron slag and which are commonly referred to as fired clay (FC) or vitrified clay surfaces (VCS). No fragments of tuyeres were identified amongst this material, although several heavily vitrified aperture rims suggest that pipes of around 50–60mm external diameter had been inserted into the furnace walls. This broken-up refractory material (17.8kg) was probably dumped here following the periodic dismantling of the c. 30mm (20–50mm) thick walls of the melting furnace(s) during the removal of the iron blooms, yet it is not always possible to distinguish this sort of walling from the generally thinner, but similarly vitrified, clay lining of the smithing hearths. For this reason refractories have been omitted from the overall calculations on the amount of bloomery slag produced (Table 6.4) and, as a result, the evidence of iron smelting at this site might be under-represented.

Little can be said about the very small amount of undiagnostic broken crucible (just 10g) recognized within this particular feature assemblage, except to point out that this serves to emphasize the cross-over, both in activity area and specialism, between iron production, smithing and copper alloy metalworking in Iron Age settlement contexts.

From a functional perspective, the opportunistic reworking of tree-throw F.706 into a dumping pit (F.597) for a small number of broken-up iron furnace structures (and their associated slag accumulations), attests to the small-scale, simple nature of the iron production carried out at Bradley Fen. At some of the much larger iron production sites we see the construction of slag heaps within the vicinity of the furnaces (as at the Middle Iron Age site at Moore’s Farm, Welham Bridge, East Yorkshire (Halkon 1997)), or else the dumping of slag within pits or in large infill spreads (as at the Late Iron Age iron smelting settlement of Crawcellt, in northwest Wales (Crew 1998)). Yet here, at Bradley Fen, some 91% of the iron slag has been dumped into a single feature, consisting of just 2 cubic metres of material. The lack of scorching on the underlying soil surface suggests none of this was dumped directly following its raking out from the still hot furnace. Rather pit F.597 acted as a final dump for the slag waste produced during a succession of different iron smelting operations. The analysis of this slag pit by quadrants and context (in the form of excavated spits or lenses) suggests a predominant tipping direction from the north, in particular from the northeast, with many of the denser slag pieces ending up in the middle of the pit and in the lower ashy silt and charcoal-rich layer, with the lighter refractories deposited around the edges and in the top, close to the interface with the peat (Figs 6.14 & 6.15). Likewise we find most of the smithing hearth waste and also the crucible, ending up within this same north-easter sector; the suggestion being that most of the slag was dumped here episodically, the result of a number of distinct phases of smelting and ironworking carried out during the tenure of the Middle Iron Age settlement.

Table 6.4. Categories of metallurgical debris within F.597 (weight in grams). FC + SC = furnace conglomerate + slag cake; DN + LDN + SRN = dense slag nodules + low density nodule + slag runnel; SR + FR = slagged refractory + fired refractory (hearth lining); SHB = smithing hearth base; HS = hammerscale (visually identified from amongst 0.038kg of magnetics recovered from 4 bulk samples); Crucible = crucible associated with Cu-alloy casting.

<table>
<thead>
<tr>
<th>Context (quadrant)</th>
<th>FC + SC</th>
<th>DN + LDN + SRN</th>
<th>SR + FR</th>
<th>SHB</th>
<th>HS</th>
<th>Crucible</th>
</tr>
</thead>
<tbody>
<tr>
<td>568</td>
<td>3772</td>
<td>1889</td>
<td>3515</td>
<td>680</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>568 (NE)</td>
<td>1596</td>
<td>2013</td>
<td>2534</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>568a–b (NE)</td>
<td>210</td>
<td>1290</td>
<td>1455</td>
<td>1216</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>568c (NE)</td>
<td>2677</td>
<td>2811</td>
<td>6237</td>
<td>924</td>
<td>6.5</td>
<td>-</td>
</tr>
<tr>
<td>568 (NW)</td>
<td>-</td>
<td>1297</td>
<td>1219</td>
<td>542</td>
<td>3.5</td>
<td>-</td>
</tr>
<tr>
<td>568d (SW)</td>
<td>200</td>
<td>1271</td>
<td>538</td>
<td>-</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td>568 (SE)</td>
<td>240</td>
<td>2345</td>
<td>1024</td>
<td>-</td>
<td>6.6</td>
<td>-</td>
</tr>
<tr>
<td>568a</td>
<td>918</td>
<td>1044</td>
<td>1281</td>
<td>86</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total (kg)</td>
<td>10430</td>
<td>13960</td>
<td>17803</td>
<td>3760</td>
<td>17</td>
<td>10</td>
</tr>
</tbody>
</table>
The arrival of fen-edge settlement deposits occurring along the fen-edge, but probably first roasted and enriched prior to smelting (see full metalworking report below). The 3.93kg of smithing waste (SHB and hammerscale) might reflect part, or In its entirety, this slag dump represents the production of about 25kg of iron from c. 50–60kg of what was possibly locally sourced bog iron ore (goethite/limonite); the latter extracted from the base of the peat. Figure 6.14. Photograph and sections of slag pit F.597.
Figure 6.15. Slag pit F.597 – distribution of slag debris by sector.
The arrival of fen-edge settlement

all of the smithing required to turn this billet iron into useable objects, implying a level of production purely designed for local needs.

Clay-lined pits
A total of 26 clay-lined ‘cooking pits’ were found within the core of the settlement swathe, with two further isolated examples on the higher ground above the 3.5m contour (F.682 and F.686). These distinctive sub-circular shallow pits displayed either bowl-shaped profiles or had short, steeply sloped sides and flat bases (diameter range, 0.38–0.99m; depth range, 0.06–0.35m in depth). The pits were lined with a single layer of impervious un-fired blue-grey clay between 0.02 and 0.07m thick and were backfilled with mid-grey silty-sand, commonly containing quantities of burnt stone, charcoal and other scraps of refuse including pottery, animal bone, burnt clay and slag (Table 6.5), with only seven empty examples (F.487, F.542, F.682, F.686, F.767, F.975 and F.1049). The most abundant find was burnt stone, present in 12 of the clay-lined pits. In all, 50kg of fire-cracked stone were recovered from the pits, representing 89% of all burnt stone retrieved from features attributed to the Middle Iron Age (Fig. 6.16). Though the hearths upon which these stones were heated have not survived, their presence within the major concentrations of clay-lined pit is indicated by ash- and charcoal-rich ‘rake-out’ features F.609, F.610 and F.995 (Fig. 6.4).

In general, it is assumed that the clay-lined pits were constructed to hold and heat water for cooking, with hot stones being dropped in for this purpose. Alternatively, some may also have been used in tanning or dyeing and, potentially, others could have functioned as pits for quenching during metalworking. On this note, it may be no coincidence that five of the clay-lined pits (F.600, F602, F.607, F.762 and F.767) were located within 9m of furnace F.611 and that two of the closest, F.602 and F.607, yielded fragments of slag (see above). Elsewhere, however, Webley (Webley 2007b, 141) has drawn attention to the close spatial relationship between clay-lined pits and roundhouses.

Table 6.5. Summary of finds from clay-lined pits (* denotes pits within roundhouses). Overall, 89% of period’s burnt stone (by wt) derived from the 21 pits, along with 35% of pottery sherds, 8% of animal bones and 12% of fired clay fragments.

<table>
<thead>
<tr>
<th>Pit</th>
<th>Pottery (no./wt)</th>
<th>Burnt stone (wt)</th>
<th>Bone (no./wt)</th>
<th>Slag (no./wt)</th>
<th>Burnt clay (no./wt)</th>
<th>Notable finds</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.594</td>
<td>-</td>
<td>1.8kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.596</td>
<td>8/58g</td>
<td>3.9kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.600</td>
<td>-</td>
<td>15.0kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.602</td>
<td>83/986g</td>
<td>&lt;0.1kg</td>
<td>15/64g</td>
<td>1/195g</td>
<td>1/10g</td>
<td></td>
</tr>
<tr>
<td>F.607</td>
<td>23/113g</td>
<td>9.0kg</td>
<td>3/4g</td>
<td>1/26g</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.696</td>
<td>5/62g</td>
<td>5.2kg</td>
<td>-</td>
<td>-</td>
<td>4/6g</td>
<td></td>
</tr>
<tr>
<td>F.700</td>
<td>13/81g</td>
<td>8kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.750*</td>
<td>-</td>
<td>0.2kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.751*</td>
<td>-</td>
<td>4.2kg</td>
<td>-</td>
<td>-</td>
<td>5/372g</td>
<td>Loomweight; burnt quern; rubber stone</td>
</tr>
<tr>
<td>F.762</td>
<td>3/13g</td>
<td>0.8kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.983</td>
<td>15/110g</td>
<td>-</td>
<td>2/8g</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.984*</td>
<td>2/8g</td>
<td>0.1kg</td>
<td>5/20g</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.988*</td>
<td>3/6g</td>
<td>-</td>
<td>7/25g</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.992*</td>
<td>20/181g</td>
<td>-</td>
<td>7/22g</td>
<td>-</td>
<td>8/20g</td>
<td>Worked bone point</td>
</tr>
<tr>
<td>F.996*</td>
<td>-</td>
<td>0.4kg</td>
<td>3/4g</td>
<td>-</td>
<td>3/10g</td>
<td></td>
</tr>
<tr>
<td>F.1013</td>
<td>3/24g</td>
<td>-</td>
<td>4/50g</td>
<td>-</td>
<td>5/20g</td>
<td></td>
</tr>
<tr>
<td>F.1012</td>
<td>-</td>
<td>-</td>
<td>1/158g</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.1035</td>
<td>11/28g</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.1046</td>
<td>4/39g</td>
<td>-</td>
<td>1/117g</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.1054</td>
<td>1/6g</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F.1096*</td>
<td>11/188g</td>
<td>1.2kg</td>
<td>13/235g</td>
<td>-</td>
<td>2/1058g</td>
<td>Loomweight</td>
</tr>
<tr>
<td>Total</td>
<td>205/1903g</td>
<td>49.8kg</td>
<td>61/707g</td>
<td>2/221g</td>
<td>28/1496g</td>
<td></td>
</tr>
</tbody>
</table>
particularly in regards to their position within household interiors. The distribution at Bradley Fen broadly conforms to this pattern, with 8 of the pits located within the perimeter of Roundhouses 15–17 and a further 12 lying within 20m from the centre of these buildings.

**Burial F.781**

The burial of an adult male was found in a shallow, elongated grave in the centre of the settlement swathe, c. 15m northwest of Roundhouse 16 between the 1.8 and 2.0m OD contours (Fig. 6.17). The grave cut was akin to a hollow, with slightly irregular and diffuse edges measuring 1.61m in length, 0.64m in width and 0.17m in depth. The body lay in a prone, flexed position roughly perpendicular to the fen-edge, with the head downslope to the west. The fill was a pale grey-brown sandy-silt and yielded 10 sherds of Middle Iron Age pottery (69g), 2 fragments of crucible (6g) and hammer scale (<1g). The presence of metalworking waste within the grave fill is of note, suggesting the burial was broadly contemporary with furnace F.611 and the burial in Four-post Structure 10, which was also accompanied by pieces of slag (see above).

**Intercutting pit complex**

Around 25m north of Roundhouse 16, 10 irregularly-shaped pits were arranged in a broadly northeast-southwest line between the 1.5 and 2.0m contours (Fig. 6.11). This pit complex comprised two adjacent intercutting clusters, the lowest-lying of which consisted of seven scoop-like hollows (F.774–77 and F.818–20), with cuts measuring up to 2m in length and 0.42m in depth. The pits were evidently worked in close succession and, although clear stratigraphic relationships could not be discerned, all were filled with thin deposits of dirty sandy-clay gravels, capped by a homogenous layer of peat. A similarly haphazard arrangement of shallow cuts characterized the second, larger pit cluster to the east. This cluster was numbered

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**Figure 6.16. Burnt stone. Graph shows total quantity of burnt stone from clay-lined pits (14 features) as compared to other middle Iron Age features (17 features).**

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**Characterizing the burnt stone contents of clay-lined pits, a case study of pit F.696 (Simon Timberlake)**

Some 5.17kg of burnt stone (35 pieces) from F.696 were examined for the purposes of characterizing the types of glacial erratic-sourced cobbles used. These cobbles comprised 12 different sandstone lithologies ranging from Tertiary to Cretaceous sarsens, Lower Greensand, Lower Cretaceous and Middle Jurassic Estuarine and Deltaic Series sandstones from Eastern England, alongside a smaller component of far-travelled rocks consisting of a single piece of quartz schist and a larger cobb of dolerite (altogether some 12% weight of the assemblage). This selection of well-rounded cobbles of between 50mm and 120mm diameter (100–600g in weight) would seem to be the typical measure of the sorts of stone selected and collected from the local gravels for the purposes of burning: the cobbles were then used to boil water and cook food within individual clay-lined pits.
F.757, F.780 and F.784, although it proved difficult to distinguish where one cut ended and the next started. The pits had irregular profiles and undulating bases, measuring up 3.40m in length and 0.42m in depth. The fill sequence was more or less similar to that in the western group, though each pit contained lenses of grey silty-sands with localized charcoal-rich spreads and tips. These corresponded with find concentrations, with the cluster yielding fragments of pottery (17 sherds, 151g), animal bone (17 fragments, 47g), burnt stone (0.1kg) and metalworking debris (34 pieces, 183g) including slag and crucible fragments.

The purpose served by this pitting is hard to determine. Although the cuttings were too shallow to suggest they were dug as waterholes, the peaty deposits filling the western pit group indicate that waterlogged conditions soon encroached upon the lowest-lying features. However, in light of their irregular profiles, it seems more likely the pits functioned as extraction hollows, dug to remove gravels for floors or yard surfaces and to stabilize localized areas of saturated ground.

Figure 6.17. Burial F.781.

The human remains (Natasha Dodwell)

The skeleton (a mature adult male, height 1.66m (5’5”)) lay in a shallow cut with his upper body prone and legs flexed to the right. The head was at the western end of the grave, with the right arm extended and the left arm flexed below the body with the hand touching the right upper arm. The bone was in good condition although all of the long bones had post-mortem breaks and many of the joint surfaces had either broken off, were damaged or were missing. There was also some rodent damage to the cortical bone. Changes characteristic of osteoarthritis were recorded on the articulating facets of several cervical vertebrae and on the bodies of the lower thoracic and lumbar vertebrae. A smooth, raised callous around the distal shaft of the left ulna, c. 40mm from the head is evidence of a well-healed fracture.

Slight deposits of calculus were recorded on the surviving dentition and the anterior dentition was heavily worn.
Key features on the wetland fringe

Waterholes and hollows

The lower damp-ground contours of the settlement, below c. 1.8m OD, were home to a series of fairly small waterholes and irregular hollows. As in the Early Iron Age, these were not cut to any great depth as the water-table was perched high in this zone. Those 10 features classed as possible wells/waterholes measured just 0.70–1.00m in depth and were dotted along the wet fringes with the majority lying between the 1.4 and 1.6m contours. Six were located toward the southern end of the settlement swathe (F.1005, F.1010, F.1018, F.1033 F.1040 and F.1045), with a further three spread evenly across the centre of the site (F.825, F.831 and F.834) and a single isolated waterhole to the north (F.506) – the only example above the 1.8m contour. These features were typically circular or oval in plan (diameter range, 0.80–2.10m), with steep, occasionally undercutting sides and multiple fills of silts and slumped gravels. The absence of wattle-linings, stake revetments or re-cuts suggests that efforts were not made to prolong the use-life of individual features, no doubt because groundwater levels were high and relatively easy to tap. Indeed, the frequency of waterholes suggests that most were probably short-lived, with complete replacement and relocation being favoured over maintenance.

Finds from the waterholes mainly consisted of animal bone, particularly from cattle, with a large dump of butchery waste in ‘bone pit’ F.1018, detailed below. Scraps of pottery, fired clay, burnt stone and slag were also present within some of the waterholes, though the only significant ‘midden-type’ refuse assemblage derived from F.1022. This yielded a combination of 32 sherds of pottery (364g), 60 fragments of animal bone (490g), 0.3kg of burnt stone and a large assemblage of fired clay (129 pieces, 1475g), made up of what appear to be fragments of oven lining. However, waterholes F.506 and F.1045 contained no finds whatsoever. The former cut through some of the upper fills of the Early Iron Age Group A pit complex discussed in the previous chapter. This area of once intense pitting was likely to have been a damp, partially silted hollow by the Middle Iron Age and F.506 may have been dug to take advantage of the depression. The other feature still extant from the earlier first millennium BC was the upper profile of ‘boat-pit’ F.1064 (see Chapter 5). The erosion of this feature had resulted in the formation of a wide, waterlogged hollow, which judging by stratified finds of Scored Ware pottery in the upper fills (nine sherds, 285g in total from the tertiary silts), was still potentially around c. 0.70m deep at its centre. This was equivalent to the depth of several Middle Iron Age wells discussed above and probably served as a waterhole accessible to livestock.

Bone pits and body parts

Two pits located at either end of the settlement swathe were found to contain large dumps of freshly butchered, disarticulated animal bone. Both features were located on the damp-ground contours between 1.4 and 1.6m OD, but displayed different form and fill characteristics. Pit F.802 was a small circular peat-filled feature, which lay at the northern end of the site. Although it measured just 0.63m in diameter and 0.23m in depth, the pit was packed with 71 pieces of bone (2844g, Fig. 6.9), deriving from a minimum of three cows, two pigs and a sheep. Butchery marks were observed on a number of bone fragments, with cut marks on joint surfaces and several cattle limb bones chopped through the mid-shaft for marrow-fat removal.

The species representation and techniques of butchery evident from remains in F.1018 were broadly consistent with those from F.802, although the context itself was rather different, as was the quantity of remains interred. Located at the opposite end of the settlement scatter on 1.4m contour, F.1018 was one of the largest discrete pits/waterholes on the site, measuring 2.10m in length and 1.00m in depth. The pit had steep sides, a flat base and an unweathered lower profile filled with grey silts and mottled orangy grey-brown clay-sands. These were sealed by slumping and stabilization deposits, capped by peat-mixed clays that yielded a single sherd of Scored Ware pottery. The base of the pit, however, was covered by heap of disarticulated animal bone which had entered as a single dump. As detailed by Rajkovača in Figure 6.18, this was the largest discrete faunal assemblage recovered from the settlement, accounting for 61.6% of all bone (by weight) attributed to the period. Although it included the remains of pigs, sheep and red deer, it was dominated by cattle bone, with no fewer than nine individuals represented.

Butchery patterns indicate the systematic processing of carcasses for meat and marrow extraction. Moreover, the distinctive manner in which cattle pelves were split suggests the same individual may have been responsible for the slaughter and simultaneous processing of the nine animals (Fig. 6.19). Certainly, the condition of the bone and the general character of the deposit imply that this was debris generated in a single mass cull and butchery event – one which would have yielded vast quantities of beef. Though this shares similarities with the deposits in F.802, its size and composition has closer parallels with the bone dumps in the waterholes detailed in Chapters 4

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Waterhole F.1018

Bone dump composition (Vida Rajkovača)

Out of the 224 (19,021g: 18,654g from the primary fill) fragments of animal bone from F.1018, 178 (79%) were assignable to species (Table 6.6). Cattle remains dominated, accounting for 167 of the identifiable fragments (94%). More significantly, the count of minimum number of individuals (MNI) suggests that the remains of no fewer than nine cows were incorporated in the dump. Age estimations based on the epiphyseal fusion data indicate that the majority were culled as adult animals with a small proportion slaughtered as sub-adults (in detail, 0% of the cattle were <16 months of age at death; 16% were +16 months–<28 months; 74% were +28 months–<3.5 years and 10% were +3.5 years). Correspondingly, analysis of mandibular tooth wear produced a somewhat similar, albeit slightly less reliable (based on six ageable mandibles) set of results – the peak corresponding to adult animals. Overall, this age mortality profile is broadly compatible with prime beef production. However, the presence of some older animals would also imply cattle were kept for milk, traction and other secondary products.

Analysis of body part distribution showed that all parts of the beef carcass were present in the dump, with distal humerii and ribs being particularly prevalent. Butchery marks were observed on 39 bone specimens, representing 22% of the bone material. Skinning was observed on astragali and calcanei and initial dismemberment on major joints and vertebrae – carcasses being split into left and right portions. Ribs were cut to ‘pot sized’ pieces and scapulae were crudely chopped diagonally. Further, all humeri, radii and tibiae were chopped midshaft, possibly for marrow removal and were not further processed. Metapodial elements were the only elements which have been axially split and the splinters may have also been used for bone working.

Overall, these marks could be grouped into four categories according to the ordered stages of processing they correspond to. The first category consisted of sets of marks consistent with gross carcass dismemberment. The second was related to the dressing and preparation of the meat joints, whilst the third pertained to traces of food consumption, such as meat removal. The fourth and final category included marks indicative of the splitting/breaking of bones for marrow fat extraction.

The manner in which some of the bone was processed suggests that the same individual may have been responsible for the butchery of several, or potentially all of the animals. This is implied by the way that the pelvises of several different cows were split, with a blow being delivered at the same point on the acetabulum separating them into three identical portions (Fig. 6.19). According to Lyman’s (1979) straightforward (but perhaps not entirely reliable) calculations, the butchery of these nine cows would have yielded 2250–3429kg of meat. These estimates are broadly similar to those generated using figures supplied by Cunliffe (3690kg (2005, 416)), who estimates the average weight of a cow at 410kg. Either way, it is clear the butchery events associated with F.1018 would have generated at least a couple of tonnes of beef.

The modified skull fragment (Natasha Dodwell)

The adult, male cranium (represented by the majority of the occipital and parietal portions of the skull) stands out for its association with a large quantity of butchered cattle bones, for the trauma suffered ante-mortem and for the way in which it has been modified post-mortem. The fragment of cranium has a history.

There is a smooth, shallow depression on the posterior of the left parietal, adjacent to the sagittal suture which has the appearance of a healing/healed projectile injury. The lesion is sub-rectangular (4.75 long, 3.4mm wide, c. 3mm deep) and does not penetrate the skull vault. There is no evidence of trauma on the internal surface of the vault. The margins, sides and base of the lesion are smooth and remodelled, indicating that the man survived the trauma.

Table 6.6. Number of Identified Specimens (NISP) and the Minimum Number of Individuals (MNI) for all species from F.1018. Bone surface preservation was excellent, with a near absence of gnawing marks (c. 1%).

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>NISP %</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>167</td>
<td>93.8</td>
<td>9</td>
</tr>
<tr>
<td>Sheep/goat</td>
<td>3</td>
<td>1.7</td>
<td>1</td>
</tr>
<tr>
<td>Pig</td>
<td>7</td>
<td>3.9</td>
<td>2</td>
</tr>
<tr>
<td>Red deer</td>
<td>1</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>178</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>45</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Figure 6.18. Waterhole F.1018.
and the wound had time to remodel and heal. Calculating the direction of entry of the projectile is made difficult by the degree of remodelling but the lesion is more gently angled at its anterior side suggesting that this was the direction from which the projectile entered. Projectile weapons could be spears, arrows, sling-stones or pebbles. Studies have shown that 7–25% of projectile wounds in prehistory are located on the cranial vault (Smith et al. 2007, 542, table 2) and the identification of such a lesion is evidence for interpersonal violence in this period.

Inside the cranium, there is an off-white residue (limescale) marking where liquid, presumably groundwater, has settled. The position in which the cranial fragment was discovered during the excavation of pit F.1018 (i.e. on its side (see Fig. 6.18)) is unlikely to have allowed for the build-up of a residue where it was recorded. This raises the possibility that the skull fragment was buried elsewhere prior to its deposition in this pit.

At the most anterior surviving part of the sagittal suture, at the vertex of the skull, on the right side of the cranium are a series of small, parallel scratches, similar in appearance to rodent gnawing. If they are rodent gnawing they suggest that the bone was above ground or only shallowly buried. The scratches are regular and localized and it is possible that they are shallow cut marks resulting from the removal of soft tissue (i.e. scalp and hair). Subsequent to these shallow markings, overlying them, the cortical bone has been flattened visibly as though it has been rubbed frequently against something, again possibly to remove soft tissue.

One of the most striking characteristics of the cranial fragment is the polished appearance and feel of the outer surface, suggesting that it may have been rubbed or repeatedly handled. Indeed the bone’s burnished appearance almost demands that the skull is picked up and touched. Cranial fragments with a similar ‘polished’ appearance have been found around the Fen Basin at Hurst Lane and Trinity lands, both on the Isle of Ely, (Evans et al. 2007, 66) and in a palaeochannel at Goodwin Ridge, Over (Evans 2013; Dodwell with Riddler 2016). What was its purpose and who looked after it? This bone evokes images of being handled, possibly revered like a relic, connecting the living with the dead. Without absolute dating it is impossible to determine how long the skull was curated before it was finally buried.

Figure 6.19. Example of distinctive butchery of bone from F.1018. 1. Cow pelvis split into three portions by blow to acetabulum. 2. Unbutchered cow pelvis.
Figure 6.20. Distribution of articulated and disarticulated human remains.
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and 5 (F.34, F.391, F.528, F.544 and F.991), all of which occupied comparable wet-edge locations. Indeed, the earlier suggestion that some of these deposits derived from events organized at an inter-household level, probably holds true for this context, given the number of animals involved. Whether this relates to an annual sort and cull of cattle from a communally managed herd, or a one-off large-scale feasting event, is harder to distinguish, though the inclusion in the dump of a human skull fragment suggests that the act of interment may also have been associated with other rites.

The skull formed part of the general jumble of bones at the bottom of the pit, with no indication that it had been carefully placed or distinguished in any way in its burial. Dodwell’s analysis (Fig. 6.18) demonstrates that the skull (which had traces of a healed trauma from a projectile) had been deliberately modified and was possibly polished in sections. Furthermore, a deposit of limescale on the interior suggests it had lain in standing water for a fairly long period, though its position/angle in F.1018 seems to preclude the possibility that this deposit formed while it lay within the pit itself. This points to the skull having been previously deposited in a waterlogged context, either on the surface of the adjacent fen, or within a water-filled feature occupying a similar location along the damp-ground terrace contours. The period of delay between the death of the individual (an adult male) and the final interment of the skull in F.1018 is impossible to judge. However, bearing in mind the polish, which suggests the cranium was repeatedly handled and/or rubbed, it is not unreasonable to envisage this period of delay/curation as being fairly long-lived (perhaps several years or possibly decades).

Two other features on the wetland fringe yielded human remains, both located at the northern end of the site (Fig. 6.20). The first was a peat-filled posthole F.795 (0.45m in diameter), which lay on the 1.5m OD contour and contained two adjoining adult skull fragments. The second was pit F.675 (0.75m in diameter and 0.09m deep), located around 30m to the north of F.795, which yielded a single adult molar.

