



McDONALD INSTITUTE MONOGRAPHS

Pattern and Process

Landscape prehistories from Whittlesey Brick Pits:
the King's Dyke & Bradley Fen excavations 1998–2004

Mark Knight and Matt Brudenell



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

Pattern and process



McDONALD INSTITUTE MONOGRAPHS

Pattern and process

Landscape prehistories from Whittlesey
Brick Pits: the King's Dyke & Bradley Fen
excavations 1998–2004

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

Principal illustrations by Andrew Hall

Published by:

McDonald Institute for Archaeological Research
University of Cambridge
Downing Street
Cambridge, UK
CB2 3ER
(0)(1223) 339327
eaj31@cam.ac.uk
www.mcdonald.cam.ac.uk



McDonald Institute for Archaeological Research, 2020

© 2020 McDonald Institute for Archaeological Research.

Pattern and process is made available under a
Creative Commons Attribution-NonCommercial-
NoDerivatives 4.0 (International) Licence:
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

ISBN: 978-1-902937-97-7

Cover design by Dora Kemp, Andrew Hall and Ben Plumridge.
Typesetting and layout by Ben Plumridge.

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

Edited for the Institute by James Barrett (*Series Editor*).

CONTENTS

Contributors	ix
Figures	xi
Tables	xv
Acknowledgements	xix
Summary	xxi
Chapter 1 Introduction	1
The perfect palimpsest	1
Chapter 2 Project History and Setting	11
Project history	11
<i>Brick pit methodologies</i>	11
Project setting	18
<i>Gazetteer of sites (Iona Robinson Zeki)</i>	18
Environmental setting	26
<i>Micromorphological analyses of the buried soil (Charles French with Tracey Pierre and Sean Taylor)</i>	27
<i>Buried Soil – landscape development of the southern Flag Fen Basin (Charles French)</i>	28
<i>The later prehistoric environment – an overview (Rob Scaife and Charles French)</i>	30
<i>The Bradley Fen pollen data – vegetation and environmental change (Rob Scaife)</i>	32
<i>The developing vegetation and environment of the Flag Fen Basin and its immediate environs – the wider setting (Rob Scaife & Charles French)</i>	33
Flood-scape topographies	38
Setting out	43
<i>Structuring scale and environment</i>	43
<i>Structuring text and data</i>	44
<i>Summary contextual ‘brackets’: Neolithic and Roman archaeology at King’s Dyke and Bradley Fen</i>	44
Chapter 3 A Pre-Fieldsystem Landscape	51
Topographies and environments c. 2200–1500 cal BC	51
<i>The Flag Fen Basin (c. 2200–1500 cal BC) – from marine conditions to fen encroachment</i>	52
Monuments	55
<i>The henge and pit-circle</i>	55
<i>The round barrows and associated ‘cemetery’</i>	61
Monuments, burials and material culture	68
<i>Treating the dead (Natasha Dodwell)</i>	68
<i>Flint (Lawrence Billington)</i>	76
<i>Plant remains (Anne de Vareilles)</i>	78
<i>Other finds (Grahame Appleby and Vida Rajkovača)</i>	81
Monument discussion	81
Early settlement	82
<i>Beaker house and associated pits and postholes</i>	82
<i>The Collared Urn structures and associated settlement swathes</i>	86
<i>Summary</i>	91
Watering hollows, metalled surfaces, hoofprints and burnt mounds	92
<i>Watering hollows</i>	92
<i>Metalled surfaces</i>	98
Inset: <i>Metalled surface F.1052 (Lawrence Billington)</i>	100
<i>Animal tracks</i>	102
<i>Burnt mounds</i>	103
Settlement finds and material practice	108
<i>Prehistoric pottery (Mark Knight)</i>	108
<i>Flint (Lawrence Billington)</i>	118
<i>Faunal remains (Vida Rajkovača)</i>	125
<i>Plant remains and ecofacts (Anne de Vareilles)</i>	128
<i>Fired clay objects (Grahame Appleby)</i>	129
<i>Worked stone (Simon Timberlake)</i>	131

Discussion	131
<i>Monuments</i>	132
<i>Burnt mounds</i>	134
Inset: Spatial-temporal configuration 1 – the pre-fieldsystem landscape	138
<i>Conclusion</i>	140
Chapter 4 Fieldsystem, Settlement and Metalwork	141
Topographies and environments c. 1500–1100 cal BC	142
<i>The Flag Fen Basin (c. 1500 cal BC) – the emerging fen embayment</i>	142
The coaxial fieldsystem	146
<i>Fields (Bradley Fen)</i>	147
<i>'Wet' boundaries</i>	147
<i>Dry boundaries – the main fieldsystem</i>	164
Settlement traces	168
Inset: Wattle cordon F.892 (Maisie Taylor)	172
Inset: Log ladder and mallet head or 'beetle' (Maisie Taylor)	174
<i>Middle Bronze Age or Deverel-Rimbury pottery (Mark Knight)</i>	175
<i>Middle Bronze Age 'foodways' (Vida Rajkovača)</i>	175
<i>Plant remains (Anne de Vareilles & Rachel Ballantyne)</i>	178
<i>Lithics (Lawrence Billington)</i>	179
Metalwork	180
<i>Metalwork Catalogue (Grahame Appleby)</i>	188
<i>Analysis and metallography of Bronze Age metalwork (Peter Northover)</i>	197
Discussion – fieldsystem, settlement and metalwork	206
<i>Building boundaries</i>	206
<i>Scale of occupation</i>	212
<i>Metalwork deposition</i>	213
Inset: Spatial-temporal configuration 2 – fieldsystem, settlement & metalwork	218
<i>Conclusion</i>	219
Chapter 5 Settlement in the Post-Fieldsystem Landscape	221
Topographies and environments c. 1100–350 BC	221
Waterholes and scattered pits – the archaeology of the damp-ground contours	226
<i>Key features – pit complexes and waterholes in Groups A and D</i>	226
Inset: Animal bone dump in waterhole F.528 (Vida Rajkovača)	228
<i>Key features – waterhole F.1064, Group C</i>	229
Inset: The Group D waterhole complex: pin description (Grahame Appleby)	230
<i>Discussion – land use, land allotment and the nature of activities along the damp-ground contours</i>	236
Late Bronze Age settlement and structural remains – the archaeology of the dry terraces at Bradley Fen	238
<i>Structures</i>	238
<i>Other features</i>	239
<i>Discussion – the character of the Late Bronze Age settlement remains</i>	240
Inset: F.691 and F.698: the human remains (Natasha Dodwell)	241
Early Iron Age settlement and structural remains – the archaeology of the dry terraces at King's Dyke	242
<i>Roundhouses</i>	242
<i>Buildings defined by a wall trench – Roundhouses 5, 6 and 10</i>	242
<i>Buildings defined by post rings – Roundhouses 11, 12, 13 and 14</i>	251
<i>Buildings identified by four-post entranceways – Roundhouses 7, 8 and 9</i>	257
<i>Four-post structures</i>	258
<i>Other pits and postholes in the settlement swathe</i>	259
<i>Discussion – the character and development of the Early Iron Age settlement at King's Dyke</i>	259
Foodways	264
<i>Foodways in context – the character and potential of the material record</i>	264
<i>The faunal remains (Vida Rajkovača)</i>	268
<i>The pottery (Matt Brudenell)</i>	271
<i>The carbonized plant remains (Anne de Vareilles)</i>	278
<i>Saddle querns</i>	283

