McDONALD INSTITUTE MONOGRAPHS

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Mark Knight and Matt Brudenell

CAU Must Farm/Flag Fen Basin *Depth & Time* Series — Volume I

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By Mark Knight and Matt Brudenell

With contributions by
Grahame Appleby, Manuel Arroyo-Kalin, Rachel Ballantyne, Michael Bamforth, Lawrence Billington, Steve Boreham, Natasha Dodwell, Roger Doonan, Charles French, Kevin Hayward, Peter Hommel, Donald Horne, Mark Noel, Peter Northover, Tracey Pierre, Vida Rajkovača, Iona Robinson Zeki, Rob Scaife, Maisie Taylor, Sean Taylor, Simon Timberlake, Anne de Vareilles and Penelope Walton Rogers

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On the cover: *Bradley Fen 2001 (excavating the watering hole F.866).*

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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 Beadsmoore, 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 Fergerson, 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, Grahame 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.

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 preconfigured 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.

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.

…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)

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 (prehistory).

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.

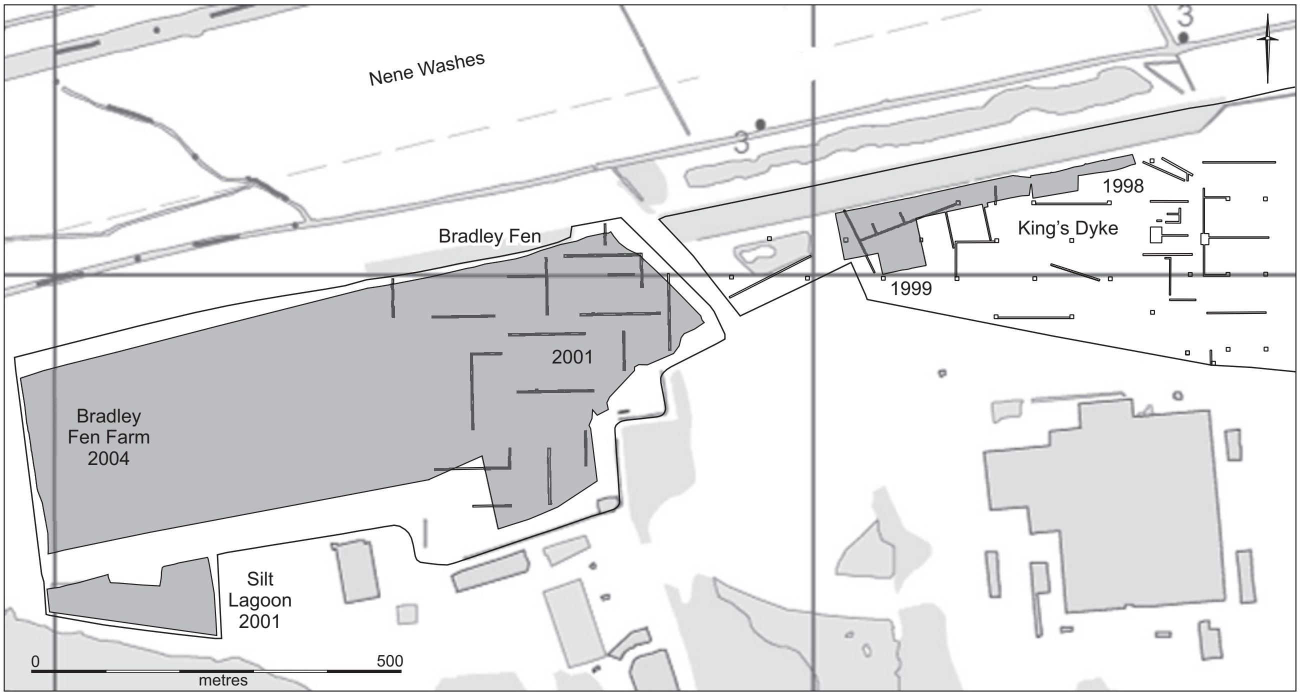


Figure 2.1. *King's Dyke (1998 & 1999) and Bradley Fen (2001 & 2004) investigations: main excavation areas (by phase) and underlying evaluation trenches.*

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

Project name	Year	Author(s)	Type	Key period	Hectare
Archaeological Investigation at **King's Dyke** Pit, Whittlesey, Cambridgeshire	1995	R. Mortimer	Excavation	Roman	0.11
An Archaeological Evaluation at **King's Dyke** Pit, Whittlesey (Area A)	1996	R. Mortimer	Evaluation	Roman	0.23
Further Excavations at **King's Dyke** (Area A - Topsoil '95')	1996	D. Edwards	Excavation	Roman	0.08
1997 Excavations at **King's Dyke** (Area A), Whittlesey, Cambridgeshire	1997	M. Alexander	Excavation	Roman	0.04
Whittlesey Pits – **Bradley Fen** and Must Farm Sites. An Archaeological Desk-based Assessment	1997	D. Edwards & K. Gdaniec	Desk-based assessment	None	-
Prehistoric Excavations at **King's Dyke**, Whittlesey, Cambridgeshire – A Terminal Bronze Age Settlement near Moreton's Leam	1999	M. Knight	Excavation	Prehistoric	0.29
Whittlesey Pits – The **Bradley Fen** Site – An Archaeological Evaluation	2000	M. Knight	Evaluation	Prehistoric	0.25
Prehistoric & Roman Archaeology at Stonald Field, **King's Dyke** West, Whittlesey – Monuments & Settlement	2002	D. Gibson & M. Knight	Excavation	Prehistoric	1.34
Bradley Fen Excavations, Whittlesey, Cambridgeshire 2001–2004	2006	D. Gibson & M. Knight	Excavation & watching brief (WB)	Prehistoric	14.10 (9.2 WB)
Total	**-**	**-**	**-**	**-**	**16.46 (25.66)**

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

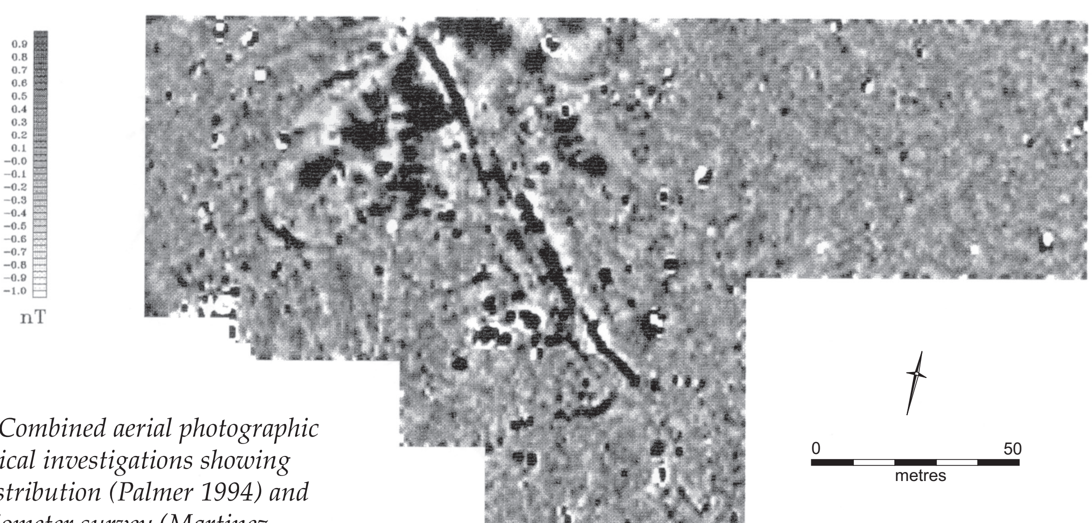


Figure 2.2. *Combined aerial photographic and geophysical investigations showing cropmark distribution (Palmer 1994) and 1.86ha gradiometer survey (Martinez & Sheil 1999); lower detail displaying summary greyscale of geophysical results.*

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

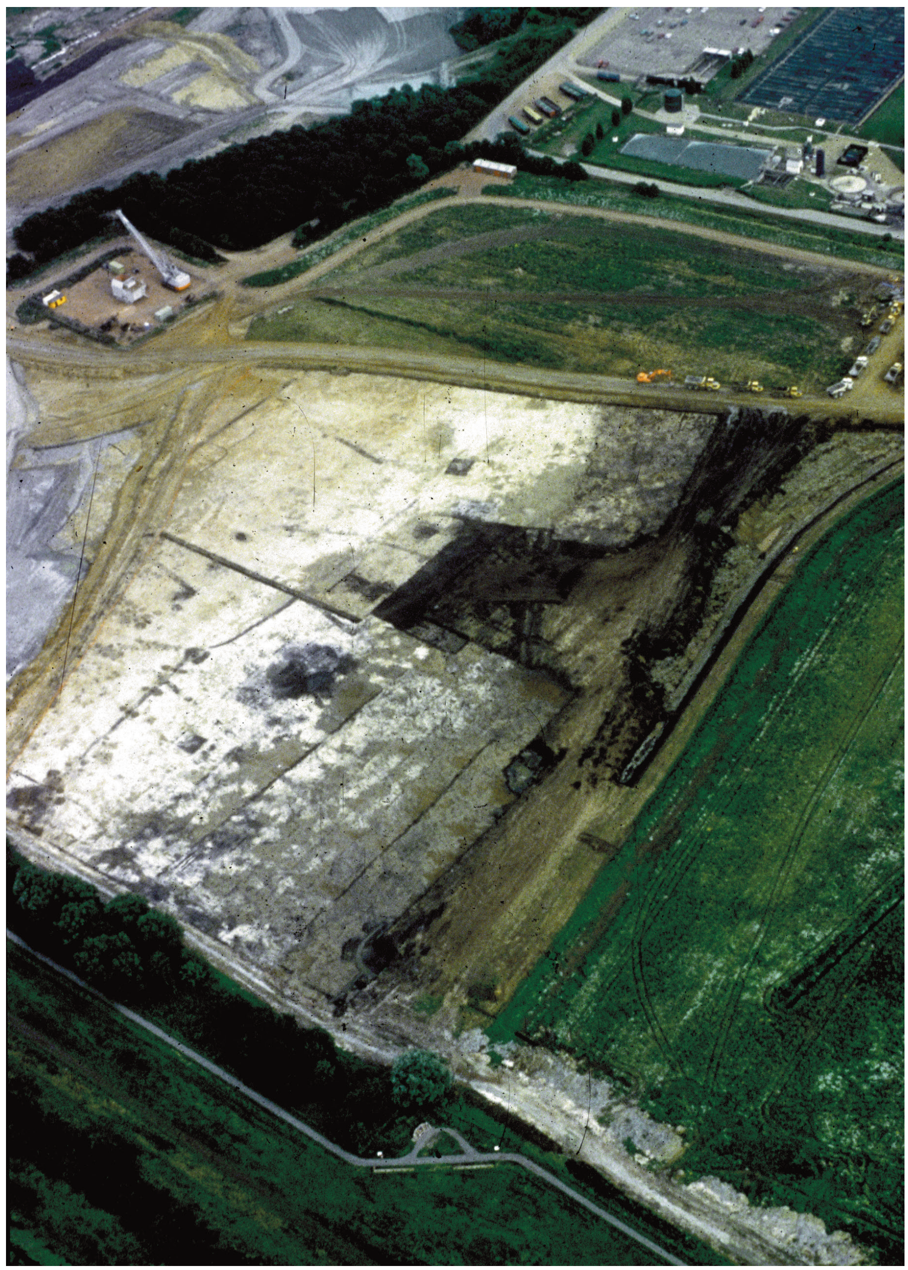


Figure 2.4. *Oblique aerial photograph of Bradley Fen Excavations 2001 (Photograph, Ben Robinson).*