**Finds from the wet**

Sherds of Scored Ware pottery and further human remains were recovered from the peat deposits west of the settlement swathe, in an area which would have been completely saturated and probably under shallow, but permanent standing water by the Middle Iron Age. The finds were made during machine stripping and hand excavation of deposits capping/covering several major Bronze Age features, including areas of the fieldsystem (F.812–15 (Fig. 4.20)) and waterhole F.859 (Figures 3.27). These effectively constitute chance finds and probably represent a tiny fraction of those which originally ended up in this wetland context. Although the sherds of Scored Ware pottery can be confidently assigned to the Middle Iron Age (four sherds, 135g), the period attribution of the four separate human bone finds is far less secure, since none have been radio-carbon dated. The decision to discuss them here was largely informed by the presence of similar remains in features on the adjacent wetland fringe and, more specifically, the fact that these were also peat-filled or peat-capped contexts (see above). However, the possibility that some could be of Later Bronze Age or Early Iron Age origin cannot be ruled out.

Issues of dating aside, the human remains recovered from the peat comprised a single right femur, two left ulna bones and a disarticulated skeleton from the capping of waterhole F.859 (see Table 6.1). All were located toward the northern end of the site, between 11 and 47m from edge of the adjacent settlement. The most significant discovery was the ‘washed-out’ body of an adult female, found above F.589 at a height of c. 1.3m OD in the peat. Whilst the body was fragmentary and,

<table>
<thead>
<tr>
<th>Feature</th>
<th>Context</th>
<th>Small finds no.</th>
<th>Feature type</th>
<th>Skeletal element</th>
<th>Age &amp; sex</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.675</td>
<td>636</td>
<td>-</td>
<td>Small pit</td>
<td>1st mandibular molar</td>
<td>Adult</td>
<td>Blackened</td>
</tr>
<tr>
<td>F.795</td>
<td>802</td>
<td>-</td>
<td>Posthole</td>
<td>l. parietal</td>
<td>Adult</td>
<td>Porotic hyperostosis</td>
</tr>
<tr>
<td>F.812–5</td>
<td>824</td>
<td>-</td>
<td>Peat layer over pits &amp; ditches</td>
<td>r. femur</td>
<td>Adult</td>
<td>Shaft only</td>
</tr>
<tr>
<td>F.1018</td>
<td>1096h</td>
<td>-</td>
<td>Large pit</td>
<td>Fused r &amp; l parietal &amp; occipital</td>
<td>Middle/ mature adult ;male</td>
<td>Lesion on l. parietal; lots of butchered cattle in pit</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>59</td>
<td>Peat</td>
<td>l. ulna</td>
<td>Adult</td>
<td>Complete</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>246</td>
<td>Peat</td>
<td>l. ulna</td>
<td>Adult</td>
<td>Shaft only</td>
</tr>
</tbody>
</table>
strictly speaking, disarticulated, many of the bones lay in their correct anatomical alignment suggesting the skeleton had gradually broken up post-deposition, probably as a consequence of water movement. The slightness of drift implies that this occurred in a fairly sheltered or stable environment; the body possibly having become lodged in reeds or other semi-aquatic vegetation. As Dodwell reports below, skeletons and disarticulated human remains in similar contexts and condition have been found elsewhere in the Flag Fen Basin and in the southern fens. Although not all of these examples can be stated to be Iron Age with certainty, it seems likely that burial in watery contexts was a common rite in the period, perhaps much more so than dryland excarnation or inhumation – a topic returned to in the chapter’s final discussion.

**Body in the peat (Natasha Dodwell)**
The body of a middle adult female was represented by disarticulated elements, which lay in the peat capping of waterhole F.859, in an area c. 1.50 × 0.50m (Fig. 6.20).

None of the long bones were complete; many were split and most of the articulating facets were missing. The cortical bone was also abraded. The body was represented by the following elements: left femur (proximal shaft flattened anterior-posterior), right femur, left radius, left mandible (and three molars), rib shafts, right clavicle, left glenoid cavity, right talus, right humerus, right tibia, scraps of vertebral bodies.

A similar spread of disarticulated human skeletal elements, from a single individual has recently been recorded at the western end of the Goodwin Ridge, at Over, at the very edge of a palaeochannel. Although none of the bones showed any evidence of animal gnawing, it was argued, as here, that it might represent the remains of a body that had been left on the water’s edge (Dodwell with Riddler 2016). Nearer to Bradley Fen, at the Power Station sub-site at Flag Fen, a single, poorly preserved skeleton, believed to be Iron Age in date was recovered c. 40m north of the post-alignment. Pryor (2001, 59) writes that ‘Its position in the silts suggested that it had found its way into (or been placed in) the water in Iron Age times’.

Fragmentation and the breaking-down of the human body is a pattern seen throughout prehistory. The incorporation of these fragmented elements into features within settlements, marking physical boundaries and even significant events/episodes in the lives of the living, has been recognized as a distinct funerary tradition in the Early and Middle Iron Age (e.g. Woodward 1992; Parker Pearson 1993), a tradition which extended back into the Bronze Age (e.g. Brück 1999a). Carr & Knüsel (1997) suggest that excarnation and exposure played a significant role in mortuary ritual in the Iron Age. Wait’s (1985, 99) analysis of Iron Age burial has shown that in the Early Iron Age individuals were represented by single, disarticulated skeletal elements often buried within settlements and that by the Middle Iron Age both disarticulated elements and articulated burials were being deposited. The evidence of Iron Age remains from Bradley Fen and other Flag Fen Basin sites appears to follow this trend. At Bradley Fen, single disarticulated elements were recovered from a total of six contexts, summarized in Table 6.7. Disarticulated mandibles and long bones were recovered from the Flag Fen platform site and along the Power Station and Northey Landfall ends of the post-alignment (Halstead et al. 2001, 330–50, Ferrante di Ruffano 2010, 128). At Cat’s Water, six crouched or tightly crouched inhumations in shallow graves, believed to be Iron Age, were recorded in addition to disarticulated skeletal elements from within ditches, pits and structures within the settlement (Pryor 1984).

Cumulatively, these sites suggest a pattern in the way human remains were deposited in this landscape.

**Discussion – the character and organization of the settlement**

In contrast to the Early Iron Age evidence at King’s Dyke, the extended aperture of the excavations at Bradley Fen allows us to discern the configuration of the Middle Iron Age settlement much more clearly. Revealed, is a settlement defined vertically, but ordered horizontally: a compressed, corridor-like swathe of features, structured in relation to the wetland margin. Although the relationship between feature-type and contour range was less pronounced than in the Earlier Iron Age, as noted at the beginning of this chapter, there are nonetheless similarities in the basic vertical patterning of fixtures up and down the terrace edge. Indeed, the overall character of the settlement imprint has its closest local parallels with the Early Iron Age site at King’s Dyke, with the robust four-post doorway settings of Roundhouses 15 and 17 mirroring those of Roundhouses 7–9. As well as this shared sense of architectural tradition, continuities can be traced in certain depositional practices, namely those involving the interment of butchered and disarticulated sheep remains in roundhouse interiors and large pit-derived cattle bone dumps along the wetland fringe. These continuities are significant, but there are also some important differences in the character of the settlement signatures.

Beyond the obvious distinctions in date and topographic setting, contrast exists in the manner by which these feature scatters emerged and the likely duration of the settlements’ occupation. In the previous chapter,
it was argued that the imprint of the Early Iron Age settlement at King’s Dyke resulted from a reiterative mode of occupation where a series of structures and other features were gradually renewed within the same locale, but never on the exact same spot. In plan, this gave the illusion that fixtures were contemporary, whereas in reality, the settlement configuration was a displaced or offset palimpsest created over several centuries. Although a scarcity of feature superimposition also characterizes the Middle Iron Age settlement swathe at Bradley Fen, in this context it seems more likely that the site plan does indeed reflect a fairly pristine and comparatively short-lived occupation. A certain degree of time-depth is undoubtedly still implied by the setting of Four-post Structures 9–11, the presence of the intercutting pit complex and the general density of features within the settlement spread (including those in the roundhouses’ interiors). However, there is a coherency to the arrangement and distribution of certain fixtures and finds on the site which suggest contemporaneity, or at the very least, a persistence in consensus on spatial order.

In contrast to the vertical or contour-oriented arrangement of features already emphasized throughout this chapter, this patterning is played-out horizontally along the north–south axis of the settlement and works on a number of spatial scales; not all of which are immediately apparent. The most obvious relates to the zoning of the four-post structures, presumably used for storage, and secondly, the spread of pits and postholes filled with metalworking debris around furnace F.611 – an area which may be labelled a workshop. These constitute two distinct activity zones, separated by an almost linear arrangement of irregularly profiled pits, the majority of which form part of the intercutting pit cluster. Though the function of these pits is less obvious, their consistency in form and fill mark them out as another coherent, spatially distinct group. Importantly, these three feature-sets/activity zones are connected by finds of slag, presumably derived from furnace F.611, which suggests they are broadly contemporary.

The distribution of slag across the settlement also unites the three roundhouses, whose contemporaneity is further implied by the similarities in their footprint and, in particular, the arrangement of their internal features. This is most readily appreciated when the ground plans of the buildings are overlain and orientated on their entranceways. As Fig. 6.21 demonstrates, there is clear patterning in the distribution of pits and postholes on the left-hand side of the structures (looking in), adjacent to the doorways. In total, over half of all the internal features were located in this zone, with each roundhouse displaying an arc of non-intercutting pits around the interior wall-line. A second cluster of features is also distinguishable close to the middle of the roundhouses and may flank central hearths in this area. Combined, this patterning underlines the importance of these zones in the structures and inevitably invites reference to ‘sunwise’ models of first millennium BC domestic practice and its cosmological underpinnings (Fitzpatrick 1994; 1997). Their structured arrangement certainly suggests these spaces were functionally and conceptually differentiated from the rest of the interior and were indeed a focus for the interment of sheep remains. Although there is a case to argue that some of these features were deliberately dug to receive foundation or abandonment-type deposits, the fact that six of the eight clay-lined pits were located in these zones, indicates they were primarily areas for mundane day-to-day activities associated with cooking and potentially storage.

Leaving aside these issues, it is clear that roundhouse interiors were organized along very similar lines, with similar types of features being constructed, used and repeatedly renewed around the same two points. Whilst this in no way proves that the buildings stood at the same time, on balance, the consistency of these arrangements and the broader analogies in the form and size of the structures strongly favours this interpretation. Moreover, given that they have a fairly unusual imprint for Middle Iron Age roundhouses in

Figure 6.21. Patterning in the distribution of pits and postholes on the left-hand side of Roundhouses 15, 16 and 17.
the region, owing to their lack of well-defined eaves gullies, it is hard to envisage buildings with such similar and distinctive ground plans not being constructed around the same time. Of course, we could still be looking at a sequence of single structures erected by the same group over a number of decades. Lateral settlement ‘drift’ is hard to rule out, but the coherency of the site plan and the positioning of the structures in relation to the other major feature groups, argues against this: in this time-transgressive environment, extended occupation would inevitably result in *vertical* settlement drift, as the lower contours were progressively inundated (as demonstrated at Cat’s Water (Pryor 1984)).

But if we accept then that the three structures were contemporary, what was the relationship between them? In terms of their artefact repertoires, there are no obvious signs of functional or status-related differences between the buildings. In fact, the overall condition and composition of their material assemblages is broadly comparable and, although Roundhouse 15 yielded fewer finds in total (see Table 6.1), this distinction can be accounted for by the truncation of the structure’s interior features. As such, a discussion of the buildings relationship to one another, and the settlement swathe as a whole, must hinge upon the reading of their spatial configuration. Of course, these judgements on association are made more difficult because of the strict easterly alignment of the roundhouse doorways, which serves to obscure any obvious expressions of integration – a pattern that conforms to a wider Iron Age building tradition, thought to be governed by cosmological principles (e.g. Oswald 1997). Still, given the proximity of Roundhouses 16 and 17, it is tentatively proposed that these buildings constituted a paired or modular household unit. This interpretation certainly has its attractions, as the distance between the known and projected wall-lines of the two buildings is broadly similar to the paired structures in several ‘domestic’ Middle Iron Age enclosures in Cambridgeshire, including Haddenham V (Evans & Hodder 2006b) and Colne Fen, Earith (Evans et al. 2013). It is also notable that the zone immediately around and between Roundhouses 16 and 17 was home to just a light scatter of small pits and postholes, hinting that this was maintained as a predominantly feature-free yard space. Interestingly, this is broadly equivalent in area to the compound spaces of several of the region’s Iron Age enclosures, implying that there was some measure of consensus on what the appropriate scaling, setting and spacing of domestic architectures were in this period.

What then of Roundhouse 15? Its distancing implies a degree of autonomy from the buildings to the south, but it was clearly still part of the same settlement complex. Though we should be cautious in assuming a one-to-one relationship between social and spatial distance, this somewhat neighbourly arrangement of structures suggests the settlement’s resident community was made up of at least two different household groups – further structures almost certainly lying to the north of the excavation area. Any sense of their independence from one another, however, was probably more apparent than real. Certainly, the number and distribution of four-post structures implies that cereals were being stored communally in this context, whilst the general patterning of other features between the buildings (vertically and horizontally) gives the impressions of a common agreement on the spatial order of things. Of course, we can only guess as what served to unite these households, but kinship was probably a foundation and would have no doubt structured the organization of many tasks within the settlement perimeter.

**Reflections and implications**

Stepping back from this detailed dissection of the site’s anatomy, we are left with the impression a comparatively pristine and coherent settlement plan, in which the spatial ordering of contemporary features is patterned both vertically and horizontally across the terrace edge. Viewed topographically, the settlement is primarily organized on pragmatic grounds, with structures and other features occupying the slightly higher, dry sections of the terrace above 2.0m OD and wells and waterholes sited along the lower damp-ground contours (Fig. 6.22). Set against this, and ordered on the horizontal axis, we find that some features fall within semi-discrete, functionally related groupings, with a zone of four-post structures, a metalworking workshop area and a quasi-linear arrangement of pits, all bracketed by a series of roundhouses – the southern two potentially forming a paired household unit.

Admittedly, there are no sharply defined edges to this zoning and indeed some of these patterns are not as immediately apparent from the site plan as others. Ultimately, this blurring reflects the fact that these were lived-in spaces. Though the site may have been organized according to a spatial template, or an idealized model that encouraged routinized practice, these frameworks were neither dictatorial nor necessarily long-lasting. Over time, as the settlement developed, some were no doubt adapted, abandoned or overridden as circumstances shifted – including those caused by the inundation of features on the damp-ground contours. This has served to erode any hard definition of zones on the cumulative site plan. The overall configuration of the settlement can
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therefore be understood as a consequence of various patterns and organizational principles, realized to different degrees. On this issue, is important to stress that we are not looking at a snapshot of settlement. Although the remains are broadly contemporary, it is still feasible that we are dealing with half a century or so of occupation.

On reflection then, the character and duration of the Middle Iron Age settlement at Bradley Fen would appear to be different to that of the Early Iron Age occupation at King’s Dyke, despite sharing open, sprawling site plans. This much can be discerned from the close analysis of their architectural imprints. Yet it does leave the hanging question of how meaningful these differences are: a question which is hard to fully resolve. For instance, whilst feature-zoning is less apparent at King’s Dyke, is this because the settlement was longer-lived and any impression of spatial order has become obscured by the duration of occupation or is it the case that our excavation aperture was too small to observe such patterns in the first place? To some extent, the answer to both these question is probably yes. Still, there is a sense that the settlement configurations at King’s Dyke were more fluid and transitory than those at Bradley Fen, regardless of duration. Though there may not be much time-depth to the Middle Iron Age occupation, the fact that we do see some evidence for the formation of inter-cutting pit clusters and the rebuilding of four-post structures on the same spot, suggests, given time, there would have been greater levels of superimposition within the pre-existing order of feature groupings.

In both periods then, there existed an iterative quality to the imprinting of settlement, but in the Middle Iron Age, this became more closely focused, with a greater emphasis on maintaining the coherency of founding spatial orders – in essence, the original arrangement of things and fixtures. True, settlement was also focused in the Early Iron Age, but here it was only loosely centred upon the same locale, with practice favouring a shifting of architectures upon renewal, as opposed to perpetuating the same plots. As such, space appears more regulated in the Middle Iron Age, which in other contemporary contexts in the region, manifests itself in the construction of formal settlement compounds and multi-phase roundhouses. These can be viewed as different responses to a wider set of concerns surrounding the close definition and distinction of households and household groups and the demarcation of different spaces within the domestic sphere. The zoning of features at Bradley Fen may well be an expression of this. So too might the neighbourly arrangement of the roundhouses, whose distancing suggests a subtle tension between the autonomy of the household and the wider collective of the settlement’s resident community.

What this potentially amounts to is both an understated transformation in the conceptualization of

Figure 6.22. Functionally related groupings, with a zone of four-post structures, a metalworking workshop area and a quasi-linear arrangement of pits, all bracketed by a series of roundhouses.
the domestic and a shift in how tenure and place were understood and worked upon. This goes hand-in-hand with changes in the organization of other social and material traditions too, which we can also begin trace in the archaeological recorded when we set patterns against those from the Early Iron Age. This line of enquiry is best explored by following the format of the previous chapter and focusing on the themes of foodways and technological traditions.

Foodways

For all the parallels and contrasts that can be drawn between the Early and Middle Iron Age occupations at King’s Dyke and Bradley Fen, there is no escaping the fact that the shift of settlement down-slope to the fen-edge in this period marked a significant transformation in the wider organization of the prehistoric landscape. In essence, it reflects the emergence of a new order to the lowland terraces of the Flag Fen Basin, with the fen-edge now harnessed as the principal organizational axis. What interests us here, however, is how this switch in orientation impacted on the structure and character of agricultural regimes and the foodways of communities who resided in such fen-edge settlements. Is there evidence that these changes were met by shifts in the agrarian economy and/or the nature of commensal practice? Furthermore, was the draw of settlement toward the fen-edge in any way linked to the increasing exploitation of this environment, specifically, its wetland wildlife?

In attempting to give some explanation as to why settlement moved towards the fen-edge in the Middle Iron Age, it would be unwise not to cite the possible ‘economic’ benefits of such locations. Set in the zone of the wet/dry interface, the settlement not only offered ready access to the rich grazing pastures and other marshland resources of the adjacent fens, but remained in close proximity to the well-drained up-slope terraces. The merits of such locations are widely discussed in the literature on Iron Age Fenland settlements, with emphasis placed on the potential for maximizing the exploitation of different environments from these settings. Yet, although this chimes with our own sense of economic rationality, with the exception of Haddenham V (Evans & Hodder 2006b), the faunal record from fen-edge Iron Age settlements is commonly characterized by a paucity of wetland species, despite the obvious potential for fishing, trapping and wildfowling.

Bradley Fen is no different in this respect. In fact, comparatively speaking – and given the site’s very low-lying position – the evidence for wetland fauna is remarkably limited, with just one fish and duck bone recovered in total (see Rajkovača below). Of course, the nature of sampling strategies and, in particular, the extent of sieving programmes (C. Evans pers. comm.), has a significant impact on the recovery of fish and small bird bones. But even allowing for some of these biases, both the number and range of remains is surprisingly small, especially when set against the inventory of wetland species recovered from Cat’s Water on the opposite side of the Flag Fen Basin (Biddick 1984, 263–64). Yet it was not just fish and fowl remains which seem comparatively underrepresented in this context, but evidence for wild species of plants and animals in general. As noted by de Vareilles below, we now lose sight of wild plant foods altogether in the charred botanical remains, whilst four fragments of deer bone in pit F.1018 provide the only other evidence of wild fauna.

Clearly, these resources contributed relatively little to the later prehistoric diet, with the marshland fauna apparently being all but ignored. Instead, the site’s subsistence signature is more ostensively ‘terrestrial’, domesticated and indicative of a mixed farming economy based on cereal cultivation and the rearing of livestock. With regards to the former, the presence of four-post structures, quernstones and the evidence from de Vareilles’s analysis of the plant remains, suggests that cereals were stored, processed and prepared for consumption on site, with the waste materials (e.g. chaff and straw) used as fuel in the metalworking furnace and probably also animal fodder. The cereals themselves – barley, spelt and emmer – were likely grown in fields on the higher terraces east of the settlement, in the large expanse of open ground devoid of Iron Age features (an area covering at least 3.3ha). Although no tangible traces of these fields or paddocks now exist, the morphology of the Bradley Fen settlement swathe and, in particular, the abrupt fall-off of features above the 2.5m OD contour, hint that that a boundary separated the settlement from a zone of arable land. Certainly, the impression is that the eastern sprawl of the settlement was confined in some way, possibly by a hedge line running parallel to the fen margin. This, however, cannot be proved with the evidence at hand and we are limited as to how far we can reconstruct the organization of the surrounding agricultural landscape.

Turning back to the faunal remains, Rajkovača’s analysis indicates that cattle were the mainstay of the livestock economy at Bradley Fen, predominating over sheep, with a more limited representation of pig and horse. This is in keeping with patterns identified at Cat’s Water and most other Middle/later Iron Age sites in the Fenland region of Cambridgeshire (see Table 6.8). Given the availability of pasture and water
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meadows on the fen-edge, plus the move towards settlement in this zone, such trends are not entirely surprising. We should, however, be cautious in reading the data too directly. For, as in the Early Iron Age, the overall content and composition of the faunal assemblage was determined by a limited number of formal deposits involving large dumps of butchered cattle bone ('bone pits' F.802 and F.1018) and the burial of sheep remains in roundhouses.

These deposits were generated and interred in a very particular set of social circumstances, which potentially had very little to do with the normal rhythms of culling and consumption. They constitute set-piece events which bear a striking resemblance to those documented in the Early Iron Age and invite similar interpretations (see Chapter 5). The sheep bone deposits in the roundhouses are near identical to those in the structures at King’s Dyke, both in terms of the number and age-profile of the animals interred and the spatial patterning of deposits around the interior of the buildings (Fig. 6.23). These are believed to be the residues of formal dining events; some deposited during particular moments in the history of the structures, including foundation and abandonment. The parallels with King’s Dyke serve to show that these practices evolved into a long-held, conventionalized depositional tradition. Interestingly, this was echoed more widely in the Middle Iron Age, with further examples from the Scored Ware-using fen-edge communities to the south at Haddenham V (Serjeantson 2006a, 240–42) and Colne Fen Site I, Earith (Higbee 2013, 210).

By contrast, the deposition of large dumps of butchered cattle bone in pits along the fen margins was a practice more specific to the Bradley Fen/Flag Fen Basin context, though it did have a longer local ancestry originating in the Middle Bronze Age. The dump in pit F.1018 was the largest of its kind, with the remains of a minimum of nine cows interred. As with the Early Iron Age examples, the scale of slaughter and consumption associated with this event speaks of participation by a community group larger than that residing at the site itself. Again, this probably relates to large-scale feasting of one kind or another.

Table 6.8. Relative importance of the three main domesticates on Iron Age sites in fen-edge settings. Figures are based on the number of identified specimens (NISP) reported for each species, expressed as a relative percentage of the total NISP.

<table>
<thead>
<tr>
<th>Site</th>
<th>Cattle %</th>
<th>Ovicapra %</th>
<th>Pigs %</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bradley Fen</td>
<td>61</td>
<td>31</td>
<td>8</td>
<td>This publication</td>
</tr>
<tr>
<td>Cat’s Water</td>
<td>50</td>
<td>42</td>
<td>8</td>
<td>Biddick 1984</td>
</tr>
<tr>
<td>Market Deeping</td>
<td>49</td>
<td>43</td>
<td>8</td>
<td>Albarella 1997</td>
</tr>
<tr>
<td>Tanholt Farm, Southern Extension</td>
<td>46</td>
<td>12</td>
<td>42</td>
<td>Rajkovača 2009</td>
</tr>
<tr>
<td>Hurst Lane</td>
<td>45</td>
<td>41</td>
<td>9</td>
<td>Highbee &amp; Clarke 2007</td>
</tr>
<tr>
<td>Earith Sites I &amp; II</td>
<td>45</td>
<td>46</td>
<td>9</td>
<td>Highbee 2013</td>
</tr>
<tr>
<td>Haddenham Sites V&amp;VI</td>
<td>22</td>
<td>70</td>
<td>8</td>
<td>Serjeantson 2006a–b</td>
</tr>
</tbody>
</table>

Figure 6.23. Sheep bone deposits in roundhouses.
Unfortunately, fleshing out the details of this, or any other formal dining event of the period, is difficult, not least because of the scarcity of the ceramics associated with such deposits. In fact, one of the main changes we can observe in relation to these contexts is a decrease in the evidence that a different service of vessels were used and deposited as part of the proceedings. Whereas in the Early Iron Age there were signs that particular categories of pot were deployed, and possibly reserved for use (and deposition), in formal dining, there were no such hints that these practices continued into the Middle Iron Age at Bradley Fen. More generally, the visual, tactile and functional distinctions between pots of the previous period dissolved around the fourth century BC, to be replaced by a more restricted range of containers that fulfilled a variety of culinary roles. As discussed by Brudenell (below), this signals wider changes in the aesthetics of dining and the way food and drink were presented and consumed, both in everyday meals and moments of formal dining.

Returning to the questions posed at this beginning of this section, on balance, it would seem that there are more points of continuity in our understanding of Early and Middle Iron Age foodways than there are differences. Although there are changes in the settlement geography and no doubt the wider organization of the agricultural landscape, archaeologically at least, these do not translate into a markedly different picture of the agrarian economy. As far as can be discerned, the move to the fen-edge in the Middle Iron Age was not met by any great surge in the exploitation of marshland fauna, nor any obvious signs of wetland specialization. On the contrary, the plant and faunal record is overtly terrestrial in nature and, in terms of scale and composition, very similar to that documented earlier in the first millennium BC. Likewise, in the instances where we can see the conduct of individual consumption practices more directly (i.e. in episodes of formal dining), we find a clear thread of continuity in the location, context and scale of events and their resulting deposits. Nevertheless, it is perhaps prudent not to overstate the similarities with the Early Iron Age, for underlying the more overt trends, are subtle differences which may be no less significant in terms of understanding transformations in everyday routines. This is aptly illustrated by changes in the ceramic record which earmark wider shifts in culinary practice and, potentially, the basic structure of mealtime activities. However, these differences only begin to surface when we take a comparative, diachronic approach to the foodways theme, which is something all the authors below have attempted to do from different material standpoints.

The faunal remains (Vida Rajkovača)
The Middle Iron Age settlement at Bradley Fen yielded the largest faunal sub-assemblage from the excavations (734 specimens, weighing 30,900g (Fig. 6.24)) and provides important insights into the nature of cultural and economic practices along the fen-edge at this time. Although the assemblage is fairly typical of the period and area and shares a few traits with those considered in the previous two chapters, it does also have some unique characteristics, particularly with regard to the spatial patterning of remains. These have a direct bearing on the foodways theme, shedding light on both routinized and set-piece practices of deposition.

Cattle
Amounting to around two-thirds of the entire assemblage, cattle were undoubtedly the main economic asset and the biggest food provider in the Middle Iron Age. They dominated the NISP and the MNI counts (Table 6.9), with the remains of no fewer than 12 cows deposited in 4 ‘bone dumps’ identified at the site (F.802, F.825, F.1018 and F.1064, 84% of the bone in these assemblages being cattle). As shown by the skeletal element count, all parts of the beef carcass were recorded, albeit with a slight over-representation of mandibles, loose teeth and tooth fragments. This is indicative of on-site processing and the consumption of entire animals.