Other material traditions and technologies	284
<i>Material traditions in context</i>	284
<i>The boat section and boat building (Maisie Taylor)</i>	286
<i>Flint working (Lawrence Billington)</i>	289
<i>Textile production (Matt Brudenell)</i>	291
Inset: The Bradley Fen/King's Dyke later prehistoric fired clay fabric series	291
Inset: Loomweight and spindle whorl catalogue	292
Discussion	292
Inset: Spatial-temporal configuration 3 – settlement pattern (distributed and convergent)	293
<i>The Late Bronze Age</i>	294
<i>The Early Iron Age</i>	297
Chapter 6 The Arrival of Fen-Edge Settlement	303
Topographies and environments c. 350–100 BC	303
Settlement overview and chapter structure	305
Settlement architecture	307
<i>Roundhouses</i>	308
<i>Four-post structures</i>	312
<i>Pits, postholes and peat</i>	315
<i>Key features on the dry ground contours</i>	317
Inset: Characterizing the burnt stone contents of clay-lined pits, a case study of pit F.696 (Simon Timberlake)	326
Inset: The human remains (Natasha Dodwell)	327
<i>Key features on the wetland fringe</i>	328
Inset: Waterhole F.1018	329
<i>Finds from the wet</i>	333
<i>Discussion – the character and organization of the settlement</i>	334
Foodways	338
<i>The faunal remains (Vida Rajkovača)</i>	340
<i>The carbonized plant remains (Anne de Vareilles)</i>	345
<i>Saddle querns and rubbing stones</i>	347
<i>The pottery (Matt Brudenell)</i>	349
Material traditions and technologies	354
<i>The metalworking assemblage (Simon Timberlake, Roger Doonan and Peter Hommel)</i>	356
<i>Textile production (Matt Brudenell)</i>	368
Inset: Loomweight catalogue	370
Discussion	370
<i>Low-lying settlement</i>	370
Inset: Spatial-temporal configuration 4 – the arrival of fen-edge settlement	371
<i>The draw of the fen-edge</i>	374
<i>The dead and metalworking</i>	375
Chapter 7 Discussion	379
Review – a palimpsest pulled apart	379
Synthesis – mobility long and short	384
Implications – vertical prehistory	392
Futures	395
Time emplaced	397
Addendum	398
Bibliography	399
Index	415

CONTRIBUTORS

GRAHAME APPLEBY

Planning, Development and Transportation,
Leicester City Council, City Hall, 115 Charles Street,
Leicester LE1 1FZ, UK.

Email: grahame.appleby@leicester.gov.uk

MANUEL ARROYO-KALIN

Institute of Archaeology, 31–34 Gordon Square,
London WC1H 0PY, UK.

Email: m.arroyo-kalin@ucl.ac.uk

RACHEL BALLANTYNE

McDonald Institute for Archaeological Research,
University of Cambridge, Downing Street,
Cambridge CB2 3ER, UK.

Email: rmb51@cam.ac.uk

MICHAEL BAMFORTH

University of York, Department of Archaeology,
King's Manor, York YO1 7EP, UK.

Email: michael.bamforth@gmail.com

LAWRENCE BILLINGTON

Oxford Archaeology East, 15 Trafalgar Way, Bar
Hill, Cambridge, CB23 8SQ, UK.

Email: lawrence.billington@oxfordarch.co.uk

STEVE BOREHAM

Department of Geography, University of
Cambridge, Downing Place, Cambridge CB2 3EN,
UK.

Email: steve.boreham@geog.cam.ac.uk

NATASHA DODWELL

Oxford Archaeology East, 15 Trafalgar Way, Bar
Hill, Cambridge, CB23 8SQ, UK.

Email: natasha.dodwell@oxfordarch.co.uk

ROGER DOONAN

Department of Archaeology, University of Sheffield,
Minalloy House. 10–16 Regent Street, Sheffield S1
3NJ, UK.

Email: r.doonan@shef.ac.uk

CHARLES FRENCH

Division of Archaeology, Department of
Archaeology and Anthropology, University of
Cambridge, Downing Street, Cambridge CB2 3DZ,
UK.

Email: caif2@cam.ac.uk

KEVIN HAYWARD

Pre-Construct Archaeology, Unit 54, Brockley Cross
Business Centre, 96 Endwell Road, London SE4
2PD, UK.

Department of Archaeology, University of Reading,
Whiteknights Box 227, Reading RG6 6AB, UK.

Email: k.hayward@reading.ac.uk

PETER HOMMEL

School of Archaeology, 1 South Parks Road, Oxford
OX1 3TG, UK.

Email: peter.hommel@arch.ox.ac.uk

DONALD HORNE

Cambridge Archaeological Unit, Department of
Archaeology and Anthropology, University of
Cambridge, Downing Street, Cambridge CB2 3DZ,
UK.

Email: dmh35@cam.ac.uk

MARK NOEL

GeoQuest Associates, Rockside, Dreemskerry,
Maughold, Isle of Man IM7 1BL, UK.

Email: rockside.manx@gmail.com

PETER NORTHOVER

Materials Engineering, Faculty of Mathematics,
Computing & Technology, The Open University,
Walton Hall, Milton Keynes MK7 6AA, UK

Email: jeremy.northover@open.ac.uk

TRACEY PIERRE

Department of Anthropology, University of Utah,
Salt Lake City, USA.

Email: tlp21@cam.ac.uk

VIDA RAJKOVAČA

Cambridge Archaeological Unit, Department of
Archaeology and Anthropology, University of
Cambridge, Downing Street, Cambridge CB2 3DZ,
UK.

Email: vr245@cam.ac.uk

IONA ROBINSON ZEKI

Cambridge Archaeological Unit, Department of
Archaeology and Anthropology, University of
Cambridge, Downing Street, Cambridge CB2 3DZ,
UK.

Email: ihr22@cam.ac.uk

ROB SCAIFE
Geography and Environment, University of
Southampton, University Road, Southampton SO17
1BJ, UK.
Email: r.scaife@soton.ac.uk

MAISIE TAYLOR
Department of Archaeology, University of York,
King's Manor, York YO1 7EP, UK.
Email: maisietaylor7@gmail.com

SEAN TAYLOR
The Charles McBurney Laboratory for
Geoarchaeology, Department of Archaeology and
Anthropology, University of Cambridge, Downing
Street, Cambridge CB2 3DZ, UK.
Email: st435@cam.ac.uk

SIMON TIMBERLAKE
19 High Street, Fen Ditton, Cambridge CB5 8ST, UK.
Email: simon.timberlake@gmail.com

ANNE DE VAREILLES
Research Associate for the Biodiversity and
Land-use Change in the British Isles
Historic England, Fort Cumberland, Portsmouth
PO4 9LD, UK.
Email: Anne.deVareilles@historicengland.org.uk

PENELOPE WALTON ROGERS
The Anglo-Saxon Laboratory, Bootham House, 61
Bootham, York YO30 7BT, UK.
Email: penrogers@aslab.co.uk