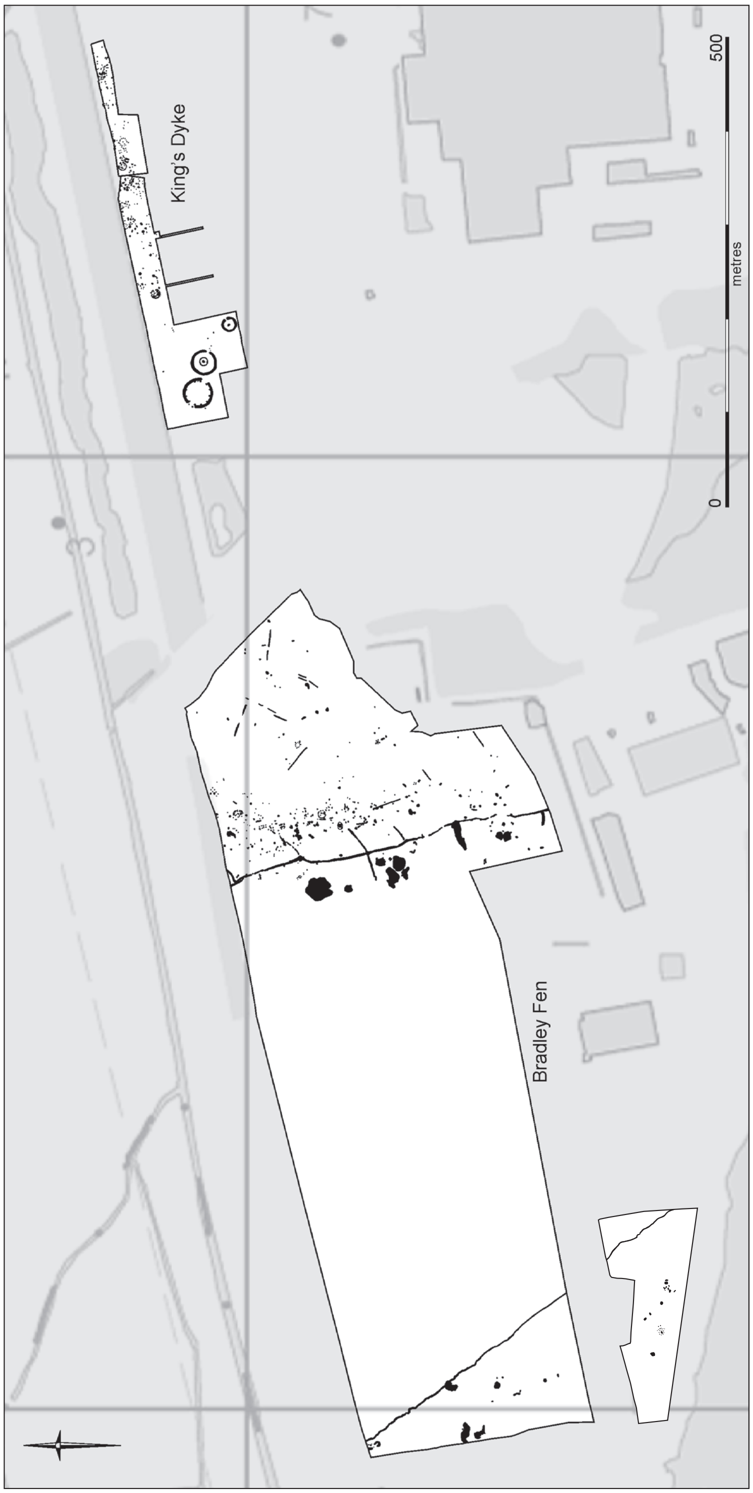


Figure 2.5. *Detailed plan of King's Dyke and Bradley Fen – Prehistoric archaeology (minus Roman and later archaeology).*