The exploitation of cattle as main food provider was noted from a high percentage of elements with butchery marks. Of 79 specimens affected by butchery (10.7% of the assemblage), 54 were of cattle, which were generally processed in a crude way. This figure corresponds to 18.4% of the entire cattle cohort. Butchery actions recorded on cattle elements spanned the entire chaîne opératoire of the butchery process, except for slaughter. Similarly to the Middle Bronze Age material, butchery evidence was quite uniform: the same actions were repeatedly performed on the same elements. Butows were sent in the same direction and equivalent joints were treated in the same way.

Two-thirds of the cattle were culled as adult animals, with the remainder slaughtered as sub-adults or older adults. Although the mandibular tooth-wear data were insufficient for the kill-off profiles to be built, the epiphysial fusion data indicated that 20% of cattle cohort were +16 months–<28 months; 65% were +28 months–<3.5 years and 15% were +3.5 years. The culling of cattle at or near their maximum body size corresponds to the most efficient point of killing for meat. This is best illustrated by the deposit from F.1018, which has been fully detailed earlier in this chapter (see Rajkovača above).

Ovicaprids
The sheep/goat cohort made up just under a third of all identified bone (Table 6.9). The presence of all body parts suggests that sheep were bred, slaughtered and consumed on site. As was the case with cattle, sheep appear to have been slaughtered around their third year, at the stage when the animals reached maturity and full body weight. Epiphysial fusion data available from a small number of elements showed that 12% of sheep died between +16 months–<28 months; 69% at +28 months–<3.5 years and 19% at an age older than 3.5 years.

Although recovered from other context types, oviscaprid elements were particularly common from features making up, or associated with, the roundhouses (Table 6.10). Indeed, the range of species represented in these contexts was even more restricted than that from the four ‘bone dumps’: the only other species being positively identified was cattle, albeit in small numbers. Here the pattern of sheep bone deposition is of note, with younger individuals...
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being especially common in these settings. These show regularity in their spatial distribution, with all the roundhouses assemblages summarized below.

Roundhouse 15
This roundhouse produced the smallest quantity of bone of the three structures. Of the 41 specimens recorded, 33 were assigned to species and 24 were positively identified as sheep/goat (Table 6.11).

Based on their size, element representation and age, the sheep bones from postholes F.12 and F.13 in the centre of the structure are likely to be the remains of the same animal aged 6–12 months at death. Cattle derived from those contexts away from the house core, i.e. gullies F.540, F.541 and pit F.514 ‘touching’ the northeast edge of the structure. Three specimens were affected by butchery, a sheep scapula showing signs of meat removal and two cattle elements with crude chop marks indicative of marrow removal.

Figure 6.24. Distribution of pottery and animal bone in the Bradley Fen Middle Iron Age settlement.
Table 6.9. Number of Identified Specimens and the Minimum Number of Individuals for all species from Middle Iron Age contexts (59 relating to 56 features). The abbreviation n.f.i. denotes that the specimen could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Roundhouses 15, 16 and 17</th>
<th>Bone ‘dumps’ (F.802, F.825, F.1018, F.1064)</th>
<th>Other contexts</th>
<th>Assemblage total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NISP</td>
<td>NISP%</td>
<td>MNI</td>
<td>NISP</td>
</tr>
<tr>
<td>Cow</td>
<td>18</td>
<td>14.3</td>
<td>2</td>
<td>235</td>
</tr>
<tr>
<td>Sheep/goat</td>
<td>107</td>
<td>84.9</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Sheep</td>
<td>1</td>
<td>0.8</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Pig</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>Horse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Red deer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>126</td>
<td>100</td>
<td>-</td>
<td>281</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>18</td>
<td>-</td>
<td>-</td>
<td>71</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>38</td>
<td>-</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>Rodent-sized</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Bird n.f.i.</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fish n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>-</td>
<td>-</td>
<td>371</td>
</tr>
<tr>
<td>Total weight</td>
<td>1373g</td>
<td>26282g</td>
<td>425g</td>
<td>30900g</td>
</tr>
</tbody>
</table>

Table 6.10. Number of Identified Specimens and the Minimum Number of Individuals for all species from the three round houses. The abbreviation n.f.i. denotes that the specimen could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Roundhouse 15</th>
<th>Roundhouse 16</th>
<th>Roundhouse 17</th>
<th>Total NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NISP</td>
<td>NISP%</td>
<td>MNI</td>
<td>NISP</td>
</tr>
<tr>
<td>Ovicaprid</td>
<td>24</td>
<td>72.7</td>
<td>2</td>
<td>49</td>
</tr>
<tr>
<td>Sheep</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cow</td>
<td>9</td>
<td>27.3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>33</td>
<td>100</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bird n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>-</td>
<td>-</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 6.11. Number of Identified Specimens for all species and weight (in grams in parentheses) from features associated with Roundhouse 15. The abbreviation n.f.i. denotes that the specimen could not be further identified.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>F.12</th>
<th>F.13</th>
<th>F.514</th>
<th>F.540</th>
<th>F.541</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep/goat</td>
<td>10</td>
<td>12</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>Cow</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>10</td>
<td>12</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Bird n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>14(9)</td>
<td>12(87)</td>
<td>3(120)</td>
<td>3(14)</td>
<td>9(286)</td>
<td>41(516)</td>
</tr>
</tbody>
</table>


**Roundhouse 16**

Repeating the pattern observed in Roundhouse 15, three features in the central and southwest part of the house interior (F.789, F.1094 and F.1096) were packed full of sheep bones: 54 specimens representing the minimum of three animals (Table 6.12).

**Roundhouse 17**

Sheep or sheep-sized elements constituted more than 90% of the house’s assemblage (Table 6.13). Echoing the same pattern of spatial distribution noted from the two other structures, juvenile sheep elements were recovered from almost all features, but the largest quantity again came from the central or southwest part of the house interior. It is estimated, based on the element representation and age, that no fewer than four animals were deposited, aged as immature, juvenile and sub-adult. Only one sheep mandible was recovered, but the teeth were not preserved. Several loose deciduous fourth premolars were found, supporting the presence of juvenile individuals and confirming that they did not survive past their first or second year.

Only four bones were noted with butchery marks. The practice of splitting the carcass into left and right portions was evidenced by the presence of sheep vertebra centrum in posthole F.986 that had been split down the sagittal plane (Fig. 6.25). This butchery signature had already been recorded on the same body elements from Early Iron Age contexts in Roundhouse 14 at King’s Dyke and pit F.945 at Bradley Fen (see Chapter 5). Skinning was also recorded, with a series of 12 fine and shallow cut marks noted on a sheep calcaneum.

**Other species**

Other species from the settlement accounted for just 7% of the assemblage, with pig and horse being rather under-represented.

The pig cohort comprised as little as 5.6% of the identified species count, being recovered from pit contexts scattered along the linear swathe of the settlement. On-site slaughter and consumption is suggested, based on the body part distribution showing an equal representation of both non-meat and meat bearing joints. Remains of horse were equally scarce at 1.2%, since the average for Iron Age site is generally though to rest around the 10% mark (Cunliffe 2005, 417). This species was represented by six specimens, all of which concentrated around the northern half of the settlement. The presence of red deer was also identified based on a fragment of tibia found in the large ‘bone dump’ in F.1018.

**Discussion**

The character of the faunal record suggests that the community at Bradley Fen were heavily reliant on the management of cattle (primarily), sheep and domestic pigs, with very little involvement in the procurement of wild animal resources, whether of terrestrial (deer) or marshland origin (birds, fish). Although the fen-edge shift of settlement in the Middle Iron Age heralded wider changes in the organization of the agrarian landscape, this transformation appears to have had relatively little impact on the nature of the faunal record at Bradley Fen, both in terms of species representation and context of deposition. As in the Early Iron Age, remains of sheep/goat were focused on the

---

**Table 6.12. Number of Identified Specimens for all species and weight (in grams in parentheses) from features associated with Roundhouse 16. The abbreviation n.f.i. denotes that the specimen could not be further identified.**

<table>
<thead>
<tr>
<th>Taxon</th>
<th>F.751</th>
<th>F.759</th>
<th>F.789</th>
<th>F.1094</th>
<th>F.1096</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep/goat</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>28</td>
<td>12</td>
<td>49</td>
</tr>
<tr>
<td>Cow</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>28</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bird n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1(3)</td>
<td>5(7)</td>
<td>12(52)</td>
<td>29(198)</td>
<td>13(235)</td>
<td>60(495)</td>
</tr>
</tbody>
</table>

**Table 6.13. Number of Identified Specimens for all species and weight (in grams in parentheses) from features associated with Roundhouse 17. The abbreviation n.f.i. denotes that the specimen could not be further identified.**

<table>
<thead>
<tr>
<th>Taxon</th>
<th>F.984</th>
<th>F.986</th>
<th>F.988</th>
<th>F.990</th>
<th>F.992</th>
<th>F.993</th>
<th>F.996</th>
<th>F.997</th>
<th>F.1004</th>
<th>F.1019</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep/goat</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>28</td>
<td>60</td>
</tr>
<tr>
<td>Sheep</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Cow</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Sub-total to species</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>29</td>
<td>64</td>
</tr>
<tr>
<td>Cattle-sized</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sheep-sized</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Mammal n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Bird n.f.i.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5(20)</td>
<td>8(33)</td>
<td>7(25)</td>
<td>8(32)</td>
<td>7(22)</td>
<td>6(36)</td>
<td>3(4)</td>
<td>12(13)</td>
<td>1(5)</td>
<td>40(135)</td>
<td>97(325)</td>
</tr>
</tbody>
</table>
roundhouses and their adjacent pits on the dry terrace, whilst deposits of cattle bone were predominately associated with wells and waterholes on the lower damp-ground contours (Fig. 6.26). There remained an intimate connection between species, contour and context, with the only difference being that the feature-sets with these varying faunal signatures now belonged to the same settlement site in the Middle Iron Age, as opposed to being spatially removed from one another (as in the Early Iron Age).

Similar intra-site patterns have been noted across other Iron Age sites, both regionally and nationally, with bones of larger species (i.e. cattle) tending to be more common in ‘peripheral’ settlement locations (e.g. Wilson 1996; Davis 2003, 131; Higbee & Clarke 2007, 65).

The large cattle-dominated ‘bone dumps’ from the Middle Iron Age settlement also have parallels in earlier phases of occupation at the site. In terms of their content, condition and context – including feature-type (waterholes) and proximity to the wet-edge – these bone dumps are remarkably similar to those documented in the Middle Bronze Age and Late Bronze/Early Iron Age (see Chapters 4 and 5).

However, the scale of these deposits reached its zenith in the Middle Iron Age, highlighting the importance of cattle and the proficiency of livestock management by communities who tended the low-lying terraces of the basin. The scale of consumption is best illustrated by the bone in F.1018, which yielded the butchered remains of no fewer than nine cows. These were culled around their maximum body weight, with the pattern of carcass reduction suggesting thorough use of animal body parts, with a high numbers of bone shafts being chopped mid shaft for marrow extraction. The beef yields from this processing would have been enormous and the event almost certainly involved the wider community and/or cattle drawn from a number of different herds.

More generally, the overall composition of the faunal assemblage at Bradley Fen shows that cattle were the mainstay of the livestock economy. Given the availability of rich pastures in this lowland zone, this is perhaps not that surprising. However, a comparison of the relative frequency of the three main ‘food species’ across other sites in fen-edge settings, demonstrates that these trends are not always constant (Table 6.8). Despite the similarities in environmental conditions,
The arrival of fen-edge settlement

certain sites are dominated by cattle, while others have a prevalent sheep cohort.

More consistent is the paucity of marshland fauna or other wild animals in many of these assemblages. Though a number of the sites listed in Table 6.8 have remains of red and/or roe deer, fox, otter, mallard and greylag goose, as well as fish remains, these tend to constitute a small fraction of the faunal record. Sites like Haddenham V are very unusual, characterized by a strikingly high percentage of bird and beaver remains (Serjeantson 2006a). Bradley Fen, on the other hand, lies at the opposite extreme, displaying a negligible wild component, suggesting the community made very little use of the available wetland resources. This is perhaps closer to the ‘norm’ for the period and, as evidenced by numerous national and regional reviews (Maltby 1996; Hambleton 1999; Albarella & Pirnie 2008; Hambleton 2009), Iron Age sites in general do not tend to have a significant wild component, whether by the fen-edge or not.

The carbonized plant remains (Anne de Vareilles)

Seven samples were selected for investigation from the Middle Iron Age settlement from Bradley Fen: the entrance posthole of Roundhouse 15, F.9; the entrance postholes of Roundhouse 16 F.755 and F.756 and its associated gully, F.759; the slag pit F.597; the furnace F.611 and posthole F.613 from Four-post Structure 10 (Table 6.14). Due to the low number of samples and their small spatial coverage, interpretations must remain speculative.

Cereals, processing waste and arable weed flora

The presence of hulled barley (Hordeum vulgare sensu lato, of both the two-row and six-row varieties), spelt and emmer in the assemblage demonstrate continuity in the choice of cereals with the Early Iron Age. The chaff-rich sample from F.597 contained very little grain and few weed seeds, most of which were grain-sized. This botanical composition suggests that the grain had been stored as clean spikelets (Hillman 1981, 1984). Threshing, winnowing and coarse sieving to separate the sheaves from the straw and other impurities would have consumed less time and energy when done as a group activity during the harvesting season. The grain would then have been stored hulled (which increased its durability) and its lighter chaff only removed as grain was prepared for consumption. Given the important economic and social role of domestic herds at this time (see Rajkovača above), it is likely that the straw was an essential by-product and presumably stored in similar fashion to the grain, i.e. in raised structures.

The arable weed flora changes slightly from the Early Iron Age, with species such as cleavers and vetches and/or wild peas no longer visible in the record. The cultivated soils were damp (but not wet) and, unlike in the late second and earlier first millennium BC, do not appear to have been lacking in nutrients. Evidence for the use of wild plant foods and scrubland or woodland species, such as hawthorn and holly, disappear altogether. This absence of wild plant foods may reflect a growing dependency upon farmed goods.

Remains in context

As only a few features from Roundhouses 15 and 16 were sampled, it was not possible to conduct a spatial analysis of charred plants remains from around these buildings. It is nevertheless interesting to note that all three entrance postholes sampled contained...
Table 6.14. Middle Iron Age charred soil samples. ‘-’ 1 or 2; ‘+’ <10; ‘++’ 10–50; ‘+++’ >50 items. P = present. 100% of each flot fraction was examined.

<table>
<thead>
<tr>
<th>Context</th>
<th>16</th>
<th>755</th>
<th>756</th>
<th>758</th>
<th>568</th>
<th>573</th>
<th>571</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
<td>9</td>
<td>755</td>
<td>756</td>
<td>759</td>
<td>597</td>
<td>613</td>
<td>611</td>
</tr>
<tr>
<td>Feature type</td>
<td>Ph</td>
<td>Ph</td>
<td>Ph</td>
<td>Gully</td>
<td>Pit</td>
<td>Ph</td>
<td>Furnace</td>
</tr>
<tr>
<td>Structure</td>
<td>RH 15</td>
<td>RH16</td>
<td>FP10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample volume (litres)</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>7</td>
<td>12</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td><strong>Cereal grains &amp; chaff</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hordeum vulgare sensu lato</td>
<td>Hulled barley grain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triticum spelta/dicoccum</td>
<td>Spelt or emmer wheat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triticum / Hordeum</td>
<td>Wheat or barley</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. vulgare sl. Internode</td>
<td>2-row barley internode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. vulgare sl. Internode</td>
<td>6-row barley internode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triticum spelta glume base</td>
<td>Spelt chaff</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T. spelta spikelet fork</td>
<td>Spelt chaff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T. dicoccum glume base</td>
<td>Emmer chaff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T.spelta/dicoccum glume base</td>
<td>Spelt or emmer chaff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T. spelta/dicoccum spikelet fork</td>
<td>Spelt chaff</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Triticum sp. glume base</td>
<td>Glume wheat chaff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triticum sp. rachis internode</td>
<td>Glume wheat chaff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non cereal seeds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thalictrum flavum L.</td>
<td>Common Meadow-rue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium sp.</td>
<td>Goosefoots</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
</tr>
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<td>Chenopodium / Atriplex</td>
<td>Goosefoot / Orache</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Montia fontana ssp. minor Hayw.</td>
<td>Blinks</td>
<td></td>
<td></td>
<td></td>
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<td>Stellaria media (L.) Vill</td>
<td>Common Chickweed</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Caryophyllaceae indet.</td>
<td>Pink family seeds</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Polygonum aviculare L.</td>
<td>Knotgrass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassica / Sinapis sp.</td>
<td>Cabbages / mustards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trifolium sp.</td>
<td>Clovers</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Medicago / Trifolium sp.</td>
<td>Medics or clover</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Epilobium hirsutum L.</td>
<td>Great willowherb</td>
<td>1</td>
<td></td>
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<tr>
<td>small Veronica sp.</td>
<td>Field-speedwell</td>
<td>1</td>
<td></td>
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<tr>
<td>Plantago lanceolata L.</td>
<td>Ribwort plantain</td>
<td>5</td>
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</tr>
<tr>
<td>Crepis sp.</td>
<td>Hawk’s beard</td>
<td>2</td>
<td></td>
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<td>Eleocharis sp.</td>
<td>Spike rushes</td>
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<tr>
<td>large lenticular Carex sp.</td>
<td>Large flat sedge seed</td>
<td>1</td>
<td></td>
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<td>medium trigonous Carex sp.</td>
<td>Trilete sedge seed</td>
<td>4</td>
<td></td>
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</tr>
<tr>
<td>large Poaceae indet.</td>
<td>Large wild grass seed</td>
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<tr>
<td>medium Poaceae indet.</td>
<td>Medium wild grass seed</td>
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<tr>
<td>cf. Arrhenatherum elatius Var. bulbosum (Wild.) St Amans</td>
<td>False oat-grass root bulb</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Poaceae culm node</td>
<td>Grass straw node</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Indet. Poaceae culm internode</td>
<td>Thin grass stem frags.</td>
<td>+++</td>
<td></td>
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</tr>
<tr>
<td>Indet. Poaceae root node</td>
<td>Grass stem base</td>
<td>++</td>
<td></td>
<td></td>
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<tr>
<td>Indet. Poaceae awn</td>
<td>Grass awn</td>
<td></td>
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<tr>
<td>Indeterminate wild plant seeds</td>
<td></td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The arrival of fen-edge settlement

The arrival of fen-edge settlement

some cereal processing waste but few other ecofacts. These findings are consistent with the pattern observed in Roundhouse 14 at King’s Dyke and one might therefore expect to find fewer remains in the other structural features of the Middle Iron Age houses. The southern entrance posthole of Roundhouse 16, F.755, was slightly richer than its northern counterpart, F.756. The gully F.759 was relatively rich in plant remains too, but the wild seeds it contained do not appear to be associated with cereal crops. Instead, the wild seeds, grass stems and roots originate from lightly grazed, fairly wet grassland, growing on a sandy/gravelly soil. The delicate preservation of their fine botanical structures suggests the remains might be *in situ* and may represent the dwelling’s surroundings. There are three ways by which the monocot roots could have been charred: 1) the plants were uprooted and burnt; 2) the ground was broken up to reveal topsoil roots before a fire was lit; or 3) turf was purposefully dug up and burnt, perhaps to quench a fire or create a controlled smoky combustion rather than intense flames.

Evident crop storage pits were not found in any of the phases of this site. There are, however, four-post structures which are likely to have been granaries. The prehistoric use of above-ground granaries has been extensively explored by Gent (1983). Sufficient here is to mention that these structures are not uncommon on prehistoric Fenland sites and would have offered a sensible alternative to storing grain underground in areas where the water-table could reach ground level. One posthole from Four-post Structure 10 was sampled, F.613. It contained one grain, two elements of glume wheat chaff and a little charcoal. Whilst these remains do not provide us with any information other than that spelt wheat was used in the Middle Iron Age, hoards of burnt crops would not be expected unless the granary and its contents had been destroyed by fire.

The richest charred botanical assemblage from across the whole site was found in the slag pit F.597. With its 111 elements of cereal chaff, 66.7% of which were definitely spelt with a further 30.6% of likely spelt, the assemblage clearly represents cereal processing waste. Unlike in the earlier periods where crop waste does not appear to have been burnt and/or buried, the development in metalworking seen across the site seems to have made use of such waste as kindling. The absence of any plant remains other than charcoal in the furnace F.611 could indicate that cereal processing waste was delegated to specific industrial activities.

*Saddle querns and rubbing stones*

Just as the remains of cereals and cereal processing waste were closely associated with the roundhouses at Bradley Fen, so too were the utensils used to convert them into flour for consumption. In total, fragments of two incomplete saddle querns and a large rubbing stone were recovered from the settlement swathe (Fig. 6.27). The first of these derived from clay-lined pit F.751 in Roundhouse 16 (Fig. 6.28). The quern fragment was burnt and had shattered into five pieces, two of which could be refitted. It displayed a pecked, but well-worn, concave grinding surface, tapered edges and a roughly hewn but broadly flat underside. It was accompanied by a large rubbing stone, with a pronounced convex surface which sat neatly on top of the reassembled fragments of quern. As with the

<table>
<thead>
<tr>
<th>Context</th>
<th>16</th>
<th>755</th>
<th>756</th>
<th>758</th>
<th>568</th>
<th>573</th>
<th>571</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
<td>9</td>
<td>755</td>
<td>756</td>
<td>759</td>
<td>597</td>
<td>613</td>
<td>611</td>
</tr>
<tr>
<td>Feature type</td>
<td>Rh</td>
<td>Ph</td>
<td>Ph</td>
<td>Gully</td>
<td>Pit</td>
<td>Ph</td>
<td>Furnace</td>
</tr>
<tr>
<td>Structure</td>
<td>RH 15</td>
<td>RH16</td>
<td>PP</td>
<td>PP</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Other residues</td>
<td>Very large charcoal (&gt;10mm)</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td></td>
<td>Large charcoal (&gt;4mm)</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Med. charcoal (2–4mm)</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>Small charcoal (&lt;2mm)</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td></td>
<td>twig charcoal - all &lt;3mm diameter</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Vitrified charcoal</td>
<td>-</td>
<td>+</td>
<td>++</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Bone fragments</td>
<td>-</td>
<td>+</td>
<td>++</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Burnt clay</td>
<td>-</td>
<td>+</td>
<td>++</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Slag</td>
<td>-</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Burnt stone</td>
<td>-</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Modern contamination (roots, seeds etc.)</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>
Early Iron Age examples from King’s Dyke, these appear to have been deposited with some formality. Here, the pieces had been packed into the pit with other fragments of burnt stone and a broken triangular loomweight.

The second quern fragment was also recovered from a clay-lined pit (F.762), located just 12.2m north of Roundhouse 16 (Fig. 6.28). This comprised two refitting parts of a burnt, incomplete quern deposited alongside other fire-cracked stones (0.8kg) and three sherds of Middle Iron Age pottery. The surviving fragments displayed a slightly concave, worn grinding surface and a rough unfinished underside. This was made from a fine-grained metamorphic rock, probably derived from the Charnwood Forest district of Leicestershire. Interestingly, this region was highlighted as a potential source of worked stone in the Early Iron Age, as was the area around Ely, where the greensand quern and

Figure 6.27. Two incomplete saddle querns and a large rubbing stone, bone point and copper alloy ring.
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rubbing stone from pit F.751 may have originated. These connections may be instructive and could imply that there was continuity in the networks through which worked stone was obtained in the first millennium BC.

Saddle quern catalogue

Saddle quern 1 (Fig. 6.27): F.751 [751a], 1908g (total weight), five burnt and broken fragments of saddle quern made of a micaceous gritty sandstone.

1. Two adjoining fragments (total weight 1168g), dimensions: 200mm × 95mm × 25–50mm. Evenly ground but distinctly concave quern surface and a flat base.
2. Three non-adjointing fragments (total weight 740g), dimensions: 60mm × 70mm × 25mm; 90mm × 50mm × 30mm; 80mm × 70mm × 40mm. Burnt and heat-cracked.

Lithological description: Greensand (Lower Cretaceous). Variable fine light green (glauconitic) and micaceous calcareous sandstone. Closest outcrop 40km to southeast at Ely.

Saddle quern 2 (Fig. 6.27): F.762 [765], 990g (total weight), two adjoining fragments of saddle quern, dimensions: 200mm × 90mm × 20–50mm (total). Possibly an andesitic tuff. Heat-cracked, burnt and broken. The worked surface is flat to slightly concave in profile, with evidence for a considerable degree of surface wear and polish. There are faint traces of lineation indicating the rubbing direction. The keel or underside of the quern is convex and uneven, but relatively smooth.

Lithological description: Dark-grey/green banded metamorphic rock with black inclusions. Possibly from the Mountsorrell Igneous Complex or the older pre-Cambrian rocks of the Charnwood Forest district of Leicestershire (75km). Metamorphic (altered) rocks occur at the contact of the Mountsorrell Granite and the older intrusives from this region, including spotted hornfels (Fox-Strangeways 1903).

Rubbing stone 1 (Fig. 6.27): F.751 [751a], 3408g (total weight) dimensions: 250mm × 195mm × 30–60mm. A particularly large rubbing stone made of orthoquartzitic sandstone. This has a pronounced convex profile and is ground with areas of finer polish over its surface.

Lithological description: Greensand (Lower Cretaceous). Variable fine light green (glauconitic) and micaceous calcareous sandstone. Closest outcrop 40km to southeast at Ely.

The pottery

The fourth century BC saw the emergence of a new tradition of making and decorating pots in the Flag Fen Basin. The visual, tactile and functional distinctions which had marked different categories of jar, bowl and cup since the beginning of the Late Bronze Age began to break down. In their place, a more restricted range of slack-shouldered jar forms came to dominate the pottery service, with bowls and cups largely disappearing from the Middle Iron Age ceramic record.

These transformations underlie, and inform upon, changing attitudes to the way that foodstuffs were cooked, presented and shared on Middle Iron Age settlements such as Bradley Fen. Though this assemblage is relatively small (588 sherds weighing 5627g), the changes we can track in pottery from the Early Iron Age offer a sense of how culinary practices were transformed. Furthermore, the analysis of this
material provides the opportunity to examine changes in the way pots and pot fragments were treated in deposition.

**Fabrics, forms and functions**

Pottery was recovered from across the settlement, with dense concentrations occurring in and around Roundhouse 16 and 17 (Fig. 6.24). In total seven fabric types were distinguished in the assemblage, belonging to four major fabric groups (Table 6.15). Shell rich-fabrics dominated (92% by weight) and, while the inclusions had leached from many of the sherd surfaces, it is believed that most pots were produced using locally available fossiliferous Jurassic clays. Similar fabrics were observed in the Early Iron Age assemblage, though the overall frequency of shelly wares was considerably higher in the Middle Iron Age, with a clear emphasis on the coarse end of the inclusion size spectrum (Fig. 6.29). Moreover, the range of fabric types/recipes employed in this period was more restricted (7 types compared to 19), perhaps suggesting the development of more formalized manufacturing procedures. Alternatively, this reduction in fabric variability could indicate a lessening of inter-community networks of ceramic exchange, reflecting a greater emphasis on the household-level ceramic production and consumption.