Figures

1.1.	<i>The Bradley Fen base plan in print.</i>	2
1.2.	<i>Bradley Fen 'reconstruction' from Unearthing the Past.</i>	3
1.3.	<i>Peacock's Farm excavations.</i>	4
1.4.	<i>Age/altitude correspondence of main periods for Bradley Fen.</i>	5
1.5.	<i>Top: View of Fengate looking northwest from Whittlesey. Bottom: Oblique view of King's Dyke.</i>	7
1.6.	<i>Site location.</i>	8
1.7.	<i>Vertical view of Whittlesey Brick Pits 1970.</i>	9
2.1.	<i>Phases of investigation.</i>	12
2.2.	<i>Geophysical and aerial survey plot.</i>	13
2.3.	<i>Oblique aerial photograph of King's Dyke excavations 1999.</i>	14
2.4.	<i>Oblique aerial photograph of Bradley Fen excavations 2001.</i>	15
2.5.	<i>Detailed plan of King's Dyke and Bradley Fen – prehistoric archaeology.</i>	16
2.6.	<i>Plan of King's Dyke excavations.</i>	16
2.7.	<i>Plan of Bradley Fen excavations.</i>	17
2.8.	<i>Gazetteer of prehistoric sites of the Flag Fen Basin.</i>	19
2.9.	<i>Pre-Flandrian profiles of the Flag Fen Basin.</i>	22
2.10.	<i>Key pollen and soil micromorphology sample points in the Flag Fen Basin.</i>	27
2.11.	<i>The pre-Flandrian land surface – a 'predictive' palaeo-topographic reconstruction.</i>	39
2.12.	<i>Two flood maps.</i>	40
2.13.	<i>Four flood maps.</i>	41
2.14.	<i>Landscape windows.</i>	43
2.15.	<i>Prehistoric pottery totals by period.</i>	45
2.16.	<i>Neolithic archaeology at King's Dyke and Bradley Fen.</i>	46
2.17.	<i>Roman archaeology at King's Dyke and Bradley Fen.</i>	49
3.1.	<i>Pre-Flandrian landscape – c. 2200–1800 cal BC.</i>	52
3.2.	<i>Changing textures – transitional landscape c. 2200–1500 cal BC.</i>	53
3.3.	<i>Pre-fieldsystem landscape – Bradley Fen and King's Dyke excavation areas with schematic transect.</i>	54
3.4.	<i>King's Dyke monument complex.</i>	56
3.5.	<i>King's Dyke pit-circle and henge overall plan.</i>	57
3.6.	<i>Pit-circle and henge sections.</i>	58
3.7.	<i>Section across pit-circle and henge, Round Barrow 1, Round Barrow 2 and Ring-ditch 1.</i>	60
3.8.	<i>Round Barrow 1.</i>	62
3.9.	<i>Central burial F.795 with 'coffin' stain (Round Barrow 1).</i>	63
3.10.	<i>Plan of Round Barrow 2 and Ring-ditch 1 with detail and photograph of central grave.</i>	64
3.11.	<i>Cremation pit F.748 and Collared Urn 'capsule'.</i>	65
3.12.	<i>Isolated inhumation F.611.</i>	66
3.13.	<i>Cremation pit-pyres and cremation associated Collared Urns.</i>	67
3.14.	<i>Preferred monument/burial sequence and diminishing diameters – monument complex through time.</i>	69
3.15.	<i>Vertical and horizontal distribution of burials.</i>	70
3.16.	<i>Calcined bone fragment size by type.</i>	74
3.17.	<i>Excavation of pit-pyre F.1279.</i>	75
3.18.	<i>Bradley Fen – western end features.</i>	83
3.19.	<i>Structure 1 with small finds distribution.</i>	84
3.20.	<i>Photograph of Structure 1 (looking southwest).</i>	85
3.21.	<i>Flint tools from Structure 1.</i>	86
3.22.	<i>Location of Structure 2, Burnt Mounds 1–3, watering hollows and metalled surfaces.</i>	87
3.23.	<i>Structure 2 – plan and sections.</i>	88
3.24.	<i>Structure 3 – plan, sections and associated pits.</i>	89
3.25.	<i>Early Bronze Age pits/postholes associated with Structure 3 – dimensions.</i>	90
3.26.	<i>Excavation of inter-cutting pits F.276, F.317 & F.318.</i>	91
3.27.	<i>Waterhole F.859/F.866 with accompanying burnt mound features and later wattled pit-guard.</i>	93
3.28.	<i>Section of waterhole F.859/F.866 with accompanying burnt mound.</i>	94

3.29.	<i>Photograph of commencement of excavation of F.859/F.866.</i>	95
3.30.	<i>Waterholes (F.1093, F.1102 & F.1038) and metalled surfaces (F.951, F.1052 & F.1100).</i>	96
3.31.	<i>Photograph of waterhole F.1266 (looking to the west) and detail of Area 2 hoofprints.</i>	97
3.32.	<i>Plan and section of waterhole F.1266 and sections of selected Area 2 hoofprints.</i>	98
3.33.	<i>Perforated scapulae.</i>	99
3.34.	<i>Metalled surface F.1052 and distribution of worked flints.</i>	100
3.35.	<i>Sample of worked flints from metalled surface F.1052.</i>	101
3.36.	<i>Hoofprint chart (length and width ratio by species).</i>	103
3.37.	<i>Plan of Burnt Mound 2 incorporating earlier waterholes F.1102 and F.1038.</i>	105
3.38.	<i>Plan of Burnt Mound 3 incorporating waterhole F.1151.</i>	106
3.39.	<i>Plan of Burnt Mound 4 (with photograph looking north).</i>	106
3.40.	<i>Percentage heavy fraction composition of four burnt mounds.</i>	107
3.41.	<i>Beaker and Collared Urn pottery illustrated.</i>	109
3.42.	<i>Distribution of Beaker and Collared Urn pottery.</i>	110
3.43.	<i>Whole Collared Urn vessels (F.749 & F.750).</i>	115
3.44.	<i>Collared Urn fragmentation by key context.</i>	118
3.45.	<i>Worked flint from Collared Urn contexts.</i>	124
3.46.	<i>Percentage of domestic species relative to wild by feature categories.</i>	127
3.47.	<i>Percentages of calcined animal bone by feature categories.</i>	127
3.48.	<i>Loomweights and 'perforated' pebbles.</i>	130
3.49.	<i>'Fen-edge' mound composition contrast.</i>	135
3.50.	<i>Bradley Fen Embayment, incorporating the Must Farm landscape.</i>	137
3.51.	<i>Spatial-temporal configuration 1 – the pre-fieldsystem landscape.</i>	139
4.1.	<i>Flood map c. 1500 cal BC (0.50m OD) – 1300 cal BC (1.00m OD).</i>	143
4.2.	<i>Changing textures – Middle Bronze Age.</i>	144
4.3.	<i>Fieldsystem landscape – Bradley Fen and King's Dyke excavation areas with schematic transect.</i>	145
4.4.	<i>A system of fields.</i>	147
4.5.	<i>Field sizes by area.</i>	148
4.6.	<i>Field widths.</i>	148
4.7.	<i>Field lengths.</i>	148
4.8.	<i>'Wet' boundary – stake-built fence-line or 'dead-hedge' F.1306 and the subsequent bank and ditch.</i>	149
4.9.	<i>Photograph of excavated bank and ditch with underlying remains of earlier fence-line.</i>	151
4.10.	<i>Plans and photographs of bank and ditch.</i>	152
4.11.	<i>Photographs of effects of animal poaching on the sides of the ditch.</i>	153
4.12.	<i>Location of pollen profiles relative to the bank and ditch feature.</i>	157
4.13.	<i>Pollen diagram 1.</i>	158
4.14.	<i>Pollen diagram 2.</i>	159
4.15.	<i>Pollen diagram 3.</i>	160
4.16.	<i>Pollen diagram 4.</i>	161
4.17.	<i>Photograph of pollen sample process (P1–P3).</i>	163
4.18.	<i>Issues of preservation – high, middle and low boundary forms.</i>	165
4.19.	<i>Plan of main fieldsystem with associated settlement features.</i>	166
4.20.	<i>Plan of key fieldsystem junctions.</i>	167
4.21.	<i>Gateway – opening in Ditch C with metalled surface.</i>	168
4.22.	<i>Key settlement features.</i>	169
4.23.	<i>Shaft F.830.</i>	170
4.24.	<i>Photographs of shaft F.830, with articulated body, disarticulated fox and detail of bone with textile fragment.</i>	171
4.25.	<i>Shaft F.879 and wattle cordon F.892.</i>	173
4.26.	<i>Log ladder and mallet head.</i>	174
4.27.	<i>Mandibular tooth wear for cattle.</i>	177
4.28.	<i>Epiphyseal fusion data for cattle.</i>	177
4.29.	<i>Distribution of metalwork (hoard and spears).</i>	181
4.30.	<i>Photograph of spears in situ.</i>	182