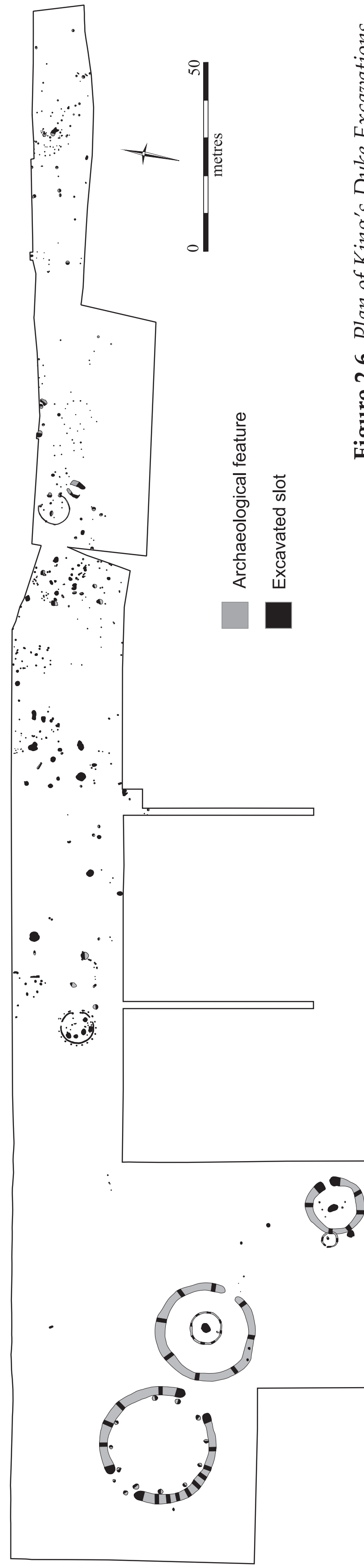


Figure 2.6. *Plan of King's Dyke Excavations.*

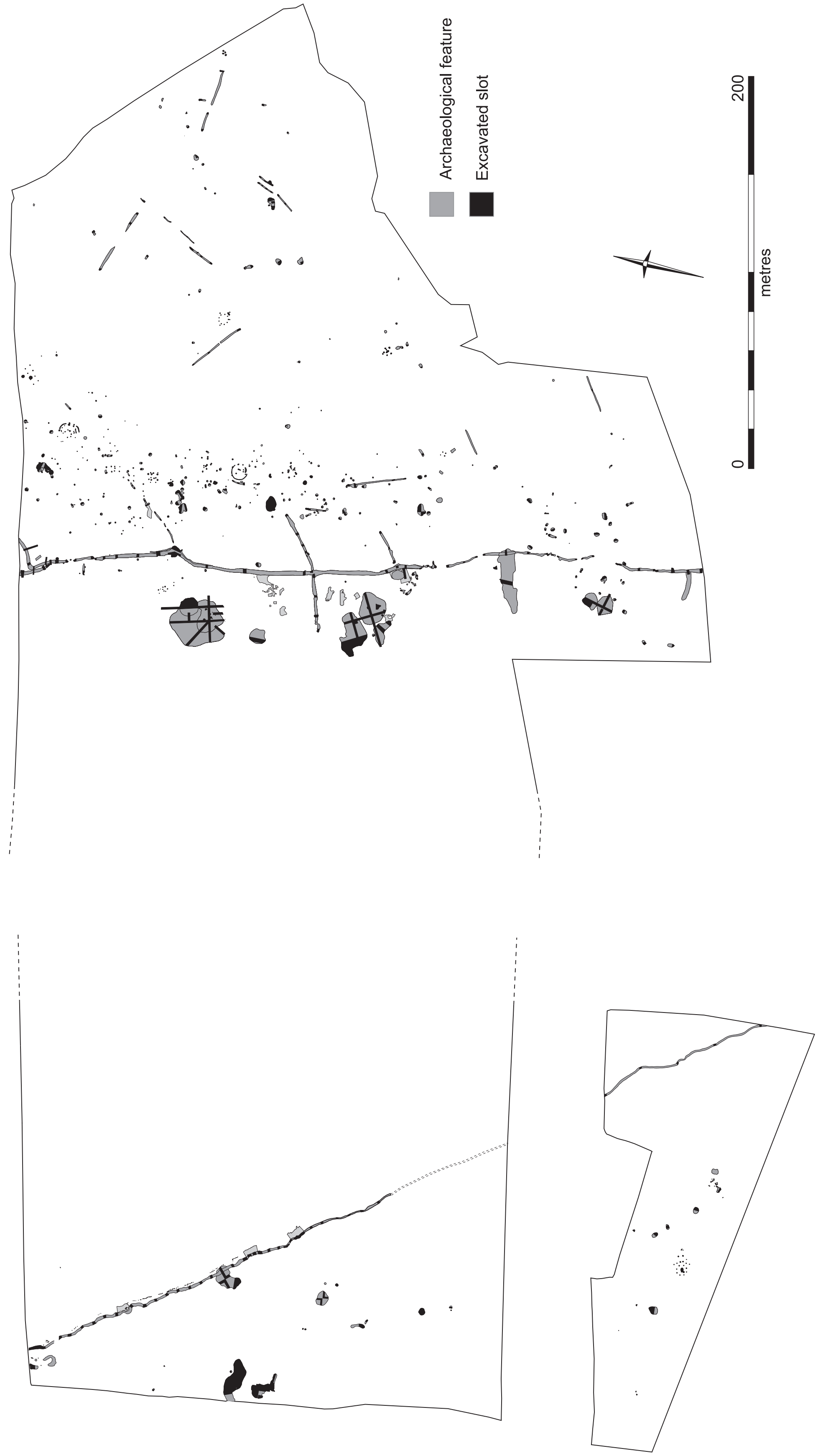


Figure 2.7. *Plan of Bradley Fen Excavations.*

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

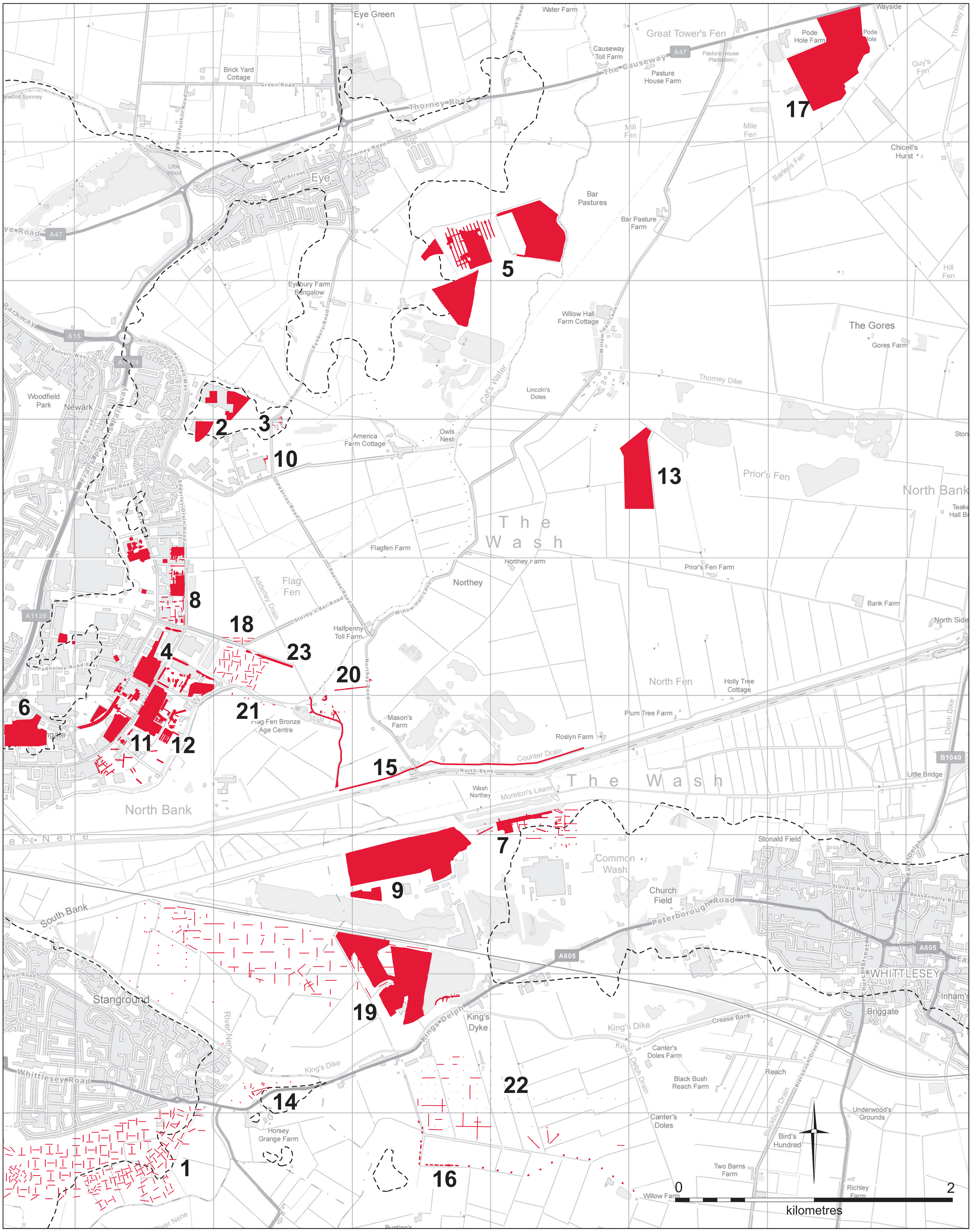


Figure 2.8. *Gazetteer of prehistoric sites of the Flag Fen Basin (dashed line indicates 5m OD contour).*

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.*

Site	Area (ha)	Height (m OD)		Principal feature types							
		Max	Min	Early Neolithic	Late Neolithic	Early Bronze Age	Middle Bronze Age	Late Bronze Age	Early Iron Age	Middle Iron Age	Late Iron Age
1. Stanground	2.48	16	4.2	-	-	-	Cremations *Fieldsystem*	-	-	-	Settlement
2. Parnwell	5.65	6.8	4.8	Pits	-	Pits	*Settlement*	*Settlement*	*Settlement*	*Settlement*	*Settlement*
3. Oxney Grange	0.04	5.2	4.8	-	-	-	-	-	*Settlement*	*Settlement*	-
4. Fengate	14.05	5.0	0.6	Structures Pits	Henge Pits Settlement	Round barrows Settlement	Fieldsystem Settlement	Settlement	Settlement	Enclosures Settlement	Settlement
5. Tanholt Farm	26.17	4.6	3.4	Pits	Waterholes	Waterholes	Fieldsystem Cremations	Settlement	Settlement	Settlement	-
6. Tower Works	0.19	4.4	4.0	-	-	-	Fieldsystem	-	Settlement	-	-
7. King's Dyke	1.62	4.4	2.2	-	Pit-circle Henge	Round barrows Cremations Settlement	Cremations	-	Settlement	-	-
8. Edgerley Drain Road	1.69	4.0	2.4	Pits	Pits	Pits Settlement	Fieldsystem	Settlement Metalled surface	-	-	-
9. Bradley Fen	23.43	4.0	-0.6	Pits	-	Burnt mounds Waterholes Settlement	Fieldsystem Waterholes Settlement	Settlement Metalwork	Settlement	-	-
10. Oxney Road	0.03	3.6	1.8	-	-	-	Fieldsystem	*Settlement*	*Settlement*	*Settlement*	-
11. Parish Drain	n/a	3.2	2.2	-	-	-	Fieldsystem	-	-	Enclosures	-
12. Elliott Site	1.7	3.0	1.0	*Pits*	Pits Watering holes	Pits Waterholes	Fieldsystem Settlement Metalled surfaces	Settlement	-	-	-
13. Briggs Farm	10.12	2.8	0.2	Pits	Pits	Round barrow Cremations Pits	Fieldsystem Settlement	-	-	Settlement	-
14. Horsey Hill	0.2	2.6	0.4	-	Pits Metalled surface	-	Post alignment	Bank and ditch Enclosure	-	-	-
15. Dyke Survey	n/a	1.2	-0.2	-	-	Settlement	Settlement	-	Ditches	-	-
16. King's Delph to Linwood Pipeline	0.13	2.6	-2.6	-	-	-	Fieldsystem	-	-	-	-
17. Pode Hole	23.94	2.2	0.2	-	-	Round barrow Waterhole Pits	Fieldsystem Waterhole	Waterholes	-	-	-
18. Storeys Bar Road	0.46	1	-0.2	-	-	-	-	-	-	-	-
19. Must Farm	20.79	1	-4.2	Pits Metalled surfaces	Oval barrows Pits Metalled surfaces	Fence lines Burnt mounds Waterholes Settlement	Fieldsystem	Post-alignment Timber platform	-	-	-
20. Northey landfall	0.22	0.6	-0.2	-	-	Round barrow *Settlement Fence lines*	-	Post-alignment Metalled surface	-	-	-
21. Flag Fen West	0.02	0.4	-0.8	-	-	-	-	Post-alignment	-	-	-
22. King's Delph	0.49	0	-5.0	-	Stakes/posts	Round barrow	-	-	-	-	-
23. Padholme Drain	0.35	-0.2	-0.4	-	-	-	-	-	-	-	-

2006, 42–43). To the west, a Late Iron Age/Early Roman enclosed settlement, containing at least three roundhouses, was located on higher ground, around the 11m contour.

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 Late 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 (Beadsmoore & Evans 2009, 116–21, fig. 4.3; Evans 2009a, 15–19, figs 1.1, 1.9): Boroughby 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*

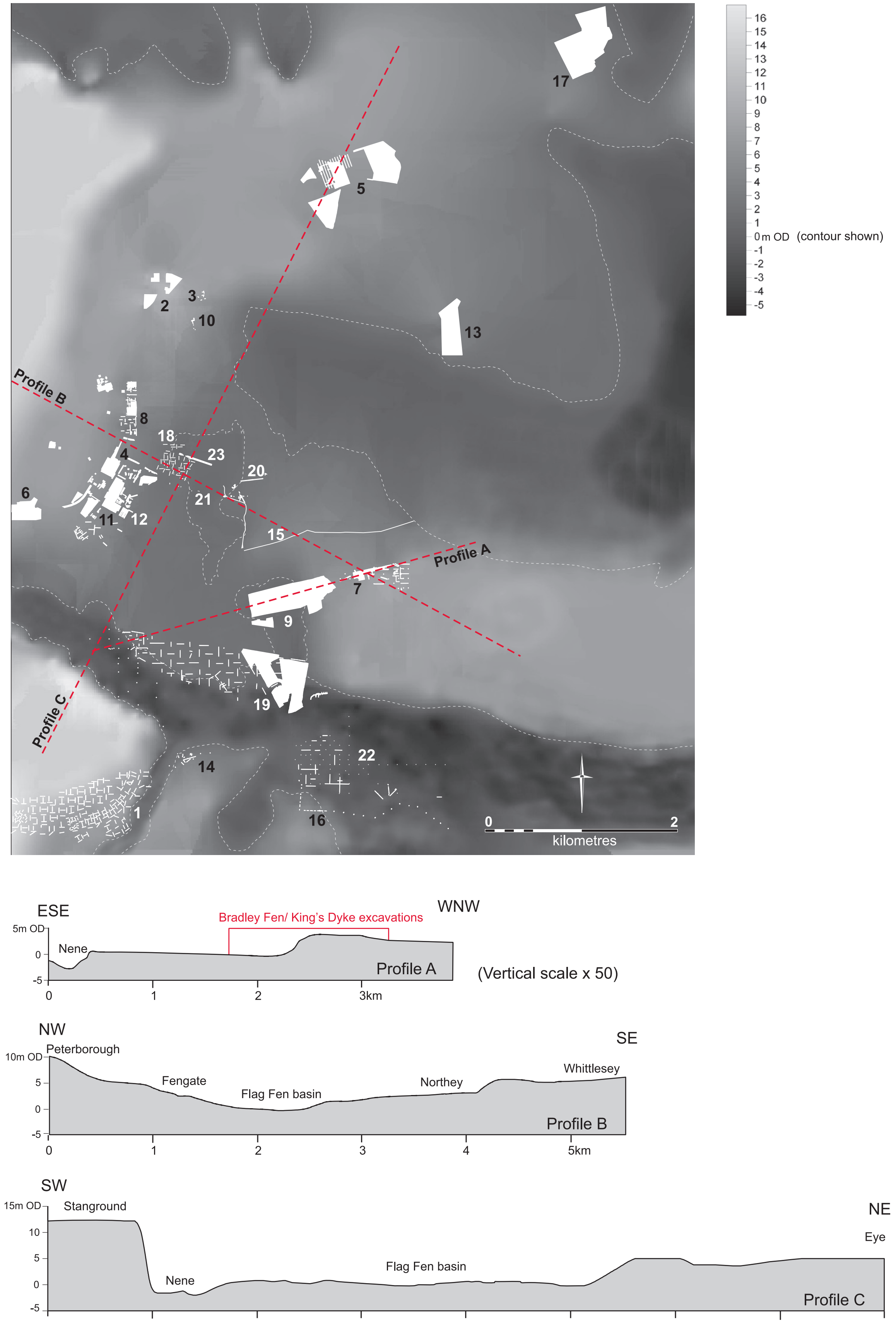
Between 1996 and 2006, an area totalling 26.17ha was excavated at Tanholt Farm, Eyebury Quarry in several phases of work by the CAU (Gibson & White 1998; McFadyen 2000; Patten 2002b; 2003a; 2004; 2009; Williams 2005). This represents the largest hectarage to have been investigated within the vicinity 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 BC. 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 droveway. 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.