Further insight into these mechanisms is hindered by the small size of the assemblage and a lack of petrological analyses on pot fabrics from Bradley Fen and most other sites across the Flag Fen Basin – an area of research which has been greatly neglected. There is nonetheless the sense that a more conservative potting tradition emerged after the mid fourth century BC. Whereas a myriad of vessel forms were constructed in the earlier first millennium BC, potting conventions in the Middle Iron Age were structured around the production of a relatively narrow range of slack and round-shouldered jars with short upright or out-turned necks. These were accompanied by the occasional globular bowl, neckless tub and jar with stepped-shoulders and constricted mouths. Whilst in this context only 12 vessels were sufficiently intact to assign to form (including 37 sherds, 927g), their shapes are entirely in keeping with the new, restricted repertoire of the Middle Iron Age (Table 6.16).

In the Middle Iron Age, vessel shape seems disconnected from any obvious functional category, suggesting that vessel size/capacity was now the principal means by which functional distinctions were made and measured (Brudenell 2007, 264). Given the size of the Bradley Fen assemblage, it is only possible to make some general observations about vessel sizes, using measurable rim diameters as an index to vessel capacity. Of the 11 measurable rims present, 7 belonged to 'small pots' with mouth diameters of <15cm (Fig. 6.30). Of the remaining four, three are considered 'medium-sized pots' with diameters of 18–24cm and one is classified as a 'large pot', with a rim diameter of 32cm.

The predominance of small vessels is fairly typical of Middle Iron Age assemblages from the region, with peaks in rim diameter frequency commonly centring upon 12–14cm (Hill with Horne

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**Table 6.15. Middle Iron Age fabric groups.**

<table>
<thead>
<tr>
<th>Fabric</th>
<th>Fabric group</th>
<th>No./wt (g) sherd</th>
<th>% fabric (by wt)</th>
<th>No./wt (g) burned</th>
<th>% fabric burned (by wt)</th>
<th>No./wt (g) scored</th>
<th>MNV (burnished: scored)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Grog</td>
<td>17/200</td>
<td>3.6</td>
<td>-</td>
<td>-</td>
<td>2/20</td>
<td>3 (-:-)</td>
</tr>
<tr>
<td>Q2</td>
<td>Sand</td>
<td>36/112</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>1/5</td>
<td>1 (-:-)</td>
</tr>
<tr>
<td>S1</td>
<td>Shell</td>
<td>266/3310</td>
<td>58.8</td>
<td>-</td>
<td>-</td>
<td>56/1173</td>
<td>23 (-:3)</td>
</tr>
<tr>
<td>S2</td>
<td>Shell</td>
<td>163/1287</td>
<td>22.9</td>
<td>18/314</td>
<td>24.4</td>
<td>23/215</td>
<td>12 (1:1)</td>
</tr>
<tr>
<td>S3</td>
<td>Shell</td>
<td>87/582</td>
<td>10.3</td>
<td>39/205</td>
<td>35.2</td>
<td>5/99</td>
<td>3 (-:-)</td>
</tr>
<tr>
<td>SQ1</td>
<td>Shell &amp; sand</td>
<td>13/121</td>
<td>2.2</td>
<td>2/12</td>
<td>9.9</td>
<td>-</td>
<td>1 (-:-)</td>
</tr>
<tr>
<td>SQ2</td>
<td>Shell &amp; sand</td>
<td>5/15</td>
<td>0.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>- (-:-)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>588/5627</td>
<td>100.1</td>
<td>59/531</td>
<td>9.4</td>
<td>87/1512</td>
<td>43 (1:4)</td>
</tr>
</tbody>
</table>

---

**Figure 6.29. Early Iron Age and Middle Iron Age pottery fabric composition.**

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2003, 148, fig. 73; Hill & Braddock 2006, 171, fig. 5.72). These small capacity vessels, holding around 1–2 litres of foodstuffs, seem to have been general purpose cooking and serving pots – four of the seven vessels in this category retaining traces of sooting on the exterior or carbonized food crusts on the interior. In light of their size, they could only have held food for one or two people, perhaps suggesting that most meals were prepared and consumed with only a few participants at each sitting. We may envisage, then, a rather different dining aesthetic to that which occurred in the Late Bronze Age and Early Iron Age. Not only was the Middle Iron Age meal structured by a different service of ceramic utensils, but potentially, patterns of participation and dining etiquette may have been markedly different.

Decoration and date
One of the defining characteristics of Middle Iron Age pottery from Bradley Fen is the occurrence of scoring on the shoulder and body of vessels. This is a decorative practice which lends the name ‘Scored Ware’ to the region’s later Iron Age ceramic tradition (Elsdon 1992). Random scoring was identified on a total of 87 sherds (1512g) in the assemblage. It was almost exclusively applied to the shelly wares (particularly coarse fabric S1), with only one sandy sherd (5g) and two grog-tempered sherds (20g) displaying the treatment. This decorative tradition, whose heartland lies in the Nene, Welland and middle Trent Valleys, had a long currency, potentially spanning the fourth century BC to the mid first century AD. However, patterns emerging from sites around the lower Ouse, on the southern fringes of the Scored Ware ‘style-zone’, suggest that there are some chronological trends in the frequency of scoring, with ‘low’ sherd count percentages under the c. 20% mark characterizing both ‘early’ and ‘late’ manifestations of the tradition (Brudenell 2013; Webley 2013). The Bradley Fen assemblage falls within such a low bracket, with only 14.8% of sherds scored (26.9% by weight). Typologically, the assemblage probably belongs to the earlier end of the Middle/later Iron Age, as there are several vestigial Early Iron Age traits on

<table>
<thead>
<tr>
<th>Form</th>
<th>Description</th>
<th>No./wt (g)</th>
<th>No. vessel</th>
<th>No. burnished</th>
<th>No. scored</th>
<th>Rim diam. (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Slack shouldered jars with upright necks</td>
<td>15/287</td>
<td>5</td>
<td>-</td>
<td>2</td>
<td>10–24</td>
</tr>
<tr>
<td>D</td>
<td>Slack shouldered jars out-turned necks</td>
<td>3/47</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>E</td>
<td>High round shouldered jars with short upright necks</td>
<td>14/451</td>
<td>4</td>
<td>-</td>
<td>1</td>
<td>13-18</td>
</tr>
<tr>
<td>B</td>
<td>Jars with stepped shoulders and upright/out turned necks</td>
<td>2/23</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>J/H</td>
<td>Jars with marked/angular shoulders and slightly out-turned necks</td>
<td>3/119</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>37/927</td>
<td>12</td>
<td>-</td>
<td>3</td>
<td>10–24</td>
</tr>
</tbody>
</table>

Figure 6.30. Middle Iron Age pottery rim diameters.
favoured, perhaps centring on typologically, a date closer to the beginning of this timeframe is to place the assemblage somewhere between 390–180 cal bc (Beta-262621: 2220±40 bp). Combined, these serve to anchor by two AMS radiocarbon determinations deriving from a charred seed from pit F.597 and carbonized residue on the exterior on a Scored Ware vessel from pit F.1011 (Fig. 6.31 no. 13). The seed from F.597, a pit which yielded 25 plain (un-scored) sherd of pottery (244g), generated a date of 360–90 cal bc (Beta-262622: 2160±40 ar). This was associated with a large dump of slag deriving from furnace F.611, which has a comparable archaeomagnetic date of 310–80 bc (see Noel above). The suggestion of an earlier Middle Iron Age attribution for the pottery is better supported by the date from the Scored Ware vessel in F.1011 (associated 8 sherds, 314g), calibrated to 390–180 cal bc (Beta-262621: 2220±40 ar). Combined, these serve to place the assemblage somewhere between 390–90 bc, although typologically, a date closer to the beginning of this timeframe is favoured, perhaps centreing on c. 350–200 bc.

Discussion – dining and deposition
In very broad terms, the scale and character of the Middle Iron Age assemblage at Bradley Fen reflects a fairly typical domestic ceramic repertoire of this period. Overall, the range of vessels is restricted, with the service focused on small-capacity containers which probably fulfilled a variety of culinary roles. Though it is difficult to make too many generalizations, we are most likely looking at the remains of pottery repertoires geared towards the cooking and serving of meals within small groups, presumably based around the family/household. In some respects, this picture is not that different to the preceding period. However, in the Middle Iron Age we lose sight of the way in which some pots were involved in episodes of formal dining. Whereas in the Early Iron Age it was possible to distinguish distinctive types or services of vessels used in these settings (finewares, profusely decorated coarseware and large to very large-sized jars (see Chapter 5)), in the Middle Iron Age these fade from view. This may be because the residues of such activities were no longer singled out for formal deposition. In other worlds, certain pots may still have been reserved for feasts or other special occasions, but since they were rarely treated in a distinctive manner in depositional acts, they are hard for us to pinpoint (the exception perhaps being the burnished jar in pit F.1094 (Fig. 6.31 no. 16), which was found alongside a sheep bone deposit).

On the other hand, there is no impression that Middle Iron Age pots were made with a view to fulfilling such specialized roles in formal dining. Though a case could be made that the decorated late Tene-style globular bowls of this period played such a part, these are a later development of the second and first centuries bc and are absent from the Bradley Fen assemblage. Overall, there is little sense of distinctiveness in this ceramic repertoire, suggesting pots were no longer used as vehicles for marking different kinds of consumption event. In many respects they were much more utilitarian.

This change in their social significance is perhaps also reflected in the context and condition we find their fragments at Bradley Fen. Unlike for the Early Iron Age, there were very few pottery deposits dominated by large refitting sherds derived from just one or two pots (the exceptions being deposits in pits F.1094 and F.1011). Instead, the vast majority of feature assemblages were characterized by mixed groups of sherds from multiple different vessels in varying states of fragmentation. In fact, there is little to differentiate these pottery deposits, other than by the quantities of material interred (Table 6.18). In nearly all instances, pottery was just one element of a matrix of refuse materials – the constituent parts originating from a range of different and possibly unconnected practices (see Brudenell & Cooper 2008). These speak of middening patterns and give a general sense of the physical conditions of the land surface in the settlement. In this context, there are few signs that individual pot fragments were afforded any sort of ‘special’ treatment in depositional acts. This is in contrast to some of periodic

<table>
<thead>
<tr>
<th>Decorations</th>
<th>Vessel zone</th>
<th>No. vessels</th>
<th>No./wt (g) sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fingertip impressions</td>
<td>Rim-top</td>
<td>10</td>
<td>20/466</td>
</tr>
<tr>
<td>Fingernail impressions</td>
<td>Rim-top</td>
<td>1</td>
<td>1/6</td>
</tr>
<tr>
<td>Tool impressions</td>
<td>Rim-top</td>
<td>1</td>
<td>1/8</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>13</td>
<td>23/498</td>
</tr>
</tbody>
</table>

Table 6.17. Middle Iron Age rim-top decoration.

<table>
<thead>
<tr>
<th>Deposit size</th>
<th>Weight range</th>
<th>Number of features</th>
<th>% of features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>0–100g</td>
<td>49</td>
<td>72</td>
</tr>
<tr>
<td>Medium</td>
<td>101–250g</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>251–500g</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Large</td>
<td>501–1000g</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1000g+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 6.18. Middle Iron Age pottery – quantities of material interred.
practices in the Early Iron Age, again suggesting that a rather different set of values were attached to ceramic remains in this period.

Material traditions and technologies

While less visually spectacular than some of the standout finds from the excavation, the discovery of a Middle Iron Age forge at Bradley Fen must be listed as one of the most significant, and certainly one of the rarest, in this region. Ferrous slag and cinder are fairly commonplace on Middle Iron Age settlements, implying that some aspects of metalworking, such as smithing, were widespread and organized at fairly a local level. However, metalworking debris in the quantities recovered from Bradley Fen is far more unusual for this period. Whilst is it is hard to argue that production was still anything but small-scale in nature, by the standards of other contemporary sites in Cambridgeshire, the residues of this in situ metalworking are far more abundant and varied (Table 6.19). In fact, more than in quantity, it is the range of metallurgical practices evidenced at Bradley Fen, and the fact that we can identify a dedicated workshop area within the settlement, that makes this site particularly significant.

As detailed by Timberlake, Doonan & Hommel below, the slags, furnace conglomerates, hearth bottom fragments and clay refractories indicate that iron smelting, smithing and copper alloy casting were all undertaken. The evidence for smelting is the most surprising, as this was a more specialized process, implying that some aspects of metalworking, such as smithing, were widespread and organized at fairly a local level. However, metalworking debris in the quantities recovered from Bradley Fen is far more unusual for this period. Whilst is it is hard to argue that production was still anything but small-scale in nature, by the standards of other contemporary sites in Cambridgeshire, the residues of this in situ metalworking are far more abundant and varied (Table 6.19). In fact, more than in quantity, it is the range of metallurgical practices evidenced at Bradley Fen, and the fact that we can identify a dedicated workshop area within the settlement, that makes this site particularly significant.

As detailed by Timberlake, Doonan & Hommel below, the slags, furnace conglomerates, hearth bottom fragments and clay refractories indicate that iron smelting, smithing and copper alloy casting were all undertaken. The evidence for smelting is the most surprising, as this was a more specialized process, with hints that Jurassic ironstone was used as an ore, probably obtained from deposits immediately west of Peterborough on the Jurassic Ridge. Based on the character of the debris, Timberlake, Doonan & Hommel argue that the technology employed was bloomery smelting, with each smelt from a bowl-furnace like F.611 potentially producing 1–2kg of iron. The total quantity of slag and furnace conglomerate suggests this smelting was small-scale and unlikely to constitute a full-time activity. That being said, the fact that the furnace lining was replenished on occasions indicates that this was not a one-off event, but an episodic activity at Bradley Fen, occurring frequently enough to justify maintaining the furnace and a discrete metalworking area within the settlement.

Evidence for smithing was found in the form of slag, a hearth bottom and hammerscale. The latter, reported on by Timberlake, was largely indicative of secondary smithing activities, with the types of scale characteristic of blacksmithing work carried out on an iron billet (forging and welding) and/or the re-working of iron objects on an anvil. In terms of distribution, there is a broad correlation between Iron Age features yielding magnetized material interpreted as hammerscale and features with slag and other ‘macro’ metalworking debris (Fig. 6.32). The distribution of the latter was primarily centred upon the area of four-post structures, suggesting smithing was mainly conducted to the north of the furnace F.611. Interestingly, this area was home to two ash-rich rake-out pits F.609 and F.610, both of which yielded hammerscale and were likely associated with nearby smithing hearths. The second smaller cluster of hammerscale was found to the south around furnace F.611 itself, indicating that some smithing activities was also conducted alongside smelting in this workshop area.

Given the extent of hammerscale sampling, it is probably unwise to try and tie down the zoning of metalworking activities too closely. Indeed, the interpretation of this evidence is not without its challenges. For instance, it needs be noted that magnetized material was also recovered from some Bronze Age contexts on the site. This can simply arise from burning in domestic hearths (Timberlake pers. comm.), or could potentially relate to Iron Age hammerscale introduced by later bioturbation. Taphonomic factors therefore skew the distribution patterns, and so the results presented here have been filtered to remove material from non-Iron Age features and those yielding low frequencies of diagnostic scale in the analysed fractions (samples <10%). Nonetheless, the weight of the evidence points to both smelting and smithing occurring in central area of the site, around and adjacent to furnace F.611.

The same might also be argued for copper alloy casting, based on the distribution of the crucibles (Fig. 6.32). These were recovered from features to the

<table>
<thead>
<tr>
<th>Class</th>
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<tr>
<td>Unprocessed or</td>
<td>Bog iron and ?ironstone</td>
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<td>partly roasted ore</td>
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<td>Fired refractory</td>
<td>Fired/partially fired clay material with no attached slag</td>
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<td>Heterogeneous mass of slag with fuel and ore inclusions</td>
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<td>conglomerate</td>
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<td>Porous slag nodule</td>
<td>Low density porous slag nodule</td>
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<tr>
<td>Dense slag nodule</td>
<td>Dense slag nodule with low porosity</td>
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<tr>
<td>Slag runs</td>
<td>Discrete irregular slag forms which retain flow texture</td>
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<tr>
<td>Smithing hearth</td>
<td>Fragments of plano-convex slags associated with iron smithing</td>
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<tr>
<td>bottom fragments</td>
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<tr>
<td>Hammerscale</td>
<td>Platy iron/iron oxide scale &lt;10mm &amp; globular spheroidal scale consisting of iron oxide and iron silicates.</td>
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</table>
The arrival of fen-edge settlement

west of furnace F.611, between Roundhouse 16 and the intercutting pit cluster. Analysis of their internal residues points to the casting of tin bronze, though traces of lead and arsenic were also identified. The crucibles themselves were of pyramidal form and, with capacities around 30–50ml, were capable of casting small to medium sized copper alloy objects (e.g. pins, fibulae, rings etc.). Surprisingly, however, no slag or moulds were recovered and, barring a single copper alloy ring from the buried soil above Roundhouse 16

Figure 6.32. Distribution of iron slag, crucible fragments and hammerscale.
(Figs 6.27 & 6.28), the site yielded no metal artefacts whatsoever – not even scrap, or tools associated with the metalworking process (hammers, tongs, pokers etc.). What was manufactured at Bradley Fen can therefore only be guessed at. Still, the recovery of a significant quantity of Iron Age metalwork along the western end of the Flag Fen post-alignment provides a partial insight into the range of artefacts once used by the Basin’s inhabitants. Whilst this picture is clearly biased by the character of long-held depositional traditions of metalwork in watery contexts (traditions focussed on weapons (particularly swords), item of dress and display), finds such the decorated scabbard mount from Flag Fen (Coombs 2001, 281, fig. 10.11, no. 273) and more recently, the decorated La Tène II iron sword from the Must Farm palaeochannel (Robinson et al. 2015, fig. 5.14), attest to the quality of craftsmanship in certain items from the region.

Of course, these need not have been made locally. But could it be that some were manufactured at Bradley Fen? At present, this is impossible to answer, though it is undoubtedly the only site excavated in the Flag Fen Basin with evidence of a clear metalworking focus, arguably capable of making some of these artefacts. Whether or not the artisan skills were possessed by this community is another matter, but it certainly provides an additional context with which to understand the metalwork from the Basin. What seems clear is that the residents of Bradley Fen were not engaged in these activities full time and, even though elements such as smelting were specialized pursuits, this was to all intents and purposes an ordinary ‘domestic’ setting, as opposed to an extra-ordinary ‘industrial’ site.

This leaves question hanging as to how these activities were organized and whether they were in any way controlled by the patronage of local elites. Again, without knowing what kinds of artefacts were being produced at the site, this is hard to gauge, but there is no indication that the inhabitants of the settlement – presumably the metalworkers themselves – were of ‘higher status’ than those from contemporary settlements in the Basin. Indeed, artefact repertoires are remarkably uniform across all types of Middle Iron Age site in the region, implying that social standing was rarely reflected in the range of domestic utensils recovered. Nor too are there signs that site architecture, such as the size of roundhouse, provides a straightforward index to status, even though the scale of enclosure projects may hint at the occupants’ ability to muster external workforces. Either way, both gauges would hardly suggest that the settlement at Bradley Fen was anything other than a standard farmstead, since the structures are small, unenclosed and yielded few finds that might invoke a sense of elevated position.

**The metalworking assemblage (Simon Timberlake, Roger Doonan and Peter Hommel)**

The metalworking assemblage from Bradley Fen had a combined weight of 50.32kg and was predominantly composed of iron slag and fired refractory material. Crucible fragments were recovered (see below), but accounted for less than 1% of the total weight of debris recovered. Approximately 91% of this came from of a single dump of mixed slag in pit F.597 (Fig. 6.33). Other material totalled 4.34kg, of which 39% came from feature F.611. The remaining material was more widely spread in secondary contexts, yet there was a clear concentration with a 30m radius of F.597.

For the purposes of this report, material has been categorized into groups according to their formal characteristics, with quantification by class and context given in Tables 6.19 and 6.20. The descriptions which follow are complemented by a series of scientific analyses (metallographic and chemical) undertaken on a sample of assemblage, with serves to characterize its properties and the various technical processes responsible for its formation. The characterization relied on comparative analysis with The University of Sheffield’s Archaeometallurgical Reference Collection (TUSARC) and followed guidelines established by Bayley et al. (2001).

The results show evidence for a range of metallurgical activities including iron smelting, iron smithing and copper alloy working. The presence of an iron smelting furnace (F.611) was also confirmed and the material recovered from pit F.597 provided further indications of its superstructure. Moreover, analysis points to the presence here of other metallurgical features, such as melting furnaces, casting pits and iron smithing hearths which have not survived. These new can be better understood in light of the characterization of the associated finds.

**Iron metalworking**

Evidence for ferrous metallurgy was found in the form of fired refractories and slagged refractories, furnace conglomerates, slag nodules and runs, smithing hearth bottoms, ores and hammerscale. These are discussed in turn below.

**Fired refractory and slagged refractory**

This class of material made up a significant proportion of the assemblage investigated, representing 36% of the total weight, with F.597 contributing by far the greatest proportion. The fired refractory and hearth lining exhibited a range of colours from light blue-grey to orange, reflecting the range of atmospheres encountered in the furnace. The refractory itself was a sandy fabric with void impressions of organic material (most likely dung) and frequent large quartz inclusions (up to 11mm).

The morphology of the refractory material offered clues to the size and structure of the furnace. One fragment from F.597 had
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not have been ideal for such applications. More importantly, it suggests that iron smelting was a prolonged activity rather than a single event at Bradley Fen.

Furnace conglomerates

Furnace conglomerates are significant accumulations of slag and, in a complete state, will resemble the cavity of the furnace base (slag cakes). They are normally heterogeneous with consolidated areas, commonly including pieces of charcoal, ore fragments and gas voids. Once fragmented, the conglomerates are difficult to identify and are often classed as non-diagnostic dense slags. In contrast to smithing hearth bottoms, which tend to be well-formed slag cakes with a distinct plano-convex profile, furnace conglomerates are usually irregular and variable in form. Their identification is significant though, for they are normally considered to be indicative of iron smelting activity, in other words, the production of iron from primary resources (McDonnell 1986).

At Bradley Fen, furnace conglomerates accounted for 24% by weight of the total slag assemblage and some 43% by weight of the denser iron smelting slags. The majority of this material came from F.597. Furnace conglomerate fragments tended to be large, a pronounced curvature suggesting that the furnace had a diameter of approximately 0.32m. This matches the aperture of the in situ furnace of F.611, from which it probably derived. The shape of other pieces also indicated the presence of an arched aperture in its superstructure, presumably to facilitate access to and/or withdraw the bloom. Such an opening could potentially be used to tap slag from the furnace, but there was little evidence for significant masses of tap slag amongst the assemblage and this would not be expected within a furnace of this date.

In total, refractory (furnace lining) was recovered from just four features within a 25m radius of F.611, with 99.5% of this derived from F.597. The extensive vitrification noted on many pieces, coupled with the mineral suites recorded during microstructural analysis (see Fig. 6.34), confirm that the material had been exposed to temperatures of at least 1200°C. Vitrification and erosion is expected at such temperatures and can destroy metallurgical furnaces. However, there is evidence that successive layers of refractory clay had been applied over slagged lining, indicating that the furnace had been relined/ repaired on several occasions (Fig. 6.34 no. 6). This was one strategy by which metalworkers managed to maintain high temperatures whilst using local clays which may not have been ideal for such applications.

Figure 6.33. Categories of metallurgical debris and an estimation of the formative metallurgical processes (by weight) associates with all Iron Age features. Note that the right-hand axis is used for material from F.597 only.
with some examples of the slag cakes weighing in excess of 1kg, but with smaller pieces frequently weighing more than 200 to 300g. Most examples of these did not form coherent dense slags, but rather comprised a mixture with both dense and porous regions (Fig. 6.35). One of the largest examples had a diameter of approximately 22cm, which is similar to the diameter calculated from fragments of slagged refractory, suggesting a furnace diameter of c. 25cm (Cleere 1972; Crew 1991).

Approximately 85% of the furnace conglomerate came from pit F.597, with 5% from the smelting furnace F.611, another 5% from well F.1064 and 3% from posthole F.986 in Roundhouse 17.

**Slag nodules and runs**

Three types of slag nodules were recorded: low density porous nodules, dense nodules and slag runs (16.09kg). Not surprisingly most of these (87%) were recovered from pit F.597, with smaller quantities from the smelting furnace F.611 (6%; *in situ* slag debris?) and pit F.630 (6%).

The most common of these were the dense slag nodules (46%). The majority of these would appear to derive from fragmented furnace conglomerate, being characterized by an absence of porosity and signs of having been completely molten. Most had at least one fractured surface, indicating that they were derived from a greater mass of slag, perhaps being broken off during the separation of the iron bloom from the slag, possibly during the primary smelting of the bloom. Inclusions were rare in these nodules, although a few examples of charcoal were noted alongside a small number of gas cavities. Most of the fragments retained quite angular facets and were not particularly worn, suggesting that they had not been exposed on the surface for any length of time. Without detailed compositional analysis it can sometimes be difficult to attribute this slag to specific processes, although visual examination did suggest these were generically related to the furnace conglomerate/ slag cake and slag runnel. The failure to detect copper in any of this slag through the extensive use of XRF confirms that all the slag was derived from ferrous metallurgy.

The second most common kind of slag nodule were the low density porous (LDPN) or vesicular slags (39%). These tended to be lower in density because of the presence of gas bubbles and their more irregular shape. On their own they are a difficult category to tie to a single process, yet these are to be expected in the range of slags recovered from smelting or smithing processes, although they are much more likely in smelting contexts. A number of the examples from Bradley Fen had small inclusions of charcoal and were quite poorly preserved, with many of the slag minerals having corroded to iron oxides. It was commonplace for these porous slags to have worn facets, although it was apparent that many were fractured, presumably being derived from larger masses of slag such as the furnace conglomerates, which were subsequently reduced by smithing.