4.31.	<i>Six 'single' spears.</i>	183
4.32.	<i>Plan and photograph of the hoard.</i>	184
4.33.	<i>Hoard location and deposition sequence.</i>	185
4.34.	<i>The hoard.</i>	186
4.35.	<i>Detailed drawings of individual hoard pieces and single spears.</i>	190
4.36.	<i>Detailed drawings of individual hoard pieces and single spears.</i>	190
4.37.	<i>Detailed drawings of individual hoard pieces and single spears.</i>	193
4.38.	<i>Detailed drawings of individual hoard pieces and single spears.</i>	195
4.39.	<i>Detailed drawings of individual hoard pieces and single spears.</i>	197
4.40.	<i>Bradley Fen bronze content – tin and lead.</i>	200
4.41.	<i>Bradley Fen bronze content – impurity patterns.</i>	201
4.42.	<i>Interrelationship of the fieldsystem with the existing barrows and burnt mounds.</i>	207
4.43.	<i>'Livestock dynamics'.</i>	209
4.44.	<i>Distribution of fieldsystems, Collared Urn and Deverel-Rimbury assemblages in the Flag Fen Basin.</i>	211
4.45.	<i>Metalwork deposition and the Flag Fen Basin.</i>	214
4.46.	<i>Single spears and wooden hafts.</i>	216
4.47.	<i>Damage to hoard spears.</i>	217
4.48.	<i>Spatial-temporal configuration.</i>	218
5.1.	<i>Flood map for the earlier first millennium BC.</i>	222
5.2.	<i>Landscape reconstruction for the earlier first millennium BC.</i>	224
5.3.	<i>Plan of Late Bronze Age and Early Iron Age features at Bradley Fen and King's Dyke.</i>	225
5.4.	<i>Features along the damp-ground contours at Bradley Fen.</i>	227
5.5.	<i>Plan and section of waterhole F.528 with animal bone dump.</i>	228
5.6.	<i>Section of Early Iron Age well/waterhole F.480, with photograph of fineware bowl.</i>	229
5.7.	<i>The Group D waterhole complex. Left: plan and section of waterholes F.943–947.</i>	230
5.8.	<i>Waterhole F.1064, showing wooden tank with logboat section as base block.</i>	231
5.9.	<i>Profile and photographs of the surviving tank components.</i>	232
5.10.	<i>Pollen diagram from waterhole F.1064.</i>	235
5.11.	<i>The relationship between Late Bronze Age and Early Iron Age features at Bradley Fen.</i>	237
5.12.	<i>Roundhouse 4 and adjacent features.</i>	239
5.13.	<i>Four-Post Structures 1 and 2.</i>	239
5.14.	<i>Posthole F.280, with photographs of the two loomweights recovered.</i>	240
5.15.	<i>Reconstruction of the pitting sequence and the disturbance of the burial in F.691 and F.698.</i>	241
5.16.	<i>Plan of the King's Dyke Early Iron Age settlement.</i>	243
5.17.	<i>Roundhouses defined by a wall-trench.</i>	244
5.18.	<i>Findings distribution from buried soil squares within Roundhouse 10.</i>	245
5.19.	<i>Roundhouse 5.</i>	247
5.20.	<i>Pit F.495.</i>	248
5.21.	<i>Roundhouse 5 – finds distributions and phosphate plot.</i>	250
5.22.	<i>Roundhouses defined by a post-ring.</i>	251
5.23.	<i>Three alternative reconstructions for the plan of Roundhouse 12.</i>	252
5.24.	<i>Roundhouse 14 – model of 'complete' plan and artefact distributions.</i>	253
5.25.	<i>Pit F.61 and adjacent features, with detail showing micromorphology sample locations and thin sections (1 and 2).</i>	254
5.26.	<i>Roundhouses defined by four-post entranceways.</i>	257
5.27.	<i>Four-post Structure 4–6, with a photograph of Four-post Structure 3.</i>	259
5.28.	<i>Pit dimension plot by site and contour range.</i>	260
5.29.	<i>Model of building sequence at King's Dyke Early Iron Age settlement.</i>	261
5.30.	<i>Shared architectural traditions.</i>	263
5.31.	<i>Later Bronze Age and Early Iron material distribution at Bradley Fen.</i>	266
5.32.	<i>Early Iron Age material distribution at King's Dyke.</i>	267
5.33.	<i>Relative importance of species by NISP for comparative sites.</i>	271
5.34.	<i>Fabrics, vessel classes and rim diameters.</i>	273
5.35.	<i>Late Bronze Age and Early Iron Age pottery.</i>	275

5.36.	<i>Vessel sets from the Flag Fen Basin containing burnt sherds.</i>	279
5.37.	<i>Early Iron Age saddle querns from King's Dyke.</i>	284
5.38.	<i>Details of the boat section from F.1064 with comparative drawing of Clifton 1 logboat.</i>	287
5.39.	<i>Spindle whorl from F.433, Roundhouse 4.</i>	292
5.40.	<i>Temporal-Spatial Configuration 3 – Late Bronze Age and Early Iron Age settlement.</i>	293
5.41.	<i>Map and model of the Late Bronze Age settlement landscape in the Flag Fen Basin.</i>	296
5.42.	<i>Early Iron Age settlement swathes and other contemporary features in the Flag Fen Basin.</i>	299
5.43.	<i>The King's Dyke and Tanholt Farm Early Iron Age site plans.</i>	300
6.1.	<i>Flood map for the mid-late first millennium BC.</i>	304
6.2.	<i>The landscape reconstruction in the mid-late first millennium BC.</i>	305
6.3.	<i>Plan of the Middle Iron Age settlement at Bradley Fen.</i>	306
6.4.	<i>Detail of the Middle Iron Age settlement at Bradley Fen.</i>	307
6.5.	<i>Roundhouses 15 and 16.</i>	309
6.6.	<i>Roundhouses 17.</i>	311
6.7.	<i>Four-Post Structures 7–11.</i>	312
6.8.	<i>Four-Post Structures 9, 10 and 11 with detail of posthole F.613 and inserted burial.</i>	314
6.9.	<i>Plan of Middle Iron Age pits and postholes.</i>	316
6.10.	<i>Middle Iron Age pits and postholes – depth/dimension diagram.</i>	317
6.11.	<i>Plan of furnace and features yielding metalworking debris.</i>	318
6.12.	<i>Photograph, section and reconstruction of furnace F.611.</i>	319
6.13.	<i>Archaeomagnetic dating stereograms.</i>	320
6.14.	<i>Photograph and sections of slag pit F.597.</i>	323
6.15.	<i>Slag pit F.597 – distribution of slag debris by sector.</i>	324
6.16.	<i>Burnt stone from clay-lined pits.</i>	326
6.17.	<i>Burial F.781.</i>	327
6.18.	<i>Waterhole F.1018 – animal bone dump and modified skull fragment.</i>	330
6.19.	<i>Distinctive butchery of bone from F.1018.</i>	331
6.20.	<i>Distribution of articulated and disarticulated human remains.</i>	332
6.21.	<i>Distribution of pits and postholes on the left-hand side of Roundhouses 15, 16 and 17.</i>	335
6.22.	<i>Functionally-related feature groupings.</i>	337
6.23.	<i>Sheep bone deposits in roundhouses.</i>	339
6.24.	<i>Distribution of pottery and animal bone in the Bradley Fen Middle Iron Age settlement.</i>	341
6.25.	<i>Sheep vertebra split down the sagittal plane.</i>	344
6.26.	<i>Gross fragment count by contour for Bradley Fen Middle Iron Age cattle and sheep bones.</i>	345
6.27.	<i>Two incomplete saddle querns and a large rubbing stone, bone point and copper alloy ring.</i>	348
6.28.	<i>Distribution of loomweights, querns, bone point, copper alloy ring and oven plate.</i>	349
6.29.	<i>Early Iron Age and Middle Iron Age pottery – fabric composition.</i>	350
6.30.	<i>Middle Iron Age pottery – rim diameters.</i>	351
6.31.	<i>Middle Iron Age pottery.</i>	353
6.32.	<i>Distribution of iron slag, crucible fragments and hammerscale.</i>	355
6.33.	<i>Composition of metallurgical debris from all Iron Age features.</i>	357
6.34.	<i>Slagged refractories.</i>	359
6.35.	<i>Furnace conglomerates.</i>	361
6.36.	<i>Slag runs.</i>	362
6.37.	<i>Crucible and mould fragments.</i>	365
6.38.	<i>Fired clay objects.</i>	369
6.39.	<i>Spatial-temporal configuration 4 – the arrival of fen-edge settlement.</i>	371
6.40.	<i>Cat's Water and Bradley Fen Middle Iron Age settlements.</i>	372
6.41.	<i>Distribution of Middle Iron Age settlement, metalwork and human remains.</i>	376
7.1.	<i>Four landscape views.</i>	380
7.2.	<i>Four cross-sectional diagrams.</i>	381
7.3.	<i>Plan and diagrammatical section of landscape zones.</i>	383
7.4.	<i>Four wider landscape views.</i>	385
7.5.	<i>Nene Valley monument distribution in plan and by height m OD.</i>	387