16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0 m OD (contour shown)
-1
-2
-3
-4
-5
Profile A
Profile B
Profile C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
0
2
kilometres
ESE
WNW
Bradley Fen/ King's Dyke excavations
5m OD
0
-5
Nene
Profile A
0
1
2
3km
(Vertical scale x 50)
NW
SE
10m OD
5
0
-5
Peterborough
Fengate
Flag Fen basin
Northey
Whittlesey
Profile B
0
1
2
3
4
5km
SW
NE
15m OD
10
5
0
-5
Stanground
Nene
Flag Fen basin
Eye
Profile C
0
1
2
3
4
5
6
7
8km

7. King's Dyke

This volume.

8. Edgerley Drain Road

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 overlain) 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.

9. Bradley Fen

This volume.

10. Oxney Road

In 2001, a small plot of land on the south-eastern edge of the gravel rise at Parnwell was investigated by Soke Archaeological Services Ltd (Britchfield 2001a). The underlying topography of the site sloped quite steeply with trenching and test-pitting revealing fen deposits and an area of buried soil in the lower, southern portion of the site. The buried soil and lower-lying land were not further investigated. Instead, excavation focused on the northern zone, where the land lay just above the fen-edge, even at the greatest extent of inundation. Here, a small open area excavation revealed two parallel ditches and a number of pits, postholes and a possible well. Britchfield assigned the ditches a 'Bronze Age' date, but also highlighted their shared characteristics with the (Middle Bronze Age) fieldsystem ditches of Fengate and the presence of Late Bronze Age/Early Iron Age finds in their later, upper fills (Britchfield 2001a, 14), which support a Middle Bronze Age origin for these features. With a lack of firm dating evidence, a broad Bronze Age/Iron Age date was ascribed to the majority of the settlement features.

Figure 2.9 *(opposite). Pre-Flandrian profiles of the Flag Fen Basin.*

11. Parish Drain

During dyke clearance monitored by the CAU in 2008, a 0.18km section of the Parish Drain was exposed at Fengate, running between, and to the southwest of, the two main areas of the Elliott Site (Moreley & Murrell 2010). Ditches identified in the exposed section were interpreted as continuations of the Middle Bronze Age droveway ditches and Iron Age ditches found on the Elliott Site (see below).

12. Elliott Site

In 2005, the CAU undertook a 1.7ha open area excavation at the Elliott Site, at Fengate (Beadsmoore 2006; Evans & Beadsmoore 2009). These excavations explored an area previously investigated by three evaluation trenches dug by the Birmingham University Field Unit, as part of a wider evaluation of the Third Drove Area (Cuttler 1998). Located towards the southern end of Fengate, the Elliott site was located in the midst of an area that had already seen extensive archaeological investigation; most notably it directly adjoined the land excavated by Pryor at Cat's Water in the 1970s (Pryor 1980; see Evans & Beadsmoore 2009, fig. 3.2). Split into two sub-sites on either side of the Parish Drain, the Elliott Site covered a strip of land which sloped from 3m OD in the northwest to 1m OD in the southeast. As such, the site was situated relatively low on the western edge of the Flag Fen Basin, on land which would have been very close to the fen-edge by the middle of the second century BC. The deposit sequence overlying the lowest part of the site indicated that it became flooded during the end of the second/first millennium BC, creating a minor embayment in the fen-edge.

A small number of pits dispersed over the site were identified as being Early Neolithic or broadly Neolithic in date, based on the worked flint recovered, while a slightly larger number of pits and waterholes were identified as Late Neolithic or Early Bronze Age on the basis of flint or pottery retrieved or their relationship to later features. Although lacking temporal definition, the general picture presented by these pits was of occasional activity in the area prior to the establishment of the fieldsystem in the middle of the second millennium BC. The major Middle Bronze Age ditches at the Elliott Site formed a 'funnel-like' droveway, which ran northwest–southeast. Other ditches, when connected with those previously identified at Cat's Water and the TP Packaging Site, formed large paddocks (Evans & Beadsmoore 2009, fig. 3.2). Peat capping-fills, indicative of the waterlogged conditions which developed during the Late Bronze Age, allowed many otherwise undated settlement features to be assigned a Middle/Late Bronze Age date. A large scatter of peat-capped pits and postholes spanned the slope of the site. One roundhouse was identified, sitting at the 'higher' end of the site, while various pits and postholes, including a possible four-post structure, were found at the site's lower area, on land that would have been inundated during the Early Iron Age. Patches of metalled surface on the edge of the fen-embayment, constructed to give a firmer footing on increasingly wet ground, complete this picture of stock management and settlement on the fen-edge in the Middle/Late Bronze Age. In the Iron Age, it would appear that settlement activity moved away from the (now partially inundated) area of the Elliott Site. Two ditches and a roundhouse gully represent the only evidence of Iron Age activity and are located on the north-eastern edge of the site, where they can reasonably be associated with the much more extensive Iron Age settlement activity at Cat's Water.

13. Briggs Farm

A 10.12ha strip of land was excavated by Oxford Archaeology East at Brigg's Farm, Prior's Fen in 2008 (Pickstone & Mortimer 2011). The area excavated formed a wide transect of the sloping land on the northern edge of the Flag Fen Basin. The elevation of the land was sufficiently low (0.2–2.8m 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* or 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 unurned and their assignation 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, demarked 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 metalled 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 1 km 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 Fengate (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 BC.

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 waterhole and two pit clusters, dated to the Early Bronze Age, represent the, rather slim, evidence of equivalent activity in the Early Bronze Age. Four ring-ditches were found across the site, at least one of which can be interpreted as an Early Bronze Age round barrow with its ring-ditch partially cut by a later field boundary ditch. This round barrow was situated to the south-west of the excavated area, around the 1.5m contour. As such, the monument occupied a position which overlooked the fen embayment in a similar manner to the barrow at Brigg's Farm.

The majority of the archaeological features at Pode Hole could be related to Middle and Late Bronze Age activity. Middle Bronze Age field boundary ditches, marking out a system of strip fields on a northwest–southeast alignment, occurred across the site. A 'midden area' and nearby waterhole on the eastern, lower ground contained Deverel-Rimbury pottery and gave some indication of Middle Bronze Age activity within this fieldsystem. Numerous pits and waterholes with Post Deverel-Rimbury pottery suggest that activity along the eastern, low ground intensified in the early first millennium BC as the level of the nearby embayment rose to the point where the fen-edge lay just beyond the eastern limit of the site. Further evidence of activity in the Iron Age is limited, but the three other ring-ditches identified at Pode Hole share characteristics with the ring-gullies of Iron Age roundhouses and may well relate to much later occupation. The location of these possible ring-gully houses, on the west of the site, around the 2m contour, would make sense in the context of inundation of the lower land to the east by the middle of the first millennium BC.

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 Fengate, 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.

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 metalled 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 metalling, which contained a sherd of Etton-style Mildenhall 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, overlooking 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).

20. 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 fieldsystem 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 800m 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 Fengate, 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 Fengate 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 Fengate landfall. 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 Fengate) and a natural rise in the underlying topography, forming a promontory projecting from Fengate 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 Fengate landfall 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 northwest–southeast 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' 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.

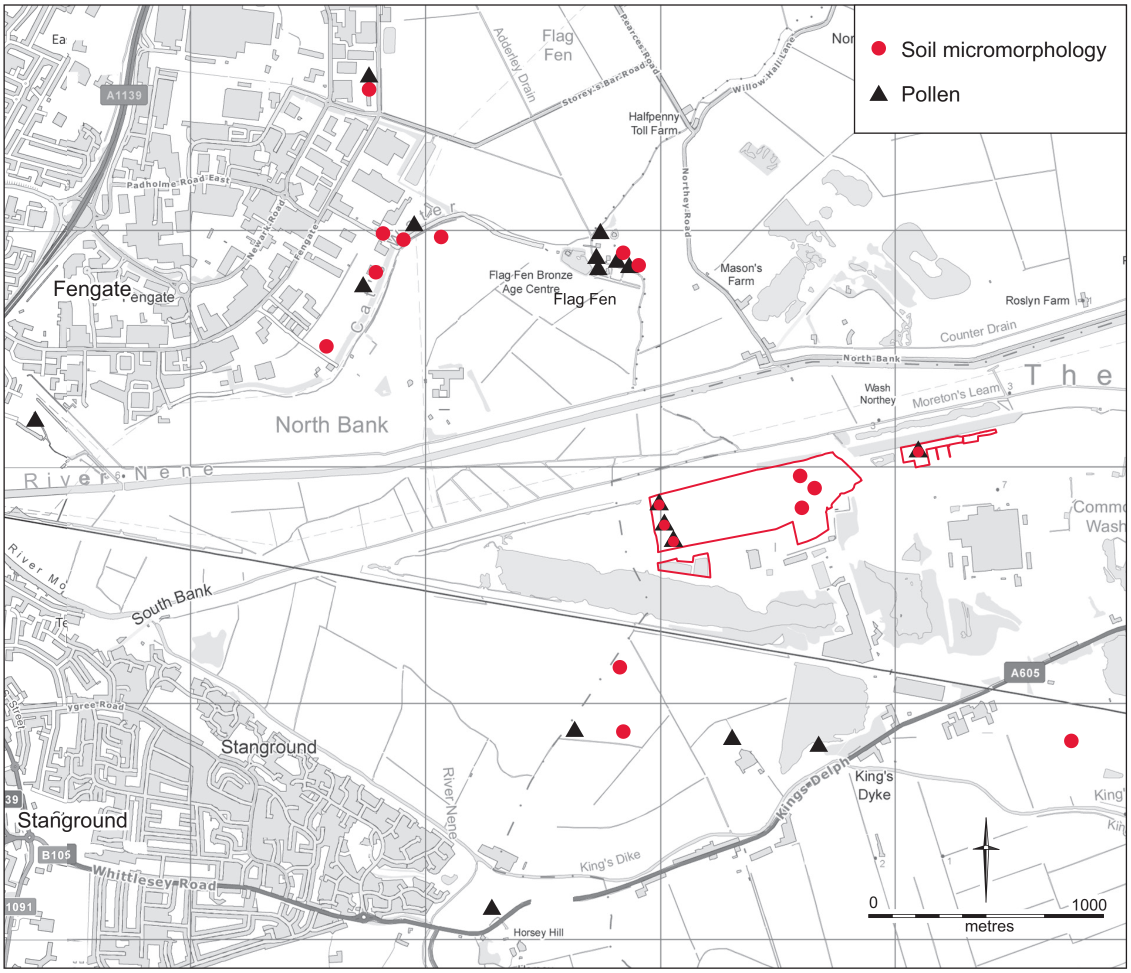


Figure 2.10. *Location of key pollen and soil micromorphology sample points in the Flag Fen Basin.*

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 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; Evans et al. 2009) and the palynological data for the Basin (Scaife 2001; this volume; Boreham, this volume).