The third class of slag comprised slag runnels (14%). These were typically small, with the majority of examples weighing <20g. The shape of these slags suggested that they had formed by molten slag solidifying amongst a compressed mass of charcoal. Many facets had charcoal impressions. Most examples appeared to be whole, suggesting these they had developed as complete runs and were not derived from a large mass. Presumably this class of slag nodule would have fused with the furnace conglomerates had they remained molten for longer. Similar material has been reported by Tylecote (1992), Crew (2000) and Paynter (2007). The material had a noticeable acoustic quality, producing a metallic

Figure 6.34 (opposite). Slagged refractories. 1. F.597 <291>; 1a. Sectioned sample: High porosity, yellowish-grey, curved refractory material with a slagged and vitrified glassy layer on one surface. 145 × 125 × 45mm, low density, low magnetism, dark grey streak. In cross-section three distinct layers could be clearly determined and inclusions of quartz and large pebbles could be seen; 1b. Microstructure: Slagged hearth/furnace lining with iron metal and other compounds occasionally occurring near the vitrified surface. Attached slag materials are frequently glassy. Iron oxides distributions were varied from wüstite to magnetite (10–35%). In some iron-depleted areas of fine-grained iron silicates, occasional irregular magnetite crystals surround small areas of fine-grained wüstite. In other areas (i.e. around the edges of the slag material) iron oxides dendrites (wüstite?) were interspersed with a complex glassy matrix; 2. F.597, [568] <295>; 2a. Sectioned sample: Vitrified red-grey mass of fired clay and slag. 175 × 125 × 55mm, medium density, low magnetism. Extremely varied and heterogeneous mass of ceramic and slag; 2b. Microstructure: Large vitrified mass of ceramic with attached low-porosity slag material. Predominantly iron silicate (fayalite) laths interspersed with occasional concentrations of free iron oxide spinels (magnetite). A number of concentrations of globular a-ferrite were also noted; 3. F.597, [568] <295>; 3a. Sectioned sample: Greenish-grey, moderate-low porosity slag with a significant amount of attached refractory material. 75 × 75 × 45mm, medium density, low magnetism. Dense slag material in close association with highly porous, corroded areas (charcoal voids); 3b. Microstructure: Moderate-high porosity slag nodule with highly variable composition. Iron oxides are rare when present, very fine and difficult to discriminate. Iron silicate present as fayalite with oriented lath structure; 4. F.611 <300>; 4a. Sectioned sample: Mixed greenish grey slag and refractory material with large charcoal inclusions evident. 100 × 80 × 50mm, low density, low-moderate magnetism, fine crystalline fracture, many voids of eroded charcoal. In cross-section, apparent heterogeneity with highly crystalline slag material interspersed with charcoal, large voids and other concretions; 4b. Microstructure: Porous and heterogeneous slag lump with inclusions of charcoal and many large voids. Predominantly iron silicates of large blocky crystal structures interspersed with glass matrix. Iron oxide predominantly wüstite (<5–15%) but with localized concentrations of spinels; 5. F.1064 [1150a] <908>; 5b. Sectioned sample: Dark-grey, medium porosity with some attached refractory material. 116 × 102 × 75mm, medium density, low magnetism, fine crystalline fracture, light grey streak. Small inclusions of quartz and clay; 5b. Microstructure: Large and highly variable slag microstructure. Predominantly low porosity with some areas of moderate porosity and occasional large voids. Obscured groundmass by brittle fracture pull out. Iron silicate structures were variable, ranging from equi-axed to lath fayalite. Wüstite predominant iron oxide accompanied by occasional iron spinels (magnetite). 6. Evidence of furnace relining.
ring when handled. There were a few instances of slag runs which had developed into larger masses (Fig. 6.36). Whilst such examples superficially resemble tap slags their low incidence and very short length (typically <70mm) suggests that the smelting technique was not reliant on the tapping slag.

Microstructurally, this group of slags is variable, with microstructures ranging from lath fayalite with no iron oxides to equi-axed fayalite with frequent iron oxides (including both wüstite and magnetite, see Fig. 6.36). This range of structures is also visible in individual furnace conglomerates and suggests that a common process was responsible for all these products.

Overall, this class of slag (slag nodule) forms a significant part (35%) of the smelting slag assemblage and is not uncommon for iron smelting of this period. The presence of slag prills/runs have been noted at other Iron Age sites (Dungworth pers. comm.) although their explicit reporting is not common.

### Table 6.20. Quantification of metalworking debris examined. FC + SC = furnace conglomerate + slag cake; DN + LDN + SRN = dense slag nodule + low density nodule + slag runnel; SR + FR = slagged refractory + fired refractory (hearth lining); SHB = smithing hearth base; HS = smithing hammerscale from bulk samples (only samples >1g recorded); Crucible = Cu-alloy crucible; * denotes feature dated to the Early Iron Age.

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<th>DN + LDN +SRN</th>
<th>SR + FR</th>
<th>SHB</th>
<th>HS</th>
<th>Crucible</th>
<th>Smelting/bloom smithing</th>
<th>Secondary smithing</th>
<th>Copper-alloy casting</th>
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<td>2g</td>
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<tr>
<td>1064</td>
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<td>1154</td>
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<td></td>
<td></td>
<td>2g</td>
<td></td>
<td></td>
<td>2g</td>
</tr>
<tr>
<td>Totals (kg)</td>
<td>12.2+</td>
<td>16.09+</td>
<td>17.89+ 3.76</td>
<td>0.08</td>
<td>0.3</td>
<td>30.72 3.83</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The arrival of fen-edge settlement

The presence here of perhaps half a dozen SHBs confirms that forging of the recently produced iron billet into objects was almost certainly taking place on site and most likely within the vicinity of the smelting furnace(s). However, the absence of any smithing hearths or dedicated forge area holds little potential for understanding how different metalworking activities were articulated spatially around this site. Nevertheless, the dumping of these SHBs into the slag pit from its northern side might suggest that these missing hearths lay on the northern edge of the ironworking/metalworking area. Soil samples (in the form of standard 10 litre environmental bulk samples) were collected from the vicinity of the contexts producing evidence

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Figure 6.35. Furnace conglomerates. 1. F.597, [568] <296> Sectioned sample: Greyish-black slag conglomerate. Dense but with significant porous zones. Numerous inclusions of charcoal (preliminary identified as oak). 213mm × 143 × 160 mm. Low magnetism. Porosity appears to be from gas (rounded voids) and eroded charcoal (angular voids); 1a. Microstructure: Extensive zones of equi-axed fayalite with common wüstite dendrites and low porosity. In zones with higher porosity microstructure, this alters to lath fayalite and glass. Wüstite is the predominant iron oxide; 2. F.597, [568] <291>; 2a. Sectioned sample: Greenish-grey. Moderate-low porosity slag with a significant amount of attached refractory material. 75 × 75 × 45 mm, medium density, low magnetism. Dense slag material in close association with highly porous, corroded areas (charcoal voids); 2b. Microstructure: Heterogeneous microstructure, ranging from glassy areas with inclusions of a-ferrite and charcoal to extensive regions of fayalite with well-developed wüstite dendrites. 3. F.597 [568] <291> Bog iron ore nodule, see description below.

Smithing hearth bottoms

One complete (sample <298>) plus 6–7 incomplete or possible examples of smithing hearth bottoms (SHBs) were recovered from the slag dump F.597. This complete SHB had a diameter of c.110mm and a mass of 248g. It is also possible that other SHBs may have been misidentified as being small slag cakes/smelting furnace bottoms.

Smithing hearth bottoms form as slag within the base of shallow bowl-shaped forging hearths through the accretion of hammerscale re-melted in the fire and also its reaction with the clay refractory linings. Often these are magnetic due to the amount of free iron and iron oxide (wüstite) present.
of metalworking. These samples were sieved, then scrutinized for hammerscale (see below). Given the low distribution and also re-deposition of SHBs, the relative density of hammerscale across this site might be another way of helping to define the context and whereabouts of secondary iron smithing.

**Ores**

Just two examples of possible iron ore were recovered from this ironworking/smelting assemblage. The piece recovered from pit F.597 was associated with iron slag. Samples of ore (particularly bog iron) are not commonly encountered at sites with low levels of smelting evidence, given that most of the iron mineral collected for smelting is fairly effectively processed. Usually the iron ore is found in association with roasting pits, of which none have been encountered at Bradley Fen.

*F.597 [568] NE quadrant (Fig. 6.35 no. 3):* Part of a broken, relatively soft and concentrically layered (chemically precipitated) nodule of yellowish-brown limonite (goethite). This example resembles the nodular type of bog iron ore. No evidence of heat treatment (enrichment roasting). 60mm diameter; weight 58g. Not sectioned or examined microscopically. Approximately 60% FeO.

*F.514 [468]:* An example of iron mineral weighing c. 600g was recovered from pit F.514. Examination using low magnification microscopy revealed an oolitic type groundmass accompanied by biogenic structures (no carbonate was present). One face of this stone appears to have dissolved into sinuous cavities, the latter forming a hardened and possibly vitrified iron-rich skin, suggesting contact with an intense heat, either through roasting, or else through its inclusion within an iron smelting furnace. Iron slags produced in the bloomery process tend to contain approximately 70% FeO, meaning that the ore normally needs to be greater than this value to produce a successful iron bloom. XRF analysis of this sample found the iron content to be 68% FeO. Analysis initially suggested that this was likely to be a fragment of Jurassic ironstone. However,
in Cambridgeshire, a 30cm thick iron pan (bog iron) deposit was Romano-British settlement and were subsequently analysed by. Following this discovery several utilized iron and that 'bog irons' (consisting both of lake bed nodules and true bog 'iron pan' layers) might have formed the basis of this small, but locally resourced iron smelting operation. Bloomery slags contain between 60 and 75wt% iron oxide, thus any ore containing much less than this would have proved difficult to smelt. Given that the bloomery smelting furnace (see Table 6.21) is being an example of a roasted 'bog iron', implying (but certainly not proving) its exploitation as an iron ore, or alternatively as a convenient source of red pigment. Hammerscale At total of 129 bulk environmental samples from Bradley Fen yielded residues containing magnetic material and, within these, all of the magnetic grains recovered from the 2mm–4mm sieved fractions were examined. At this size the majority of grains were probably hammerscale; most of those produced during forging being between 1mm and 3mm in diameter. This meant that the fraction containing the smallest hammerscale (<1–2mm diameter) was neither assessed nor recovered. Amongst the coarser material were the categories of large platy hammerscale and hollow spheroidal hammerscale (usually >3mm), most of which was produced from hammering-out the slag still accreting to the hot and semi-molten iron bloom following its removal from the iron smelting furnace. The secondary smithing products, on the other hand, were all associated with anvil forging. This included the thin black shiny to dull platy fragments of iron oxide, the smaller spheroidal hammerscale more typically being a product of the welding of iron, often reflecting higher temperatures as well as the use of a sand flux. Other important information to record was the presence or absence of fresh/abraded hammerscale – a possible means to distinguish between contemporary and redeposited material. An analysis of the non-hammerscale magnetics was likewise considered to be essential to the quantification of ironworking activities. The latter included burnt clay, oxidized lumps' (iron oxides which may or may not be related to the ironworking) and the charcoal-rich magnetics. The latter are most probably nodules formed around powder charcoal and finely disseminated hammerscale 'dust'. Approximately 138g of magnetic residues were looked at; the features containing the most magnetics with the highest percentage of confirmed hammerscale in them being F.597 (38g), F.475 (24g), F.544 (6g), F.239 (6g), F.611 (4g) and F.610 (4g). Whilst the highest concentration of iron scale still seems to be associated with the slag pit (F.597), the radius of activity is much greater than for the smelting, with a moderately important concentration of activity associated with Roundhouse 15, some 65m to the north of this. All of these features contained the sorts of material produced just as a result of secondary smithing, i.e. scale produced from the blacksmithing of an iron billet or from the reworking of iron objects on an anvil. Only one sample (from F.544) contained material which could have derived from the primary smithing of an iron bloom, although here it is plausibly a piece of (sandy) bog iron, although quite different from sample <291> examined above.

Overall, the concentration of iron oxide (iron %) present within <815> would normally be considered marginal (i.e. at the lower limit of what was feasible) for smelting in a bloomery furnace (see above analyses of the slag suggest a variable but often higher iron content (up to 49% Fe) than present in the nodular bog iron <291>, the implications are that if it was used, the ore would first have had to be enriched by roasting, effectively converting this iron limonite (FeO.OH) to hematite (Fe₂O₃) as the principal mineral. Most early bloomery slags contain between 60 and 75wt% iron oxide, thus any ore containing much less than this would have proved difficult to smelt (Dungworth 2011).

Interestingly, the 'nodular ore' (<291>) appears to be richer in manganese (up to 1.5 % MnO) than the 'sandy ore' (<815>), whilst the concentric nodular structure of the former suggests a slightly different genesis. Buchwald (2005) for instance refers to the collection and use of 'lake ore' in Scandinavia, a somewhat similar precipitate of colloidal iron hydroxide which is higher in manganese (0.9 to 4wt%) and phosphorus and which forms discrete flattened round lumps' (iron oxides which may or may not be related to the ironworking) and the charcoal-rich magnetics. The latter are most probably nodules formed around powder charcoal and finely disseminated hammerscale 'dust'. Approximately 138g of magnetic residues were looked at; the features containing the most magnetics with the highest percentage of confirmed hammerscale in them being F.597 (38g), F.475 (24g), F.544 (6g), F.239 (6g), F.611 (4g) and F.610 (4g). Whilst the highest concentration of iron scale still seems to be associated with the slag pit (F.597), the radius of activity is much greater than for the smelting, with a moderately important concentration of activity associated with Roundhouse 15, some 65m to the north of this. All of these features contained the sorts of material produced just as a result of secondary smithing, i.e. scale produced from the blacksmithing of an iron billet or from the reworking of iron objects on an anvil. Only one sample (from F.544) contained material which could have derived from the primary smithing of an iron bloom, although here it is plausibly a piece of (sandy) bog iron, although quite different from sample <291> examined above.

### Table 6.21. Bulk percentage of iron, manganese and nickel within iron ores and slag (PXRF analysis). SC = slag cake; FC = furnace conglomerate; DN = dense slag nodule; SRN = slag runnel; SR = slagged refractory (furnace lining).  

<table>
<thead>
<tr>
<th>Cat. no.</th>
<th>Feature</th>
<th>Context</th>
<th>Material</th>
<th>Iron (Fe)</th>
<th>Fe error</th>
<th>Manganese</th>
<th>Manganese error</th>
<th>Manganese error</th>
<th>Nickel</th>
<th>Nickel error</th>
<th>Nickel error</th>
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<td>514</td>
<td>468</td>
<td>Iron ore?</td>
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<td>1.128</td>
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<td>0.055</td>
<td>0.009</td>
<td>0.02</td>
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<td>291</td>
<td>597</td>
<td>568 NE</td>
<td>Bog iron ore</td>
<td>42.167</td>
<td>0.88</td>
<td>1.268</td>
<td>0.075</td>
<td>0.011</td>
<td>0.022</td>
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<tr>
<td>295</td>
<td>597</td>
<td>568 NE</td>
<td>FC/SR</td>
<td>9.489</td>
<td>0.166</td>
<td>0.083</td>
<td>0.024</td>
<td>0.014</td>
<td>0.007</td>
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</tr>
<tr>
<td>296</td>
<td>597</td>
<td>568 NW</td>
<td>FC</td>
<td>46.173</td>
<td>1.052</td>
<td>0.465</td>
<td>0.058</td>
<td>0.035</td>
<td>0.028</td>
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<td></td>
</tr>
<tr>
<td>298</td>
<td>597</td>
<td>568 SE</td>
<td>SC/SR</td>
<td>48.406</td>
<td>1.148</td>
<td>0.192</td>
<td>0.05</td>
<td>0</td>
<td>0.021</td>
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<td>300</td>
<td>611</td>
<td>571</td>
<td>FC</td>
<td>45.985</td>
<td>1.011</td>
<td>0.49</td>
<td>0.057</td>
<td>0.003</td>
<td>0.019</td>
<td></td>
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<tr>
<td>300</td>
<td>611</td>
<td>571</td>
<td>FC</td>
<td>33.241</td>
<td>0.654</td>
<td>0.281</td>
<td>0.046</td>
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<td>621</td>
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<td>1063</td>
<td>DN</td>
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<td>0.304</td>
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<td>0.007</td>
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<tr>
<td>908</td>
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<td>DN</td>
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<td>0.07</td>
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<td>0.023</td>
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<tr>
<td>314</td>
<td>630</td>
<td>591</td>
<td>SRN</td>
<td>37.298</td>
<td>0.807</td>
<td>0.674</td>
<td>0.063</td>
<td>0.037</td>
<td>0.019</td>
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</table>
redeposition must have occurred – the feature being Middle Bronze Age in date. However, the complete absence of non-hammerscale slag fragments within samples from any of the features distant to F.597 and F.611 dictates against the possibility of smelting within these areas.

Platy hammerscale was detected in small to moderate amounts (e.g. 5–10 grains and over) within the following features: F.30, F.514, F.534, F.597, F.602, F.619, F.622, F.629, F.635, F.637, F.653, F.695 and F.752 (but these are only recorded in Table 6.20 where >1g was recovered and weighed). More significant accumulations of platy hammerscale were noted within features F.597, F.637 and F.653, the latter perhaps suggesting the proximity of an anvil, hearth or workshop floor.

Spheroidal hammerscale, perhaps formed from the anvil welding of objects, was detected in small to moderate amounts (i.e. between 5–10 clearly identifiable grains and over) within the following features: F.473, F.573, F.597, F.609, F.635, F.637, F.675, F.680, F.691 and F.1154. Of these, F.473, F.597, F.637 and F.1154 had spheroidal hammerscale in significant amounts.

Less clear-cut smithing activity might be suggested by the recovery of both sorts of hammerscale, sometimes in more or less equal amounts and sometimes associated with other magnetics, for instance charcoal pellets (with scale) and burnt clay. This undifferentiated secondary smithing activity was recorded in the following features: F.31, F.239, F.420, F.433, F.439, F.443, F.445, F.446, F.473, F.503, F.536, F.544, F.573, F.596, F.600, F.607, F.610, F.611, F.613, F.621, F.624, F.626, F.627, F.628, F.632, F.633 and F.637. Once again, significantly high concentrations of both types of hammerscale were recorded from the charcoal and silt-filled smelting furnace F.611. In addition to this were the ‘oxidised lumps’, some of which might include the oxidized remnants of hammerscale (sometimes making up between 40 and 50% of the residues within many of the 129 samples examined). However, within Figure 6.32 only the confidently identifiable spheroidal and platy hammerscale distribution from Middle Iron Age features is shown.

The results of this analysis of the environmental sample residues suggests that most hammerscale is likely to derive from secondary iron smithing; both the forging and, possibly, also the welding activity taking place at the anvil and forge hearth(s) located within various ‘workshop’ areas. Narrowing this down slightly, one of these may lie within the vicinity of the Four-post Structures 5–7, to the north of slag pit F.597, with another area to the east and west of the smelting furnace F.611 and finally one within the area of Roundhouse 15 (Fig. 6.32). One should bear in mind, however, that this feature sampling was primarily undertaken for the recovery of organic environmental evidence. Hammerscale distribution patterns can be used to locate workshop areas, but typically this would be determined from soil sampling carried out on a grid basis during the excavation of the floor levels of huts or other structures believed to be associated with ironworking activity (Bayley et al. 2001).

**Copper alloy metalworking**

Evidence for copper alloy metalworking was found in the form of a small number of crucible fragments and pieces of mould (Fig. 6.37). The only copper alloy artefact recovered from the site was a ring found in the buried soil immediately above Roundhouse 16 (Figs 6.27 & 6.28).

**Crucibles**

The Bradley Fen assemblage contained a small number of crucible fragments derived from a variety of features (F.597, F.759, F.766, F.781 and F.784 (see Fig. 6.32 for distribution)). Most of this fragmented crucible and broken clay mould (just 0.3kg in total) came from within a 20m wide radius of pit F.766; the latter containing some 40% of the assemblage (as crucible). The majority of the remainder of this (c. 49%), consisting both of crucible and mould fragments, came from pit F.784, located just 5m to the southwest of slag pit F.597.

Most of the crucible fragments were worn and in pieces smaller than 2cm, highlighting the friability of the fabric and also the possibility that these had remained exposed in working areas prior to burial (Fig. 6.37 nos. 1–4). The rim sherds along with larger fragments of body sherds suggested that the type of crucible used at Bradley Fen was probably of a typical Iron Age form; a three sided ‘inverted pyramid’ shaped crucible (Bayley 1989; Howard 1983) which is more fully described from Guissage All Saints in Dorset (Wainwright 1979; Spratling 1979, 132, fig. 99). However, the fortunate survival of at least two shallow pouring spouts on some of the rim pieces has enabled a slightly different shape of crucible to be suggested, a combination perhaps of a circular and pyramidal form. Similar shaped crucibles are suggested by the metalworking and crucible finds from the Late Iron Age site at Park Farm East, Ashford in Kent (Lucas & Paynter 2010).

In a few instances, it could be shown that an extra outer layer of gritty clay had been added to the walls of these crucibles (see Fig. 6.37 no. 4), perhaps as a means of enhancing resistance to thermal shock and also preventing undue cooling of the melt during its transit from the hearth to mould (Bayley 1989). Vitrification patterns on all of these fragments confirmed that the crucibles were heated from above and would have been filled to about two thirds their total volume with molten copper alloy. It was apparent that there was some variation in crucible form with wall thickness (not including the extra outer layer) ranging between 5 and 9mm. The fragments were too small to accurately reconstruct the range of crucible sizes, but it seems likely that the average internal diameter (based on wall thickness and the larger surviving rims) would have been around 60–70mm and, as such, might have been capable of holding about 30–50ml (approximately 200–400g) of copper alloy. These crucible capacities would thus have been capable of casting small to medium sized Iron Age bronze objects.

A total of seven crucibles were sampled by thin section petrography, in order to characterize their fabric. This was found to comprise a reduced-fired friable clay micromass with poorly sorted quartz inclusions and larger voids from burnt-out organic matter. The density of the minor quartz inclusions in the fabric suggests that these were naturally occurring in the clay matrix, whereas the coarser quartz fraction seems to have been deliberately added as temper, no doubt in an effort to enhance the refractory properties of the crucible. The same may be true of the organic material, which was either added for thermal resistance, or was already present in the clay micromass upon preparation (Howard 1983).

Overall, the inclusion-micromass-void ratio is approximately 40:25:35. This inclusion density is very high for a fabric of this kind and certainly contrasts with other examples from sites such as Broom, Bedfordshire (20:65:15) and Meare Lake Village, Somerset (10:70:20). This suggests that whilst the basic recipe for crucibles is often comparable (clay, quartz temper, organic temper), there exists...
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some variation in the proportion of the various ingredients, with Bradley Fen appearing to have highly tempered wares. However, the properties of these ingredients were clearly understood and proved effective for heat resistance, since whilst many fragments were extremely friable and heavily vitrified, the surface of the crucibles survived.

In addition to these studies, a programme of qualitative XRF analysis of was undertaken on a selection of crucible fragments to establish the likely composition of the copper alloy melted (Table 6.22). The results show that in instances where alloy was detected, the most common was tin bronze. However, residues of lead and arsenic were also noted, which is common for the Iron Age (Dungworth 1996).

**Mould fragments**

Some 38g (13 pieces) of finely broken (10–35mm diameter) mould fragments were recovered from F.784, with some possible fragments also from F.766 (Fig. 6.37 nos. 5–8). Most of these consisted of well-fired (but non-slagged) buff-coloured clay, rarely with a dark grey reduced interior (i.e. the traces of a partition lining on the internal surface of the mould). These very small areas of mould surface revealed little of the nature of these castings, except for the presence of curved and possibly cylindrical surfaces, as well as round and possibly ball-shaped terminals, in all probability less than 15mm diameter. It is possible that these represent the very smallest fragments of mould pieces used for the casting of the side-links for bridle bits, some good examples of which have been studied in some detail from Gussage All Saints, Dorset (Spratling 1979; Foster 1980).

**Assemblage summary**

The assemblage suggests that iron smelting, iron smithing and copper alloy casting were all undertaken at Bradley Fen. However, whilst the various slag types (furnace conglomerates, slag prills and slagged refractories) recovered support the argument for iron smelting, the quantity of the slag produced is hard to reconcile with this being a significant production centre. The

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**Table 6.22. Results of qualitative XRF analysis of crucible residues. +++ >50kppm; ++ >10kppm; + >5kppm; tr >1000ppm; nd, no detection.**

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<th>Feature</th>
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<th>Tin (Sn)</th>
<th>Lead (Pb)</th>
<th>Arsenic (As)</th>
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<td>+</td>
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<td>nd</td>
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<td>784</td>
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<tr>
<td>-</td>
<td>766</td>
<td>768</td>
<td>tr</td>
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<td>-</td>
<td>766</td>
<td>768</td>
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<td>tr</td>
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<tr>
<td>-</td>
<td>766</td>
<td>768</td>
<td>tr</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
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</tbody>
</table>

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366
furnace conglomerates are not large, suggesting that a single smelt might have produced as little as 3kg of iron. Indeed, the quantity of slag from this site implies that this was unlikely to have been a major activity, even though the evidence of repair and relining of the furnace suggests some continuity of practice.

The absence of tap slag and the presence of significant furnace conglomerates suggests that this was a bloomery smelting process; one which might have been undertaken in a shaft furnace (see possible reconstruction in Figure 6.12), with the slag collecting in a round/cylindrical slag pit underneath (as with F.611) and the iron bloom forming above this at the level of the inserted tuyere(s). At the end of each smelt, the bloom would have been extracted manually, perhaps through a temporarily sealed arched opening just above ground level or, more likely, by either dismantling the front wall or completely demolishing the structure. This would also have been necessary in order to remove the slag from the slag pit. Alternatively, it is possible that the whole top (superstructure) of the furnace could have been lifted off, only to be replaced and rebuilt on the same spot, relining this with clay prior to its re-use. Another possibility is that some, or all of the smelting was undertaken within a low shaft or extended bowl furnace (perhaps with a domed or beehive-shaped superstructure above it); the latter taking a charge of only 6–10kg of ore (Cleere 1972).

Although the evidence is not conclusive, the presence of several smithing hearth bottoms and small platy hammerscale within features surrounding the furnace (F.611) and main slag pit (F.597), support the idea that a small amount of iron smithing took place within the vicinity of the smelting area and, potentially, several other locations around the site (such as near the four-posters and in/around Roundhouse 15). There is clear evidence also for a limited amount of copper metallurgy. The finding of numerous small crucible fragments plus a small number of non-diagnostic mould fragments suggests copper alloys were being melted and cast into objects on site. The volume of the crucibles suggests small to medium artefacts were being produced in a range of alloys which include tin bronze and leaded tin bronze.

In assessing the scale of production, it seems most likely that smelting was undertaken in order to satisfy the needs of the local community. Most likely, this was an episodic event that was practiced as and when needed, or deemed appropriate, and probably relied on local specialists (cf. Ehrenreich 1985).

Significance and wider context (Simon Timberlake)
Apart from Bradley Fen, almost nothing is known of iron production or the sources of iron ore within the fens of North Cambridgeshire and West Norfolk during the Iron Age. Whilst the current study falls short of conclusively demonstrating local exploitation of bog iron (one piece of possible ironstone having been also identified), the evidence provided above does point strongly towards it. The inference being that the ubiquity of bog iron deposits, which lay close to the settlements that sprung up along the fen-edge during the Middle Iron Age, allowed for a certain degree of self-sufficiency in iron prior to the exploitation of the much richer and more abundant Jurassic ironstones of the Northamptonshire and West Lincolnshire ore-field – the latter becoming a focus of an important iron industry during the Late Iron Age-Roman period (Bayley et al. 2008). It is likely, however, that the smelting of bog iron was already part of a long-standing tradition in Britain by the time we see it being practised at Bradley Fen.