7.6.	<i>'Vertical rift' in Flag Fen Basin occupation.</i>	391
7.7.	<i>Fenland's prehistoric topography transformed.</i>	392
7.8.	<i>Early Bronze Age structures of East Anglia.</i>	394
7.9.	<i>Models of the survival of archaeological features on the western and eastern fen-edge.</i>	395
7.10.	<i>Bradley Fen: first exposure of the 'wet' boundary bank and ditch.</i>	394

Tables

1.1	<i>Radiocarbon age determinations from King's Dyke and Bradley Fen.</i>	6
2.1.	<i>History of investigation at Whittlesey Brick Pits – King's Dyke and Bradley Fen.</i>	12
2.2.	<i>Gazetteer of prehistoric sites of the Flag Fen Basin.</i>	20
2.3.	<i>Buried soil profiles from King's Dyke, Bradley Fen and the wider Flag Fen Basin.</i>	29
2.4.	<i>The prehistoric landscape of the Flag Fen Basin throughout the Holocene.</i>	34
2.5.	<i>Increasing saturation in the Flag Fen Basin.</i>	42
2.6.	<i>Neolithic pottery.</i>	45
2.7.	<i>Flint assemblages from Neolithic features.</i>	47
2.8.	<i>Selected non metric traits of unretouched flakes from Peterborough Ware associated features.</i>	48
3.1.	<i>Henge ditch dimensions.</i>	56
3.2.	<i>Pit-circle dimensions.</i>	59
3.3.	<i>Distribution of principal finds in F.851 and F.857.</i>	61
3.4.	<i>Early Bronze Age burials at King's Dyke and Bradley Fen.</i>	71
3.5.	<i>King's Dyke cremation burials.</i>	71
3.6.	<i>Isolated Bronze Age cremation burials.</i>	72
3.7.	<i>Degree of fragmentation of cremated bone.</i>	73
3.8.	<i>Bronze Age formal burials in the Flag Fen Basin.</i>	75
3.9.	<i>Henge flint assemblage.</i>	76
3.10.	<i>Worked and burnt flint from the round barrows and 'cemetery'.</i>	77
3.11.	<i>Worked flint grave goods associated with inhumation and cremation burials.</i>	78
3.12.	<i>Henge and pit-circle plant remains.</i>	79
3.13.	<i>Early Bronze Age cremations & Round Barrow 1 plant remains.</i>	80
3.14.	<i>Early Bronze Age structures – radiocarbon dates.</i>	82
3.15.	<i>Structure/settlement material culture breakdown.</i>	91
3.16.	<i>Flint assemblage from F.1052.</i>	102
3.17.	<i>Burnt mounds.</i>	104
3.18.	<i>Burnt mounds – area and heavy fraction composition.</i>	107
3.19.	<i>Burnt mounds – radiocarbon dates.</i>	107
3.20.	<i>Beaker pottery distribution by site and elevation.</i>	108
3.21.	<i>Beaker pottery – King's Dyke.</i>	108
3.22.	<i>Beaker pottery – Bradley Fen (high).</i>	108
3.23.	<i>Collared Urn pottery by site.</i>	111
3.24.	<i>Early Bronze Age/Collared Urn pottery context division.</i>	111
3.25.	<i>Early Bronze Age/Collared Urn pottery – minimum number of vessels by context.</i>	112
3.26.	<i>Collared Urn decoration.</i>	113
3.27.	<i>'Cemetery' Collared Urns and Vase-type Food Vessel.</i>	114
3.28.	<i>Structure 2 – pottery assemblage breakdown.</i>	114
3.29.	<i>Structure 3 – pottery assemblage breakdown.</i>	115
3.30.	<i>Structure 3 settlement swathe – pottery assemblage breakdown.</i>	116
3.31.	<i>Structure 1 and Beaker-associated features – flint assemblage.</i>	119
3.32.	<i>Burnt mound-associated features – flint assemblage.</i>	120
3.33.	<i>Early Bronze Age pits and postholes – flint assemblage.</i>	121
3.34.	<i>Henge ditch F.851, Structure 2 and Structure 3 – flint assemblages.</i>	122
3.35.	<i>Non-metric traits of unretouched flakes from Early Bronze Age features.</i>	123
3.36.	<i>Early Bronze Age features – animal bone species count.</i>	126
3.37.	<i>Burnt mound-associated features – animal bone species count.</i>	127

4.1.	<i>Field dimensions.</i>	147
4.2.	<i>Fence-line-associated and ditch-associated wood condition scores.</i>	154
4.3.	<i>Upright stakes from fence-line.</i>	154
4.4.	<i>Categories of material recovered in association with fence-line and ditch.</i>	155
4.5.	<i>Categories of debris recovered in association with fence-line and ditch.</i>	155
4.6.	<i>Fieldsystem feature dimensions.</i>	164
4.7.	<i>Hollow F.991 – dimensions and find quantities.</i>	168
4.8.	<i>Middle Bronze Age shaft features – dimensions and find quantities.</i>	168
4.9.	<i>Deverel-Rimbury pottery.</i>	175
4.10.	<i>Total animal bone fragment count and weight for Middle Bronze Age features.</i>	176
4.11.	<i>Middle Bronze Age contexts – animal bone species count and individuals count.</i>	176
4.12.	<i>Number and percentage of fused epiphyses for Middle Bronze Age cattle.</i>	177
4.13.	<i>The ‘normalised’ percentages for the three main ‘food species’ from comparative sites.</i>	178
4.14.	<i>Fieldsystem lithics.</i>	179
4.15.	<i>Flint assemblages from Middle Bronze Age features.</i>	180
4.16.	<i>Metalwork radiocarbon dates.</i>	187
4.17.	<i>Compositions of copper alloy metalwork.</i>	199
4.18.	<i>‘S’ metal content of Wilburton assemblages.</i>	200
4.19.	<i>Impurity pattern matches between fragments.</i>	202
4.20.	<i>Metallography.</i>	204
4.21.	<i>Metalwork damage assessment.</i>	205
4.22.	<i>Collared Urn and Deverel-Rimbury assemblages from Flag Fen Basin sites.</i>	213
5.1.	<i>Late Bronze Age and Early Iron Age roundhouse dimensions and finds totals.</i>	242
5.2.	<i>Lamb/sheep bone deposits in Roundhouse 14.</i>	255
5.3.	<i>Pit F.61 – sediment types and corresponding layers.</i>	256
5.4.	<i>Four-post structure dimensions and finds totals.</i>	258
5.5.	<i>Early Iron Age features – animal bone species count and individuals count.</i>	269
5.6.	<i>Number and percentage of fused epiphyses for Early Iron Age ovicaprids.</i>	269
5.7.	<i>Roundhouse 14 – animal bone species count and individuals count.</i>	269
5.8.	<i>F.528 – animal bone species count and individuals count.</i>	270
5.9.	<i>Late Bronze Age pottery.</i>	272
5.10.	<i>Early Iron Age pottery.</i>	272
5.11.	<i>Pottery – quantification of vessel forms.</i>	276
5.12.	<i>Pottery deposit size and frequency.</i>	277
5.13.	<i>Early Iron Age formal pottery deposits.</i>	277
5.14.	<i>Late Bronze Age charred soil samples from Bradley Fen.</i>	280
5.15.	<i>Early Iron Age charred soil samples from King’s Dyke.</i>	281
5.16.	<i>Comparative logboat dimensions.</i>	288
5.17.	<i>Later prehistoric worked flint from Late Bronze Age to Middle Iron Age features.</i>	290
5.18.	<i>Fired clay quantification by fabric.</i>	291
5.19.	<i>Early Iron Age settlement, contour range and distance from the fen-edge.</i>	298
6.1.	<i>Breakdown of artefacts categories for Roundhouses 15, 16 and 17.</i>	308
6.2.	<i>Summary of four-post structure dimensions (m) and finds totals.</i>	312
6.3.	<i>Archaeomagnetic results from fired clay lining of F.611.</i>	321
6.4.	<i>Categories of metallurgical debris within F.597.</i>	322
6.5.	<i>Summary of finds from clay-lined pits.</i>	325
6.6.	<i>Waterhole F.1018 – animal bone species count and individuals count.</i>	329
6.7.	<i>Single disarticulated skeletal elements assigned to the Iron Age at Bradley Fen.</i>	333
6.8.	<i>Relative importance of the three main domesticates on fen-edge Iron Age sites.</i>	339
6.9.	<i>Middle Iron Age contexts – animal bone species count and individuals count.</i>	342
6.10.	<i>Roundhouses 15, 16 and 17 – animal bone species count and individuals count.</i>	342
6.11.	<i>Roundhouse 15 – animal bone species count and bone weight.</i>	342
6.12.	<i>Roundhouse 16 – animal bone species count and bone weight.</i>	343
6.13.	<i>Roundhouse 17 – animal bone species count and bone weight.</i>	343