In brief, all three locations retained soil profiles indicative of an argillic brown earth (well-structured, clay-enriched soil), varying from poorly developed and depleted, to very well developed. As such they all represent testimony to woodland development. Soil disturbance was identified in all of the samples although none showed direct evidence of deforestation or arable agriculture. Consistently, the low-lying Bradley Fen profiles suggested zones of deep disturbance, perhaps indicative of concentrated animal movement in and around the nearby waterholes and metalled surfaces.

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

Table 2.3. *Buried soil profiles analysed from the Flag Fen Basin and main features of the buried soil record from King's Dyke and Bradley Fen.*

Site	Context	Height (m OD)	Soil type	Soil features
King's Dyke, 1995	Trench II	3.0	Sandy clay loam; brown earth to argillic brown earth	Wooded; disturbed; silty clay alluvium above
Bradley Fen, 2001	Trench 6	1.5–1.0	Sandy loam; brown earth	Disturbed; rising groundwater table; detrital peat and alluvium above
Bradley Fen, 2001	Trench 7	1.0	Sandy loam over sandy clay loam; argillic brown earth	Probably once wooded; disturbed; rising groundwater table; detrital peat and alluvium above
Bradley Fen, 2001	Trench 3	1.0–0.8	Organic sandy loam; argillic brown earth	Wooded, cleared, disturbed and open; rising groundwater table; detrital peat and alluvium above
Bradley Fen, 2004	1500 BC fence-line	0.0–0.3	Organic sandy loam to sandy clay loam; organic brown earth to very depleted argillic brown earth	Wooded, cleared, disturbed & open; receives much organic additions & some alluvial additions prior to trackway built; then compression, flooding, peat formation and alluvial deposition
Must Farm, 2007–08	Pre-900 BC old land surface	-0.2–0.1	Loamy sand strongly impregnated with amorphous sesquioxides, with/without abundant organic debris	Very depleted soil off-site; very humified organic, shell-rich sand beneath LBA structure
Horsey Hill, 2008–09	Pre-Middle Bronze Age enclosure	0.8–1.1	Clay-rich soil	Truncated old land surface; subsequently waterlogged
Old Nene area, 2007–08	Neolithic 'middens' & pre-EBA barrows	-0.6–0.8	Organic sandy loams; brown earth	Brown earths; depleted through rising groundwater table and subsequent waterlogging; buried by silty clay alluvium
Dyke 8, SW Fen Dyke Survey, 1993	-	0.6–0.3	Sandy/silt loam; depleted brown earth	Probably once wooded; disturbed &/or ploughed; rising groundwater table
Dykes 9 & 10, SW Fen Dyke survey, 1993	North side of modern Nene channel	2.3–2.0	Sandy loam; depleted brown earth; pre-1290–800 cal BC	Probably once wooded; disturbed &/or ploughed; alluviated; rising groundwater table
NYT 99; Flag Fen, Green Wheel	North side of Mustdyke	*c*. 1.0	Sandy loam; brown earth	Disturbed; alluviated; rising groundwater table; with peat & alluvium above
Must Dyke, Flag Fen, 1993	Northeast of Flag Fen platform	0.9–0.7	Sandy clay loam; well-developed brown earth	Probably once wooded; disturbed; seasonally waterlogged; with peat & alluvium above
Fengate Power Station, Fourth Drove, 1990–91	Northern fen-edge	1.2	Sandy loam; poorly developed brown earth under turf	Probably once wooded; grassland; seasonally waterlogged; with lenses of peat and minerogenic sediment, and alluvium above
Cat's Water, Fengate, 1975–76	Northern fen-edge	1.5–1.2	Sandy loam; poorly developed argillic brown earth	Wooded; grassland; flood meadow; thin peat ad alluvium above
Edgerley Drain Road, Fengate, 2006	Northern fen-edge	*c*. 2.0	Sandy loam; poorly developed brown earth under turf	Probably once wooded; grassland; seasonally waterlogged; with lenses of peat and minerogenic sediment, and alluvium above
Third Drove, Fengate, 1998	Under Iron Age bank	*c*. 3.0	Sandy loam; poorly developed brown earth	Wooded; seasonally waterlogged; alluvium above
Depot Site, Fengate, 1998	Between Third & Second Droves	*c*. 3.0	Sandy loam; poorly to well-developed brown earth	Wooded; seasonally waterlogged; alluvium above
Tower Works, Fengate, 1998	Nene First Terrace	*c*. 4.5	Sandy loam; poorly developed brown earth with thickened Ah horizon	Probably once wooded; cleared; with midden debris & soil added

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 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 retrogressive 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 BP) to 410–200 cal BC (GU-5619: 2290±50 BP) (Scaife 2001, 387–81). This marks increased wetness and the start of a retrogressive hydrosere associated with growth of alder which gave way to *Typha* reed swamp (Scaife 2001, 369). This transgressive change started some 300 to 440 years later than in the centre of the Flag Fen Basin. This is a clear, dated example, of the transgressive nature of the expanding fen during the Bronze Age; the deposition of peat initially under alder, followed by grass/sedge/reed swamp and finally the widespread deposition of silty clay alluvium during the Late Iron Age and Romano-British periods. The close proximity of this site to the fen-edge allowed the character of local land-use to be examined. The pollen evidence from the lower peats suggests local cereal cultivation with pastoralism in a mixed agricultural environment during the Late Bronze Age and is commensurate with data coming from the peats of the centre of the basin associated with the Flag Fen platform (Scaife 2001).

Subsequently, a phase of alluvial deposition occurred, followed by a period of local drying out and soil formation on the exposed alluvial sediments, although there is evidence that wet fen with fringing alder woodland was growing in close proximity. As with the pollen evidence from the earlier (lower) peat, pasture was present on and near the site, with no evidence for arable cultivation although this may, of course, have been practised outside of the pollen catchment. Reversion to a wetter environment on the site resulted in the further formation of peat (the upper peat) in a species-rich, shallow water, grass-sedge-reed fen. Radiocarbon dates were not obtained for this upper peat although it is thought very probable that the change from the lower peat to alluvium reflects the post-Roman transgressive phase of the Fenland as a whole (Waller 1994) with deposition of the alluvium. The upper peats are thought to be of medieval age, showing some woodland, primarily of oak and hazel with occasional lime, ash and beech. However, a strong agricultural environment is also indicated, with evidence of both pasture and arable land-use and possibly also cultivation of hemp, typical of pollen assemblages from this period and from the Fenland (Godwin 1967; Bradshaw et al. 1981).

Third Drove, Fengate

Also relating to Fengate, pollen profiles were examined from excavations undertaken on land adjacent to Third Drove (Cuttler 1998; Scaife 1998a). These profiles included analysis of a buried land surface and a sequence of freshwater lacustrine sediments which were laid down in a slow flowing channel. The pollen spectra in both profiles contain evidence of arable and possibly pastoral agriculture in a largely tree-less environment. The latter, and especially the absence in any significant numbers of lime/linden (*Tilia*) and elm (*Ulmus*), strongly indicate that the sequences can be attributed to the Late Neolithic and, more likely, the Bronze Age. (Radiocarbon dates were not obtained for this evaluation study.) An old land surface/buried soil, on the basis of the limited archaeology, was attributed to the Early-Middle Bronze Age. This profile shows the pre-fen land surface prior to asynchronous transgression of the expanding fen up and across the fen-edge. Although the pollen was poorly preserved and only present at the top of the old land surface, the pollen assemblages indicate that the site had been cleared for agriculture with evidence of pastoral and arable cultivation (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 Fengate sites discussed, there is strong evidence for increasing height of the groundwater table and wetness. 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 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*), medicks 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 BP; Wk-13862: 2442±54 BP) (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 weeds.

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 Fengate 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 BP (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 BP (Scaife 2001, 378), there was a deep and widely developed reed swamp, with a thick alder carr woodland fringing the Fengate 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 BP (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 site with some oak (*Quercus*) and hazel (*Corylus*) woodland in the vicinity. 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 hydrosere, 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 BP (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 BP) to 1665–1435 cal BC (Q-2811: 3250±70 BP) 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 BP (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 Fengate 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)).*