Iron production, linked to the flowering of the rich metalworking tradition of the Early-Middle Iron Age Arras Culture in East Yorkshire, was centred upon the extensive bog iron deposits of the Foulness Valley in the Yorkshire Wolds (Halkon & Millett 1999). Short shaft furnaces, similar to the example suggested at Bradley Fen, were being used to smelt this ore and turn it into iron blooms at Welham Bridge and other sites in the Holme-on-Spalding-Moor area of the Wolds (see Halkon 1997; Halkon & Millett 1999) during the Early Iron Age (400–200 bc). The scale and importance of this industry might best be assessed by noting the size of just one of the slag piles at Welham Bridge (5.54 tonnes), the quality of the ironwork produced (swords and chariot burials) and the importance attached to the craftsmen metalworkers (a pair of blacksmith’s tongs and a hammer were found within the grave of a young male at Rudston).

This sort of comparison is useful in that demonstrates the presence of an important Eastern England tradition of iron production centred upon the exploitation of bog iron deposits within fenland areas. At both sites we are probably looking at a well-developed technology of iron production centred upon slag pit-based shaft furnaces, slag dumps (Halkon 1997; Clogg 1999), the hot working of iron blooms (Crew 1991) and skilled blacksmithing. For this reason, the difference in the scale of production between these two areas is of interest. Smaller-scale, more localized production of iron from bog ores may be a phenomenon of the Middle Iron Age, perhaps initiated in response to the expansion of the Arras Culture influence, or perhaps even engendered by its eclipse. It may be relevant to note here that the earliest ironworking evidence from Bradley Fen probably dates from the Early Iron Age, yet this evidence consists just of 10g of smelting slag
from a single feature (F.480). Alternatively, a quite different explanation for the small-scale of this activity might be the paucity of suitable bog iron deposits within the Flag Fen Basin. This is something we know very little about at the present time, yet it is a subject clearly worthy of future research.

It may be useful at this point to mention the discovery of iron smelting slag and the base of a probable smelting furnace or roasting hearth at the nearby Elliott Site, Fengate. The quantity of slag associated with this was small (<350g) and the activity seems more likely to be Middle–Late Iron Age in date, but the form of metalworking resembles that seen at Bradley Fen and, in all probability, utilized the same local bog iron from the Fen (Timberlake 2009, 99). The Bradly Fen copper metalworking evidence seems minor in comparison with that of the ferrous metallurgy, although this activity may well have taken place in similar parts of the site. Interestingly, a single confirmed example of a crucible fragment came from Storey’s Bar Road, Fengate. This contained the residue of tin oxide, with a little copper and lead, confirming that it had probably been used for melting a leaded bronze, but was last used for melting tin (Craddock 1984, 174–75). This broadly similar analysis to that of the Bradly Fen crucibles, alongside a similar sort of reconstruction based on the surviving rim sherd (ibid., fig. 123) implies that the same sort of small-scale metalworking activity was probably taking place at Cat’s Water, on the opposite side of the Flag Fen Basin. Considering the volume of metalwork recovered from Flag Fen and the fairly unique nature of the assemblage, we might be looking at a very long-standing tradition of small-scale metalworking and recycling of metal which began here in the Late Bronze Age and continued into the Iron Age (see Coombes 2001).

In conclusion, this is a potentially important find of metalworking based on a relatively small amount of surviving evidence. The material does, however, raise some interesting questions about local resource exploitation, the self-sufficiency of this fen-edge community and its connections with the surrounding iron-rich world of Eastern England.

**Textile production (Matt Brudenell)**

As in the previous chapter, evidence for textile production was limited to finds from the fired clay assemblage (Fig. 6.38). Totalling 231 fragments weighing 3691g, this was dominated by small undiagnostic pieces of fired clay, but included parts of four different loomweights (8 pieces, 1543g) derived from four separate features (see Fig. 6.28 for distribution). The two most complete were of definite triangular form of the type common to Iron Age sites across southern Britain (Fig. 6.38 nos. 1 and 2). Both were made in sandy clays of Fabric 1, as were most of the Late Bronze Age and Early Iron Age examples. Indeed, the overall fired clay fabrics frequencies were remarkably similar to those recorded in the previous chapter (Table 6.23), suggesting similar and probably local sources (on site?) of sandy clay continued to be used for the production of loomweights, oven furniture, daub and so forth, but very rarely it would seem, pottery. This favoured shell-rich clays, though as the loomweight in Fabric 8 demonstrates, these were occasionally employed, perhaps when leftover or unprocessed potting clay was available.

Three of the four loomweights were recovered from structures. The two semi-complete examples in Fabric 1 were derived from the interior pits of Roundhouses 16 (possibly where a loom was based) and were part of formal deposits. The weight from pit F.1096 was interred alongside a dump of sheep bones, whereas that from F.751 was placed beside a fire-cracked quern and a large rubbing stone. In terms of context and artefact association, these mirror some

<table>
<thead>
<tr>
<th>Fabric</th>
<th>No. fragments</th>
<th>Weight (g)</th>
<th>% by weight</th>
<th>Fragments of note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>163</td>
<td>3160</td>
<td>79.8</td>
<td>2 partially intact triangular loomweights (6 fragments, 1424g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 fragment of an oven plate (257g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 piece of daub with scored surface (19g)</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>151</td>
<td>3.8</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>6</td>
<td>0.2</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
<td>99</td>
<td>2.5</td>
<td>1 piece of wattle impressed daub (51g), pole 26mm in diameter</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>34</td>
<td>0.9</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>67</td>
<td>1.7</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>96</td>
<td>2.4</td>
<td>Possible fragment of triangular loomweight</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>46</td>
<td>1.2</td>
<td>Fragment of a loomweight (28g)</td>
</tr>
<tr>
<td>9</td>
<td>28</td>
<td>302</td>
<td>7.6</td>
<td>1 piece of moulded daub (19g)</td>
</tr>
<tr>
<td>Total</td>
<td>231</td>
<td>3961</td>
<td>100.1</td>
<td>-</td>
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The arrival of fen-edge settlement

Figure 6.38. Fired clay objects. 1–2. Triangular loomweights; 3. Oven plate; 4. Oven plate reconstruction.
Low-lying settlement

As stated at the beginning of the chapter, the Middle Iron Age settlement at Bradley Fen is remarkable low-lying for the period. With the core of the settlement swathe squeezed between the 1.4 and 2.5m OD contours, this fen-embracing site occupied a band of ground that was previously thought to have been inundated by the mid first millennium BC. In fact, in relative terms, the highest point in this occupation scatter stands 0.2m below the southern edge of the Cat’s Water settlement (2.7m OD), which is conventionally used as the bench-mark for the model of the Basin’s Middle Iron Age fen-edge (e.g. French 2001d, 403). This model now looks in need of revision, with the implication that there could be many more sites of Middle Iron Age origin within this contour range.

At this juncture, it is important to acknowledge that such a statement does not amount to a point blank denial that the fen-edge extended above the 2.0m OD contour during the course of the Iron Age. The contrast in the heights recorded for the lower limits of settlement at Cat’s Water (2.7m OD) and Bradley Fen (1.4m OD) should not be seen as a problematic, erroneous, or detrimental to our understanding of where the fen-edge was located in this period. On the contrary, these differences should be greeted much more positively, for they provide us with an archaeological gauge to the extent of basin-wide inundation during the Middle Iron Age. As such, the two fenward limits of settlement documented on opposite shores of the Flag Fen Basin serve as a measure of peat growth within the three hundred year timeframe of this period sequence – in effect, they bracket the lower (Bradley Fen) and upper (Cat’s Water) limits of inundation (Fig. 6.40). Consequently, we can no longer sustain a model of a static Middle Iron Age fen-edge, anchored to a single contour. But more important than recognizing a dynamic, progressively upward shifting fen-edge in this period, we can use the peat and the altitude of fen-margin settlement as a measure of time, allowing us to explore a finer grained Middle Iron Age sequence in the Basin.

By this logic, and keeping with the concepts of the Age-Altitude model espoused throughout this volume, we can be confident that fen-edge settlement at Bradley Fen pre-dates that at Cat’s Water, because of its lower-lying position. Indeed, given the relative heights of the two sites, the structures of the former were probably inundated by the time the lowest-lying buildings at the latter were erected. In other contexts in the region, without a programme of absolute dating and Bayesian modelling, it might prove difficult to tie down the temporal relationship between two non-adjacent Middle Iron Age sites. This is less of an issue here, though we do need to clarify the chronological

Discussion

With its pristine site plan, ordered zoning of architectures and activity areas, the remains of this final phase of prehistoric settlement at Bradley Fen presents a coherent and comparatively comprehensible picture of occupation (Fig. 6.39). There is certainly the impression that this was a small, fairly short-lived farmstead-type settlement comprising perhaps two household groups, for the most part engaged in a typical range of activities and agricultural practices for the period/region. Novel though it is to find an open Middle Iron Age settlement in this landscape not superseded by a phase of ditching or enclosure, its importance to the study of the Flag Fen Basin is not rooted in the character of its architectural imprint. Whilst this has its points of interest, providing only the second large-scale aperture on a Middle Iron Age fen-edge site around the Basin (the first being Cat’s Water), the real significance rests in the depth or altitude at which the settlement lies, the evidence it has for metalworking, and finally, the light it throws of the character of the region’s Iron Age mortuary rites.

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Loomweight catalogue

1. Fabric 1, five refitting fragments of a triangular loomweight, 73mm in width with two perforated suspension visible (12mm in diameter). Pit F.751 [751a], 272g (Fig. 6.38 no. 2)
2. Fabric 7, possible corner fragment of loomweight. Posthole F.578 [538], 96g (not illustrated)
3. Fabric 8, possible fragment of a loomweight with perforated suspension hole (19mm in diameter). Well/waterhole F.831 [855], 23g (not illustrated)
4. Fabric 1, fragment of a triangular loomweight, 67mm in width, broken along all side of the three perforated suspension holes (14mm in diameter). Pit F.1096 [1188], 1052g (Fig. 6.38 no. 1)
Spatial-temporal configuration 4 – the arrival of fen-edge settlement

Of all the patterns articulated by these spatial-temporal configurations, the Middle Iron Age is by far the most striking in that it reveals a pronounced convergence of activity and, for the very first time, a sharply defined lower margin or fen-edge. In this representation, occupation is shown as a vertically delineated throng of pits and postholes apparently amassed up against an invisible but nevertheless precipitous boundary. Nothing infringes this line, although you get the impression that all is being drawn irresistibly to its position in the landscape. In this sense, the relationship between occupation and edge is genuinely magnetic and whereas before settlement was detached from this margin, it now actively embraced it. Most saliently, this edge-bound agglomeration is representative of Middle Iron Age settlement elsewhere in the Fens and if, for example, the adjacent Cat’s Water settlement was articulated in the same manner, an almost identical silhouette would be produced.

One other attribute of this spatial-temporal configuration is the realization that Middle Iron Age settlement generated the clearest or most lucid silhouette. At the evaluation stage of this particular landscape, Middle Iron Age activity was by far the easiest to detect and, as a consequence, came the closest to being designated ‘site’ status. Unlike the archaeology of the earlier periods, its intensity and location fitted the received criteria as to what constituted a ‘site’ in the context of the fen. Given different circumstances, the focus of the Bradley Fen investigations could have been a Middle Iron Age settlement swathe to the exclusion of all else.

Figure 6.39. Spatial-temporal configuration 4 – the arrival of fen-edge settlement.
parameters of the Bradley Fen occupation. The three scientific dates obtained for the site (including the archaeomagnetic date) locate the settlement broadly between 350 and 100 BC. This fits comfortably with the typo-chronological dating of the pottery, which, importantly, contains no later La Tène style decorated pots, no Late Iron Age wares, or any signs of influence from ‘Belgic’-related ceramic traditions. In fact, Brudenell’s analysis of this material points to a number of attributes which suggest the assemblage belongs to the beginning of the Middle Iron Age sequence, prior to c. 200 BC. This would accord well with two of the scientific dates and would not conflict with the third. It also works in relation to the dating of Cat’s Water, which although quite a long-lived settlement, contains a significant wheel-made ceramic component, suggesting its main **flouruit** was during and after the first century BC.

With these sequences and timeframes in mind, we can begin to see that the contrast in the architectural imprint of settlement at Bradley Fen and Cat’s Water reflect their differences in date. This is clearly evident in the footprint of their structures, with the Bradley Fen roundhouses sharing greater affinities with the late phase Early Iron Age structures at King’s Dyke, than the more typical eaves-defined buildings we commonly associate with the (later) Middle Iron Age – structural types ubiquitous at Cat’s Water (Fig. 6.40). Connections with earlier traditions are also evident in the continuities traced in depositional practices.

More generally, the overall difference in the open and enclosed nature of remains at Bradley Fen and Cat’s Water are telling of broader shifts in the grammar of occupation in the Middle Iron Age sequence. Clearly, enclosure was not a prerequisite for settlement on the damp-ground contours of the fen-edge, despite the obvious advantages in drainage this would have afforded. Rather, these changes were guided by other concerns, some likely bound up with concepts of place, ownership and descent. Though it is probably too simplistic to suggest a wholesale switch from open to bounded settlement during this period, there was a trend towards enclosure as time progressed. Certainly, on a regional level, there is mounting evidence that enclosure was a later (or post-c. 200 BC) Middle Iron Age development. Even at Cat’s Water there are hints that a series of unenclosed structures at the eastern fen-edge fringes of the settlement pre-date the establishment of the slightly higher-up compound system (Fig. 6.40). Indeed, similar stratigraphic relationships are repeated elsewhere on Iron Age sites in Cambridgeshire (Evans et al. 2013, 153–249). However, a detailed unpicking of these general trends is currently lacking, which is unfortunate, given the number of recent opportunities to investigate Iron Age sites in the region. The problem is that we have not sought to properly refine our understanding or dating of changes within the Middle Iron Age sequence. Radiocarbon dating is often viewed as a lower priority on sites of this period, despite pottery chronologies remaining relatively vague. We are also limited by the fact that ‘pristine’ open settlements like Bradley Fen are seldom found. Indeed, one observes that many open settlements of this period are only discovered because they lie beneath or immediately adjacent to more conspicuous enclosures. The open components are often unannounced until the area is stripped and, as the enclosures are the features most receptive to identification by conventional prospecting techniques (aerial photography, geophysics and trial trenching), these normally define the focus of excavation, **not** the slighter remains.

Fortunately, conditions in the Flag Fen Basin provide the opportunity to start developing a fine grained perspective on the Middle Iron Age sequence. Although the scale and character of most investigations beneath 2.0m OD mean that we have not yet uncovered a site to directly mirror Bradley Fen in the Basin, we can be confident that enclosed settlement is **not** a feature of the **earlier** (pre-c. 200 BC) Middle Iron Age landscape below this contour. At Fengate, for instance, with the exception of the Power Station (Pryor 2001) and Elliott Site excavations (Evans & Beadsmoore 2009), fieldwork between 1.4 and 2.0m OD has been small scale and predominately trench-based. Whilst this proved successful in locating ring-ditches and Bronze Age field boundaries in this zone, conspicuous in their absence are ditch-enclosed Iron Age settlements.

These apertures have, however, uncovered a scattering of Middle Iron Age features, but since trenching is far less effective at locating and making sense of the low density pit and posthole scatters that characterize open settlement, it is hardly surprising that a site comparable to Bradley Fen has not yet been identified. In fact, even the remains at Bradley Fen scarcely registered in the evaluation programme (Gibson & Knight 2006). These issues aside, the point stands that the only settlement remains of Middle Iron Age origin below the 2.0m OD contour in the Flag Fen Basin are unenclosed. These may still be few and far between, but are nonetheless worthwhile highlighting since reference to them is often fleeting in the published literature.

**Figure 6.40** (opposite). Cat’s Water and Bradley Fen Middle Iron Age settlements (Cat’s Water site plan after Pryor 1984, fig.18).
The first and most significant derive from the recent excavations at the Elliott Site (Evans & Beadsmoore 2009). At its eastern edge, a Middle Iron Age ditch (F.234/235) was traced to a depth of at least 1.6m OD, where it exited the excavation area. This ditch line, associated with a series of pits, originated in the adjacent Cat’s Water settlement and provides the first concrete evidence that remains from here extended down the terrace edge. Other excavations immediately east of Cat’s Water (the Cat’s Water 1990 and 1997 excavations (see Pryor 2001, 38–50) were recorded as devoid of further Iron Age features. However, the interpretation of two abutting ring-gullies (F73 and F75) within the Area 2 ‘henge’ monument requires re-evaluation. Lying at c. 1.4m OD, these finds-free gullies are highly reminiscent of Middle Iron Age eaves-defined roundhouses. In fact, this point was duly noted in the publication (ibid., 46), but an Iron Age date was ultimately dismissed on the tenuous grounds that neither feature was filled with alluvium. Yet with Evans (2009a, 18) having subsequently recategorized the henge monument as an earlier Bronze Age ring-ditch, Pryor’s interpretation of the smaller of the two interior gullies (F73) as a Neolithic ‘micro-henge’ can no longer stand. Nor can the argument for a definite pre-Iron Age attribution, since deposits of alluvium have proved not to be uniform across the Basin and recent excavations at the Must Farm palaeochannel have shown them to post-date the deposition of La Tène II metalwork (Robinson et al. 2015, 257–60).

Elsewhere at Fengate, other components of low-lying earlier Middle Iron Age settlement were uncovered at the Power Station Site, where an Iron Age attributed ‘gravel platform’/spread was identified at c. 1.2m OD (Pryor 2001, 59). More significant, however, are the passing references (ibid., 61) to pottery-associated Iron Age pits and waterhole features in Area 1 around the northern arm of Ditch 9 (F.12). Unfortunately, none are reproduced on the published site plans, but they definitely lie below 1.75m OD and, given their rough location, probably fall between the 1.4 and 1.6m OD contours (the pottery being reported on by Barrett 2001, 252–54). Finally, on the opposite side of the basin, we can note another Middle Iron Age waterhole below 2.0m OD at Northeay Landfall (F.292), just south of the area where the Flag Fen post-alignment crosses onto Whittlesey Island (Britchfield 2010, 61–62). Again, the reference is somewhat tucked away in the report, but a closed group of Scored Ware pottery (dated c. 350–200 bc) was recovered from the feature together with a fragment of human bone (Ferrante de Ruffano 2010, 125; Pryor 2010, 121).

These strands of evidence built toward a picture of extensive earlier Middle Iron Age activity on both sides of the Flag Fen Basin between 1.4 and 2.0m OD – a contour range once considered to be too wet for settlement in this period. Whilst some of these features may have been relatively isolated, attesting to task-specific activities on the damp-ground contours (e.g. waterholes for livestock), others will have formed parts of permanent farmstead-type settlements akin to Bradley Fen. More importantly, there are no hints that any of the remains were enclosed at this stage in this landscape, meaning we are seeing a very long tradition of open Iron Age settlement in the Basin, spanning the period from c. 800 to 200 bc.

The draw of the fen-edge

Aside from the more nuanced patterns in settlement form and date we can now piece together for the Middle Iron Age in the Flag Fen Basin, we must also acknowledge broader trends in the contemporary landscape sequence, namely the draw of settlement towards the damp-ground margins of the fen-edge. Importantly, this ‘colonization’ was not just limited to the context of the Flag Fen Basin. Rather it was a wider phenomenon of the period, traceable across the contemporary fenland margins in Cambridgeshire, as demonstrated by the spate of excavations in the Lower Ouse environs (e.g. Colne Fen (Evans et al. 2013), Over (Evans et al. 2016) and Haddenham (Evans & Hodder 2006b)) and on the Isle of Ely (e.g. Wardy Hill (Evans 2003), Hurst Lane (Evans et al. 2007, 41–66), Watson’s Lane (Evans et al. 2007, 70–71) and West Fen Road (Mortimer et al. 2005; Mudd & Webster 2011).

In looking for causation then, we cannot simply seek out a strict, locally specific explanation for this pattern. Although one attractive possibility is that land pressure caused by the progressive inundation of the low-lying terraces, forced some communities to settle by the fen-edge in the Middle Iron Age, there are no clear indications that this ‘pressure’ existed, or why its effects suddenly came into focus at this point. If this had been the case, we might have expected to also see dense settlement on the higher slopes at Bradley Fen and King’s Dyke. But instead, these lie empty until the Roman period. In other words we have no obvious signs of a ‘push’ toward the fen-edge. On the contrary, the settlement pattern suggests that this landscape zone was viewed much more favourably and was sought out settlement for the first time.

Yet the question remains as why this shift occurred. As already discussed in this chapter, the temptation is to fall back on an economic explanation and cite the opportunities for exploiting fenland resources from this zone. However, the faunal record from Bradley Fen is ostensibly terrestrial and domesticated in its character, with next to no wetland species
or wild fauna present. In fact, this pattern is quite common for Iron Age sites in fen-edge settings in the region (Evans 2003, 137) and, although one can point to instances of more intensive marshland exploitation (e.g. Haddenham (Evans & Hodder 2006b)), this may be a later Middle Iron Age development and a piece-meal one at that. If a case was to be made on grounds of economy, then is more likely that the move to the fen-edge reflects the growing significance of cattle (as ‘wealth’ amongst other things) and the control of the rich pastures in this zone. Cattle were certainly the ‘wealth’ amongst other things and the control of the rich pastures in this zone.

Moreover, it reflects a very different orientation to the Middle Iron Age, with the fen-edge now harnessed as one might hope for, undermining the temptation towards simple land-use modelling.

The explanation must nevertheless relate to some broader socio-cultural factors, which on one level, probably involved an ‘economic’ component. Indeed, our difficulty in understanding these changes partly stems from our field of focus and the tendency we have to look at fen-edge communities without considering their socio-economic relationships to other settlements further inland. These connections were no doubt complex, with different threads articulated at varying social and geographic scales. Though our perspective on these is limited by the landscape window of this volume, the site’s querns, from Ely and the Charnwood Forest district of Leicestershire, serve as a reminder of the existence of more extensive exchange networks beyond the Basin itself. As too does the ironstone iron ore fragment from the site, likely to have derived from the Jurassic Ridge in Northamptonshire. Given the bulk of these items, most were probably transported over water, along the river valleys and around the fen-margins. In fact, this may have provided another impetus for settling the fen-edge, offering communities greater access to exchange networks and routes of communication.

On balance, it remains something of a struggle to explain why settlement was suddenly drawn to the fen-edge from the beginning of the Middle Iron Age, both at Bradley Fen and elsewhere. As is often the case in prehistory, it is easier to observe the consequences of such changes than it is to pinpoint their causation. In this context at least, it is clear that the arrival of fen-edge settlement marked the final demise of a long-lived cultural grain in the landscape, which had structured systems of land allotment and tenurial relationships in the Basin since the earlier Bronze Age. This signified a major reworking of these rights and expectations in the Middle Iron Age, with the fen-edge now harnessed as the primary line of demarcation in the landscape. Moreover, it reflects a very different orientation to things, giving the impression that the landscape axis now ‘worked’ from the wet-edge upwards, instead leading down towards it.

**The dead and metalworking**

Whilst our picture of landscape structure is still a little hazy for the Middle Iron Age, the excavations at Bradley Fen have afforded greater resolution on the character of mortuary practices and contexts of metalworking in the Basin. Admittedly, human remains are not especially numerous at the site, but the variability in their context and treatment is intriguing. This ranged from burial in a formal grave cut (F.781), the insertion of a bound and partially putrefied body in a posthole (F.613), to the deposition of disarticulated remains in a series of damp-ground pits and the watery contexts of peat itself. In many respects, each of these interments has a unique story, adding to the impression that diversity was at the heart of mortuary practices in this period. At Bradley Fen, as on other Iron Age sites in Cambridgeshire and large parts of southern Britain, it is clear that bodies of both the newly dead and older disarticulated ‘dry’ remains were being openly manipulated and modified within the confines of the settlement.

Yet, set against the backdrop of these broader trends, the spatial distribution of disarticulated elements at Bradley Fen indicates a very specific pattern of deposition along fen-fringe and the wetland itself. In actual fact, all these contexts can be regarded as wet, being either in-fen, or peat-filled to varying degrees. Though some of the body parts may have been brought to the water/water’s edge for deposition from places of dry-ground excarnation, the recovery of the disarticulated skeleton from the peat (Skeleton [901]) suggests the wet was also considered an appropriate context for burial. In this instance, the body had broken up in the water, with the missing elements potentially having been scavenged, washed further afield, or possibly even removed by the community. This last scenario is not as farfetched as it initially sounds, as Dodwell’s analysis hints that the polished skull fragment in F.1018 rested in a watery context prior to its final deposition in the pit.

Whether or not the other remains from the peat derived from similar washed-out bodies or represent bones removed from dryland settings is harder to tell. (Given the distances from the shoreline – fragment SF 246 and Skeleton [901] were 35–40m out from the dry edge – some were potentially deposited from boats.) Whatever the circumstances, we must remember that the bones recovered from this wetland context constitute a series of chance finds, as the peat could not be intensively investigated. They are, therefore, likely
The arrival of fen-edge settlement

for Middle Iron Age sites beyond regions rich in iron ore), by the comparative standards of the East Anglian context, the scale of debris is unprecedented for a site of this date. It is certainly a first among equals with regards to production and offers by far the most pristine picture of Iron Age metalworking practices from the surrounding area. Its importance is elevated further still because of the rich finds of Iron Age metalwork in the Basin and, understandably, begs the question of whether some of these items were actually made at Bradley Fen. Unfortunately, this is impossible to answer, though it is arguably the first site found where this is at least a possibility.

In terms of the activities themselves, iron smelting is the most surprising, since all the known smelts of the period in eastern England lie in Northamptonshire, on the ironstone-rich Jurassic Ridge. A potential connection to this region is, however, provided by the ironstone fragment from slag pit F.597, raising the possibility that the Bradley Fen metalworkers were familiar with this resource. The presence of a bog iron nodule in F.597 might even suggest that sources of a local ore were also being sought. The fen-edge would certainly be the place to procure and extract this mineral deposit, though there is no conclusive evidence that this occurred. However, with further analytic work anticipated on the recent finds of the Iron Age metal from adjacent Must Farm palaeochannel, some of these issues may reach resolution in future volumes in this series.

Interestingly, the landscape patterning of disarticulated human remains is not dissimilar to the known distribution of Iron Age metalwork in the Basin, though this largely clusters around the western end of the Flag Fen post-alignment at the Power Station site (Fig. 6.40). The single copper alloy ring from Bradley Fen adds little to this picture (though the site’s paucity of metalwork mirrors that at Cat’s Water). Of far greater significance, however, is the evidence of metalworking activities (iron smelting, smithing and copper alloy casting), with identifiable workshop areas and an iron smelting furnace located at the heart of the settlement. Although the quantities of slag suggest that production was limited in magnitude (which is the norm to represent a tiny fraction of the off-shore human bone at Bradley Fen, with the inference being that burial in watery contexts was the common mortuary rite in the Iron Age of this area. In short, it seems plausible that most of the community’s dead ended up in the fen interior and/or in fen-side features along the whole of the Basin’s perimeter. Indeed, this pattern can be appreciated when we plot all the known disarticulated human remains from the Flag Fen Basin confirmed, or considered, to be of Iron Age origin (Fig. 6.41) – though very few are securely dated. Given the limited opportunities to investigate in-fen settings and Iron Age fen-edge features in general, this distribution is quite remarkable and clearly demonstrates how the remains from Bradley Fen fit within a wider mortuary tradition.