6.14.	<i>Middle Iron Age charred soil samples.</i>	346
6.15.	<i>Middle Iron Age fabric groups.</i>	350
6.16.	<i>Middle Iron Age forms.</i>	351
6.17.	<i>Middle Iron Age rim-top decoration.</i>	352
6.18.	<i>Middle Iron Age pottery – quantities of material interred.</i>	352
6.19.	<i>Material classes encountered in the metalworking assemblage.</i>	354
6.20.	<i>Quantification of metalworking debris.</i>	360
6.21.	<i>Bulk percentage of iron, manganese and nickel within iron ores and slag.</i>	363
6.22.	<i>Results of qualitative XRF analysis of crucible residues.</i>	366
6.23.	<i>Fired clay quantification by fabric.</i>	368

Acknowledgements

The brick pit was fundamental. Its very existence determined our presence while its proceeds funded our work. As ever, we are indebted to Forterra Building Products Ltd (formerly Hanson UK) for the opportunity to research such exciting spaces. In particular, we would like to thank Andy Corley, Rob Donnelly, Ian Willis and, more recently, Tim Darling, Dominic Delich and Brian Chapman for their enthusiastic assistance in our investigations of the brick works of Whittlesey. Concerning the planning or development control component of the investigations, Simon Kaner, Andy Thomas and Kasia Gdaniec of Cambridgeshire County Council's Historic Environment Team are to be thanked for their attention to detail, support and continued far-sightedness. The archaeology presented within this volume benefitted especially from the ingenuity and practicality of Simon Colcutt of Oxford Archaeological Associates (consultant for Bradley Fen) together with the managerial adeptness and great patience of David Gibson (Cambridge Archaeological Unit). As Project Manager, David Gibson should also be acknowledged for the unenviable task of having to be enthusiast and realist all at once. We believe Bradley Fen represents a fine demonstration of the vital negotiation between developers, planners and archaeologists.

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 appar-

ent 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 to 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 pre-configured with monuments and burnt mounds. Genuine settlement structures included three of Early Bronze Age date, one Late Bronze Age, ten Early Iron Age and three Middle Iron Age. Despite the existence of Middle Bronze Age wells, bone dumps and domestic pottery assemblages no contemporary structures were recognised. Later Bronze Age metalwork, including single spears and a weapon hoard, was deposited in indirect association with the earlier land divisions and consistently within ground that was becoming increasingly wet. By the early Middle Iron Age, much of the fieldsystem had been subsumed beneath peat whilst, above the peat, settlement features transgressed its still visible boundaries.

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 1

Introduction

The perfect palimpsest

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

Detailed in this volume, the results of the Bradley Fen and King's Dyke excavations provide a new perspective on this dynamic landscape. This is in no small part due to the fact that these were the first major archaeological excavations on the southern side of the Basin. Most importantly, they were the first to explore the archaeology of the lower Basin contours at a scale bigger than a single test-pit or narrow trial trench. By virtue of its circumstance (a brick pit), Bradley Fen represented the largest single aperture made into the sediments of the Flag Fen Basin and the very first to properly explore spaces well below 1m OD. Certainly, archaeological *firsts* are synonymous

with the well-documented history of fieldwork and discovery at Fengate and Flag Fen – the recognition of Peterborough Ware as a type (Evans 2009b, 34), the use of large earth-moving machinery in excavation (Pryor 1974a) and the discovery of the timber alignments (Pryor 1992) to name but a few. Yet, with the opposing Fengate foreshore now largely consumed by commercial development, the potential for this area to produce such firsts is drawing to a close and the baton of this 'firsts tradition' has now been handed to the investigations on the other side of the Basin.

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

Perhaps it was inevitable that an early dissemination of the Bradley Fen plan would lead to a predominantly spatial comprehension of its findings. At first sight, Bradley Fen seemed to have provided the ideal example of Bronze Age settlement: an ordered world of fields, roundhouses, burnt stone mounds and metalwork in pristine spatial articulation. Superficially, it appeared to be the perfect, textbook-ready configuration, bringing together all the architectural components of the Bronze Age in a single, one-off