Period	Site area	Palaeoenvironmental record	Soils record
Early Holocene/ Mesolithic	Old Nene palaeochannel, Magna Park, Must Farm, Bradley Fen, Fengate & Flag Fen	Full channel width & depth; developing lime-oak deciduous woodland on dry ground	Variable development of argillic brown earth woodland soils on gravel substrates on all ground beyond Nene River channel
Earlier Neolithic	Old Nene palaeochannel, Horsey Hill, Must Farm, Bradley Fen, Fengate & Flag Fen	Further development of lime-oak woodland; lower/basal peat development from 3640–3490 cal BC (SUERC-22202: 4735±30 BP) west of Must Farm & 3970–3790 cal BC (SUERC-22222: *c*. 5090±30 BP) to southeast of Must Farm	As above
Later Neolithic	Flag Fen	Post-elm decline, partly open mosaic of lime/ deciduous woodland with dwindling elm with mixed agriculture land on margins	As above
Later Neolithic	Fengate	Lime-oak-elm-hazel woodland being cleared with cereals & associated weeds (at Tower Works) by *c*. 2300 cal BC (Wk-13863: 3778±42 BP)	Opening up of argillic brown earth woodland soils
Later Neolithic	Old Nene area	-	Depleted brown earths & rising groundwater table
Later Neolithic	Bradley Fen	Lime dominated deciduous woodland with oak & hazel, & alder forming an expanding wet-margin element	Argillic brown earth woodland soil which is being cleared
Later Neolithic	Must Farm	-	Truncated, rather poorly developed argillic brown earth
Later Neolithic-Early Bronze Age	King's Delph & Farcet Fen	Maximum extent of marine environment after 2175–1985 cal BC (Q-2552: 3700±60 BP) to 1665–1435 cal BC (Q-2811: 3250±70 BP) at Farcet and from 2140–2080 and 2060–1920 cal BC (SUERC-2219: 3645±30 BP) at King's Delph	Tidal river and creeks with salt marsh on adjacent floodplain
Beaker/Early Bronze Age	Flag Fen	Beginning of growth of sedge fen and reed swamp, 2030–1680 cal BC (GU-5618: 3130±60 BP); steadily rising groundwater table; alder carr around basin margin	-
Beaker/Early Bronze Age	Fengate	Diverse open & managed oak/hazel woodland with mixed agriculture land	Extensively cleared & open grassland soils
Beaker/Early Bronze Age	Horsey Hill	Mosaic environment of mixed oak-lime-elm woodland with arable activity, wet carr woodland & 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 BP)	-
Beaker/Early Bronze Age	Bradley Fen	Expansion of fringing alder carr & grass/sedge fen on fen margin, & reed swamp in lower areas to west (dated as above); increasingly open pastoral landscape on dry ground	Expansion of clearance and disturbance of brown earth soils
2nd millennium BC Bronze Age	Flag Fen	Deepening & 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	-
2nd millennium BC Bronze Age	Fengate	Diverse and becoming more open & managed oak/hazel woodland with mixed agricultural land & extensive pasture fieldsystem; evidence of asynchronous transgression across and along the fen-edge, with alder carr woodland on fen margin	Sandy loam brown earth soils, probably indicative of open grassland

Table 2.4 *(cont.).*

Period	Site area	Palaeoenvironmental record	Soils record
2nd millennium BC Bronze Age	Bradley Fen	Further asynchronous expansion of fringing alder carr & sedge fen on fen margin, & 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	Brown earth soils cleared and disturbed pre-1500 BC; fen margin soils becoming leached & subsumed/buried by freshwater fen environment
Later Bronze Age	Flag Fen	Widest extent of reed swamp & dwindling alder/willow carr on margins	-
Later Bronze Age	Fengate	Dwindling woodland & greater mixed agriculture land & extensive pasture fieldsystem; peat growth on margin at end of Late Bronze Age from 800–400 cal BC (GU-5620: 2840±50 BP)	Former brown earth pasture soils, with woodland lingering on fen margin; becoming waterlogged and affected by seasonal peat growth & alluvial deposition; less & less extensive area of usable soils available for agriculture
Later Bronze Age	Horsey Hill	Final infilling of Nene channel with freshwater deposits	Truncated open grassland/ meadow soils & subsequent waterlogging
Later Bronze Age	Bradley Fen	Post-clearance pastoral landscape of grassland, water meadow & sedges with some limited arable activity & minor wet woodland	Argillic & brown earth soils with variable disruption through human activities & tree-throw; becoming waterlogged and affected by seasonal peat growth & alluvial deposition; less & less extensive area of usable soils available for agriculture
Later Bronze Age	Must Farm	Alder carr giving way to local salt marsh, then fen reed swamp & 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 & some arable activity with some scrub clearance	Change from occasionally wet occupation surface to complete waterlogging & submergence
Iron Age	Fengate	Extensive reed swamp with some sedges and peat growth on margin from 800–400 cal BC (GU-5620) to 410–200 cal BC (GU-5619: 2290±50 BP); followed by alluvial silty clay deposition	Continuing seasonal peat growth & alluvial deposition affecting greater area of fen margin; disturbed and settled soils on gravel terraces
Iron Age	Flag Fen	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 BP)	-
Iron Age	Bradley Fen	Continuing growth of upper reed peat and gradual encroachment onto higher land margins	-
Iron Age	Must Farm	Continuing slow, organic silt infilling of late stage channel	-

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 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 soilscapes 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 Fengate, 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 palaeovegetational 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, Fengate (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 Fengate '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 'shores' (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

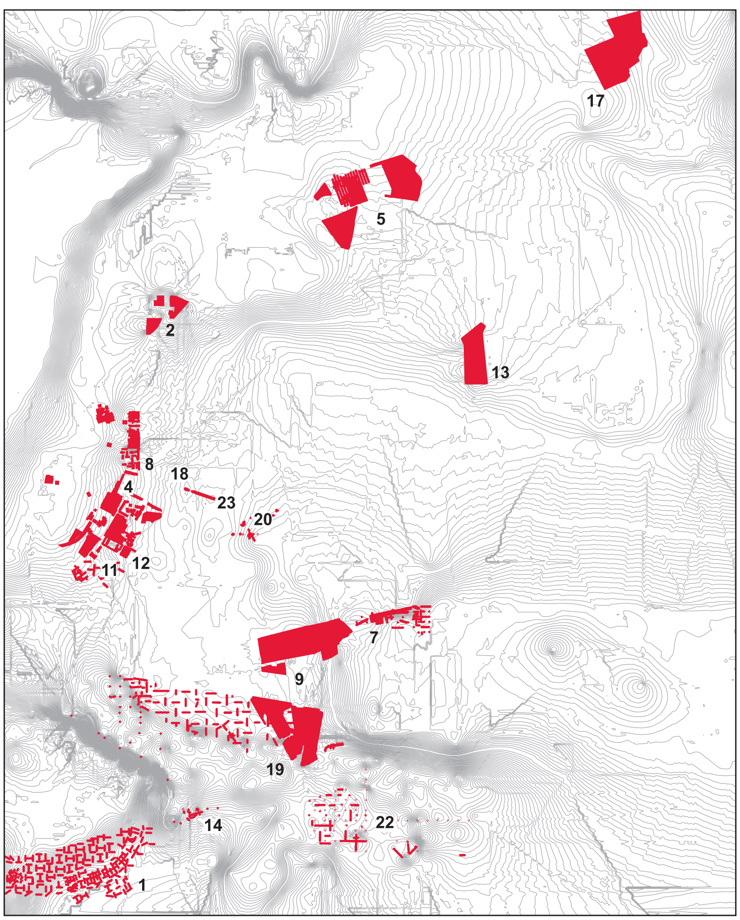
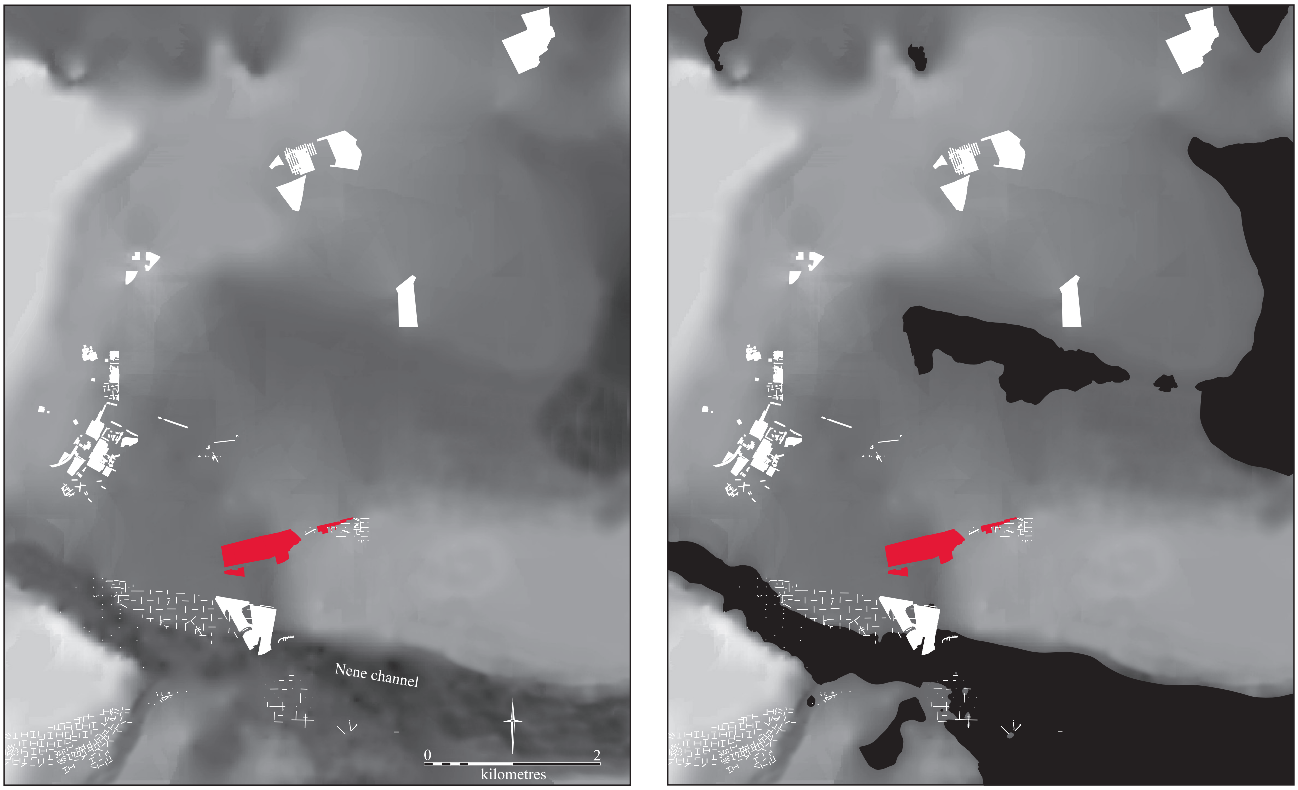


Figure 2.11. *Modelling the pre-Flandrian land surface, a 'predictive' palaeotopographic reconstruction. The uneven distribution of height data generated an irregular point cloud that was rectified using a 20m grid and a* Kriging *algorithm. The* Kriging *algorithm was chosen because it 'smoothes' the 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.*



The pre-Flandrian land surface | *c.*2000 cal BC (-1.00m OD)

Figure 2.12. *Two flood maps: pre-Flandrian and* c. *2000 cal* BC *(Areas in black = fen sediment cover).*

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.