Figure 6.41 (opposite). Distribution of Middle Iron Age settlement, metalwork and human remains.
Chapter 7

Discussion

The final chapter has a four-fold structure: Review, Synthesis, Implications and Futures. The first section reviews what has been achieved and how it has been accomplished. The second synthesizes the assembled results in relation to each other and the local context, whilst expanding the discussion to consider patterns of occupation through time. Under the heading implications, the third section moves from the local to the regional and incorporates aspects of Fenland, East Anglia/East Midlands and Southern Britain into the same narrative. The final section looks to the future with an emphasis on the adjacent Must Farm investigations and the promise of practising a vertical archaeology in an outwardly horizontal landscape.

The opening Review section also draws together different representations of the site which illustrate the correlation between gradient and forms of tenure. Throughout, the idea is to replicate the displacement of occupation and its vertical tendency over time and to examine settlement’s oscillating relationship with the advancing saturation of the landscape.

Review – a palimpsest pulled apart

As stated at the beginning of the volume, it would have been possible to follow precedent and (re)present the investigations in a single all-encompassing view. Instead, we have chosen to accentuate process over palimpsest and, as a result, we arrived at a series of intricate views. To achieve this, full use was made of landscape attributes unique to our situation and, as such, we can state with real confidence the outcome is contextually valid. From beginning to end, we opted to draw attention to the project’s vertical dimension, its built-in temporal inclination, even if this was achieved in combination with its correspondingly impressive horizontal detail. In this sense, both axes were considered equally – the historical and the geographical.

Instead of maintaining the spatial ascendancy that has come to characterize much of Fenland prehistory, we have chosen a different path, one which actively embraces its depth and complexity. The approach or methodology emulates the sediment, in that its overriding trajectory is also from the bottom-up, and as such can be described as being resolutely non-superficial in its attitude. For the most part, past characterizations of prehistoric Fenland have been constructed from the top-down and this has been done through the investigation of sites exposed, at least partially, at the present surface. By definition a top-down approach assumes at least two basic certitudes: a consistent degree of transparency together with a fairly curbed or limited distribution. Without both of these things being true, a top-down perspective will only ever produce a reduced or truncated version of past occupations. The switch in attitude presented here is subtle and we are not talking about exploring huge depths. It is simply about following Waller’s wise counsel not to take the ‘side by side’ relationship of site and sediment at face value, but to countenance the distinct possibility that one might carry on beneath the other (Waller 1994, 3).

In due course, we produced four separate ‘evidence’ chapters. From these, it is now possible to present the prehistory of King’s Dyke and Bradley Fen as a sequence of four individual views or broad chronological windows (Fig. 7.1): 1) Early Bronze Age, 2) Middle Bronze Age, 3) Late Bronze Age and Early Iron Age and 4) Middle Iron Age. Each view maps a successive occupation or landscape component that has been intentionally pulled-apart or disaggregated. Each plan view is accompanied by a cross-sectional diagram elucidating the landscape’s vertical axis and its aforementioned correspondence to the predominantly upward mobility of settlement (Fig. 7.2). In both circumstances, plan and section, traces of the previous occupation have been retained as a way of demonstrating flux, but also as a means of articulating
Figure 7.1. Four landscape views.
significant junctures in the landscape grain. These junctures took on various forms and included wholesale transformations as well as delicate adjustments in how this particular tract of ground came to be inhabited. In the same vein, the saturation levels and associated environmental differences between views could be dramatic or just barely tangible, depending on ‘where you are’ in time. The advantage of presenting the site in sequence is the ability to illustrate movement or mobility. In four simple plans, we are able to visualize different types of landscape ‘use’ or tenure (i.e. the changing conditions under which land was held or occupied), including shifts between extensive and intensive forms of residency.

‘Sequent occupance’ (Whittlesey 1929, 164)

Colonization of the landscape succession presented here began in a comparatively open but not unstructured manner (Fig. 7.1 1). Individual settlement foci populated the ground between a group of elevated monuments and a string of marginal watering hollows, metallized surfaces and burnt stone mounds. Settlement comprised three independent structures, one situated low down and Beaker associated and two high up and Collared Urn associated. ‘Refuse’ from settlement was deposited amongst the monuments, whilst cremations equivalent to those interred in and around the same monuments were also interred in close vicinity to the burnt mounds. The up–down or high–low arrangement of different architectures, especially the spatially and functionally divergent relationship between the monuments and burnt mounds, displayed a level of landscape organization which was later formalized through the construction of the co-axial fieldsystem (Fig. 7.1 2).

Despite the increasing saturation and consequent accretion of peat that interceded between parts of the earlier ‘open’ (1) and subsequent ‘enclosed’ (2) landscapes, the latter assimilated major constituents of the former. The fieldsystem’s elaborate geometry dovetailed closely with the established orientations of the monuments and burnt mounds. Indeed, the join was so explicit that other less obvious projections could also be deduced from its ‘composite’ geometry including the probable pre-existence of parallel field strips. In the making of the fieldsystem, it seems the landscape’s prevailing operational grain was formally entrenched (2). Crucially, there was no radical disjunction and, if anything, the relationship between ‘open’ and ‘enclosed’ was remarkably seamless.

Figure 7.2. Four cross-sectional diagrams.
Chapter 7

The currency of entrenchment outlasted the main operation of the monuments and the burnt mounds. The overlap was relatively short and coincided with the submergence of the burnt mounds and the loss of the lower parts of the fieldsystem to the encroaching peat. Saturation was no respecter of boundaries, whatever form they took, although its encroachment was momentarily arrested by the deliberate augmentation of the main north–south boundary, which for a short time became the principal wet/dry divide. Land on the dry-side stayed enclosed and witnessed minimal activity beyond small waterholes or wells and dumps of butchered cattle bone. Initially, at least, land on the immediate wet-side was also accessible and here further small wells were dug.

The spread of overlying peat ensured that the relationship between the fieldsystem and the subsequent deposition of large quantities of metalwork was also given an added dimension (2). Around the margins of the Flag Fen Basin, conditions conducive for peat growth happened post-system but pre-metalwork. This distinction is critical in that it demonstrated a significant dividing line or gulf between the two processes: in these circumstances fields are basically terrestrial and metalwork deposition is fundamentally aquatic.

As a consequence our second landscape view depicts disjuncture as well congruity and, whereas previously the monuments/burnt mounds and fieldsystem narrative portrayed a kind of landscape progression, it now introduces a kind of landscape rift. This is not to say that fields and metalwork were wholly unrelated but to state that the relationship was never as straightforward as sometimes suggested (e.g. Yates 2007, 91). For us, the juncture between fieldsystems and metalwork was always awkward and one which betrayed the collision of opposing landscape perspectives – fieldsystems projecting backwards and metalwork deposition projecting forwards in time. To some the issue is purely chronological, but in reality it is always contextual and the juncture of fields and metal was also pivotal to the landscape’s development.

The third view (Fig. 7.13), could at first be mistaken for the second (2), in that it too shows peat overspreading parallel fields. Components of the opening landscape (1) have all but faded, even though the materiality of the remaining field boundaries ensures that something of its original ‘grain’ survived. What actually distinguished this new view from its antecedents, however, was the impression that tenure and the dynamic environment were becoming ever more synchronized. If in previous views the dynamic environment supplanted occupation, here the two processes began to converge. Between the Late Bronze Age and Early Iron Age, we see the first real manifestation of a ‘fen-edge’ with which settlement could intersect or meet. At first the convergence was subtle. So, for instance, the orientation of Late Bronze Age settlement was structured by the surviving field boundaries and by the advancing peat and, a bit like the metalwork, it too was wedged between the old and the new. Come the Early Iron Age, however, any influence the fieldsystem had in terms of landscape configuration was negligible and, in the areas where occupation actually met the advancing fen-edge, its relationship was now unmistakably perpendicular.

The core of Early Iron Age settlement resided upslope and was removed from the fen-edge; only waterholes occupied the low-lying margins during this period. Its settlement pattern was different primarily because of its magnitude and its imprint. Unlike the preceding Late Bronze Age occupation, which comprised a single ‘one-off’ diminutive dwelling, Early Iron Age occupation consisted of multiple paired structures built over a sequence of some duration. For the first time within our frame of reference, residency was intensive and reiterative (3).

By the Middle Iron Age, the synchronization of tenure and environment was complete. Our final view illustrates this in the coming together of settlement and sediment (Fig. 7.14). Prior to this, the two processes (settlement and sedimentation) had been out of sync and with the exception of the opening scene (1), in which waterholes and burnt mounds were located intentionally on the limits of fen sedimentation where the water-table was most accessible, the earlier landscape trajectories revealed sediment ‘pursuing’ settlement (2 & 3). The coincidence of concerted occupation and the edge of peat was historically and geographically determined, prior to the Middle Iron Age the interrelationship was different and manifold. If the opposite question for this landscape is ‘When fen-edge?’, the accurate answer is: Middle Iron Age.

The four views cover approximately 2000 years – from the beginning of the Early Bronze Age to the end of the Middle Iron Age. It would have been possible to fragment the same landscape into six or ten views depending which junctures we chose to articulate. Our points of articulation included seamless progressions, awkward jarrings, as well as out-and-out impositions. Amidst these flows and discontinuities, four landscapes were made. Integral to this sequence was the dynamic environment and, in particular, its inherent ability to interpose horizontally and vertically. Consequently, within our frame of reference, it has been possible to describe a series of significant moments in time.

The quartet of chosen images depicts the disposition of occupation over time. When seen all together there is an overriding impression of movement, a
Figure 7.3. Plan and diagrammatical section of Landscape Zones.
kind of see-sawing back and forth or up and down. What is absent from the succession is any sense of rigidity or static continuity. The pattern is one of oscillation rather than simple upward development and the interrelationship between occupation and the environmentally defined gradient is shown to be complex and to involve different forms of engagement over time. Instead of portraying settlement ceaselessly climbing-up the edge, our representations also depict a type of dynamic descent – things advancing down towards or even out to meet Fenland’s increasing saturation. As well as movement, the earlier views also describe a protracted grain or a kind of ‘continuity’, where certain features endure across more than one image. In these representations, however, it is the persistence of practice that is being depicted as opposed to something motionless, such as a fixed point.

Landscape zones

Another way of portraying the complexity of the interrelationship between occupation and the environmentally determined gradient is to interpret our block of landscape zonally. By dividing-up King’s Dyke and Bradley Fen into six contour-defined Zones the two projects can be consolidated into the same gradational scale. This zoning makes it much easier both to visualize authentic landscape connections between the two investigations and, at the same time, to understand why certain associations were absent. Accordingly, we can reproduce the different zonal divisions in plan and in diagrammatical section (Fig. 7.3) and, in effect, both configurations replicate the horizontal/vertical relationships between key landscape features. Together, these representations allow us to define what we might describe as intermediate zones or strips of landscape caught between consecutive occupations. For instance, Zone C survives in practice as an ‘uncontaminated’ band of Middle Bronze Age fieldsystem – it being too high and dry for Early Bronze Age metalling, waterholes and burnt mounds (Zone B) but too low and wet for later Bronze Age and Iron Age settlement (Zones D & E).

The basis of the zonal system is the understanding that Bradley Fen’s gradient or declivity was proportionate with the development of the surrounding landscape. It is for this reason that the patterns of occupation revealed here can be used to calibrate patterns of occupation exposed at adjacent sites. Appropriately, the next section moves outwards as it attempts to synthesize the results from Bradley Fen and King’s Dyke in relation to each other and the immediate context. As before, four separate landscape views are presented to illustrate the correspondence between gradient and tenure, only on this occasion the view has been expanded to incorporate the lower reaches of the River Nene, the Bradley Fen Embayment and the Flag Fen Basin. By moving between these spaces we can assimilate other ‘landscapes’ under the same dynamic calibration.

Synthesis – mobility long and short

If the term fen-edge cropped-up late in the narrative of King’s Dyke and Bradley Fen, then the term Flag Fen Basin has a similar billing in the narrative of the broader landscape. Within the wider sequence, it is the lower reaches of the River Nene which featured first and foremost, followed closely by the diminutive Bradley Fen Embayment (Fig. 7.4 1 & 2). As an entity, the Flag Fen Basin ‘frames’ the final two quarters of this particular landscape’s history (Fig. 7.4 3 & 4). In the course of animating the development of this terrain, the predominant process was the transformation of a river valley into a fen basin. Even though the river endured as a vital feature, it became increasingly suspended within the accumulation of silts and peat which described the Bradley Fen Embayment and, in due course, the Flag Fen Basin. As these geographical features became more prominent the river became increasingly dislocated from land.

The spaces outlined here are neither arbitrary nor definitive. Instead, they constitute a fitting scale to apprehend the key components of a prehistoric landscape in all its various forms. They are appropriate to different spatial-temporal extensities and ideally operate in ‘some kind of alignment with the scale at which the relevant prehistoric people inhabited their landscape’ (Fleming 2012, 70). In reality, the switch from river to basin represents a subtle change in scale as well as geography and, although the river is present throughout (in all its different guises), it is the basin that becomes progressively more integral to patterns of occupation.

Because the landscape sequence articulated at King’s Dyke and Bradley Fen was commensurate with the river to basin progression – both sharing the same spatial-temporal gradient – the task of integration was fairly straightforward. The topography which defined the former sequence also defined the latter and, owing to the manifest correspondence between age and altitude, its contours joined together points occupying equal time as well as equal height. In this way, we are able to situate key sites, such as Fengate (Gazetteer 4), Tanholt Farm (5), Tower Works (6), Briggs Farm (13), Pode Hole (17), Flag Fen (19 & 20) and Must Farm (23), into the equivalent frame of reference as King’s Dyke and Bradley Fen. Key features such as monuments, waterholes, fieldsystems, metalwork deposition and settlement excavated elsewhere in the vicinity can thus
be incorporated into the selfsame context. Such an approach makes possible the identification of authentic patterns of occupation and helps to demonstrate why certain features were absent from certain investigations.

The impact of approaching the prehistory of the Flag Fen Basin like this is fundamental in that it remodels our comprehension of its environmental history and cultural geography. In fact, the impact is so fundamental that it suspends the actuality of the Flag Fen Basin altogether and, in its stead, constructs a silted-up river valley beside a largely dryland plain of Early Bronze Age date.

*Nene Valley geometries – river and embayment*
For those acquainted with the prehistory of the Flag Fen Basin, the opening view will come as something of a revelation. The lack of a defining edge or, at the very least, the introduction of a totally different geographical determinant (i.e. the river) makes this landscape look startlingly unfamiliar (Fig. 7.4). This quality is amplified by the magnitude of pre-peat or pre-basin activity, but perhaps most of all, by the apparent evaporation of the Fengate shoreline. In this view, the definition of prehistoric occupation has been altered to such an extent that the Fengate investigations no longer describe its distribution (*pace* Pryor). Instead, Fengate has been left stranded, quite literally beached high and dry, by the deeper explorations of Bradley Fen and, more recently, Must Farm (23), Horsey Hill (14) and King’s Delph (21).

We can begin to characterize the early landscape by matching ‘like-for-like’ features between
those found at depth and those found higher-up the gradient or edge. By doing things this way we can be more or less assured of contemporaneity. The effect of this approach is dramatic in that it liberates a whole suite of monuments and settlement features from the confines of the fen-edge and by doing so changes how we comprehend the early components of sites such as Fengate, Edgerley Drain Road, Northey Landfall, Briggs Farm and Pode Hole. For example, the deep sub-fen distribution of later Neolithic and Early Bronze Age monuments transforms how we interpret equivalent monuments situated at Storey’s Bar Road (Pryor 1978), the Co-op Site (Pryor 2001, 47–50) and Third Drove (Cutler 1998). These monuments can now be shown to have a distribution separate from that of the Fengate fieldsystem.

At the scale of the ‘Flag Fen Basin’, there are currently 39 known barrow/ring-ditch monuments. The distribution includes the Fengate group, incorporating Abbott’s early twentieth century findings (Pryor 2001; Evans & Appleby 2008, 171–92; Evans 2009b), the Northey group (Britchfield 2010), three barrows at Eye partially excavated by E.T. Leeds in 1910–15 (Hall 1987), the Thorney group (ibid.) and the newly discovered King’s Dyke, Must Farm and King’s Delph monuments. The 39 monuments are distributed across the basin topography with a near-even split of examples located above and below the 1m contour (Fig. 7.5). They incorporate a mix of monument types (hengi-form, oval barrows, round barrows, causewayed ring-ditches etc.) with an assortment of chronologies (later Neolithic and Early Bronze Age) and ceramic associations (Peterborough Ware, Beaker, Collared Urn and Deverel-Rimbury). All of the monuments are circular or sub-circular in plan and depending on their topographical situation and relation to the deeper sediments, survive as barrow mounds and/or ring-ditches.

Rather than analysing their distribution by monument type (for which the evidence is scarce and often extremely subjective), it is more appropriate in this context to divide the series by configurations of negative (ring-ditch) and positive (barrow) forms. These can be set against contour data for the locality, revealing a striking inter-relationship between peat cover, preservation, form and elevation/altitude (Fig. 7.5). Two key observations can be made. Firstly, the distinct sub-fen distribution of later Neolithic and Early Bronze Age barrows and ring-ditches (Hall & Coles 1994) is ostensively an artefact of visibility. The increasing recognition of a large number of monuments within a high obscuration area demonstrates, categorically, that there are many more monuments hidden beneath the surface of the Fens.

Above all, it is no longer appropriate to describe the distribution of monuments as fen-edge and, just like the distribution of barrows/ring-ditches, we too need to locate ourselves below the fen and focus our attention instead, on the underlying geography. By doing so, it soon becomes apparent that the monuments of the Flag Fen Basin form part of a much wider Nene Valley distribution (Deegan 2007b) extending far into Northamptonshire. In short, by acknowledging these broader patterns, we are required to switch our emphasis from fen-edge to river valley. This change not only alters our overall perspective on the earlier prehistoric landscape per se, but transforms the context for understanding the principal King’s Dyke monument, the henge, allowing it to be viewed for the first time as one of several examples in the Nene Valley (such as Thornhaugh and Kings Sutton (Deegan 2007b)). In fact, this approach is dramatic in that it liberates a whole suite of monuments and settlement features from the confines of the fen-edge and by doing so changes how we comprehend the early components of sites such as Fengate, Edgerley Drain Road, Northey Landfall, Briggs Farm and Pode Hole. For example, the deep sub-fen distribution of later Neolithic and Early Bronze Age monuments transforms how we interpret equivalent monuments situated at Storey’s Bar Road (Pryor 1978), the Co-op Site (Pryor 2001, 47–50) and Third Drove (Cutler 1998). These monuments can now be shown to have a distribution separate from that of the Fengate fieldsystem.

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Discussion

The lower Nene, buried beneath Peterborough’s rural parishes (RCHME 1969). Equally, the King’s Delph barrows, including the impressive Suet Hills group and the various barrows and ring-ditched cropmarks further afield at Coates, Eldenell and Eastrea (Hall 1987) can be accommodated into the same configuration.

is understood as a closed and inherently significant landscape entity, but not if their distribution is seen from the perspective of the Nene Valley as a whole. We need not only look upstream when trying to come to terms with the river valley patterning, but must take into account what lies within the ‘lost’ stretch of the lower Nene, buried beneath Peterborough’s rural parishes (RCHME 1969). Equally, the King’s Delph barrows, including the impressive Suet Hills group and the various barrows and ring-ditched cropmarks further afield at Coates, Eldenell and Eastrea (Hall 1987) can be accommodated into the same configuration.

Figure 7.5. Nene Valley monument distribution (after Harding & Healy 2007, Fig. 5.15), Flag Fen Basin monument distribution and diagram illustrating the relationship between monument form (‘negative’ ring-ditch or ‘positive’ barrow) and depth/altitude within the Flag Fen Basin.
By making these connections, the geography of monuments is transformed from being essentially introspective, and basin oriented, to outward-looking and valley aligned. The switch is subtle but has major implications in terms of how we understand the scale of these features and the scale of movement and mobility. Indeed, we can extrapolate further and argue that the Early Bronze Age community resided at a scale beyond that of the monuments and was defined by its relationship to the river and not to the fen or the Flag Fen Basin (which were yet to emerge as significant landscape entities). As such, it was the Nene Valley corridor that formed the wider community catchment in the late third and early second millennium BC, providing an orientation for monument construction.

As spatial concentrations of temporally discordant activities, barrows can represent a peculiar kind of social construction. The very durability of these features rested in the kinds of emotionally heightened activity that made them and the brief, irregular bursts at which such activity occurred. The focus of these particular spaces was not so much about commemorating the dead (past) but about remembering that these were places where the dead could be buried (future). The overriding impression is of communities scattering burial sites up and down the valley and, at the same time, utilizing and manipulating similar sites previously produced by others. Under these circumstances it was death that represented the principal point of convergence rather than prearranged sites. By the same token, supposed ‘isolated’ burials (inhumations or cremations) can be incorporated into this scheme as components of the same adaptable pattern of movement.

Harding and Healy suggested ‘the use span of a barrow must have varied with the history and needs of the group that built and used it’ and that particularly long sequences must have involved ‘detailed knowledge communicated over several generations’ (2007, 224). Under these kinds of interpretive conditions, continuity prevails, space and time are predetermined and the living (present) become tied inextricably to the dead (past). Effectively, all Early Bronze Age people are prescribed the same preordained trajectory, save for subtle alterations in the manner which they are treated when they die (interred, cremated etc.). As a consequence process becomes essentially eternal. The evidence, however, including that provided by the King’s Dyke complex, implies something much more unpredictable and, therefore, a great deal more open-ended. The configurations contradict any sense of barrows being individual family plots, or of ever accommodating discrete genealogies, but instead suggest protracted lineages strung-out over distributed burial sites (see also Brück 2000, 285). The dead, it seems, ‘occupied’ the same geographical reach as the living and at a scale equivalent to the community not individuals or families. In the same vein, persistence (as in customary practice) occurred across, rather than within particular burial places. Yes, the genealogical past was being referenced, both consciously and unconsciously, but this was accomplished by creating and maintaining connections between multiple sites, including places situated far apart.

By extricating the living from the ‘immediate’ dead in this manner, it also becomes possible to unshackle individual groups of people from specific monuments and therefore specific pieces of land. Under these circumstances tenure takes on a different perspective altogether and becomes more flexible and expansive (Barrett 1994, 143–45). So expansive, in fact, that it extends way beyond our immediate frame of reference. Versatile and wide-ranging forms of tenure do not preclude static settlement structures or, for that matter, other kinds of focused construction. The key features which made up the Early Bronze Age terrain constituted a variety of types of spatial-temporal configurations, each with its own ‘composition’ of extensity and duration. The burnt mounds, for example, had a restricted extent in that they were confined to the damp margins, whilst the various practices which instigated or perpetuated the building of round barrows had a far greater reach when it came to a choice of location. Both features represented composite edifices but the rhythm of their assembly was manifestly different, burnt mounds being a product of specified routine, barrows, a product of an indeterminate sequence of momentous events. In amongst these routine and momentous constructions, settlement prevailed and its architecture had a different cadence altogether. Settlement might have been a routine practice but its incidence within our window was far more sporadic and short term. Everything about the character and frequency of dwellings points towards simple one-off occupancies (Brück’s ‘residentially mobile households’ (1999b, 69)), especially when set against the more durable, composite architectures of burnt mounds or barrows.

There are different reasons why communities might favour a system of tenure which is particularly versatile and wide-ranging – one of which is a form of mobile pastoralism. Regionally at least, there is plenty of evidence to support a predominantly cattle-led economy for the later Neolithic and earlier Bronze Age or for that matter, the later Bronze Age and Early Iron Age. Pollen and soil analyses collectively describe a landscape where grassland replaced woodland, whilst key features include large waterholes,
trampled surfaces and swathes of hoofprints made by large ungulates. The pastoralist’s relationship to land might have been different from the arable farmer’s or mixed agriculturalist’s but it was no less contingent, especially in terms of access to pasture to graze or sources of water for herds and people (Chatty 1996, 3). At Bradley Fen and at Must Farm, cattle tracks and metalled surfaces made apparent lines of movement, whilst settlement structures, burnt stone mounds and waterholes emerged as points or places where valley life converged for purposes other than the burying of the dead. The river-defined orientation of these features was equivalent to that of the monuments and, but for methodological issues of preservation and accessibility, we can envisage analogous features occurring in similar floodplain settings both up and down the same valley.

In addition, the identification of ephemeral ‘brushwood’ boundaries of comparable date to the monuments at sites such as Must Farm and Northey Landfall (see also Elliott Site (Evans & Beadsmoore 2009, 77)) clearly shows a hitherto imperceptible facet of the late third and early second millennium riverine landscape. If nothing else, the presence of flimsy wooden fence-lines parceling-up land in a similar fashion to the later, more substantial or earthfast ditch and bank boundaries, problematizes labelling these landscapes as open or enclosed. The very possibility of a much earlier but far less tangible framework or delicately bounded grain has major ramifications in terms of how we interpret the introduction of formalized land division. As postulated in the previous section, the configuration of monuments and burnt mounds had a strong bearing on the layout of the fieldsystem and there is no reason to believe that the same was not true prior to its architecturally visible formalization.

The last thing we want to do, however, is suggest that the barrows and burnt mounds represented fixed points around which land was subsequently organized or appropriated. Quite the reverse, this delicately bounded grain was integral to the arrangement of the monuments and mounds. Its ‘pattern’ may have been made clearer by the enhanced tangibility of these particular constructions but it was not created by them – these things (grain and features) emerged in tandem. This line of interpretation argues against understanding monuments as ‘symbolic capital’ and therefore largely of the past (Cooper & Edmonds 2007, 76) and instead understands these edifices as constructions in progress and therefore open to continued investment. The difference is subtle, but nevertheless important, as it also suggests that if there was any ‘capital’ to be gained out of continuing a relationship between land and these features it was of the direct kind, as opposed to something symbolic or explicitly referential. The important point here is the contiguity of barrows, burnt mounds and the delicately bounded grain – they were of the same patterns of mobility.

When brought together the different strands of evidence begin to catch a place of action which extended up and down the river and across the contour; the relationship between features, it seems, was as protracted as the movement between them. The first vestiges of land allotment materialized in the spaces separating round barrows and burnt mounds whilst settlement frequented similar ground. Swathes of metalled surfaces and hoofprints showed where herds had congregated around giant waterholes or had passed over saturated ground. Extended territories built around a predominantly pastoralist economy befits the manifestations presented here.