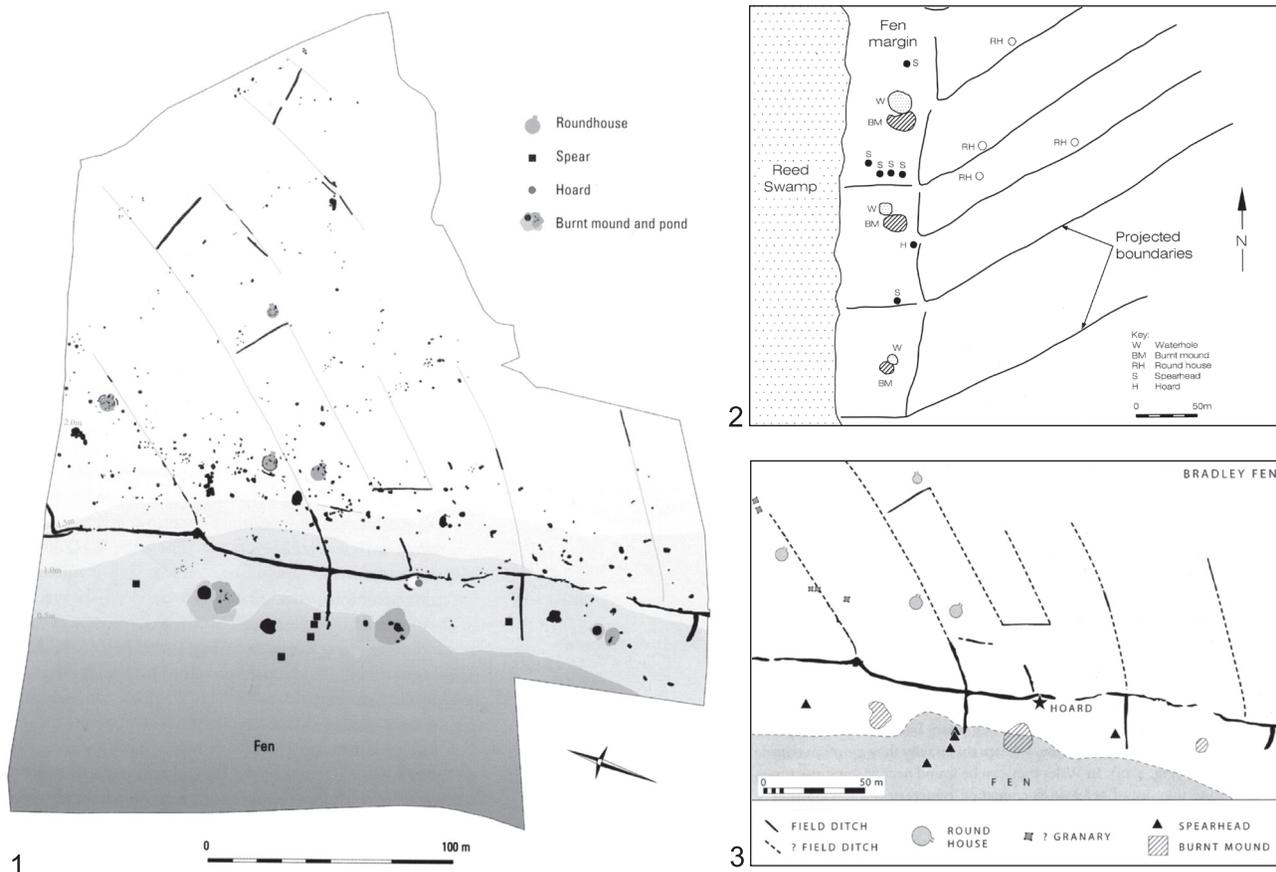


Figure 1.1. The Bradley Fen base plan in print: (1) Parker Pearson 2005, 98, fig. 87; (2) Yates 2007, 91, fig. 10.4; (3) Bradley 2007, 215, fig. 4.14. With its ordered world of fields, roundhouses, burnt stone mounds and metalwork, the plan appears to represent the perfect Bronze Age palimpsest. ‘Here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

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

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

awareness that the things connected in space might actually be light-years apart in time. As such, it is easy to see how the spatial comes to eclipse the temporal in these situations.

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

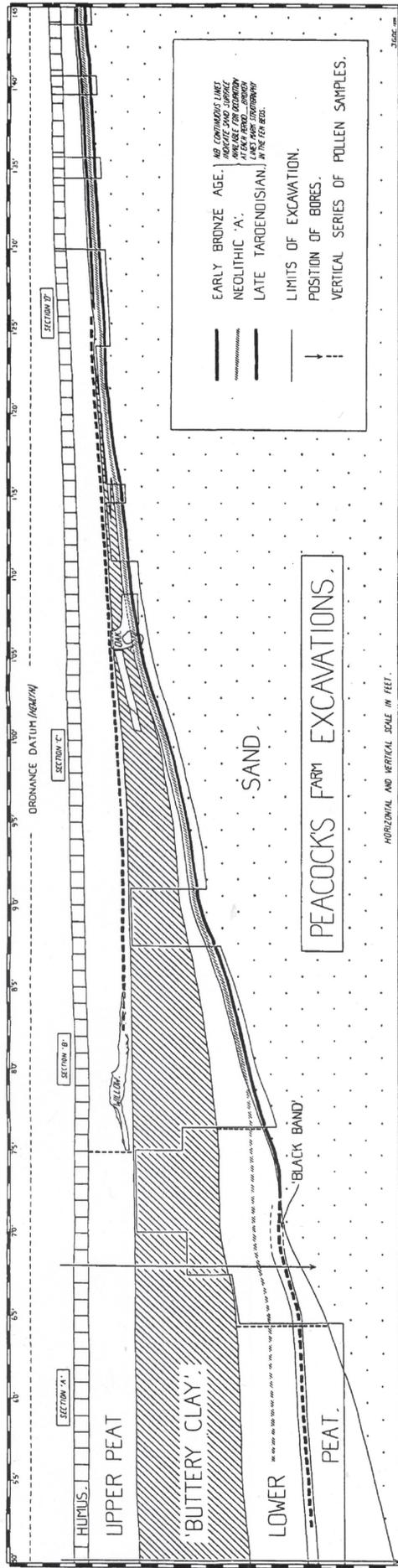
often overshadowed by the region's renown for waterlogged preservation.

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

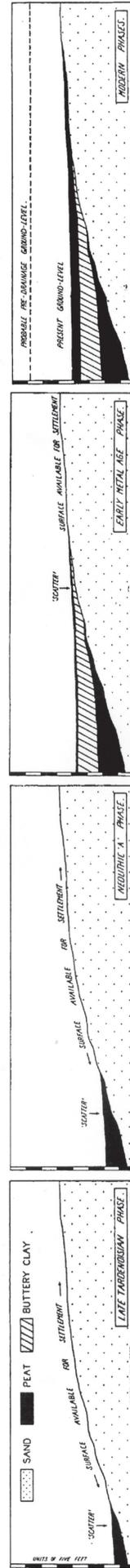
Although Clark's '*delicate chronological scale*' referred primarily to a series of geological deposits rather than a series of archaeological features, he was



Figure 1.2. Bradley Fen 'reconstruction' from *Unearthing the Past* by A. Hall (www.unearthingthepast.net).



1. Key to the stratigraphical results of the excavation



2. Illustrating (from left to right) stages in the accumulation of natural deposits on the flanks of the sand-ridge at the periods of the three prehistoric settlements of the site, and in modern times

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

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

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

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

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

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

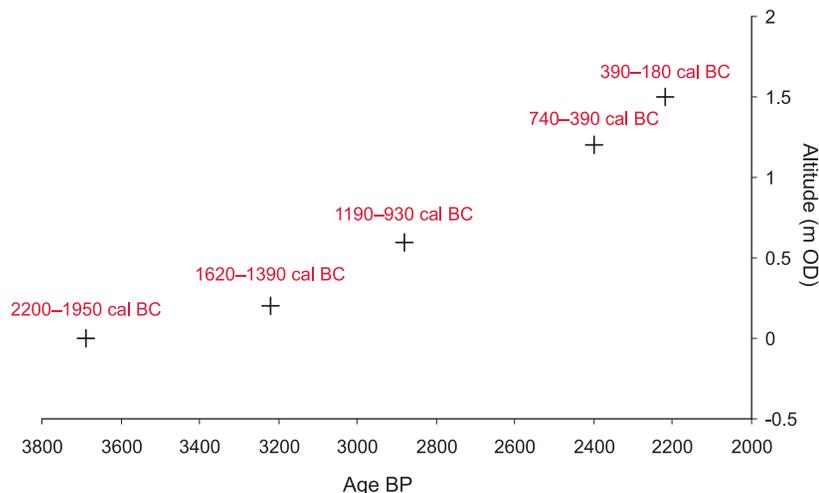


Figure 1.4. Age/altitude correspondence of main periods for Bradley Fen.

Table 1.1. Radiocarbon age determinations from King's Dyke (KD) and Bradley Fen (BF).

Chapter	Site	Feature	Feature type	Service	Material	Lab. code	$\delta^{13}\text{C}$ (‰)	Conventional radiocarbon age (BP)	Calibrated date (cal. BC) 95.4% confidence
2	BF	1095	Burnt Mound 2	AMS	Charcoal	Beta-205541	-25.8	3770±40	2300–2120 & 2100–2040
	BF	1299	Structure 1	AMS	Charcoal	Beta-205539	-24.5	3690±40	2200–1950
	KD	893	Pit-circle	AMS	Charred seed	Beta-269134	-25.7	3530±40	1960–1750
	BF	1284	Burnt Mound 4	AMS	Charcoal	Beta-205540	-25.9	3490±40	1910–1700
	KD	749	Cremation	AMS	Calcined bone	Beta-269131	-25.8	3430±40	1880–1630
	BF	636	Structure 2	AMS	Charred seed	Beta-269126	-23.3	3390±40	1760–1610
	BF	874	Burnt Mound 1	AMS	Charcoal	Beta-205533	-24.8	3360±40	1740–1530
	KD	349	Structure 3	AMS	Charred seed	Beta-269130	-23.4	3360±40	1740–1530
3	BF	1148	Burnt Mound 3	AMS	Charcoal	Beta-205542	-27.5	3320±40	1690–1510
	BF	892	Wattle fence	AMS	Wood	Beta-269128	-29.6	3280±40	1650–1460
	BF	1306	Fence-line	Radio.	Wood	Beta-193848	-25.0	3220±60	1620–1390
	BF	830	Body down well	AMS	Waterlogged seed	Beta-269127	-26.4	3210±40	1590–1590 & 1530–1410
	BF	786	Hoard	AMS	Peat	Beta-205535	-27.6	2970±40	1310–1040
	BF	786	Hoard	AMS	Wood	Beta-205536	-25.8	2940±40	1280–1010
	BF	544	Bone pit	AMS	Carbonized residue	Beta-269125	-28.7	2930±40	1270–1010
4	BF	SF66	Shaft from spear	AMS	Wood	Beta-205534	-26.4	2880±40	1190–930
	BF	442	Roundhouse 4	AMS	Charred seed	Beta-205538	-24.2	2680±40	900–800
	KD	61	Roundhouse 14	AMS	Charred seed	Beta-262624	-23.6	2460±40	770–410
	BF	945	Waterhole	AMS	Wood	Beta-262623	-27.2	2400±40	740–690 & 660–640 & 550–390
5	KD	495	Roundhouse 5	AMS	Charred seed	Beta-205544	-25.9	2370±40	520–380
	BF	1011	Pit	AMS	Carbonized residue	Beta-262621	-26.3	2220±40	390–180
	BF	597	Pit	AMS	Charred seed	Beta-262622	-22.6	2160±40	360–90