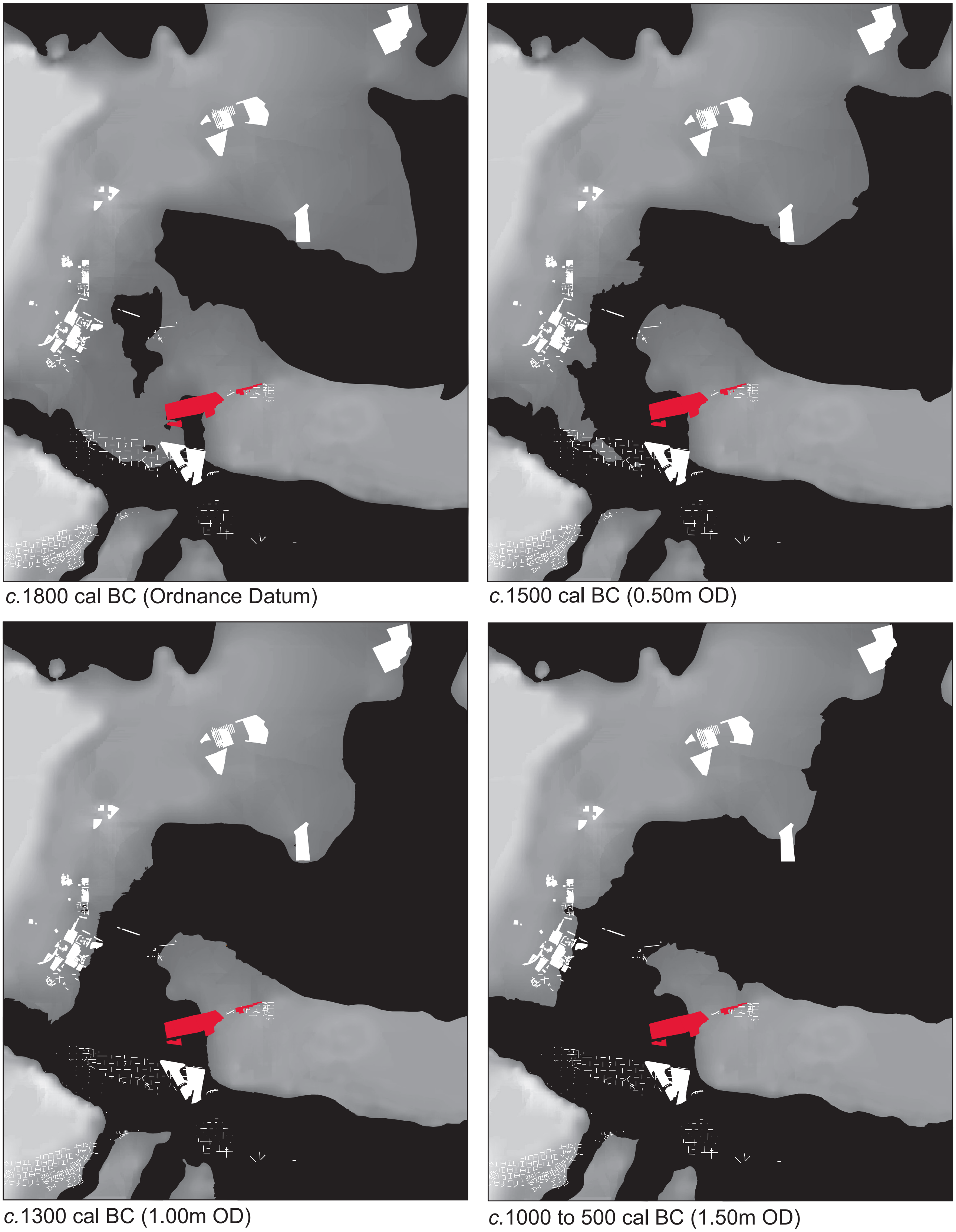


Figure 2.13. *Four flood maps:* c. *1800, 1500, 1300 and 1000-500 cal* BC *(Areas in black = fen sediment cover).*

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.*

Chronology	Area of window (ha)	% landmass dry	% landmass wet	Area of landmass wet (ha)	Loss of landmass over time (ha)
Pre-Flandrian	6290	100	0	0	0
c. 2200 BC	6290	82	18	1132	1132
c. 1800 BC	6290	65	35	2201	1069
c. 1500 BC	6290	60	40	2516	315
c. 1300 BC	6290	50	50	3145	629
c. 1000 BC	6290	46	54	3397	252

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 interrelationship 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

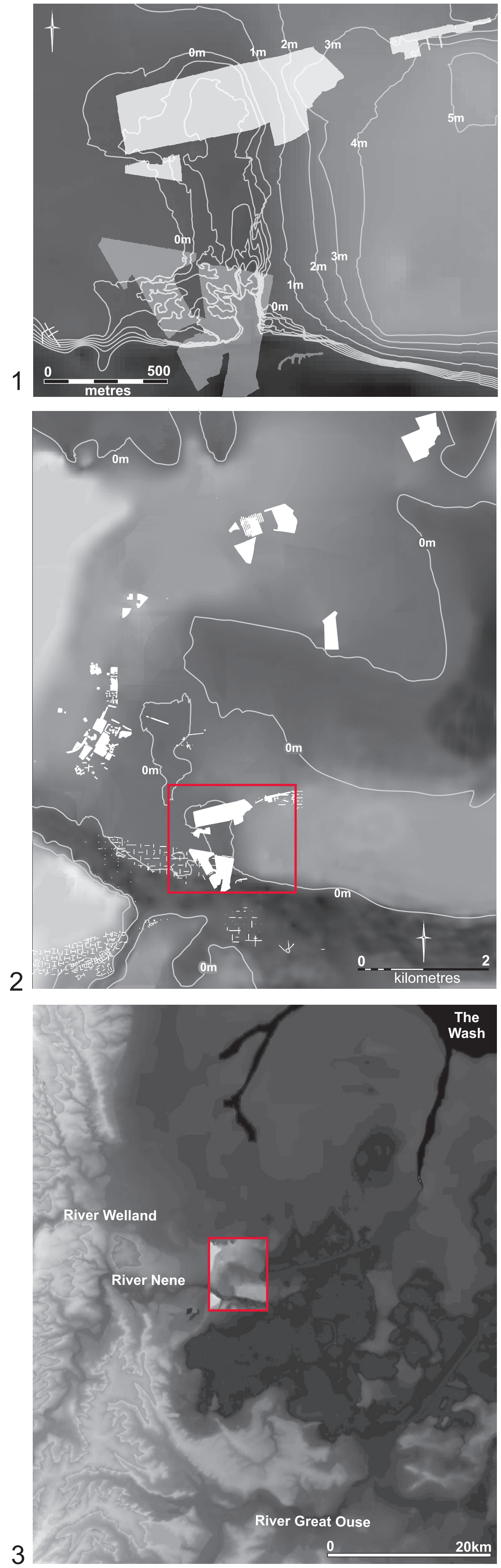


Figure 2.14. *Landscape windows: 1) Bradley Fen Embayment; 2) Flag Fen Basin; 3) Lower Reaches of the River Nene.*

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.

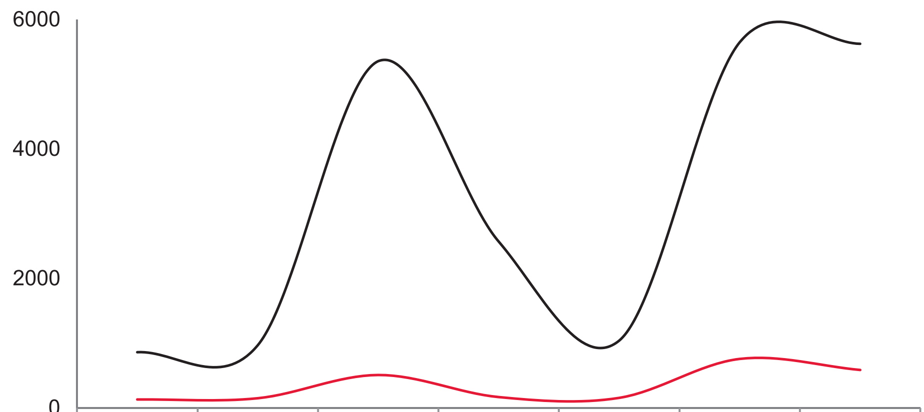
As a landscape, the Flag Fen Basin, perhaps unlike any other, has become synonymous with its prehistoric fieldsystems, to such an extent that the two things have become virtually indivisible (e.g. Pryor 1998b; Yates 2007; Evans 2009c). The intention here is to make the prehistory of the Flag Fen Basin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



	Early Neolithic	Late Neolithic	Early Bronze Age	Middle Bronze Age	Late Bronze Age	Early Iron Age	Middle Iron Age
Weight (g)	862	970	5358	2570	1042	5650	5627
Sherds	132	151	510	169	157	759	588

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

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 different vessels. A pair of refitting flattened, 'heavy' out-turned rims (diameter 36cm) represented one vessel and one of these rims retained feint 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). A large plain rim/neck fragment with a rounded expanded rim profile from F.1184 shared the fabric (Fabric 8).

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

Type	Feature	Number	Weight	Fabric	Site
Plain bowl	280	64	511g	8	BF
	978	68	351g	8	BF
	Total	**132**	**862g**		
Mildenhall	1184	10	84g	8	BF
	1257	60	303g	8	BF
	1271	76	412g	8	BF
	1278	8	50g	6	BF
	Total	**154**	**849g**		
Peterborough Ware	200	5	12g	5	BF
	202	5	26g	5	BF
	203	10	44g	4, 5	BF
	220*	1	12g	5	BF
	293	3	29g	4	BF
	381*	8	48g	1, 2	BF
	424	66	325g	1, 2 & 11	BF
	425	2	4g	4	BF
	507*	20	305g	21	BF
	687	2	6g	21	BF
	894	1	13g	22	KD
	905	3	2g	5	BF
	982	13	91g	4, 5	BF
	1250	12	66g	11	BF
	Total	**151**	**970g**		
TOTAL		**437**	**2681g**		