**Striated spaces – embayment and formative basin**

For Pryor, the Fengate fieldsystem managed a contracted block of space for an extensive block of time. The system was purposefully coincident with the edge of the fen where it was used to control the movement of stock and regulate access to summer grazing (Pryor 2001). On top of this, core parts of the same system were interpreted as being suitable for communal gatherings (Pryor 1998b). As far as Yates is concerned, the Fengate fieldsystem remains the archetype, both in its organization of space and time and its almost machine-like capacity to generate economic surplus (Yates 2007, 87). In *Fengate Revisited*, Evans (2009c) has the fieldsystem managing the same strip of ground but for a slightly shorter period of time. Its fen-edge relationship is maintained although the system’s function is a little less prescriptive. In this model, cattle usurp sheep and Pryor’s drafting races are construed as compelling evidence of hedgebanks. In all three cases, the Fengate system has been idealized, at the interpretive expense of other fieldsystems situated in the vicinity (Fig. 4.44).

The ‘stranding’ of Fengate therefore has considerable implications for how we now comprehend its fieldsystem and land division in this location. To begin with, the supposed perpendicular relationship between Fengate’s fields and prevailing environment no longer holds true. In its stead we are left with a partial, infield view of mid second millennium land division, the system’s true extent being masked by the very sediment that was previously thought to define it. We would even argue that the apparent perpendicularity was circumstantial because to the north and south of Pryor’s main investigations, at Edgerley Drain Road and Tower Works respectively, the juxtaposition between fields and the prevalent environment was more obviously at odds (Evans et al. 2009).
By eradicating Fengate’s prescriptive environmental frame, the possibility that the fieldsystem continued eastwards, incorporating a tongue of land which unites Fengate with the Bradley Fen and Must Farm sub-fen landscapes, is introduced. Decisively, these spaces were unified by the bank and ditch boundary identified at Bradley Fen and subsequently at Must Farm, which shared identical contextual circumstances to the truncated ‘Neolithic’ ditch found at the Power Station excavations (Pryor 2001, 72). Pryor suggested that this ‘Neolithic’ ditch was important because it was ‘roughly aligned on what was later to become a significant part’ of the Fengate system. To us it seems almost certain that the ditch represents a straightforward continuation of the fieldsystem and is, in fact, part of the same promontory-edge boundary as that excavated at Bradley Fen and Must Farm. If so, our ditch and bank boundary represents an extension of Fengate – the system’s most easterly edge. The consequences of this interpretation are very significant for it binds Fengate and Bradley Fen together in the same contextual framework when previously the ‘opposing’ systems had been understood as being very different (Evans 2009b, 49).

Both Yates and Evans have commented on the inconsistency of layout amongst the basin edge fieldsystems (Yates 2007, 89–93) and even within Fengate itself (Evans 2009c, 241–42). Overall, it would seem consistency only occurred in blocks and that the broader pattern was generally one of variability – open-up a big enough space and the configuration of a particular fieldsystem is liable to change. Just within the bounds of the Tanholt Farm investigations, it is possible to pick out at least two different systems (Patten 2004), whilst the neighbouring Briggs Farm and Pode Hole configurations appear dissimilar again (Daniel 2009; Pickstone & Mortimer 2011). On current circumstances to the truncated ‘Neolithic’ ditch found at the Power Station excavations (Pryor 2001, 72). Pryor suggested that this ‘Neolithic’ ditch was important because it was ‘roughly aligned on what was later to become a significant part’ of the Fengate system. To us it seems almost certain that the ditch represents a straightforward continuation of the fieldsystem and is, in fact, part of the same promontory-edge boundary as that excavated at Bradley Fen and Must Farm. If so, our ditch and bank boundary represents an extension of Fengate – the system’s most easterly edge. The consequences of this interpretation are very significant for it binds Fengate and Bradley Fen together in the same contextual framework when previously the ‘opposing’ systems had been understood as being very different (Evans 2009b, 49).

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Following earlier ideas about the articulation of less tangible landscape configurations or an earlier operational grain, it could even be argued that fieldsystem organization and fieldsystem morphology were in fact two separate things; the former related to prevailing patterns of tenure, the latter to brand new forms of boundary making. In melding the two together, we finish up with a series of different configurations defined by similar kinds of division. If both organization and morphology were newly developed surely we should have found more uniform configurations as well as equivalent kinds of division. Previous interpretations of land division have tended to compound patterns of tenure with new forms of boundary making in order to convey a sense of out-and-out landscape transformation or at the very least a sense of new ways in which land was held or occupied. Conversely, the same interpretations also put an emphasis on shared alignments with earlier features to convey a sense of deeper landscape rootedness. Although not strictly contradictory, surely fieldsystems were either original (as in transforming) or derivative (as in continuing) not both.

As we have demonstrated, conditions conducive to peat formation were coincident with the instigation of the fieldsystem but its relationship was far more subtle than previously described. At Bradley Fen the lowest parts of the system cut the first peat, whereas the higher parts were subsequently subsumed by peat. It was subtleties of contour, rather than changes in environment, which came to be defined.

**The Flag Fen Basin**

Within our deepened landscape frame, the reach of monuments was greater than the reach of fieldsystems and, even if higher up the contour the spatial relationship appeared broadly mutual, lower down, the distribution of the two architectures diverged considerably. On this landscape gradient, divergent distributions can be read as testimony to divergent histories and, sequentially, formalized fieldsystems succeeded configurations of monuments (Fig. 7.6). In turn, concerted metalwork deposition followed fields and, in the same way the distribution of fields diverged from the distribution of monuments, the distribution of metalwork diverged from that of fields. Instead of occurring at the very edge of the fieldsystems, metalwork was deposited at the point where the increasingly saturated environment overlapped existing fields. This relationship was crucial in that it established a vertical rift between the institution of ditch and bank boundaries and the disposal of large numbers of bronze weapons and tools.

The same vertical rift was present at the Power Station investigations with peat again interposing between boundaries and bronzes. The construction of the Flag Fen post-alignment after the onset of peat growth magnified this rift (as indeed, did its thirteenth century bc erection date). It is important to remember that the very preservation of the timber uprights
concede that some things in this context are a little less unique than was once supposed, especially with respect to the Flag Fen platform. Indeed, the picture being refashioned is not one of a specialized cult centre in the heart of the Basin, but a thriving wetland community. Still, there remains the danger that wetland settlement ‘specialization’ will be heralded as the new unique feature of this landscape. This may be true to a certain extent, but if we focus too much on this point, we might lose sight of the way in which patterns of settlement are starting to mirror those associated with other major river valleys, such as the Thames. Here, in the Late Bronze Age, there is the real sense that settlement maintained its relationship to the river corridor at any cost, resulting in a high density of sites, and a pronounced settlement/social hierarchy (ringworks and other ‘aggrandized’ enclosures (Yates 2007, 18)).

The reasons for these developments are clearly complex, but access to the river as the means by which bronzes (as well as other commodities) and their exchange networks were channelled was potentially a major draw for communities. Indeed, direct access to these networks and the control of watercourses are often cited as two of the principal reasons why occupation began to take hold at this time on eyots or islands in the Thames, including sites such as Runnymede Bridge (Needham 1991) or Wallingford (Cromarty et al. 2006). These sites appear to be unlikely choices for settlement, but judging by the wealth of finds, were the context for intense periods of activity. The same might be argued for the wetland sites/settlements in the Flag Fen Basin. The only difference here was that occupation required the colonization of a wetland environment in order to maintain proximity to the watercourses of the River Nene (Bradley 1998, 204). The pattern was essentially the same, reflecting an identical set of concerns surrounding access to routes of communication/exchange networks and, most importantly, access to bronze and the spaces where some of that metalwork would ultimately come to be deposited. After all, this is a region extremely rich in later Bronze Age metalwork, just like the lower Thames valley.

How far these patterns extend to other major river valleys in the region remains to be seen. It is interesting to note that recent excavations at the Over Narrows along the lower Ouse have also uncovered Late Bronze Age settlement and extensive midden deposits on narrow sand ridges between palaeochannels (Evans 2013) – further evidence of the draw of these watercourse locations. Equally significant, the main fluit of activity on all these sites ended at, or just after, the close of the Late Bronze Age. In the settlement record of the dryland terraces of the Flag Fen Basin, this coincided with what now appears to be a sudden surge in the

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**Figure 7.6. 'Vertical rift' in Flag Fen Basin occupation.**

was conditional on the post-alignment’s prolonged waterlogged circumstances. In point of fact, the very reason for its existence was the rising saturation and the necessity for people and things to be lifted above the wet. Other, more imaginative, interpretations have been made for the Flag Fen post-alignments and, in particular, its interrelationship with large quantities of metalwork. However, our detailed contextual setting shows that the path of the uprights mimics the route of a former land bridge and the deposition of large quantities metalwork was not exclusive to the alignments. If anything, it seems that the posts shared the equivalent contextual setting as the metalwork and the convergence of the two things was brought about first and foremost by mutual circumstances (i.e. a watery environment). The deposition of later Bronze Age metalwork at Bradley Fen was comparable to that at the Power Station except that it did not have the post-alignment as an additional point of focus. This might also explain the absence of later metalwork from Bradley Fen as the post-alignment persisted as a depositional focus after the fen-edge had shifted further inland.

In many respects, it is the recent discoveries in the Flag Fen Basin which are also forcing us to rethink our perspective on patterns of settlement in the Late Bronze Age. Whilst these are turning some conventional models on their head, at the same time they offer us better ways to understand the ‘light’ traces of contemporary occupation on the dryland terraces – including those at Bradley Fen. In coming to terms with these new discoveries, we may have to
visibility of Early Iron Age occupation (see below). In other words, the Bronze Age–Iron Age transition seems to mark a major re-colonization of the dry basin edges. The causes of this require further investigation, though it is hard to imagine that the collapse of the ‘bronze standard’ and the cessation of major pan-European exchange networks of bronze were not pivotal in these developments (Needham 2007). With traditional value systems undermined, the benefits of remaining in these wet locations were perhaps now out-stripped by the disadvantages, leading to a wetland settlement exodus and a return to the higher terraces once home to just fields and herder’s huts. This model is strikingly different to the conventional story of landscape development in Flag Fen Basin, but does seem to fit the evidence well, if not better than the mainstream narrative. For one, it offers an explanation for the paucity of settlement remains on the basin fringes and a context for understanding the massive investment in water-fast structures in this period. Secondly, it enables us to see these patterns as resonating with those identified elsewhere in southern Britain, meaning that we do not have to frame this region as a unique ‘cult centre’. Finally, it softens the kind of deterministic role we often ascribe to the environment in the Flag Fen Basin and shows that communities were quite prepared to, and were capable of, settling in these wetland spaces. Though the rising water-table had effects on the landscape, in the late second and early first millennium BC this did not necessarily force people out of the basin interior. Rather the decision to stay or leave seems to have been determined by other concerns shared more widely throughout southern Britain at this time.

**Implications – vertical prehistory**

The implications of practicing an archaeology that sees past the horizontal are many, especially within the context of the Fens but also when considering landscapes elsewhere. By placing emphasis on the vertical, the inclination to suppress difference and contingency is circumvented and, as a result, prehistory reacquires its great depth, its profundity. The objective is to avoid churning out excessively conflatory accounts of the Bronze Age (what we might call a second millennium BC blend) or similarly ‘flat’ explanations of the Iron Age. Fortunately, when exposed to its full vertical extent, prehistory in Fenland presents itself in explicit articulation and there is no reason to believe that the relationships it enunciates were unique to this landscape. As a theoretical insight, however, vertical prehistory works best when applied to areas blessed with a similarly dynamic gradient.

For example, the presence of patently terrestrial Early Bronze Age occupation at, or just above 0m OD reshapes Fenland’s prehistoric topography (Fig. 7.7). Large tracts of land that were previously regarded as sub-fen or intermittently wet are revealed as dryland,
available for sustained settlement in this period. Just as our investigations demonstrated a river valley or pre-fen embayment context for much of the earlier archaeology of the ‘Flag Fen Basin’, we can envisage a similar dynamic for the rest of the peat fen. By highlighting the equivalent contour, the southern half of Fenland becomes less a peat-filled basin and more a network of major river valleys (Nene, Great Ouse, Cam, Lark, Little Ouse and the Wissey), whose floodplains became overspersed with fen-related sediments. At once, the ‘islands’ of March, Chatteris and Ely, previously understood as fen-locked, are joined into a single landmass, attached to the ‘mainland’ and forming an undulating central spine dividing its western and eastern rivers. It is in this landscape that we can situate the emerging barrow fields of the lower reaches of the Nene (Must Farm, King’s Delph and Suet Hills (Hall 1987, 57) and of the Great Ouse (Needingworth, Over (Evans et al. 2016), Haddenham (Evans & Hodder 2006b) and Block Fen (Hall 1992, 89)) along with the ‘pot-boiler’ sites or burnt (flint) mounds of the Wissey Embayment (Silvester 1991, 85–87, fig. 49) and the burnt (stone) mounds of the Nene and Great Ouse. The distribution of contemporary settlement at sites such as West Row Fen (Martin & Murphy 1988), Over Narrows (Evans et al. 2016), King’s Dyke, Bradley Fen and Must Farm completes the picture and reiterates the Early Bronze Age triumvirate of barrows, burnt mounds and settlement (Fig. 7.8).

Certainly, the model described here represents a simplified reconstruction of early second millennium bc topography, especially as Fenland’s different river valleys and embayments had their own sedimentary histories. However, we feel that the model succeeds in principle in that it envisages a more historically contingent topography than the retrospectively informed, top-down view which pervades many reconstructions of the prehistoric fen. Primarily, its value lies in its potential to reconcile some of the ‘apparent gaps or troughs’ in the settlement record which prevail to the east and west of Fenland (Healy 1996, 180).

With the new found western pattern of relatively deeply buried burnt mounds and Early Bronze Age settlement it would appear that many of the assumed inconsistencies between the opposing sides of the Fens are in fact related to issues of visibility or extreme post-depositional processes; the western margins being generally covered and protected, the eastern margins, close to the surface and exposed. The extraordinarily erosive land-use patterns of the south-eastern fen-edge have been well documented and shown to have had a drastic impact on later deposits (Healy 1996, 177). With an estimated loss of centuries of settlement over the past four or five decades the same sites have continued to yield earlier and earlier material as the current land surface keeps being denuded (Silvester 1991, 136). The shallowness of cover at locales such as the Wissey Embayment means that what survives of its Bronze Age archaeology resides very close to, or at, the present surface, whereas the depth of cover in the Flag Fen Basin is such that deep excavation is essential in order to fully elucidate its Bronze Age archaeology.

As outlined above, until the excavations at Bradley Fen ventured at scale beneath the 1m OD contour, there was no indication of the presence of burnt mounds and our understanding of Early Bronze Age settlement patterns was at best limited. To uncover archaeology equivalent to that exposed along the south-eastern fen, it was necessary to explore further down the edge than had been attempted before.

From earlier accounts you would be forgiven for thinking Bronze Age Fenland was polarized geographically with the western edge being made up predominantly of formalized fieldsystems and the eastern edge of early settlement spreads and burnt mounds. The distinction was remarkable, except that, it is now evident that the marked distinction was temporal. Vertically separate ‘horizons’ on the Basin’s spatial-temporal gradient were being investigated and, more significantly, being compared. In reality, the features that typified the east were located below the features that typified the west.

Publications describing the artefact assemblages retrieved from the eastern fen-edge consistently called attention to the apparent disparity between its dry Early Bronze Age ceramic component and its wet, but spatially adjacent, later Bronze Age metalwork component (Hall & Coles 1994, 87; Healy 1996). In these circumstances, the dry/wet divide was understood as being especially problematic because the metalwork was devoid of an obvious terrestrial settlement context (Healy 1996, 181). This disparity is resolved when it is understood that accelerated drainage, intensified farming practices and peat wastage have progressively reduced the south-eastern fen-edge to the extent that very little survives of post-Early Bronze Age occupation (Fig. 7.9). Whilst others have taken the juxtaposition of early and late at face value and related the distribution of metalwork directly with that of burnt mounds (Yates & Bradley 2010, 413; Malim et al. 2010), in reality, the pattern demonstrates just how much of the later landscape has actually been lost. In terms of our understanding of the fen-edge gradient and its ability to act as an extremely effective spatial-temporal scale, however, the survival of later Bronze Age metalwork along the eastern margins illustrates just how alike the eastern and western edges once were. It also implies that, prior to erosion, the dry eastern margins once
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To truly demonstrate the context of metalwork, we need to extricate it from these erstwhile spaces and resituate it in relationship to features and sediments that were genuinely coeval with its employment and its deposition. The same can be said for all things – context is paramount.

Futures

In the production of this volume we have reaffirmed the spatial-temporal veracity of Fenland when it comes to articulating later prehistoric landscapes. Our aim from the very outset was to reassert the Basin’s overlooked vertical dimension as a means of counterbalancing the spatial turn which had come to dominate interpretations of the patterns in its prehistoric occupation. The choice of approach was in many ways contingent on the circumstances we found ourselves in (i.e. an extremely deep brick pit) although, even then, it took a while to fully appreciate the possibilities of excavating a buried landscape completely. Coming to comprehend that throughout prehistory the fen-edge was always temporarily altered our perspective dramatically. Before, we had been working under the impression that the fen-edge was primarily a geographical feature, whereas in reality, its capacity to define landscapes was historical too. In digging a site at the edge of a concave-shaped basin, with an exaggeratedly time-transgressive environment, we managed to bring to light a ‘ramp’ or gradient which had a historical-geographical range entirely commensurate with later prehistory. By simply exploring the gradient up and down, and side to side, it was possible to articulate the actual spatial-temporal extent of different occupations. The only limitation was the scale of the gradient within the investigation area. In the case of King’s Dyke and Bradley Fen, we were able to reveal the relative reach of features such as fieldsystems, metalwork and concerted settlement. But this was only part of the story, as it was obvious contained traces of other later second millennium BC features including Middle Bronze Age fieldsystems and later Bronze Age settlement.

The vexed question of finding a terrestrial context or home for the later Bronze Age metalwork found along the wet margins of the eastern fens brings us right back to where we began. If truth be told, later Bronze Age metalwork has persistently been coupled with much earlier landscape features regardless of the fact that the bulk of the objects were deposited into overspreading sediments. In Fenland, the context of metalwork was not the same as the context of burnt mounds; there exists an appreciable vertical gulf between the two entities in spite of their horizontal proximity. The same can also be said of metalwork and fieldsystems (even if the vertical divide is less evident) and, however tempting it is to equate burnt mounds and fieldsystems with the influx of metalwork, this landscape’s enduring stratigraphy advocates a much less collapsed trajectory. Within this terrain, sediment repeatedly interposes and in doing so cautions us against the invention of composite landscapes. Despite the persuasive arguments which interpret fieldsystems as the economic ‘motor’ behind the profusion of metalwork that occurred in the later second millennium BC, there remains a stratigraphic rift between the two.

Figure 7.8 (opposite). Distribution map and ground plans of Early Bronze Age structures in East Anglia; incorporating the Bradley Fen and King’s Dyke examples alongside Edgerley Drain Road, Peterborough (Structure 1 – Beadsmoor & Evans 2009, 137, fig. 4.16); Sutton Hoo, Suffolk (Roundhouse S26 – Hummler 2005, 417, fig. 179); Redgate Hill, Hunstanton, Norfolk (Structure J – Patten 2002a, 4, fig. 4); West Row Fen, Suffolk (House – Martin & Murphy 1988, 354, fig. 1); and Baldock Bypass, Hertfordshire (Roundhouse L130 – Phillips 2009, 26, fig. 3.4).

Figure 7.9. Models of the survival of archaeology on the western (Flag Fen Basin) and eastern (Wissey Embayment) fen-edge.
that features such as barrows, metalled surfaces, burnt mounds and waterholes had a much greater range or distribution than the spatial-temporal scale of our excavation aperture. In our downward pursuit of the extensity of things, we had run out of space and time. The most important thing, however, was that we were aware of the fact; that despite its horizontal immensity, the scope of the opening we had imposed upon the landscape was still restricted vertically.

Since then, the neighbouring Must Farm and King’s Delph investigations have started to address the problem of a delimited verticality by proceeding much further down the Fenland gradient. In doing so, these investigations have been able to describe the spatial-temporal reach of barrows, burnt mounds and waterholes. At the same time other feature-types have increased in intensity (metalled surfaces) or cropped up for the first time (Grooved Ware pits). The progression down the ‘ramp’ continues to produce material equivalent to that found on the surface along Fenland’s eastern margins. At these contours, the landscape looks less and less like Fengate and more and more like the Wissey Embayment in character, whilst the age-altitude correspondence bears a remarkable resemblance to the sequence first established at Peacock’s Farm (Clark et al. 1935; Smith et al. 1989). At Must Farm, the Flandrian deposit sequence of lower peat, fen clay, upper peat and upper silt overlies an old land surface situated at close to -3m OD. Large and small silted-up river channels and roddons inter-cut different stages in the Flandrian sequence and, in doing so, reveal a whole new component to the prehistoric archaeology of the Flag Fen Basin. For the first time, substantial, unambiguous later Bronze Age occupation has been traced out into the basin sediments via the watercourses and this has conclusively changed the parameters by which we define the settlement of prehistoric Fenland.

Within the extensive area of Forterra’s Whittlesey Brick Pits the progression up and down the Fenland gradient has continued to make different components...
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of prehistoric occupation visibly distinct. As one kind of settlement disappears beneath part of the Flandrian sequence another occurs higher up. As a consequence, it has become possible to discern pattern in a way not normally perceivable in more conventional circumstances: in this place the chronological resolution is much sharper than usual. The volume presented here represents the first in a series, all written under the banner of the Cambridge Archaeological Unit’s Must Farm/Flag Fen Basin ‘Depth & Time’ Series. It is intended that future volumes will sustain the vertical theme established here, taking it to a whole new level as our investigations progress further into the deep. If this volume originated at the surface, the final volume should culminate at the very base of the Basin (the Must Farm ‘dryland’). Appropriately, the next volumes in the series will present a prehistoric archaeology positioned somewhere in-between, describing occupations detached from dryland and temporally suspended in Fenland’s accruing sediments (the Must Farm palaeochannel and the Must Farm platform).

Time emplaced

‘Moreover, the transformational potential inherent in the awareness of ‘time emplaced’ renders the ancestral past not as a frozen, timeless, mythical domain, but as historical and dynamic’. (Toren 1995, 164)

Right from the very beginning, when we first started machining Bradley Fen, the intention was to do more than identify a series of sites. The Watching Brief methodology or Strip, Map and Record programme designed for the project placed us in-between the stripping of the overburden and the removal of the mineral and, as a result, archaeology became intrinsic to the extraction process. The scale of the investigation was equivalent to the scale of the quarrying and the limit of excavation corresponded to a line drawn by the mineral extractors and local planning authority and as such was archaeologically arbitrary. As archaeologists we stopped where the developers stopped. The upshot of this approach was the exposure of large empty areas or blank zones in-between features. There were times when nothing was found and we drew up base plans with nothing to show. We were prepared to ‘watch’ these blank spaces in the understanding that these pieces of empty ground represented the opposite of gaps in the record or places where nothing happened. Instead, the spaces in-between features were construed as valid interludes in the intensity, or rather extensity, of occupation and thus integral to the way in which the constituent parts of that occupation were interrelated or arranged.

At the time, we described what we were doing as the archaeology of the spaces in-between things, but we could have also called it the topology of dwelling, the spaces between features being less quantitative (geometric) and more qualitative (topologic) with the focus being less on measurement or distance and more on connections and relations (see Shields 2013, 103). At the very least, it prevented prolonged ‘emptiness’, or blank zones, from being interpreted as limits or edges of ‘sites’ but instead as authentic manifestations of breaks or pauses in settlement. The natural consequence of approaching things this way was a reluctance to stop excavating, irrespective of how ‘empty’ the landscape seemed. Whereas before we might have stopped at the recognized fen-edge, we now carried on regardless and, in doing so, began the process of trying to trace things to their actual maximum spatial-temporal reach. The methodology and attitude which drove this landscape approach represents the theoretical insight that now drives the Must Farm investigations. By consciously accentuating the temporal or vertical aspect of the Flag Fen Basin, it is hoped that we have also helped to reanimate the spatial or horizontal aspect of this most remarkable landscape.
Addendum

A scientific date for the Bradley Fen logboat and its stratigraphical/palynological implications

Following the completion of the publication text, the re-used logboat fragment from waterhole F.1064 was radiocarbon wiggle-matched and shown to be later Iron Age in date and not Bronze Age, as suggested in Chapter 5 of this volume (Settlement in the Post-fieldsystem Landscape 1100–400 cal bc). The radiocarbon dates established that the final ring of the fragment’s tree-ring sequence was formed in 305–270 cal bc (95% probability) and, with the absence of a heartwood/sapwood boundary, this date now provides a Middle Iron Age terminus post quem for the felling of the tree, and accordingly, the construction of the logboat (Tyers et al. 2017).

A ‘new’ date for the logboat has significant chronological implications for waterhole F.1064 and for the context of the pollen sequence obtained from its sediments. On the basis of a small collection of Middle Iron Age potsherds located in its uppermost fills, F.1064 was originally interpreted as Late Bronze Age/Early Iron Age in origin. As a result, the pollen assemblage from F.1064 was analysed as being characteristic of the earlier first millennium cal bc environment.

The Middle Iron Age terminus post quem provided by the dating of the logboat fragment located at the base of the pollen sequence means that the Late Bronze Age/Early Iron Age attribution of F.1064 was misplaced. In light of this, the waterhole, together with Boreham’s pollen summary describing a post-clearance pastoral landscape of meadows and grassland with some arable activity and a little wet woodland, should now be regarded as components of the later first millennium cal bc landscape, as described in Chapter 6 (The Arrival of Fen-edge Settlement 400–100 cal bc).


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The King’s Dyke and Bradley Fen excavations occurred within the brick pits of the Fenland town of Whittlesey, Cambridgeshire. The investigations straddled the south-eastern contours of the Flag Fen Basin, a small peat-filled embayment located between the East-Midland city of Peterborough and the western limits of Whittlesey ‘island’. Renowned principally for its Bronze Age discoveries at sites such as Fengate and Flag Fen, the Flag Fen Basin also marked the point where the prehistoric River Nene debouched into the greater Fenland Basin.

A henge, two round barrows, an early fieldsystem, metalwork deposition and patterns of sustained settlement along with metalworking evidence helped produce a plan similar in its configuration to that revealed at Fengate. In addition, unambiguous evidence of earlier second millennium bc settlement was identified together with large watering holes and the first burnt stone mounds to be found along Fenland’s western edge.

Genuine settlement structures included three of Early Bronze Age date, one Late Bronze Age, ten Early Iron Age and three Middle Iron Age. Later Bronze Age metalwork, including single spears and a weapon hoard, was deposited in indirect association with the earlier land divisions and consistently within ground that was becoming increasingly wet.

The large-scale exposure of the base of the Flag Fen Basin at Bradley Fen revealed a sub-peat or pre-basin landscape related to the buried floodplain of an early River Nene. Above all, the revelation of sub-fen occupation helped position the Flag Fen Basin in time as well as space.