pulling apart of things will only serve to muddy what was a well-ordered picture, or dilute the archaeology to such an extent that the low-density and low-finds recovery per period debate its wider value and significance. These are not views shared by the authors. Instead, it is felt that there is more to be gained by detailing the *qualitative* rather than *quantitative* character of successive occupations in this space, be they for the most part extensive in nature. More importantly, it is from this very process of disaggregating the components of the site, and then rearticulating them in their temporal order, that a new history of occupation emerges.

This history is the subject of this book, which, at its heart, explores how patterns of occupation, residency and tenure were resolved and reworked in a mutable landscape. The findings not only challenge the published summaries of the site, but our very

understanding of occupation in and around the Flag Fen Basin. As such, it serves as a kind of interpretive mirror to the excavations along the Fengate 'shore-line' and the wisdom received from these earlier, ground-breaking projects. The qualities of the archaeology and contextual detail afforded by the excavation continued to displace assumptions and preconceptions; here was an archaeology that contradicted expectation and countermanded simple analogy or anecdote.

It is also fair to say that the site not being in Fengate itself, but instead on the opposite side of the Flag Fen Basin, provides greater room for reflection, affording, quite literally, a vantage from which to look back across at Fengate (Fig. 1.5). Currently, King's Dyke and Bradley Fen are situated south of the River Nene separated from Fengate and Flag Fen to the north, but in prehistory the Nene flowed much further to the south (Hall 1987, 60) and these sites shared the same contextual setting



Figure 1.5. *Opposites sides: top, view of Fengate, Peterborough looking northwest from Whittlesey; bottom, view of King's Dyke brickworks, Whittlesey looking southeast (King's Dyke 1999 excavations in foreground).*



Figure 1.6. Site location indicating King's Dyke and Bradley Fen in relation to Fenland, Peterborough and Whittlesey as well as the Fengate, Flag Fen and Must Farm investigations.

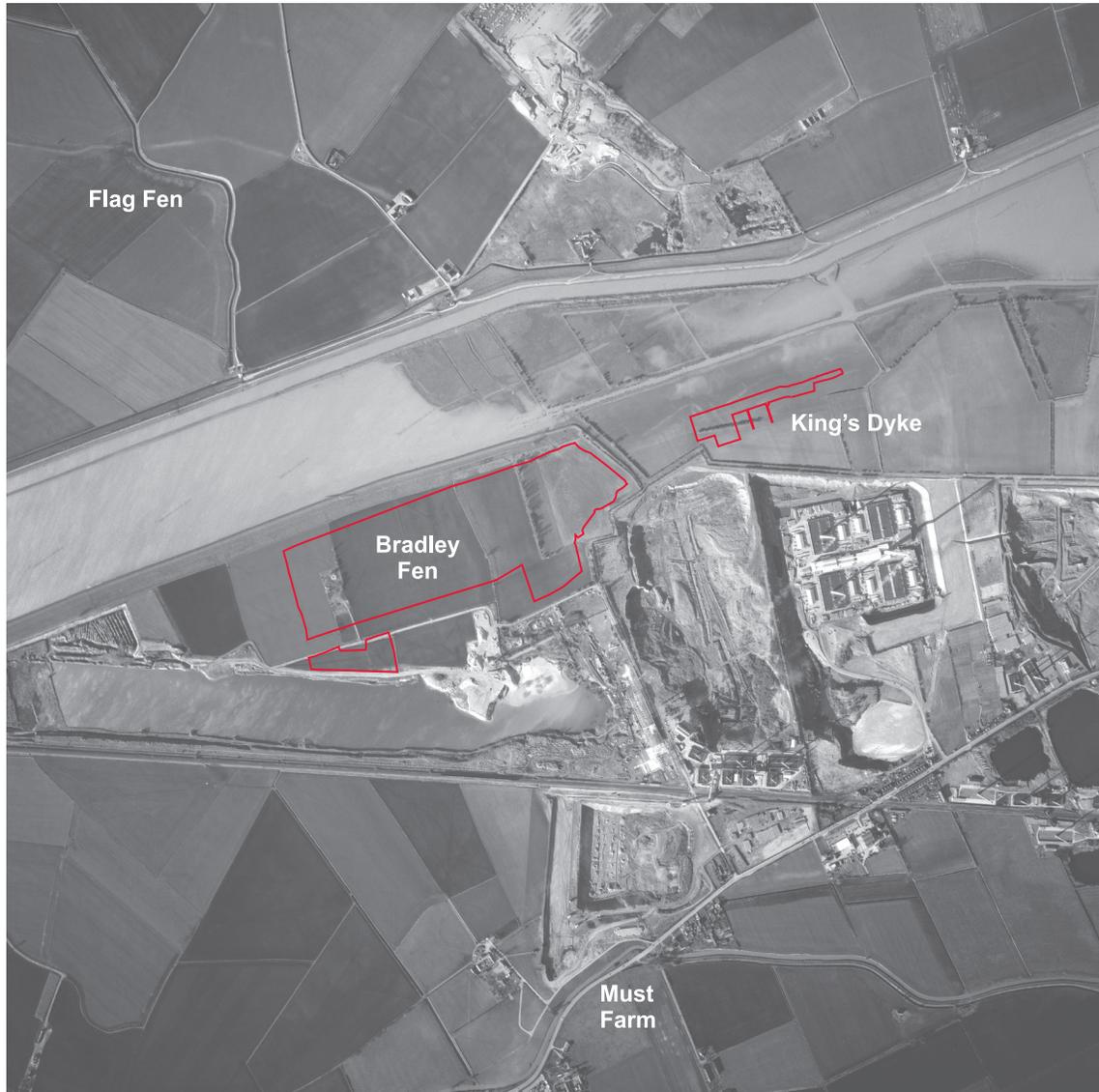


Figure 1.7. Vertical view of Whittlesey brick pits 1975 (RC8-AT095 – Cambridge University Collection of Aerial Photography). The vertical photograph shows the location of the King's Dyke and Bradley Fen excavation areas relative to the (partially flooded) Nene Washes as well as the (at the time) undiscovered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

as well the same geology and a comparable range of contours (Figs 1.6 & 1.7). The history of archaeological investigation, however, stands in stark contrast. While Fengate boasts a long legacy of exploration, there have been relatively few investigations on the gravel terraces south of the Nene Washes. Unsurprisingly then, this publication looks primarily to Fengate for contextual comparison, albeit with a critical eye.

Going in

As big sites, Bradley Fen and Fengate shared the same *big picture* perspective in that they both opened up vast expanses of prehistoric landscape. For this reason,

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

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

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

process were regarded as counterparts. Movement was gleaned from both.

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

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 field system, 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.

Published by the McDonald Institute for Archaeological Research,
University of Cambridge, Downing Street, Cambridge, CB2 3ER, UK.

Printed by Short Run Press. Distributed by Oxbow Books.
Cover design by Dora Kemp, Ben Plumridge and Mark Knight.

ISBN-13: 978-1-902937-97-7