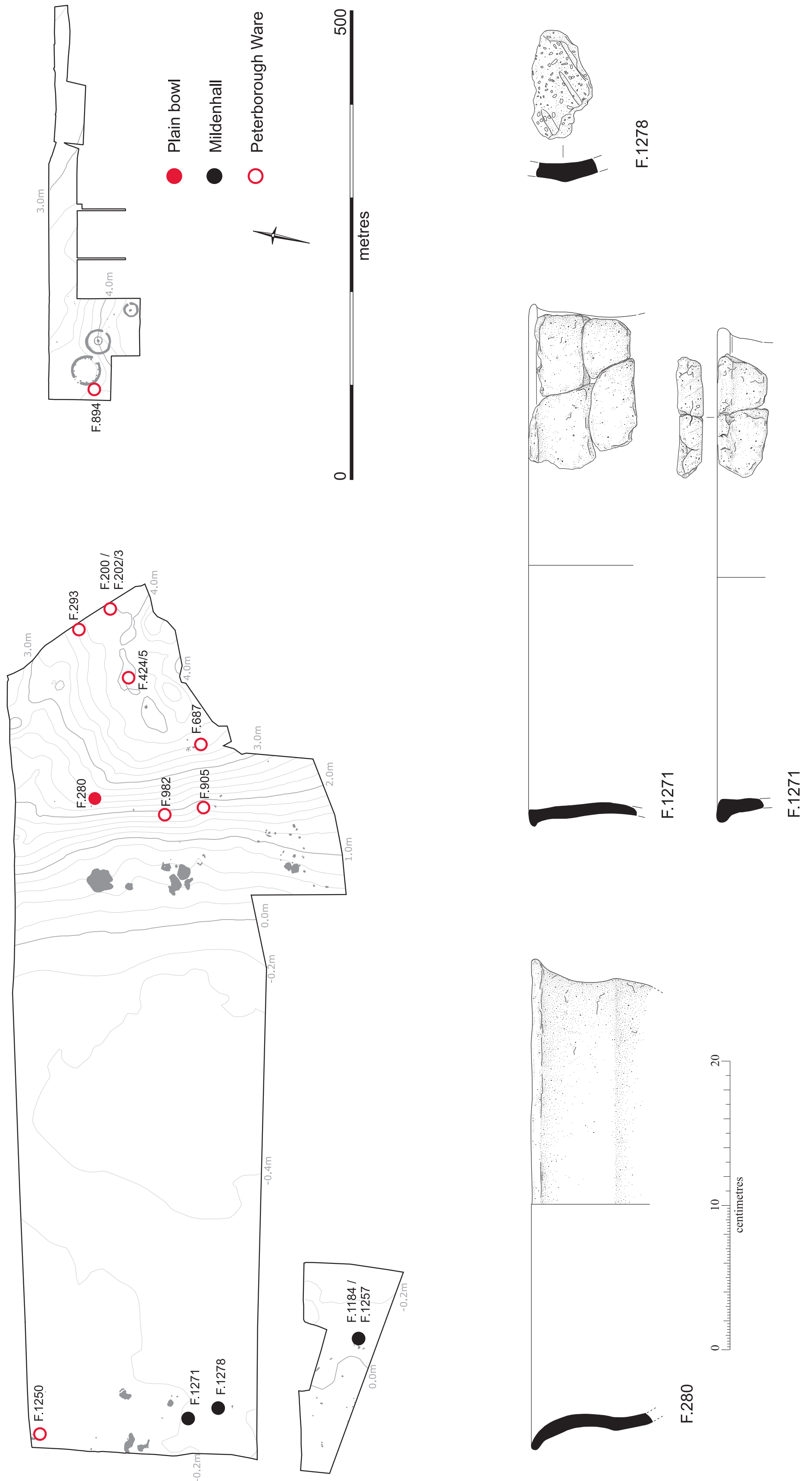


Figure 2.16. *Neolithic archaeology at King's Dyke and Bradley Fen.*

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.)*

Ceramic association	**Early Neolithic**		**Peterborough Ware**							**None**			
Feature	**978**	**1278**	**1250**	**424**	**293**	**425**	**687**	**905**	**982**	**378**	**1277**	**1274/5**	**260**
Type	**Pit**	**Pit**	**Tree throw**	**Pit(s)**	**Pit**	**Natural**	**Tree throw**	**Pit**	**Pit**	**Pit**	**Tree throw**	**Tree throw**	**Pit**
Chip	-	-	7	8	-	2	-	-	-	-	-	-	1
Chunk	1	-	1	3	-	-	-	-	-	-	-	-	-
Flake	6	3	33	29	2	1	3	2	5	8	8	2	-
Blade/bladelet	2	-	2	2	-	-	-	-	-	-	3	2	-
Narrow flake	3	-	7	5	-	1	1	1	2	4	3	-	-
Core fragment	-	1	-	2	-	-	-	-	-	-	1	-	-
Flake core	-	-	-	2	-	-	-	-	-	-	2	-	-
Retouched flake/ blade	-	-	2	-	-	-	-	-	-	-	1	-	-
Serrated flake/blade	-	-	1	1	-	-	-	-	-	-	-	2	-
Piercer	-	1	-	-	-	-	-	-	-	-	-	-	-
Plano-convex knife	-	-	-	-	-	-	-	-	-	-	-	-	
Chisel arrowhead	-	-	-	-	-	-	-	-	-	-	-	-	2
Laurel leaf	-	-	1	-	-	-	-	-	-	-	-	-	-
Side scraper	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub circular scraper	-	-	1	-	-	-	-	-	-	-	-	-	-
Side and end scraper	-	-	-	1	-	-	-	-	-	-	-	-	-
Total worked	**12**	**5**	**55**	**53**	**2**	**4**	**4**	**3**	**7**	**12**	**18**	**6**	**3**
Burnt unworked flint (g)	1 (1.3)	2 (26.1)	-	10 (31.6)	-	-	-	-	-	-	-	-	-
Burnt and worked (%)	3 (25)	0	10 (18.1)	16 (30.2)	0	3 (75)	0	1 (33.3)	0	0	2 (11.1)	0	1 (33.3)
Broken (%)*	2 (16.7)	3 (60)	15 (31.3)	23 (51.1)	0	2 (100)	4 (100)	2 (66.6)	5 (71.4)	4 (33.3)	8 (44.4)	2 (33.3)	0
Retouched (%)*	0	1 (20)	5 (10.4)	2 (4.4)	0	0	0	0	0	0	1 (5.5)	2 (33.3)	2 (100)
Unretouched utilized (%)*	1 (8.3)	0	5 (10.4)	9 (20)	0	0	3 (75)	1 (33.3)	2 (28.6)	1 (8.3)	4 (22.2)	2 (33.3)	0

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 flakes and 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 flints 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 leafs (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 small numbers, including three large narrow flakes, but the emphasis of core reduction is predominantly flake based. Platform trimming is rare and plain platforms predominate. Several pieces, including a blade and several broad, relatively thin flakes, have carefully prepared faceted, platforms. Some 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 scraper 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.

Table 2.8. *Selected non metric traits of unretouched flakes from Peterborough Ware associated features F.1250 and F.424.*

		F.1250		**F.424**	
		No.	**%**	**No.**	**%**
Cortex	Primary	0	*0*	0	*0*
	Secondary	25	*61*	14	*38.9*
	Tertiary	16	*39*	22	*61.1*
Platform type	Plain	15	*53.6*	11	*50*
	Trimmed	6	*21.4*	2	*9.1*
	Faceted	1	*3.6*	5	*22.7*
	Cortical	3	*10.7*	1	*4.6*
	>1 scar	3	*10.7*	3	*13.6*
Scar direction	Single	32	*80*	22	*68.9*
	Single blade	2	*5*	1	*3*
	Opposed	0	*0*	0	*0*
	Multi	6	*15*	9	*28.1*
Termination	Normal	28	*84.8*	19	*76*
	Hinged	5	*15.2*	2	*8*
	Plunging	0	*0*	4	*16*

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

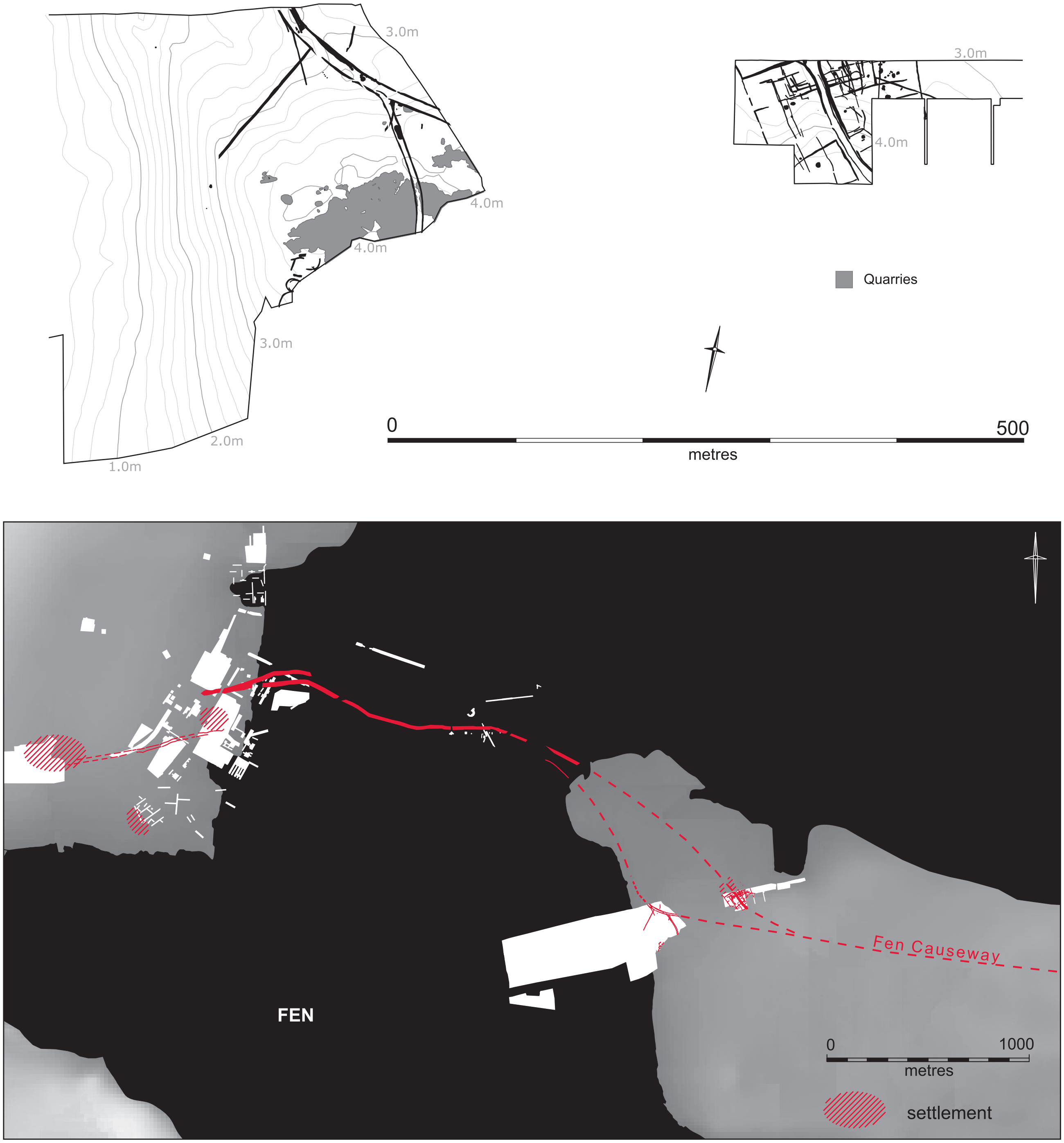


Figure 2.17. *Roman archaeology: top, Bradley Fen and Kings Dyke; bottom, The Fen Causeway and the Flag Fen Basin. The course of the Fen Causeway in relationship to the Flag Fen Basin is known to be very close to the route of the Bronze Age Flag Fen post-alignments (Pryor 2001, 80, fig. 5.1; Britchfield 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.

Pattern and Process

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.

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